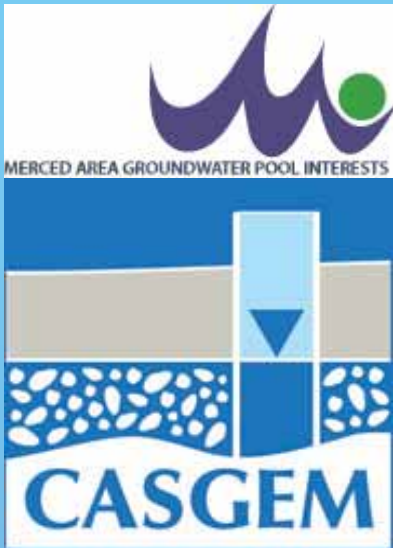




CASGEM Monitoring Plan

Merced Area Groundwater Pool Interests (MAGPI)

August 22, 2014



744 West 20th Street
Merced, CA 95344-2288
209-722-5761

CASGEM Monitoring Plan

Merced Area Groundwater Pool Interests (MAGPI)

August 22, 2014

Prepared for MAGPI by

AMEC Environment & Infrastructure

and

Merced Irrigation District

744 West 20th Street

Merced, CA 95344-2288

209-722-5761

Table of Contents

Introduction	2
Background	2
Regional Geologic Description	3
Geology of the Aquifer	6
Historic Water Demand/Usage	7
Monitoring Plan Rationale	8
Well Network	8
Monitoring Schedule & Description of Field Methods	9
Data Gap Closure Plan	10
MAGPI Cooperative Agencies	12
References	13

Figures & Tables

Figure A	Soil Associations.....	5
Table 1	MAGPI CASGEM Wells as of August 22, 2014.....	9
Figure B	Data Gap Areas	10
Figure 1	Merced Groundwater Basin Location Map.....	15
Figure 2	Physiographic Units within the Merced Groundwater Basin	16
Figure 3	Generalized Geology - Merced Groundwater Basin	17
Figure 4	Lateral Extent of the Corcoran Clay	18
Figure 5	MAGPI CASGEM and Proposed DWR Wells.....	19
Figure 6	MAGPI and DWR Wells Completions Relative to Corcoran Clay	20

Appendices

Appendix A	Current MAGPI Well List	21
Appendix B	Potential Wells Suggested by California Department of Water Resources.....	23
Appendix C	Letters of Authorization	25

Introduction

In December 2010, the Merced Area Groundwater Pool Interests (MAGPI) notified the California Department of Water Resources (DWR) of intentions to become a monitoring entity pursuant to the November 2009 SBx7-6 amendment to the Water Code under the California Statewide Groundwater Elevation Monitoring (CASGEM) program. This monitoring plan was created specifically for the CASGEM program to discuss the basin characteristics required for active participation in the program. This plan is based on information relayed in the *MERCED GROUNDWATER MANAGEMENT PLAN UPDATE* (MGBGMP, 1997) adopted by MAGPI on July 30, 2008. This update complies with regulations per AB 3030, SB 1938 and SB 1672.

Background

Through the course of 1997, certain agencies within the Merced Groundwater Basin have adopted Resolutions of Intention to adopt a Groundwater Management Plan pursuant to Water Code Section 10753 et seq. In addition, the agencies have adopted a Memorandum of Understanding creating an association identified as the MAGPI, for the purpose of developing a basin-wide groundwater management plan. Based on the foregoing, the MAGPI completed a groundwater management plan under the guidelines of AB 3030 to guide the management of the groundwater resources within the Merced Groundwater Basin. MAGPI further refined the plan, which was updated and adopted on July 30, 2008, to comply with SB1938 and SB1672.

Upon organization, MAGPI established goals that the association intended to accomplish. The agencies within the MAGPI agree that the groundwater and surface water resources within the Merced Groundwater Basin are vitally important resources in that they provide the foundation for environmental, agricultural, domestic, municipal and industrial needs, as well as other needs, and to maintain the economic viability and prosperity of the Basin area. The eastern Merced County area occupied by the Merced Groundwater Basin (MGWB) is a vital agricultural area with an increasing importance in industry and education. Because of increasing demands for California's finite water resources, it is efficient and knowledgeable to preserve the resources for all elements of the local economy. MAGPI desires to identify, formulate, and implement sound groundwater management practices in order to maintain the available groundwater resources to meet the beneficial uses and needs of the MGWB. For the purposes of the 2008 MGWB Plan, Basin Management Goals (Goals) were established as statements of broad principles that express the desired state of the MGWB. Four groundwater management Goals have been established (no priority is implied).

Goal 1 – Protect and maintain groundwater quality within the MGWB to satisfy current and future beneficial use.

Goal 2 – Maintain groundwater quantities and eliminate conditions of long-term overdraft in the MGWB to ensure water supply reliability to meet current and future beneficial use.

Goal 3 – Protect and maintain groundwater recharge areas within the MGWB.

Goal 4 – Manage the MGWB with local control.

Furthermore, the 2008 MGWB Plan identifies the different groundwater management plan components. The document addresses the following items:

- The twelve required components of AB 3030 that describe technical issues that should be addressed in GWMPs to manage the basin optimally and protect against adverse conditions;
- The seven components of SB 1938 that are required for agencies to be eligible for funds administered by DWR for construction groundwater projects;
- The five required components of SB 1672 that promote integrated regional groundwater management; and
- The seven voluntary components of Bulletin 118 that link basin management objectives to specific actions within the GWMP.

Regional Geologic Description

The MGWB lies on the eastern side of the San Joaquin Valley, located entirely within Merced County, generally described as the eastern one-half of Merced County (Figure 1). The groundwater system is bounded by the Merced River on the north, the San Joaquin River on the west, and the Chowchilla River on the south. The eastern boundary of the system is the western extent of the outcrop of low-permeability Valley Springs Formation rocks in the foothills of the Sierra Nevada. The MGWB is located in the San Joaquin Valley which is approximately 200 miles long and up to 70 miles wide. The Valley is filled with up to 32,000 feet of marine and continental sediments deposited during periodic inundation by the Pacific Ocean and by erosion of the surrounding mountains. Continental deposits shed from the surrounding mountains form an alluvial wedge that thickens from the valley margins toward the axis of the structural trough. This depositional axis is below and slightly west of the series of rivers, lakes, sloughs, and marshes that mark the current and historic axis of the surface drainage of the San Joaquin Valley (DWR, 2003).

Basin and Subbasin designations by DWR were first published in 1952 in Bulletin 118, and subsequently updated in 1975, 1980, and 2003. Updated Bulletin 118 data provides the primary source of hydrogeologic information for the Region. The San Joaquin River Hydrologic Region includes the Merced Subbasin, Bulletin 118 Basin Number 5-22.04.

The MGWB and San Joaquin Valley are classified as having a hot Mediterranean (Koppen climate classification Csa) to Mediterranean steppe (BSHs) climate (McKnight & Hess, 2000). It is typically hot and dry during the summer and cool and damp in winter, leading to frequent ground fog known regionally as Tule fog. There are five physiographic provinces in the MGWB including the Sierra Nevada, dissected uplands, low alluvial plains and fans, river flood plains and channels, and overflow lands (Figure 2) (Page and Balding, 1973). The Sierra Nevada bedrock complex consists largely of metasedimentary and metavolcanic rock of pre-Tertiary age. These rocks occur as foothill ridges along the eastern edge of the MGWB (Figure 3). Where the basement complex occurs near the surface, fracture sets and joints within the bedrock complex may contain sufficient groundwater for domestic or stock supplies.

The Eocene age lone Formation unconformably overlies the Sierra Nevada bedrock complex and is composed of marine to non-marine clay, sand, sandstone, and conglomerate. These rocks occur as foothill ridges along the eastern edge of the MGWB (Figure 3). The lone Formation is characterized by a white sandy clay (kaolinite) at its base and beds of conglomerate and yellow, red, and gray sandstone in its upper parts. In localized areas near the Sierra Nevada foothills, the formation contains fresh water; however, well yields are highly variable.

The Miocene age Valley Springs Formation overlies the lone Formation and is composed of a fluvial sequence of rhyolitic ash, sandy clay, and siliceous gravel in a clay matrix. These rocks occur as foothill ridges along the eastern edge of the MGWB (Figure 3). Because of the abundant ash and clay matrix, the Valley Springs has a relatively low groundwater yield, sufficient for domestic or stock supplies, but generally insufficient for irrigation.

The Miocene/Pliocene age Mehrten Formation overlies the Valley Springs Formation and is composed of fluvial deposits of sandstone, breccia, conglomerate, tuff, siltstone and claystone. It contains a large amount of andesitic material, making it easy to distinguish. The Mehrten outcrops over a large area in eastern MGWB (Figure 3). The Mehrten forms an important aquifer in the MGWB with relatively high yields.

The dissected uplands unit has a width ranging between 5 and 18 miles and covers a significant portion of the MGWB (Figure 2). Local relief may be up to 200 feet. Within the uplands the Merced River has developed two terraces and a broad flood plain while the Chowchilla River is only slightly entrenched into the upland surface.

The low alluvial plains and fans unit, which consists primarily of coalescing alluvial fans, has a width ranging between 14 and 20 miles and covers a significant portion of the MGWB (Figure 2). Local relief may be up to 10 feet. Between Atwater and Turlock, northwest trending sand dunes underlie the surface of the plains and fans.

The river flood plains and channels unit flank the channels of the major rivers including the Merced and Chowchilla Rivers (Figure 2). In the dissected uplands unit, the flood plain of the Merced River ranges in width between 0.25 and 1 mile. In the Cressey area, natural levees are present. Near the valley trough, the Merced River flood plain becomes indistinguishable from the surrounding alluvial plains. The Chowchilla River, which is entrenched about 40 feet near where it leaves the Sierra Nevada, has developed a thin flood plain through the dissected uplands. The river has deposited natural levees throughout the low alluvial plains and fans unit.

The overflow lands unit consists of extensive flood deposits from the San Joaquin River (Figure 2). These lands are frequently inundated with flood waters and form low lying swamps and wetlands. Much of these lands are set aside as wildlife refuges.

Within the MGWB, unconsolidated deposits, from bottom to top, include continental deposits, lacustrine and marsh deposits, older alluvium, younger alluvium, and flood-basin deposits. The Pliocene/Pleistocene continental deposits consist of a heterogeneous mixture of poorly sorted gravel, sand, silt and clay derived

primarily from the Sierra Nevada. The sediments, which are found throughout the MGWB, dip gently to the southwest and have variable thickness up to 700 feet. The continental deposits have relatively large yields to wells and are an important part of the aquifer system.

