

7 ATTACHMENT 4 – PROJECT DESCRIPTION

For the “AttachmentName” in the naming convention of BMS, use “ProjD” for this attachment.

Provide a complete, detailed description of the proposed project, including the goals of the project, needed facilities and their location, and the area covered. Maps are generally not required (also see Attachment 5), but can be very helpful in explaining the proposed project. Describe how the project supports the goals and objectives of the GWMP. Applicant must clearly explain the relevance of project to the GWMP.

Describe the quality and usefulness of the information that will be obtained using technically feasible methods. Include a discussion of data, technical methods, and analyses to be used. The level of detail should be sufficient to determine the technical feasibility of the proposed project.

Describe how the applicant collaborates with other local public agencies with regard to the management of the affected groundwater basin. Discuss and provide evidence that a process is or will be in place that informs groundwater users, stakeholders, and the general public about the project to be funded with the proposed grant and disseminates relevant reports and data. A stakeholder is an individual, group, coalition, agency or others who are involved in, affected by, or have an interest in the implementation of a specific program or project. Explain and document how federal and other State agencies will be contacted. Examples include workshops, regularly scheduled groundwater association meetings, public notices, informational mailings, and websites.

Explain how ongoing use of the products derived from the proposed project will be funded after grant funds are expended. Additional State grant funds to continue with the funded project should not be a consideration. Provide examples of how often and under what funding mechanism monitoring wells will continue to be monitored, models maintained and used in the future, automated monitoring equipment maintained, or data management systems be updated and maintained. Include a discussion of measures that will be used to evaluate data and mechanisms to adapt the data collection process as new information is obtained. For proposals to develop a GWMP, explain how the GWMP will be implemented and how it will be funded.

7.1 Detailed Description of Proposed Project

Provide a complete, detailed description of the proposed project, including the goals of the project, needed facilities and their location, and the area covered. Maps are generally not required (also see Attachment 5), but can be very helpful in explaining the proposed project. Describe how the project supports the goals and objectives of the GWMP. Applicant must clearly explain the relevance of project to the GWMP. Describe the quality and usefulness of the information that will be obtained using technically feasible methods. Include a discussion of data, technical methods, and analyses to be used. The level of detail should be sufficient to determine the technical feasibility of the proposed project.

This section includes a complete description of the proposed project and is organized as follows:

- **Background Information on Pixley Irrigation District**
- **Project Description**
 - Project Overview
 - Goals of the Project
 - Needed Facilities
 - Area Covered
 - Detailed Project Description
- **Public Outreach**
 - Collaboration with other Agencies
 - Information Dissemination
- **Need for Project**
- **New Data and Knowledge**
 - Quality of Information Obtained
 - Data, Methods and Analysis to be Used
 - New Knowledge and Improvement in Groundwater Management
 - Consistency with Groundwater Management Plan
- **On-Going Use**
 - Operation and Maintenance Funding
 - Adaptive Management Strategy

Background Information on Pixley ID:

Below is a brief description of the origin, physiography, geology, water supplies and facilities in Pixley Irrigation District.

Pixley Irrigation District (PIXID or District) was organized as a public agency on April 7, 1958. The District was formed for the purpose of promoting flood control on Deer Creek and to secure a supplemental irrigation water supply from the Federal Central Valley Project and other agencies. A surface water supply was needed to sustain and enhance the irrigated agriculture that had developed in the area primarily based upon existing groundwater supplies. The District is governed by a board of five directors elected for four-year terms on a staggered basis of two and three, at elections held every two years. The District is responsible for acquisition and delivery of surface water for irrigation purposes. The District conjunctively uses surface and groundwater, and heavily relies on groundwater resources.

PIXID encompasses approximately 69,571 acres in the west central portion of Tulare County in California's Central San Joaquin Valley (see **Figure 4-1: PIXID Location**



Map). The principal community is the unincorporated community of Pixley, which is encompassed by the District boundary.