The lacustrine and marsh deposits consist of two beds: the Corcoran Clay Member of the Pleistocene Tulare Formation and a shallow clay bed of Holocene age (Page, 1977). The Corcoran Clay is a bed of laterally extensive reduced (blue/grey) silt and clay that underlies about 770 square miles in the southeast portion of the MGWB (Figure 4). The Corcoran Clay is a significant confining layer up to 60 feet thick. The shallow clay bed of Holocene age is composed of oxidized (brown/red) sandy clay and clay with silica cemented intervals (hardpan). It is found throughout most of the MGWB at a shallow depth (- 35 feet).

The older alluvium consists of a heterogeneous mixture of poorly sorted gravel, sand, silt and clay up to 400 feet thick derived primarily from the Sierra Nevada. The sediments, which are found throughout the MGWB, were deposited as a series of interbedded coarse-grained and fine-grained layers and form a leaky-aquifer system.

The flood-plain deposits consist of intercalated lenses of reduced to oxidized fine sand, silt, and clay. These deposits are found in the southwestern portion of the MGWB and generally are less than 30 feet thick.

The younger alluvium consists of well sorted gravel and sand derived primarily from the Sierra Nevada. The younger alluvium is found in a narrow band along the stream channels throughout the MGWB (Page and Balding, 1973).

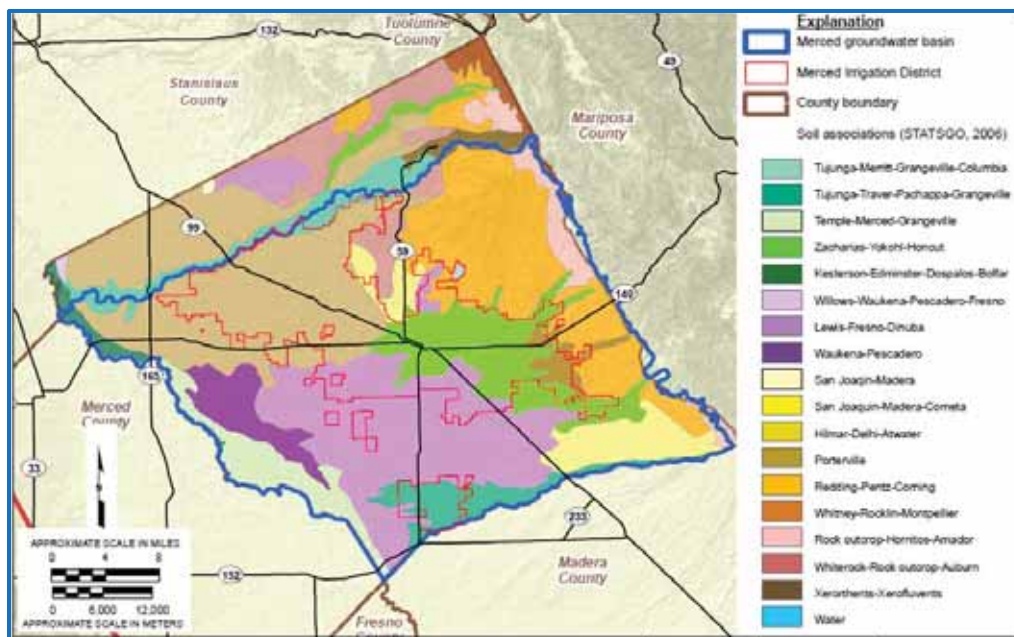


Figure A - Soil Associations

Geology of the Aquifer

The MGWB is underlain by consolidated rocks, unconsolidated deposits, and shallow surface soils. The unconsolidated rocks, from bottom to top, include the Sierra Nevada basement complex, Lone Formation and other sedimentary rocks, the Valley Springs Formation, and the Mehrten Formation. The unconsolidated deposits include continental deposits, lacustrine and marsh deposits, older alluvium, younger alluvium, and flood-basin deposits. The surface soils consist of 18 soil associations based on physiographic sections.

The base of fresh water in the MGWB is approximately 1,200 feet below ground surface. Five aquifer systems have been identified in the MGWB including a fractured bedrock aquifer, the Mehrten Formation, a confined aquifer, an intermediate "leaky aquifer, and a shallow unconfined aquifer.

Fractured Bedrock – Along the eastern edge of the MGWB wells have been completed within the Valley Springs and Lone Formations. These wells appear to be completed in fractured bedrock with limited and variable yields. Because of the limited extent (and poor yields) of the fractured bedrock aquifer, the fractured aquifer is not a significant source of water in the MGWB.

The Mehrten Formation – The Mehrten Formation outcrops over a large area in the MGWB. Many water supply wells in the eastern portion of the MGWB penetrate the formation and it is a significant source of groundwater. Where the Mehrten Formation occurs beneath the Corcoran Clay, it is considered a confined aquifer. Where the Mehrten does not underlie the Corcoran Clay, there is insufficient data to determine the degree of confinement of the formation.

Confined Aquifer – The confined aquifer occurs in older unconsolidated alluvium and Mehrten Formation deposits that underlie the Corcoran Clay (Figure 4). Many water supply wells in the western portion of the MGWB penetrate the Corcoran Clay into the confined aquifer and it is a significant source of groundwater.

Intermediate Leaky-Aquifer – The intermediate aquifer occurs in older alluvium deposits that overlie the Corcoran Clay or are east of the Corcoran Clay. Where the Corcoran Clay is absent the intermediate aquifer extends to the Mehrten Formation. In the eastern portion of the MGWB the intermediate aquifer consists of a series of interbedded coarse-grained (gravel and sand) layers separated by fine-grained (silt and clay) layers. The fine-grained layers inhibit, but do not prevent vertical groundwater flow between layers and thus form a leaky-aquifer system. Many water supply wells in the MGWB are completed in the intermediate leaky-aquifer and it is a significant source of groundwater. The intermediate leaky-aquifer is the most extensively developed aquifer in MGWB. Measured well yields within the MGWB range from 670 to 4000 gallons per minute. Estimates of specific capacity of supply wells throughout the MGWB range from about 20 to 40 gallons per minute per foot of drawdown and indicate that the specific capacity increases from east to west.

Shallow Unconfined Aquifer - The unconfined water body occurs in the unconsolidated deposits above and east of the Corcoran Clay, which underlies the western half of the subbasin at depths ranging from about 50 to 200 feet, except in the western and southern parts of the area where clay lenses occur and semi-confined conditions exist. The shallow unconfined aquifer occurs in older and younger alluvium deposited

above the shallow clay bed. Because of its shallow depth, few water supply wells are completed in the shallow unconfined aquifer. Where water levels in the intermediate leaky aquifer fall below the base of the shallow clay bed, groundwater in the intermediate aquifer becomes unconfined and water in the overlying aquifer becomes perched.

Historic Water Demand/Usage

Agricultural demand within the MGWB is typically met with a combination of surface water and groundwater. Merced Irrigation District (MID) provides surface water to neighboring water districts for agricultural application including average deliveries of about 26,400 acre feet per year (ac-ft/y) to the Stevinson Water District, and 15,000 ac-ft/y used at the Merced National Wildlife Refuge. Based on favorable hydrology El Nido area (consolidated with MID in 2004), Le Grand Athlone Water District/Chowchilla Water District and certain sphere of influence properties have the possibility to receive around 30,000 acre feet (AF) of surface water as part of the District's overall in-lieu recharge contributions. The remaining agricultural demand outside of MID (approximately 595,000 ac-ft/y) is met with groundwater solely.

Within the boundaries of MID, between 1994 and 2007, agricultural demand has ranged between 218,000 and 313,000 ac-ft/y and averaged approximately 275,000 ac-ft/y on approximately 110,000 irrigated acres. To meet this demand, MID provides approximately 500,000 ac-ft/y of surface water from the Merced River and about 13,000 ac-ft/y of groundwater for irrigation in a typical year. Conveyance losses, most of which recharges the aquifer, account for approximately 80,000 to 110,000 ac-ft/y of water depending on the year's hydrology and its impact on the irrigation season. All municipal water purveyors within the MGWB rely solely on groundwater for water supply including the Cities of Atwater, Livingston, and Merced, the Black Rascal Mutual Water Company, the Le Grand and Planada Community Service Districts, the Meadowbrook Water Company, and the Winton Water and Sanitary District. Since 1996, total pumping by these municipal purveyors increased from approximately 36,100 ac-ft in 1996 to 46,250 ac-ft in 2007. An estimated 4,000 ac-ft/y was produced in 2007 by small private residential water systems, commercial businesses, and industrial plants not served by the major municipal purveyors.

Most of the municipal pumping is concentrated along the State Highway 99 corridor in the cities of Atwater and Merced. These two municipalities account for approximately 82 percent of municipal pumping with the City of Merced accounting for about 60 percent. Municipal water use varies seasonally with most of the municipal water demand occurring during the summer months.

Water demand for environmental purposes is growing within the MGWB. As mentioned above MID delivers approximately 15,000 AF to Merced National Wildlife Refuge, in addition to contractual water releases in the Merced River intended to facilitate the migration of juvenile Chinook Salmon at an average of 50,000 ac-ft/y. Furthermore, MID had made contractual releases in the Merced River during certain years to the tune of 25,000 AF to the Environmental Water Account or other responsible parties for protection and restoration of at-risk fish species listed under the Federal and California Endangered Species Acts.

MID utilizes groundwater to supplement its supplies in years of surface water shortages. During the 1980s and into 1995, MID provided less water, either from surface water or from its irrigation well system, and more water was supplied by private pumping. The three main reasons for this trend are drought, changing water service requirements, and the availability of plentiful, suitable and relatively low cost groundwater. From 1994 to the present, the MID has implemented efforts to conserve Groundwater including: 1) A system irrigation efficiency improvement program, 2) MID Groundwater Conservation Incentive Program generally encouraging District private groundwater users to reconnect to surface water, 3) A low volume irrigation incentive program, 4) In-lieu recharge projects such as the Highlands project, 4) In-Lieu recharge practices such as Sphere of Influence sales as hydrologic conditions permit and reduction in overall MID groundwater well usage operations, and 5) Continued efforts to maximize groundwater recharge diversions in the El Nido area and introducing recharge to the Cressey Recharge Basin completed in July of 2011, both as hydrologic conditions would allow. MID hopes to increase the trend of surface water use and thus decrease private groundwater pumping through similar programs. Merquin Water District reduced seepage to a mostly lesser quality ambient perched water table by pipelining certain sections of the District's network. Merquin Water District received surface water from Stevinson Water District.