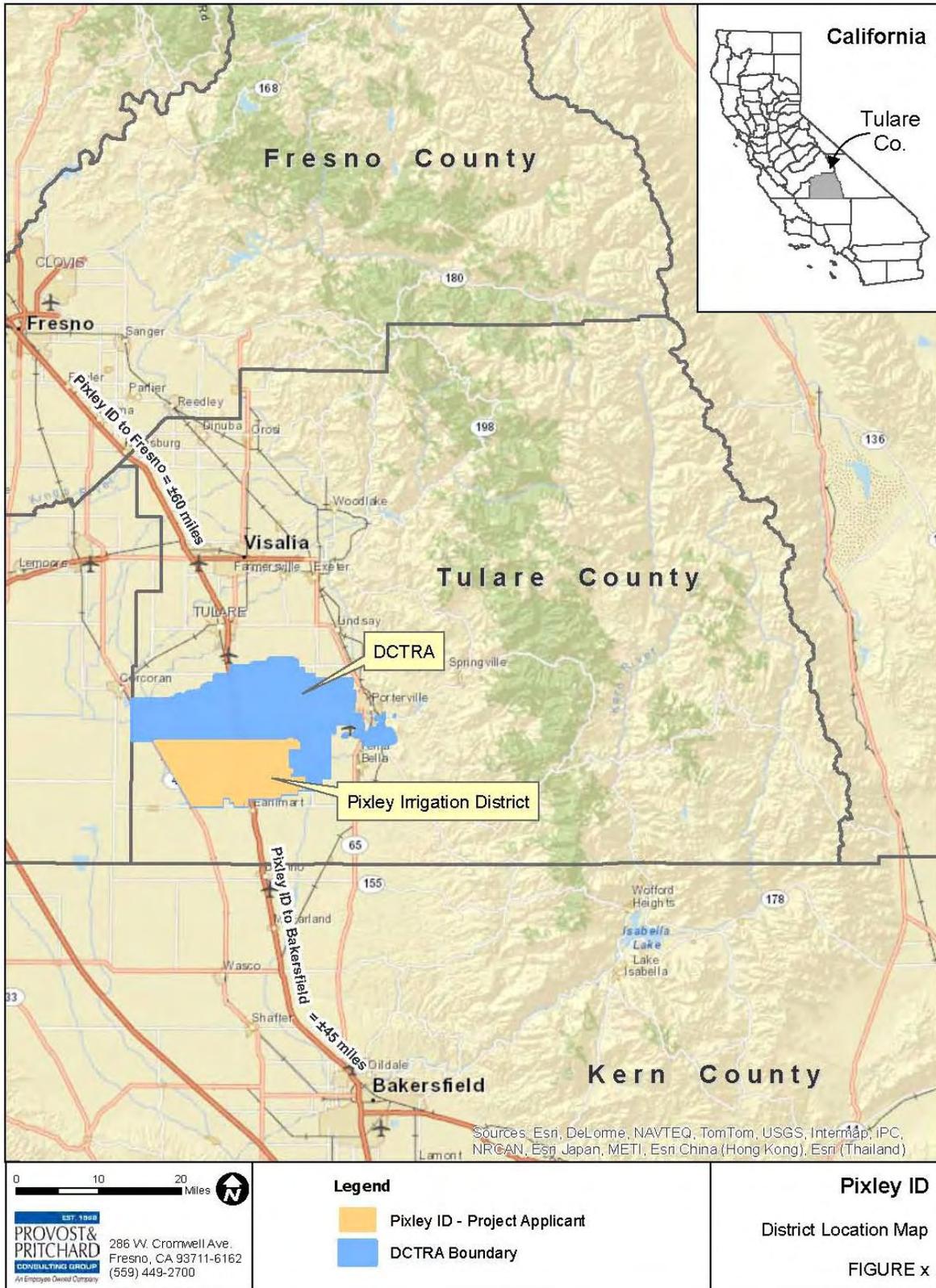


Figure 4.1 – PIXID Location Map

The Plan area is characterized by a warm desert climate. Temperatures during summer often exceed 100 degrees F with winter temperature usually 32 degrees F or higher. Annual average precipitation is approximately 7 inches. The growing season is long with most precipitation occurring during winter. The highest precipitation occurs during January with about 90 percent of the total precipitation occurring between November and April. Precipitation is rare during the summer and usually associated with infrequent tropical storms. Prevailing winds are from the northwest and usually less than 10 miles per hour.

Approximately 53,300 acres were irrigated in PIXID in 2007. PIXID lands are predominately used for the production of irrigated field, row and forage, and tree and vine crops. Crops occupying 5 percent or more of the acreage included corn, alfalfa, almonds, vineyard, wheat, cotton and sudan. Other crops grown include pistachios, stone fruits, and some truck crops.

As defined by the Department of Water Resources, Bulletin 118, PIXID is located in the Tulare Lake Hydrologic Region within the San Joaquin Valley Groundwater Basin (see **Figure 4.1**). The District is the central eastern part of the San Joaquin Valley Groundwater Basin and is within the Tule subbasin. The District is bounded to the south by the Kern County groundwater subbasin, the west by the Tulare Lake Groundwater subbasin, the north by the Kaweah groundwater subbasin and the east by the edge of the alluvium and crystalline bedrock of the Sierra Nevada foothills. The groundwater basin boundaries are geo-political, having been determined by a combination of geological and political boundaries.

PIXID does not own any groundwater wells and does not pump groundwater for delivery to its growers. Instead all landowners own groundwater wells to provide for the majority of the needed annual irrigation supply. PIXID has a District wide network of groundwater monitoring wells, but this network is made up of privately owned ag wells that is maintained by the District with landowner permission.

Deer Creek is an ephemeral stream that drains a small, low elevation, watershed east of PIXID and its channel flows from east to west through the southern portion of the District. PIXID diverts available surface water from Deer Creek when there is ag demand or recharge capacity within the District and water available for diversion. PIXID also has holds a federal CVP water contract for water originating in northern California with delivery through the SWP and through the Cross Valley Canal for 31,102 AF. This contract provided significant surface water supplies to the District in the past, but in recent times the yield and reliability of this supply has diminished significantly due

primarily to Delta pumping restrictions. PIXID also works with long-term Friant Division Central Valley Project (CVP) contractors to obtain surplus contract supplies that can be delivered to the District through the Friant-Kern Canal. Average annual surface water supplies for the District total approximately 37,500 acre-feet per year, while the estimated average annual agricultural demand within the District is approximately 167,000 acre-feet per year.

The PIXID distribution system includes approximately 45 miles of unlined canals, 15 miles of the Deer Creek channel, and nine earthen recharge and regulating basins that total 278 acres. The entire irrigation system is measured, which includes water diverted by the District and deliveries to farm turnouts.

The groundwater depths in PIXID are generally the deepest in the Tule subbasin (see **Figure 4-2**). It has been recently estimated that an average of approximately 100,000 acre-feet per year of groundwater flow into the District and that almost no groundwater flows out. There is a significant confining clay layer on the west side of the District known as the Corcoran clay, but even on the east side of the District the groundwater aquifer is semi-confined from all the small pockets of clay. After a series of dry years, groundwater is currently being pumped from a static depth of approximately 300 feet below ground surface.

Project Overview:

Pixley ID landowners heavily rely on groundwater resources as their primary source of supply. The conjunctively use surface water to supplement this groundwater. During a dry period between 2007 and 2010 District groundwater levels dropped significantly and prompted the District to begin investigating current conditions and evaluating possible ways to improve the reliability of local groundwater resources. One project generated from District investigations is a new groundwater bank within Pixley ID that would be developed through a partnership with the neighboring district Delano-Earlimart Irrigation District (see **Figure 4-3**). Also, evaluations of recent and historic groundwater level information from District's current groundwater monitoring network has prompted the District to pursue acquiring additional monitoring sites to help provide greater detail for better District understanding of groundwater conditions.

The District believes that the implementation of the Pixley ID 2012 Groundwater Support Project (Project) will significantly improve Pixley ID's groundwater resource management through the developed information and better understanding of the District's groundwater aquifer.