Monitoring Plan Rationale

Groundwater conditions within the Basin vary depending on several factors. Groundwater flow in the Merced area is generally from northeast to southwest, with groundwater pumping creating cones of depression and irrigation causing mounding, thus complicating the flow patterns and causing them to change over time. The response of the aquifers to changes in pumping and irrigation is relatively rapid, and localized flow directions are affected by these changes. In order to document these conditions, MAGPI has chosen wells both in irrigated and urban areas so that anomalies can be recognized from normal conditions. Also, to account for the water level fluctuations in the irrigation season the wells shall be monitored two times a year in March and October.

Well Network

The well network consists of wells supplied by the various agencies in order to form a groundwater profile of the Merced Basin. MID has approximately 173 active wells and the City of Merced also has a large number of monitoring wells that are measured on a regularly basis and form the core of the Merced Basin well network. Additional wells were chosen from the City of Atwater, Stevinson Corporation, Winton Water and Sanitary District, and Chowchilla Water District to obtain a representative cross section of the basin. All of these cooperating agencies shall work through MAGPI to report groundwater levels and be compliant with SBx7-6 regulations.

The existing CASGEM monitoring network for the MGWB consists of 44 CASGEM wells and 8 Voluntary wells (Figure 5). In addition, DWR has recommended 20 potential Voluntary wells for consideration (Appendix B). Of the 52 existing CASGEM and Voluntary wells, 24 are located in the unconfined/leaky aquifer outside of the Corcoran Clay area, 12 are completed in the unconfined/leaky aquifer above the

Corcoran Clay, 3 are completed above and below the Corcoran Clay, and 13 are completed in the confined aquifer beneath the Corcoran Clay (Figure 6). Of the 20 DWR potential Voluntary wells, 5 are located in the unconfined/leaky aquifer outside of the Corcoran Clay area, 9 are completed in the unconfined/leaky aquifer above the Corcoran Clay, and 6 are completed in the confined aquifer beneath the Corcoran Clay (Figure 6). Well information, for the existing CASGEM and Voluntary wells, including: state well number, local well ID, reference point elevation, well coordinates, screen intervals, and well completion relative to the Corcoran Clay are included as Appendix A.

Monitoring Schedule & Description of Field Methods

Monitoring events for all CASGEM wells will be conducted during a 14 day period, at a time representative of seasonal highs and lows. The water level fluctuations occurred before and after the irrigation season; therefore wells shall be monitored two times a year in March and October for CASGEM compliance. Data collected to document fluctuations in groundwater levels will be uploaded to the CASGEM website. This data will be checked for quality assurance by MAGPI administrators. The methods of obtaining the water levels may vary from agency to agency based on resources available, best method for well type, and other factors. A standard method that is recognized as being accurate and precise will be utilized for each well. The method that MID utilizes and is typical for other MAGPI agencies is using an electronic sounder to take water level measurements. This involves lowering an electric sounder cable into a well until the signal device indicates a closed circuit has occurred when the sensor has reached the water surface. A measurement is then taken at the reference point giving the distance from the reference point to the water surface. This distance is reported to MAGPI and in turn uploaded to the CASGEM website.

Table 1 – MAGPI CASGEM Wells as of August 22, 2014

MAGPI Entity	Total Wells	Above Corcoran Clay	Below Corcoran Clay	Outside Corcoran Clay (East)
Merced Irrigation District	18	6	5	7
City of Merced	16	0	4	12
Stevinson Water District	6	6	0	0
Chowchilla Water District	3	0	2	1
Winton Water & Sanitary District	2	0	0	2
City of Atwater	1	0	0	1
TOTAL	46	12	11	23

Data Gap Closure Plan

There are three areas in the current monitoring plan with data gaps identified by DWR. One is on the east side of the basin, the second is in the southwest portion of the basin, and the third is on the north east side.

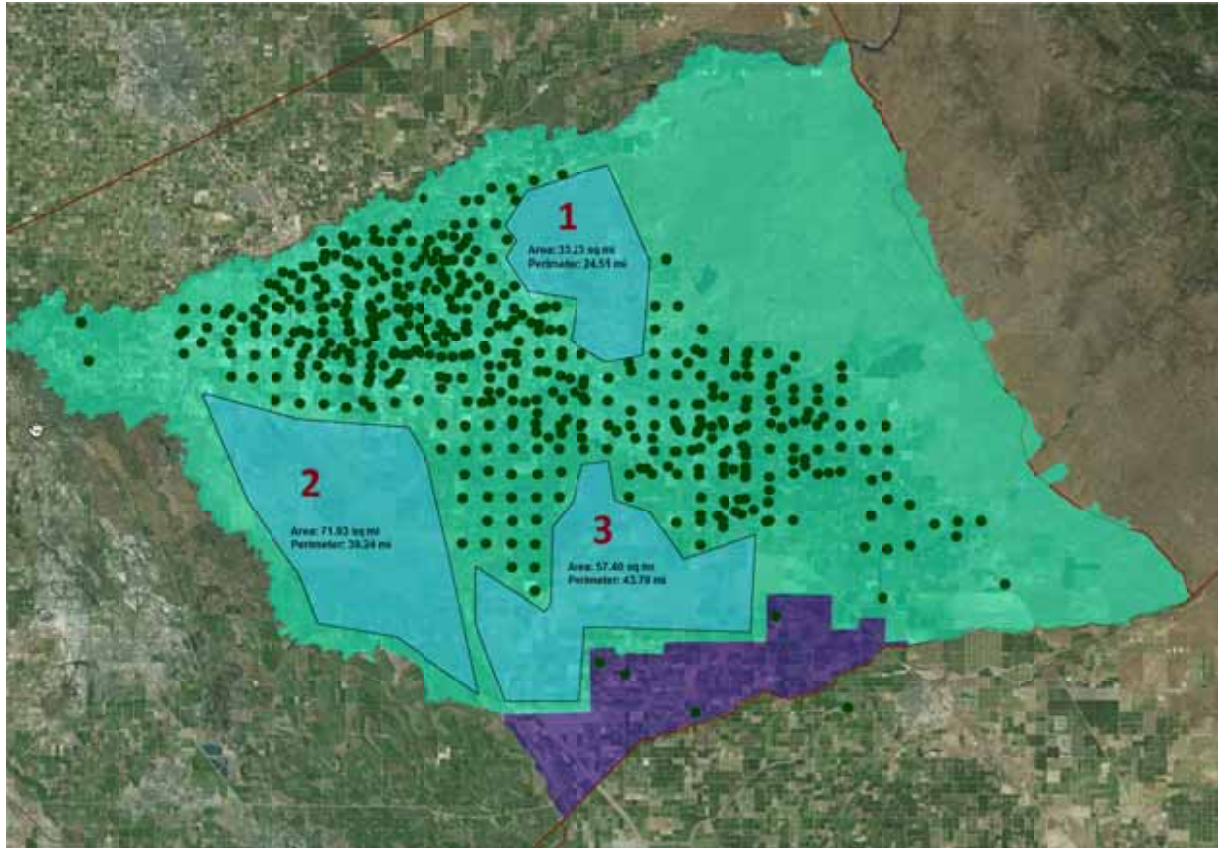


Figure B - Data Gap Areas

The soils and near surface conditions within the study area are described on a regional scale based on the hydrologic soil groups as mapped in the Soil Survey of 1950 (USDA, 1962). The basin wells depicted over an aerial is shown below. As shown on Figure 5, there are very few wells on the east side.

The east side is within the foothills area which consists of rolling hills of marginal soils and is generally used for grazing with minimal groundwater usage due to shallow bedrock. These soils are generally not suitable for well constructions. The groundwater basin is not adversely impacted on the east side and no deep well pumping is done there. Most wells would likely have a relatively low groundwater yield. MAGPI has no plans to supplement wells in the foothills. For the Data Gap Area 1 as shown in figure A, MAGPI will coordinate to obtain permission and data from all well owners whose wells fall within the area outside of the MID. MAGPI, in coordination with the Cooperative Agencies is currently identifying and preparing letters for potential inclusion in CASGEM.

The southwest portion of the MGWB, Data Gap Area 2 is not currently well represented in the CASGEM program. MAGPI will undertake an outreach effort to coordinate with the well owners and enhance the well coverage in this area. DWR has recommended several potential monitoring wells within the southwest portion of the MGWB as shown on Figure 5. MAGPI will coordinate with DWR and assess if these or any of the wells are suitable for inclusion in the CASGEM program. Currently MAGPI is coordinating with the Cooperative Agencies and other entities to enhance coverage.

As for the west area, Data Gap Area 3 MAGPI has contacted the Federal Wildlife Refuge operators to acquire data, this activity may require assistance from MAGPI members in terms of expertise and possibly funding. DWR has also recommended several potential monitoring wells within the west portion of the MGWB as shown on Figure 5. MAGPI will coordinate with DWR and assess if these or any of the wells are suitable for inclusion in the CASGEM program.

Other areas that may constitute potential gaps are controlled by private well owners; MAGPI has reached out through one on one discussion, and letters (see Appendix C) to acquire information. Therefore, MAGPI will continue to pursue the acquisition of CASGEM wells' data to fill any missing information in basin monitoring. MAGPI is currently identifying and preparing letters to all well owners for potential inclusion into the CASGEM program.

Many of the existing and proposed CASGEM wells are completed above or below the Corcoran Clay. Potential wells have been selected to complement nearby wells completed either above or below the Corcoran Clay to make a monitoring well pair (Figure 6). The monitoring of co-located wells above and below the Corcoran Clay will be useful in determination of vertical gradients between the unconfined and confined aquifers.

If the above efforts do not produce an acceptable density of coverage, then MAGPI will apply for grants to enhance the monitoring in any data gap area within the MAGPI basin. It is expected that a full and acceptable coverage will be attained with all measures proposed.

MAGPI Cooperative Agencies

Formed in 1997 by a Memorandum of Understanding (MOU), MAGPI is tasked with developing technical data and management strategies to ensure the health of the groundwater basin. Since its formation, MAGPI's main issues have been implementation of the Merced Groundwater Management Plan, which promotes conjunctive surface water and groundwater management. In June 2001, the DWR and MAGPI entered into a MOU to work cooperatively to promote conjunctive use projects within the Merced basin.