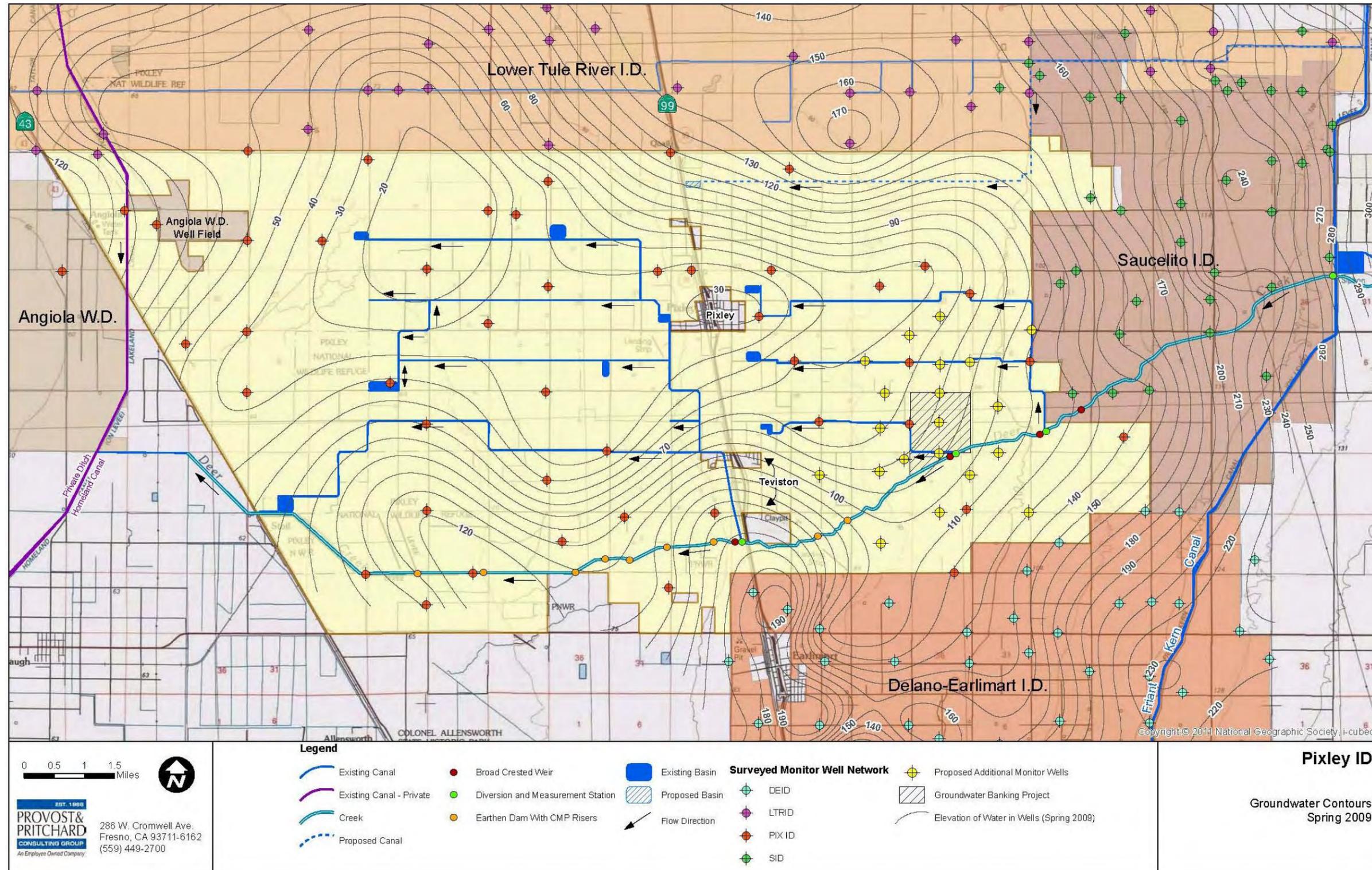


Figure 4.2 – 2009 PIXID Groundwater Contours

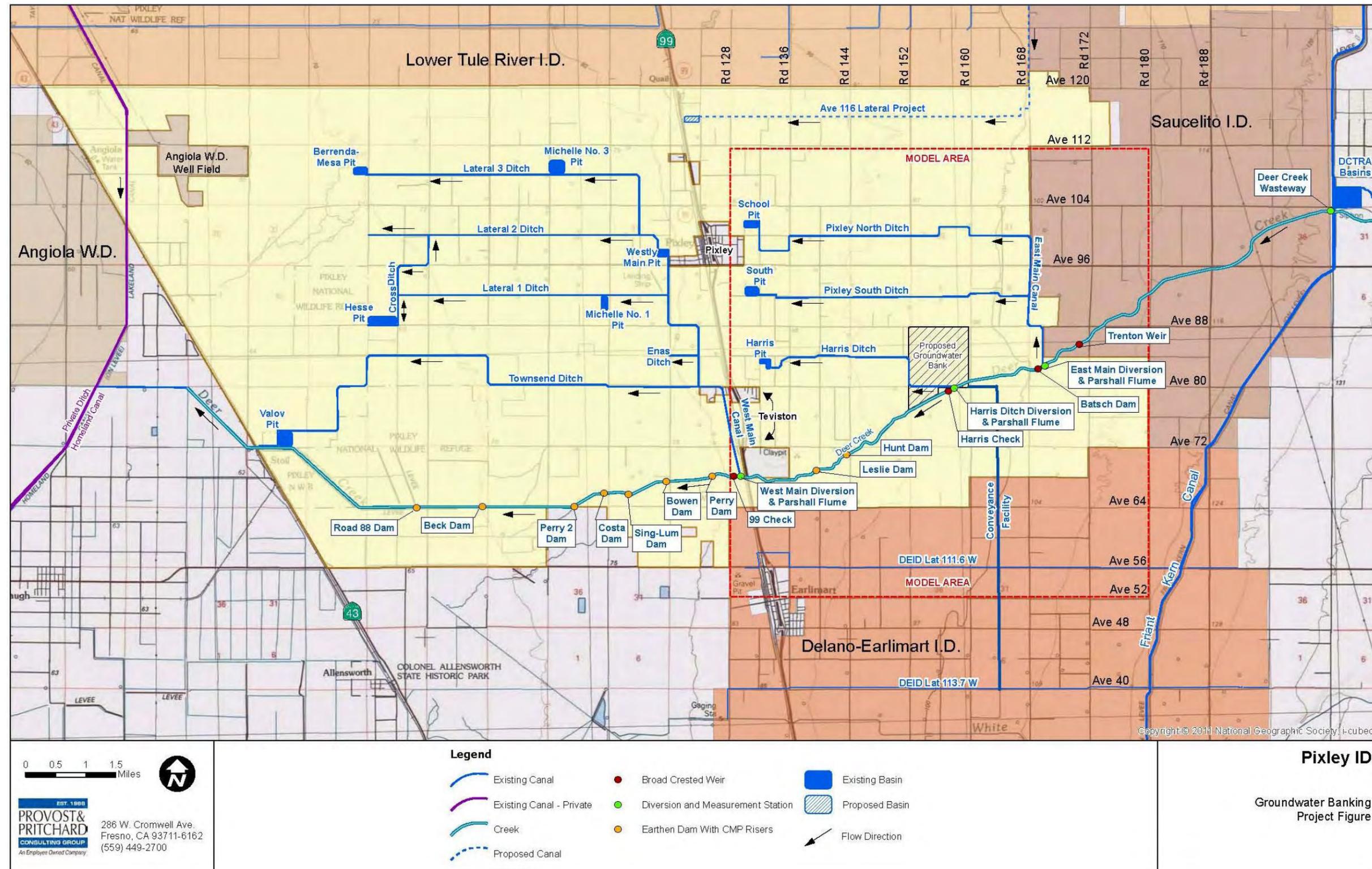


Figure 4.3 – PIXID Groundwater Banking Project and Numeric Model Area

Pixley ID's Project involves the GPS survey of 225 existing ag wells for their inclusion in the District's groundwater monitoring network, the development of the District's first two dedicated monitoring wells and their outfitting with automated level loggers, and the development of a groundwater model in the eastern half of the District primarily to support a proposed groundwater banking project.

Goals of the Project:

The overall goals of the Project are to improve Pixley ID's groundwater resource management and knowledge/understanding of the District's groundwater aquifer. The District believes that through the improvements to their monitoring well network and the development of a groundwater model, the District's understanding of local groundwater conditions and the issues that influence them will increase and lead to better informed efforts to manage local groundwater resources.

PIXID believes that these goals of the Project match up well with the goals and objectives of the DCTRA GWMP. On page 1-3 of the DCTRA GWMP there is a list of the highest priority goals for the GWMP. These goals include: 1) Continue to monitor groundwater levels annual during the Spring within the DCTRA by measuring the depth to groundwater of existing wells, 2) Prepare annual map of equal lines of elevation of groundwater and lines of equal depth to groundwater based on field measured data, 3) Publish an updated tabulation of the average depth to groundwater for each participant member for the DCTRA service area, 5) Establish additional groundwater re-charge facilities for groundwater banking, and 7) Investigate potential groundwater banking opportunities, and continue to monitor and evaluate existing groundwater banking project. Further on page 3-1 of the DCTRA GWMP there is a list of best management objectives to help provide a more reliable groundwater supply. These objectives include: 1) To promote and realize groundwater resource protection, 2) To facilitate groundwater resource sustainability, 3) to develop groundwater resource understanding, 4) to develop groundwater basin understanding, and 5) to promote and facilitate information dissemination regarding the groundwater resource.