MAGPI consists of 15 municipal and agricultural water purveyors operating in the County of Merced including:

- Black Rascal Water Company
- Chowchilla Water District
- City of Atwater
- City of Livingston
- City of Merced
- County of Merced
- LeGrand Community Services District
- LeGrand-Athlone Water District
- Merced Irrigation District
- Merquin County Water District
- Planada Community Services District
- Stevenson Water District
- Turner Island Water District
- Winton Water & Sanitary District

In addition, non-purveyor Member at Large:

- East Merced Resources Conservation District

Non-Member Interest Groups:

- Meadowbrook Water Company
- Lone Tree Mutual Water Co

Letters of authorization from well owners allowing publication of well completion data in the CASGEM database are provided in Appendix C.

References

- Interests, M. A. (December 1997). *MERCED GROUNDWATER BASIN GROUNDWATER MANAGEMENT PLAN*.
- California Department of Water Resources (DWR), 2003, San Joaquin Valley Groundwater Basin- Merced Subbasin, (updated February 27) [http://www.dpla2.water.ca.gov/publications/groundwater/bulletin 118/basins/pdfs_desc/ 5-22.04.pdf](http://www.dpla2.water.ca.gov/publications/groundwater/bulletin%20118/basins/pdfs_desc/5-22.04.pdf) (DWR, 2003).
- McKnight, Tom L; Hess, Darrel (2000). "Climate Zones and Types: The Koppen System", Physical Geography: A Landscape Appreciation. Upper Saddle River, NJ: Prentice Hall, pp. 200-1. ISBN 0-13-020263-0 (McKnight & Hess, 2000).
- Merced Area Groundwater Pool Interests (MAGPI). (December 1997). *MERCED GROUNDWATER BASIN GROUNDWATER MANAGEMENT PLAN*. (MGBGMP, 1997)
- Page, R.W., 1977, Appraisal of Ground-Water Conditions in Merced, California, and Vicinity: U.S. Open-File Report 77-454, 43 p. (Page, 1977).
- Page, R.W. and Balding, G.O., 1973, Geology and Quality of Water in the Modesto-Merced Area, San Joaquin Valley, California, with a Brief Section on Hydrology: U.S. Geological Survey Water-Resources Investigations 6-73, 85 p. (Page & Balding, 1973).
- United States Department of Agriculture - Soil Conservation Service, Soil Survey Merced Area, California, 131 p. (USDA, 1962).

FIGURES

Figure 1 Merced Groundwater Basin Location Map

Figure 2 Physiographic Units within the Merced Groundwater Basin

Figure 3 Generalized Geology - Merced Groundwater Basin

Figure 4 Lateral Extent of the Corcoran Clay

Figure 5 MAGPI CASGEM and Proposed DWR Wells

Figure 6 MAGPI and DWR Wells Completions Relative to Corcoran Clay

MERCED GROUNDWATER BASIN LOCATION MAP

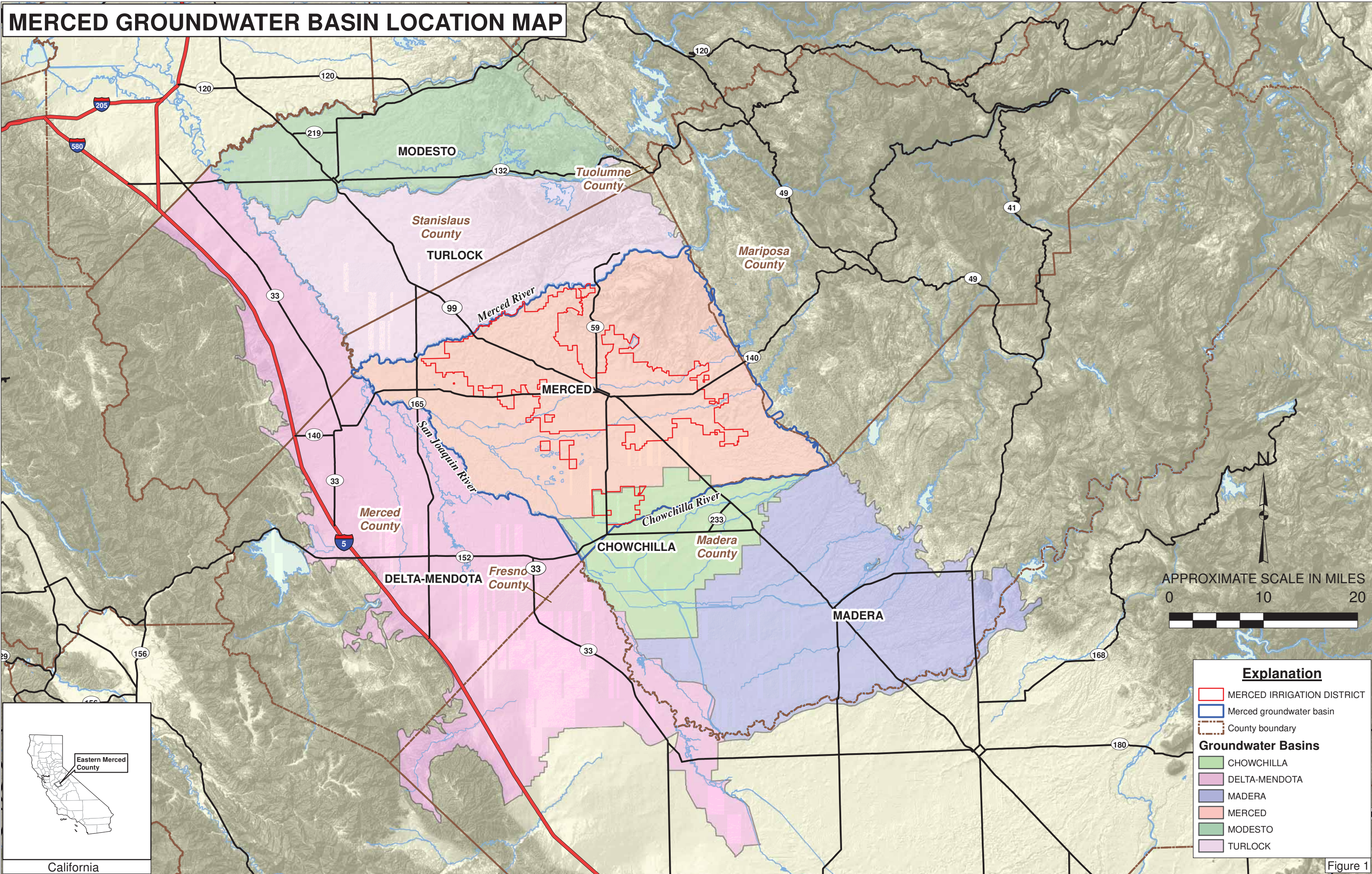


Figure 1

PHYSIOGRAPHIC UNITS WITHIN THE MERCED GROUNDWATER BASIN

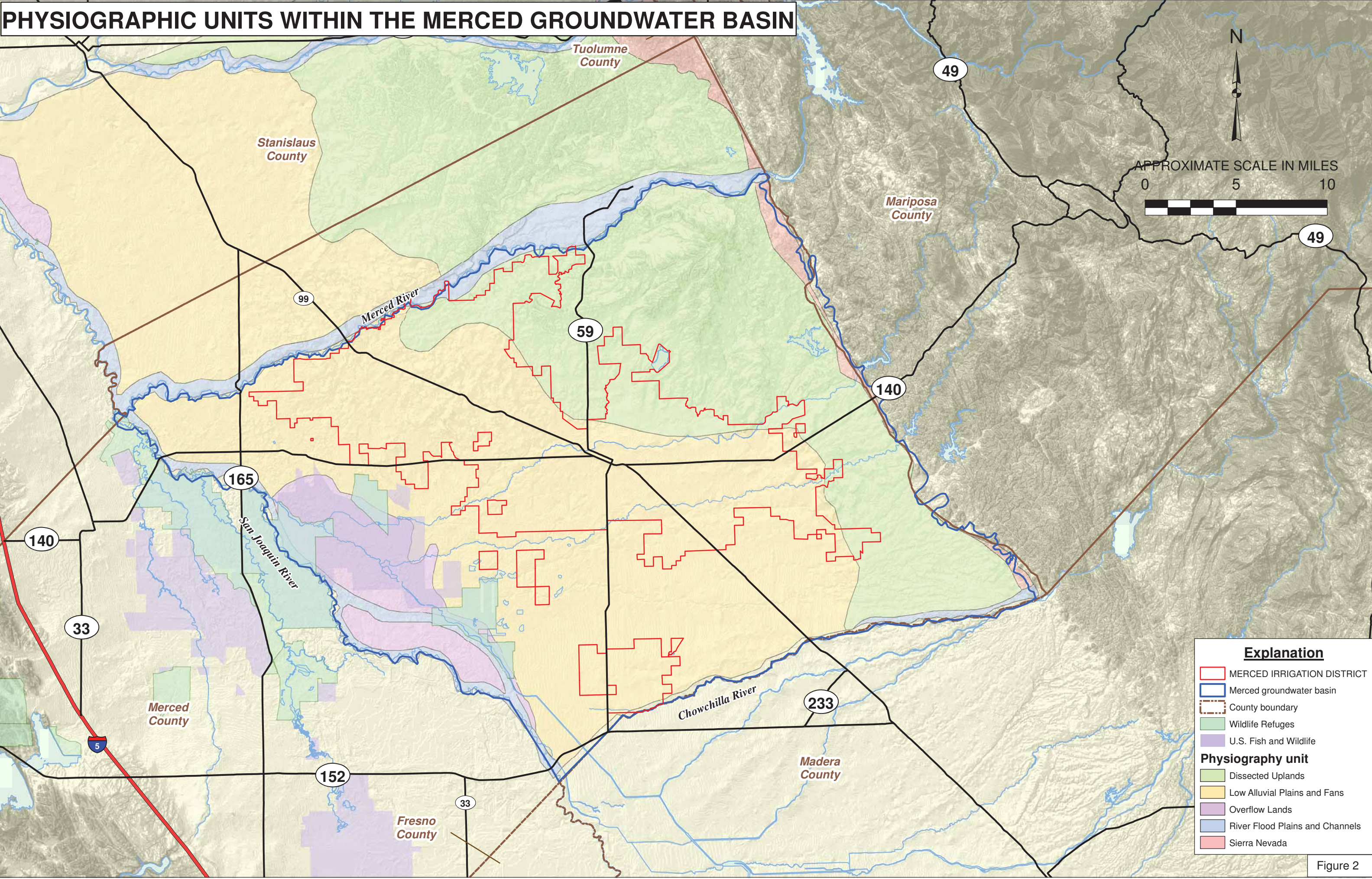
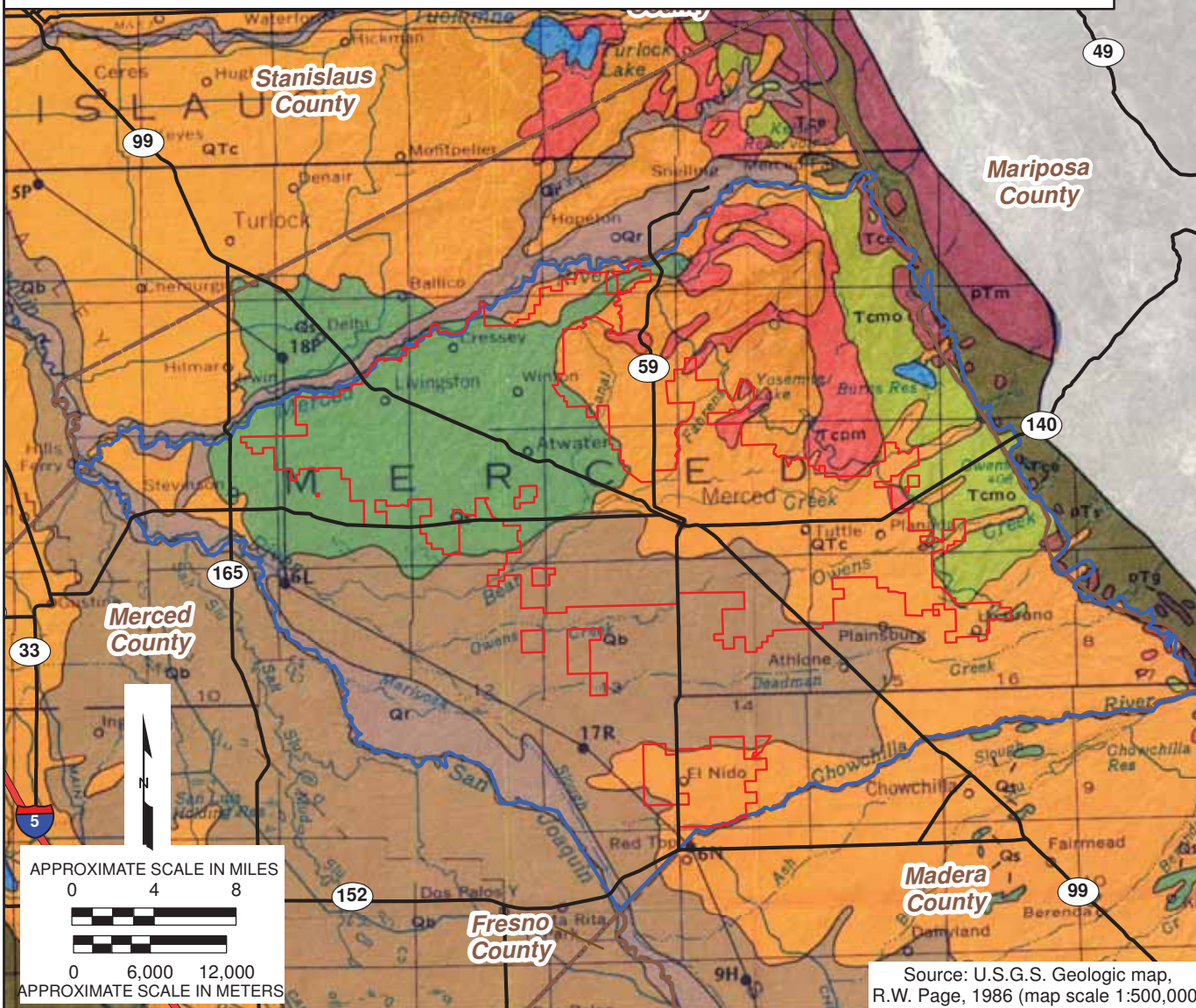


Figure 2

GENERALIZED GEOLOGY - MERCED GROUNDWATER BASIN



Explanation

- Merced groundwater basin
- Merced Irrigation District
- County boundary

Geologic unit

- Qs** Sand Dunes (Holocene): windblown sand and dune sand
- Qb** Flood-basin deposits (Holocene to Pleistocene): Clay, silt, and some sand
- Qr** River deposits (Holocene to Pleistocene): Gravel, sand, silt, and minor amounts of clay; deposited along channels, flood plains, and natural levees of main streams.
- QTl** Lacustrine and marsh deposits (Pliocene to Holocene): Clay, silt, and some sand
- QTc** Continental rocks and deposits (Miocene to Holocene): Heterogeneous mix of generally poorly sorted clay, silt, sand, and gravel; some beds of claystone, siltstone, sandstone, and conglomerate.
- Tcprn** Continental rocks and deposits (Miocene and Pliocene): Gravel, sand, silt, clay, conglomerate, sandstone, siltstone, and claystone, contain andesitic material.
- Tcmd** Continental and marine rocks and deposits (Miocene and Pliocene): Gravel, sand, silt, clay, silty sandstone, and siltstone.
- Tcmo** Continental rocks and deposits (Oligocene and Miocene): Gravel, conglomerate, sand, tuffaceous sand, clay, and sandy clay; contain rhyolitic material on eastern side of valley.
- Tce** Continental rocks and deposits (Eocene): Conglomerate and sandstone; along eastern side of valley contain anaxite. Principally lone Formation (Eocene) on eastern side of valley
- pTs** Marine rocks (Pre-Tertiary): Sandstone, shale, siltstone, and some limestone, chiefly on western side of valley; in places contain abundant secondary gypsum
- pTg** Granitic rocks (Pre-Tertiary): Chiefly granitic rocks on eastern side of valley, in places consists of mafic intrusive rocks
- pTm** Metamorphic rocks (Pre-Tertiary): Metasedimentary, metavolcanic and other metamorphic rocks on eastern side of valley
- water** Water

Source: U.S.G.S. Geologic map, R.W. Page, 1986 (map scale 1:500,000)

Figure 3

LATERAL EXTENT OF THE CORCORAN CLAY

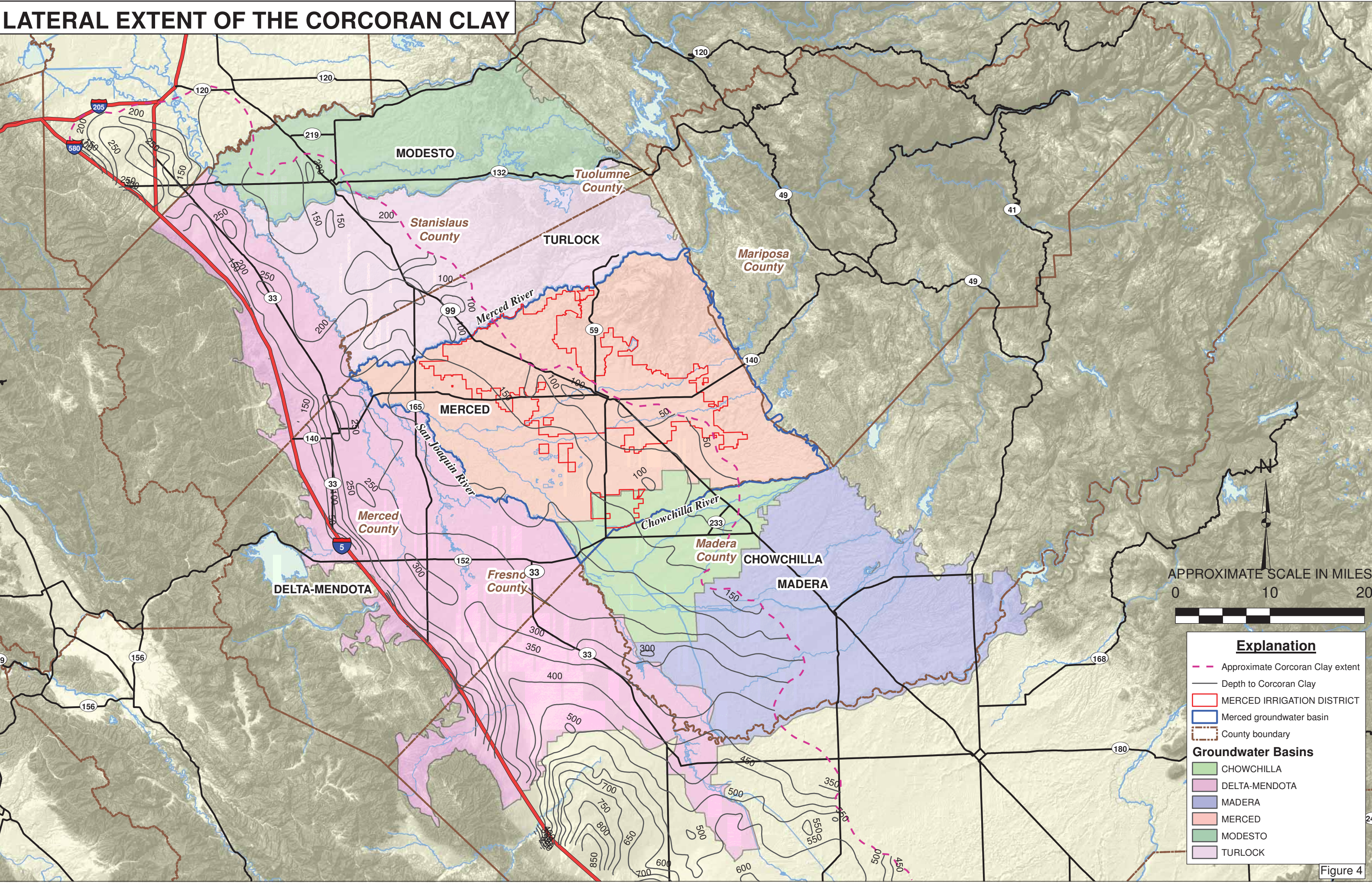
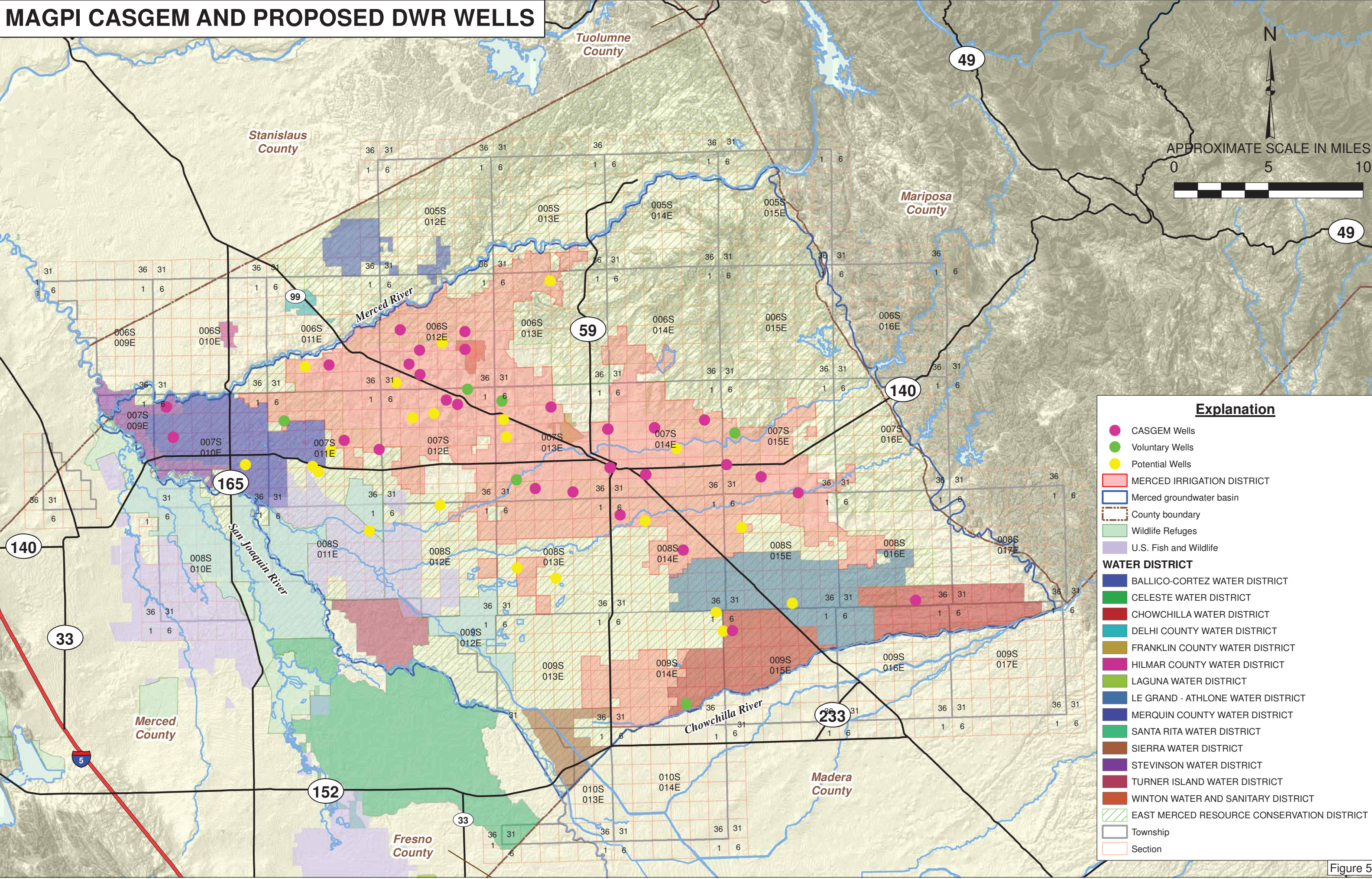