In 2011 the District finished a System Optimization Review (SOR) Study funded by the Bureau of Reclamation. This study quantified that on average there is approximately 100,000 acre-feet of groundwater flowing into the District primarily from Lower Tule River ID, Saucelito ID and Delano-Earlimart ID. Given the existing groundwater gradients into PIXID and the amount of groundwater flowing in, the District is still in overdraft by an average of approximately 25,000 acre-feet per year, equating to a decline in average groundwater depths of approximately three feet per year. This analysis of PIXID groundwater resources and the level to which District growers depend

on them for irrigated supplies highlighted the need for greater groundwater resource reliability in the District. Through the PIXID SOR Study several projects were evaluated in terms of their ability to benefit this situation and their associated cost to develop. The proposed DEID-PIXID Groundwater Bank was one of the highest rated projects that were analyzed and clearly showed that it was a priority project for the District. The proposed groundwater banking project will develop new groundwater recharge facilities that the District will be able to use during the wettest months of the year, will bring new supplies of water into the District that will remain as a fractional "leave-behind" part of the project, and will develop finances through which the District could pursue additional groundwater management projects.

The District's groundwater monitoring network is made up of 37 privately owned agricultural wells that are monitored twice a year (spring and fall) through agreements with cooperating landowners. The District participates with other adjacent districts to periodically map groundwater levels in the area, but the number of wells within the District only allows a certain level of detail. Pixley ID encompasses approximately 69,500 acres and the current 37 monitor wells each represent approximately 1,880 acres or 2.9 square miles. The District intends to improve their existing groundwater monitoring well network through the addition of several existing landowner wells in the southeastern portion of the District where their current coverage is somewhat sparse (see **Figure 4-4**). Also the District intends to develop their first two dedicated groundwater monitoring wells and outfit them with data loggers that can collect monthly readings throughout the year. This data will be considerably increase the information available to the District concerning groundwater conditions throughout the year.

The goals and objectives of the groundwater monitoring program are generally to provide the District Board of Directors, staff, land owners, growers and the public information about local groundwater conditions. The specific goals for the groundwater monitoring wells include:

1. Establish a baseline for future monitoring;
2. Fill gaps in District-wide monitoring network;
3. Better defining local groundwater conditions throughout the year;
4. Use monitoring data in part to compute groundwater stored and withdrawn;
5. Provide data needed for graphical, semi-analytical or computer model analysis of groundwater conditions; and
6. Increase groundwater level data in an area lacking data in the statewide network.

The expansion of the groundwater monitoring network will increase the reliability of the District's monitoring effort, will promote groundwater resource protection, will develop

groundwater resource understanding, and will promote and facilitate information dissemination regarding groundwater resources.

The District's goals and objectives through the development of the two new dedicated monitoring well will be to plan, design and install two depth-discrete monitoring wells, evaluate the findings from their installation and present the findings in a report, as well as install data loggers for long term groundwater level monitoring in 96 locations. The wells will provide benefits to District-wide groundwater monitoring, and localized benefit to District's effort to analyze the potential for a new groundwater banking facility. These two groundwater monitoring wells will become the first two monitor wells of several that will eventually be developed to better monitor groundwater conditions and the operations of the proposed groundwater banking project.

The development of two new dedicated monitor wells will increase the reliability of the District's monitoring effort, will promote groundwater resource protection, will develop groundwater resource understanding, and will promote and facilitate information dissemination regarding groundwater resources.