Figure 4

MAGPI CASGEM AND PROPOSED DWR WELLS



Explanation

- CASGEM Wells
- Voluntary Wells
- Potential Wells
- MERCED IRRIGATION DISTRICT
- Merced groundwater basin
- County boundary
- Wildlife Refuges
- U.S. Fish and Wildlife

WATER DISTRICT

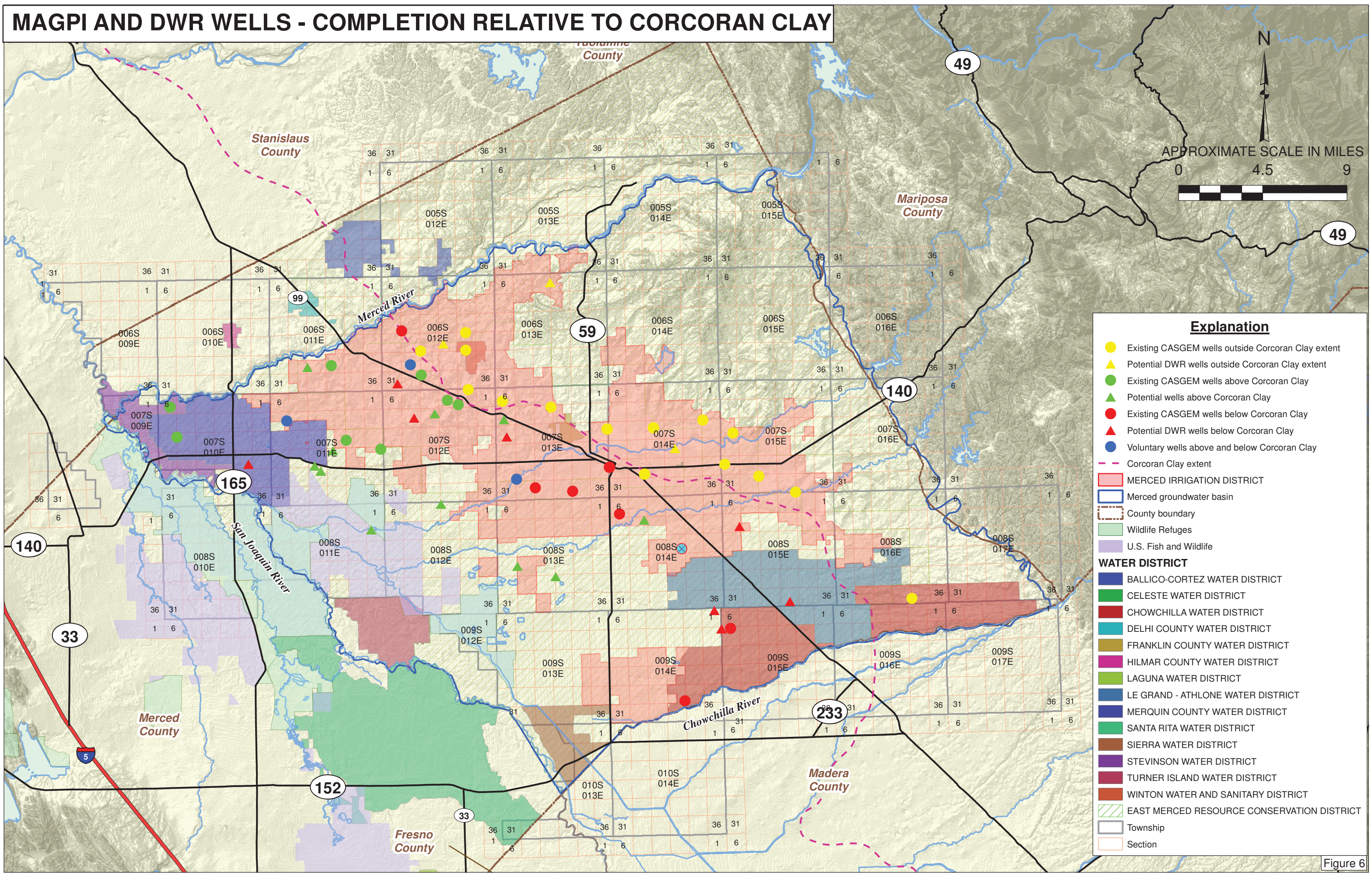
- BALLICO-CORTEZ WATER DISTRICT
- CELESTE WATER DISTRICT
- CHOWCHILLA WATER DISTRICT
- DELHI COUNTY WATER DISTRICT
- FRANKLIN COUNTY WATER DISTRICT
- HILMAR COUNTY WATER DISTRICT
- LAGUNA WATER DISTRICT
- LE GRAND - ATHLONE WATER DISTRICT
- MERQUIN COUNTY WATER DISTRICT
- SANTA RITA WATER DISTRICT
- SIERRA WATER DISTRICT
- STEVENSON WATER DISTRICT
- TURNER ISLAND WATER DISTRICT
- WINTON WATER AND SANITARY DISTRICT
- EAST MERCED RESOURCE CONSERVATION DISTRICT

Township

Section

Figure 5

MAGPI AND DWR WELLS - COMPLETION RELATIVE TO CORCORAN CLAY



APPENDIX A

Well Information

Appendix A: Current MAGPI Well List

Local Well ID	State Well Number	Reference	Ground Surface	Method	Accuracy	Well Use	Well Status	Well coordinates (decimal lat/long, NAD83)	Method of	Local Well ID	State Well Number	Top	Bottom	Top	Bottom	Top	Bottom	Top	Bottom	Top	Bottom	Total	Well Completion Report number	Basin	CASGEM Well Number	Well Use
		Point Elevation (feet, NAV88)	Elevation (feet NAVD88)	of determini ng elevation	of elevation method				coordinates			Screen 1	Screen 1	Screen 2	Screen 2	Screen 3	Screen 3	Screen 4	Screen 4	Depth (feet)						
162	06S11E27M001M	127.8162	127.82	GPS	1'	Irrigation	Active	37.382071/-120.755105	GPS	162	06S11E27M001M	108	127	0	0	0	0	0	0	0	0	127		Merced	373821N1207551W001	Irrigation
176	06S12E17N001M	153.4837	153.48	GPS	1'	Irrigation	Active	37.407365/-120.685907	GPS	176	06S12E17N001M	192	202	0	0	0	0	0	0	0	0	202		Merced	374074N1206859W001	Irrigation
1	06S12E21N001M	149.2	149.20	GPS	1'	Irrigation	Active	37.391335/-120.667831	GPS	1	06S12E21N001M	6	38	58	84	108	124	125	140	140			Merced	373904N1206678W001	Irrigation	
Well #16 Jones & Eucalyptus												660	680	785	810	850	920	0	0	930		Merced	370000N1200000W002	Observation		
Well #13 Tokay & Thompson												66	111	0	0	0	0	0	0	285		Merced	370000N1200000W001	Observation		
11	06S12E33D001M	147.4872	147.49	GPS	1'	Irrigation	Active	37.373256/-120.668163	GPS	11	06S12E33D001M	66	111	0	0	0	0	0	0	0	0	111		Merced	373732N1206679W001	Irrigation
MW-5B	07S10E06K002M	80.19	80.19	GPS	1'	Observation	Active	37.351023/-120.911327	GPS	MW-5B	07S10E06K002M	38	48	0	0	0	0	0	0	0	0	53		Merced	373510N1209113W001	Observation
MW-5D	07S10E06K003M	80.17	80.17	GPS	1'	Observation	Active	37.351029/-120.911276	GPS	MW-5D	07S10E06K003M	140	150	0	0	0	0	0	0	0	0	155		Merced	373510N1209113W002	Observation
MW-5A	07S10E11A001M	80.14	80.14	GPS	1'	Observation	Active	37.351012/-120.911379	GPS	MW-5A	07S10E11A001M	12	22	0	0	0	0	0	0	0	0	22		Merced	373510N1209114W001	Observation
MW-4A	07S10E17D001M	76.06	76.06	GPS	1'	Observation	Active	37.327807/-120.905375	GPS	MW-4A	07S10E17D001M	20	30	0	0	0	0	0	0	0	0	30		Merced	373278N1209054W001	Observation
MW-4B	07S10E17D002M	76.67	76.67	GPS	1'	Observation	Active	37.327717/-120.905377	GPS	MW-4B	07S10E17D002M	40	50	0	0	0	0	0	0	0	0	50		Merced	373277N1209054W001	Observation
MW-4C	07S10E17D003M	76.98	76.98	GPS	1'	Observation	Active	37.327761/-120.905380	GPS	MW-4C	07S10E17D003M	70	80	0	0	0	0	0	0	0	0	85		Merced	373278N1209054W002	Observation
41	07S11E15H001M	108.0236	108.02	GPS	1'	Irrigation	Active	37.32412/-120.742380	GPS	41	07S11E15H001M	1	73	90	105	0	0	0	0	0	0	105		Merced	373243N1207424W001	Irrigation
50	07S11E24A001M	112.8323	112.83	GPS	1'	Irrigation	Active	37.316698/-120.708984	GPS	50	07S11E24A001M	1	60	0	0	0	0	0	0	0	0	87		Merced	373166N1207091W001	Irrigation
13	07S12E03F001M	144.9292	144.93	GPS	1'	Irrigation	Active	37.353105/-120.643827	GPS	13	07S12E03F001M	62	95	0	0	0	0	0	0	0	0	183	145761	Merced	373532N1206432W001	Irrigation
14	07S12E03J001M	153.9563	153.96	GPS	1'	Irrigation	Active	37.350005/-120.632600	GPS	14	07S12E03J001M	1	100	0	0	0	0	0	0	0	0	100	Not Available	Merced	373496N1206327W001	Irrigation
MW1013	07S12E07C001M	154.12	154.73	GPS	1'	Observation	Active	37.349553/-120.588971	GPS	MW1013	07S12E07C001M	425	440	0	0	0	0	0	0	0	0	450	Not Available	Merced	373496N1205890W001	Observation
241	07S12E5G001M	144.4001	144.40	GPS	1'	Irrigation	Active	37.3593/-120.621667	GPS	241	07S12E5G001M	204	237	0	0	0	0	0	0	0	0	237	29773	Merced	371115N1207377W001	Irrigation
224	07S13E09A001M	167.7433	167.47	GPS	1'	Irrigation	Active	37.346073/-120.540893	GPS	224	07S13E09A001M	128	136	0	0	0	0	0	0	0	0	139	120400	Merced	373457N1205429W001	Irrigation
MW1-Well Site 9	07S13E13H001M	173.77	171.77	GPS	1'	Observation	Active	37.326034/-120.488010	GPS	MW1-Well Site 9	07S13E13H001M	0	0	0	0	0	0	0	0	0	0	184	Not Available	Merced	373260N1204880W001	Observation
MW2-Well Site 9	07S13E13H002M	173.77	171.77	GPS	1'	Observation	Active	37.326034/-120.488010	GPS	MW2-Well Site 9	07S13E13H002M	194	340	0	0	0	0	0	0	0	0	340	Not Available	Merced	373260N1204880W002	Observation
MW3-Well Site 9	07S13E13H003M	173.77	171.77	GPS	1'	Observation	Active	37.326034/-120.488010	GPS	MW3-Well Site 9	07S13E13H003M	350	424	0	0	0	0	0	0	0	0	424	Not Available	Merced	373260N1204880W003	Observation
MW4-Well Site 9	07S13E13H004M	173.77	171.77	GPS	1'	Observation	Active	37.326034/-120.488010	GPS	MW4-Well Site 9	07S13E13H004M	434	580	0	0	0	0	0	0	0	0	580	Not Available	Merced	373260N1204880W004	Observation
201	07S13E32H001M	144.4001	144.40	GPS	1'	Irrigation	Active	37.283902/-120.560075	GPS	201	07S13E32H001M	132	137	360	380	384	412	0	0	0	0	412	120388	Merced	372838N1205602W001	Irrigation
206	07S13E34J001M	149.6959	149.70	GPS	1'	Irrigation	Active	37.280602/-120.524113	GPS	206	07S13E34J001M	230	394	0	0	0	0	0	0	0	0	394	120455	Merced	372806N1205241W001	Irrigation
221	07S14E12N001M	202.2951	202.30	GPS	1'	Irrigation	Active	37.332776/-120.395745	GPS	221	07S14E12N001M	196	341	0	0	0	0	0	0	0	0	341	21862	Merced	373327N1203960W001	Irrigation
MW1-Well Site 7	07S14E16F001M	188.44	186.94	GPS	1'	Observation	Active	37.326034/-120.443160	GPS	MW1-Well Site 7	07S14E16F001M	0	0	0	0	0	0	0	0	0	0	235	Not Available	Merced	373260N1204432W001	Observation
MW2-Well Site 7	07S14E16F002M	188.44	186.94	GPS	1'	Observation	Active	37.326034/-120.443160	GPS	MW2-Well Site 7	07S14E16F002M	330	385	0	0	0	0	0	0	0	0	390	Not Available	Merced	373260N1204432W002	Observation
MW3-Well Site 7	07S14E16F003M	188.44	186.94	GPS	1'	Observation	Active	37.326034/-120.443160	GPS	MW3-Well Site 7	07S14E16F003M	400	505	0	0	0	0	0	0	0	0	520	Not Available	Merced	373260N1204432W003	Observation
MW4-Well Site 7	07S14E16F004M	188.44	186.94	GPS	1'	Observation	Active	37.326034/-120.443160	GPS	MW4-Well Site 7	07S14E16F004M	0	0	0	0	0	0	0	0	0	0	605	Not Available	Merced	373260N1204432W004	Observation
MW1-Well Site 3	07S14E30R001M	169.72	169.12	GPS	1'	Observation	Active	37.296393/-120.486709	GPS	MW1-Well Site 3	07S14E30R001M	60	110	0	0	0	0	0	0	0	0	110	Not Available	Merced	372964N1204867W001	Observation
MW2-Well Site 3	07S14E30R002M	169.72	169.12	GPS	1'	Observation	Active	37.296393/-120.486709	GPS	MW2-Well Site 3	07S14E30R002M	120	160	0	0	0	0	0	0	0	0	160	Not Available	Merced	372964N1204867W002	Observation
MW3-Well Site 3	07S14E30R003M	169.72	169.12	GPS	1'	Observation	Active	37.296393/-120.486709	GPS	MW3-Well Site 3	07S14E30R003M	175	245	0	0	0	0	0	0	0	0	245	Not Available	Merced	372964N1204867W003	Observation
MW4-Well Site 3	07S14E30R004M	169.72	169.12	GPS	1'	Observation	Active	37.296393/-120.486709	GPS	MW4-Well Site 3	07S14E30R004M	460	600	0	0	0	0	0	0	0	0	600	Not Available	Merced	372964N1204867W004	Observation
MW1-Well Site 2	07S14E35E001M	183.44	179.94	GPS	1'	Observation	Active	37.290377/-120.452882	GPS	MW1-Well Site 2	07S14E35E001M	0	0	0	0	0	0	0	0	0	0	170	Not Available	Merced	372904N1204207W001	Observation
MW2-Well Site 2	07S14E35E002M	183.44	179.94	GPS	1'	Observation	Active	37.290377/-120.452882	GPS	MW2-Well Site 2	07S14E35E002M	0	0	0	0	0	0	0	0	0	0	260	Not Available	Merced	372904N1204529W001	Observation
MW																										

	Well screen above Corcoran Clay
	Well screen below Corcoran Clay
	Well screen outside Corcoran Clay extent</

APPENDIX B

Potential Wells Suggested by

California Department of Water Resources

Appendix B:
Potential Wells Suggested by California Department of Water Resources

State Well Number

06S11E29J001M
06S12E22E001M
06S13E04H001M
07S10E11A002M
07S10E11G001M
07S10E23K001M
07S11E21P001M
07S11E22D001M
07S11E28B002M
07S12E09H001M
07S13E18K001M
07S14E22G001M
08S11E12E001M
08S12E04A001M
08S13E19H002M
08S13E28A001M
08S15E07J001M
08S15E34L001M
09S14E01B001M
09S14E12R001M

APPENDIX C

Letters of Authorization

Merced Area Groundwater Pool Interests

RESOLUTION No. 2008-2

RESOLUTION CONCERNING DEVELOPMENT, MAINTENANCE AND MANAGEMENT OF THE MERCED GROUNDWATER BASIN INTEGRATED HYDROLOGIC MODEL

Recitals

Whereas, the Merced Area Groundwater Pool Interests (MAGPI) was formed in 1997 for the purpose of actively managing the Merced Groundwater Basin and to form the basis for a regional groundwater plan in response to AB 3030; and

Whereas, MAGPI's 16 members each are water purveyors within the Basin, in addition to the East Merced Resources Conservation District and the County of Merced which are members at large, representing a broad coalition of regional agricultural, municipal and community interests; and

Whereas, since its formation in 1997 and in furtherance of its groundwater monitoring responsibilities, MAGPI has had the objective of developing an integrated hydrologic model of the Merced Groundwater Basin (model); and

Whereas, in 2001, MAGPI entered into a Memorandum of Understanding (MOU) with the Department of Water Resources (DWR) for the expressed purpose of working cooperatively with DWR to promote conjunctive water management projects and programs in Eastern Merced County; and

Whereas, MAGPI has accomplished or has underway the following activities using a combination of DWR grant funds and local funding:

- Data Assessment to describe the regional hydrogeologic setting of Eastern Merced County; to identify and compile available water resources data, and to develop a data management plan for MAGPI members
- Conjunctive Use Site Assessments to compare and evaluate alternative artificial recharge sites
- Cressey Pilot Recharge Basin to test the feasibility of artificial recharge using spreading basins
- Public Involvement aimed at improving coordination among MAGPI members and between MAGPI and other entities in the Basin
- Groundwater Monitoring (ongoing; AB303 funding) aimed at defining stream-aquifer interaction along Bear Creek, in the vicinity of the City of Merced, and completing a GPS survey that tied groundwater levels in all public supply wells to one datum; and

Whereas, MAGPI has developed and submitted a scope of work and cost estimate for preparing an integrated hydrologic model of the Merced Groundwater Basin and submitted those

materials to DWR along with a request for funding to be used in combination with local funds for model development; and

Whereas, DWR has indicated its willingness to provide the requested funds, local funds have already been allocated, and model development is imminent; and

Whereas, such model should reside at a single location under an established protocol for custody to ensure accuracy and consistency as developed by all MAGPI members; and

Whereas, the model should also be protected from misuse and unreasonable manipulations based on unreasonable assumptions that could lead to misinformation.

NOW THEREFORE BE IT RESOLVED THAT:

1. The development of an integrated hydrologic model of the Merced Groundwater Basin will be guided by the needs and objectives of individual MAGPI members as represented through the MAGPI Board of Directors; these needs are articulated in the scope of work for model development,
2. MAGPI assigns sole responsibility for custody, operation and maintenance of the model and its related code and data sets to Merced Irrigation District (MID),
3. MAGPI members, including MID, will have access to model operation by submitting requests via MAGPI, but will not have direct access to model code or data sets,
4. Requests for operation of the model by entities other than MAGPI members must be sponsored by a MAGPI member and submitted to MID,
5. MID may request reimbursement from MAGPI members requesting approved runs of the model for costs incurred by MID for such operation of the model. Such costs shall be established by the Board of MAGPI and based on actual costs to MID including staff time.

PASSED AND ADOPTED by the Merced Area Groundwater Pool Interests Board of Directors this 30th day of July 2008.

AYES: ALL BOARD MEMBERS PRESENT

NOES: BOARD MEMBERS:

ABSTAIN: BOARD MEMBERS:

ABSENT: BOARD MEMBERS:

APPROVED:


Hicham Eltal
Chairman

ATTEST:


Bob Kelley
Vice Chairman/Secretary



MERCED AREA GROUNDWATER POOL INTERESTS

744 W. 20th Street
Merced, CA 95340
(209) 722-5761
www.magpi-gw.org

April 27, 2011

To Whom It May Concern:

I am writing this letter on behalf of Merced Area Groundwater Pool Interest (MAGPI) which is comprised of all public water purveyors within the Merced Groundwater Basin. These purveyors are generally located geographically east of the San Joaquin River, south of the Merced River, north of the Chowchilla River and west of the Mariposa County line.

On November 4, 2009 the State Legislature amended the Water Code with Senate Bill SBx7-6, which mandates a statewide groundwater elevation monitoring program with California. In accordance with this amendment, Department of Water Resources (DWR) developed the California Statewide Groundwater Elevation Monitoring (CASGEM) program, and MAGPI has assumed the monitoring role for the Merced basin.

Monitoring sites, timing and methods for measuring need to be reported by the summer of 2011. MAGPI will begin reporting seasonal groundwater elevation measurements spring and fall on or before January 1, 2012. To meet these new requirements, MAGPI is proposing to monitor at least thirty two (32) wells throughout the basin. Since MAGPI public wells are not evenly distributed throughout the basin additional private wells are needed.

MAGPI highly encourages you to participate in the CASGEM program. It is not unusual for private land owners to provide access to their groundwater wells and cooperate with specialized agencies such as the DWR and US Geological Services (USGS) to monitor the groundwater aquifer. By monitoring the wells in our area you can help assess the groundwater elevations within our community and state and keep local control.

- There is no cost to the private well participant
- MAGPI will provide monitoring personnel and technical help
- All data collected will be turned into MAGPI who will then report the findings to you and DWR
- Only the static (non-pumping) depth to groundwater will be recorded
- The program is totally voluntary, there will be no agreement executed and you can opt out of the program at any time.

If you have any questions please contact your local water district, additional information is also available at the California Department of Water Resources website, www.water.ca.gov/groundwater/casgem.

Thank you,

Very truly yours,

Hicham Eltal
MAGPI, Chair

Marco Bell

From: Hicham ElTal
Sent: Tuesday, February 25, 2014 12:03 AM
To: Marco Bell
Subject: Authorizing the Posting of MID Well Data on CASEGEM Public Database

Attention Merced Area Ground Water Pool Interests – Marco Bell

MID authorizes MAGPI to make well data and construction information public in the CASGEM database for the following wells:

<u>State Well Number</u>	<u>Local Well Designation/Number</u>
06S01E27F001M	162
06S12E17M001M	176
06S12E21M001M	1
06S12E29L002M	32
06S12E33D001M	11
06S13E04H001M	236
07S11E07H001M	47B
07S11E15H001M	41
07S11E24A001M	50
07S12E03F001M	13
07S12E03J001M	14
07S13E09A001M	224
07S13E30R002M	147
07S13E32H001M	201
07S13E34G001M	206
07S14E12N001M	221
07S15E15N001M	95
07S15E18G001M	124
07S15E30D001M	98A
07S15E32A001M	125
08S14E06G001M	212
08S14E15R002M	140
09S14E19E001M	190
Unknown	241

Thank you,

Hicham Eltal

Deputy General Manager, Water Supply/Rights
Merced Irrigation District
744 West 20th Street
Merced, Ca 95340
(209) 722-5761 Ext (2854)

“This e-mail is intended only for the use of the individual or entity named above. Any inadvertent disclosure shall not compromise or waive the confidentiality of this email and any materials or communications that may accompany or be attached hereto. You are hereby notified that any dissemination, distribution or copying of this communication is strictly prohibited. If the reader of this message is not the intended recipient, please destroy the e-mail and any attachments and contact me immediately at 209-722-5671 or by email at heltal@mercedid.org. Thank you.”

Marco Bell

From: Bob Kelley <wildcatkel@stevinsoncorp.com>
Sent: Thursday, February 20, 2014 10:48 AM
To: Marco Bell
Subject: RE: CASGEM program

Merced Area Groundwater Pool Interest
C/O Marco Bell, Senior Engineer
744 W. 20th Street
Merced, CA

2/20/2014

Dear Sir,

As requested our district is in agreement to have MAGPI report the groundwater elevation monitoring information from the following wells we have agreed to collect data from. It is our understanding that this data will be reported to DWR for the purpose of the DWR CASGEM program as developed by SB x7-6.

Here are the wells identified previously for this program.

<u>State #</u>	<u>Well ID</u>
07S10E06K002M	MW-5B
07S10E06K003M	MW-5D
07S10E11A001M	MW-5A
07S10E11D001M	MW-4A
07S10E17D002M	MW-4B
07S10E17D003M	MW-4C
07S10E11G001M	700-D
07S10E11A002M	SD-3

Sincerely,
Robert D Kelley
G.M.
Stevinson Water District

Marco Bell

From: Wegley, Michael <WegleyM@cityofmerced.org>
Sent: Tuesday, February 18, 2014 4:26 PM
To: Marco Bell
Subject: Re: Authorization Letters
Attachments: image001.png; image002.gif

Marco,

Please accept this email as authorization to publish the well data that the City of Merced provides MID and MAGPI for the CASGEM program.

Best Regards,

Mike

Michael Wegley
Director of Water Resources
Reclamation & Aviation
City of Merced
1776 Grogan Ave
Merced, CA 95341
(209)385-6800

On Feb 18, 2014, at 4:19 PM, "Marco Bell" <mbell@mercedid.org<<mailto:mbell@mercedid.org>>> wrote:

Dear MAGPI:

As mentioned in our last meeting, please submit by early next week an authorization letter listing the wells that MAGPI can publicized in the DWR CASGEM website and be compliant with SBx7 6. Please contact me at 209.354.2857 if I can be of assistance. Thank you!

Kind regards,
Marco

~~~~~

Marco A. Bell, MBA, M.Sc., P.E.  
Merced Irrigation District  
Senior Water Resources Engineer  
PH: 209.354.2857  
Cell: 209.489.6408  
FAX: 209.726.4176

744 W. 20th Street  
Merced, CA. 95340

<http://www.mercedid.org/>

<image001.png><image002.gif><<https://www.facebook.com/MercedIrrigationDistrict>>  
Your Water, Your Power, Our Way of Life!

This email is intended only for the use of the individual or entity named above. Any inadvertent disclosure shall not compromise or waive the confidentiality of this email and any materials or communications that may accompany or be attached hereto. You are hereby notified that any dissemination, distribution or copying of this communication is strictly prohibited. If the reader of this message is not the intended recipient, please destroy the email and any attachments and contact me immediately at 209-354-2857 or by email at [mbell@mercedid.org](mailto:mbell@mercedid.org)<<mailto:mbell@mercedid.org>>. Thank you.

## Marco Bell

---

**From:** Doug Welch <dwelch@cwdwater.com>  
**Sent:** Thursday, February 20, 2014 12:11 PM  
**To:** Marco Bell  
**Cc:** Hicham ElTal  
**Subject:** RE: Authorization Format

Marco

Chowchilla Water District authorizes MAGPI to make submitted groundwater data information public [for the locations listed below](#)

| State Well<br>Number | Local Well<br>Designation/Number | Latitude  | Longitude  |
|----------------------|----------------------------------|-----------|------------|
| 08S16E34J001M        | CH2                              | 37.190200 | 120.198500 |
| 09S14E27R001M        | CH7                              | 37.114456 | 120.319849 |
| 09S15E02A001M        | CH3                              | 37.182100 | 120.292700 |
| 09S15E06P001M        | CH4                              | 37.171000 | 120.374600 |

Douglas Welch  
General Manager  
Chowchilla Water District  
327 S. Chowchilla Blvd.  
Chowchilla, CA 93610  
559-665-3747 office  
559-479-6050 cell

---

**From:** Marco Bell [<mailto:mbell@mercedid.org>]  
**Sent:** Thursday, February 20, 2014 11:46 AM  
**To:** Doug Welch



# Winton Water and Sanitary District

P.O. Box 970  
6951 N. Winton Way  
Winton, CA 95388-0970

209-358-2367  
FAX 209-358-3253

March 6, 2014

Merced Irrigation District  
Water Resources

RE: CASGEM Program

To Whom it may Concern: \_\_\_\_\_

The Winton Water & Sanitary District authorizes the MAGPI to make the following well data and construction information public:

- State Well # 06S12E23C001M #16 Jones and Eucalyptus
- State Well # 06S12E23P001M #13 Tokay & Thompson

Sincerely,

A handwritten signature in cursive script, appearing to read "Shilla Shamli".

Board President