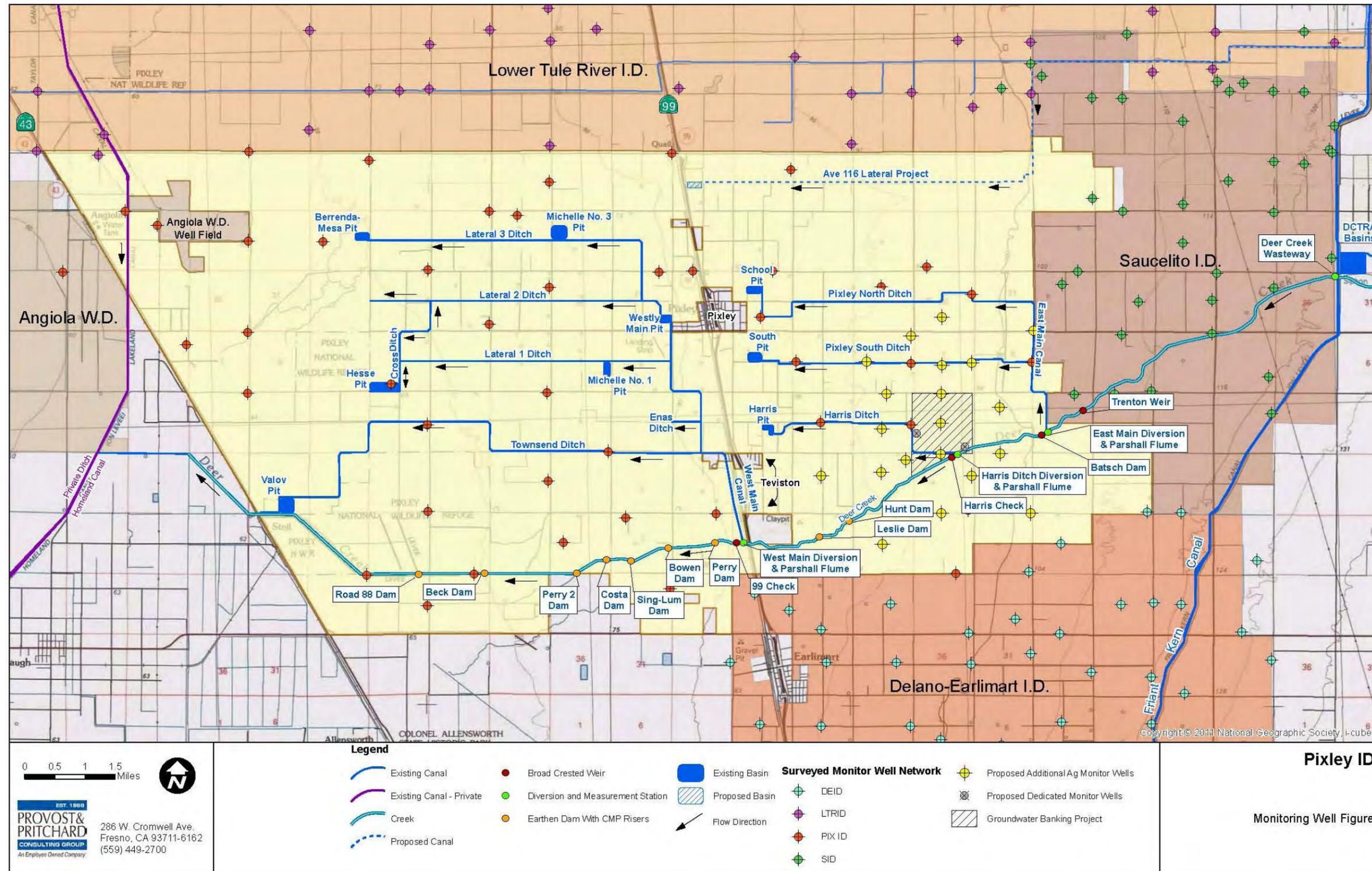


Figure 4.4 – Existing and Expanded PIXID Groundwater Monitoring Network

The District has been pursuing the development of a groundwater model for a potential groundwater banking project in the southeast part of the District. The potential groundwater bank would be located along Deer Creek and would use the existing cone of depression on the east side of the District to store imported water supplies for banking partners. The District would benefit from the potential groundwater banking effort through contractual amounts of seepage left behind as well as finances to purchase additional surface water and to construct and develop additional surface water delivery and groundwater recharge facilities¹. The District has already funded the compilation of the needed data to develop a numerical groundwater model for the potential project area over the period of 1995 – 2006. The District's goals and objectives through the development of the groundwater model are:

1. To develop an numerical groundwater model that will reasonably (within industry standard tolerances) estimate recharge and extraction impacts within a 2.5 mile radius around the groundwater banking project
2. To develop a new analytical tool that will help the District optimize the potential benefits in a new groundwater management effort
3. To develop information to help better inform landowners in the project area about the benefits and impacts of the banking project
4. To engage interested parties and present information on benefits and impacts developed through the numeric model to the PIXID Board of Directors, impacted landowners, and incorporate this information as pertinent into future environmental documents for the project
5. To develop an analysis of the potential project that can show potential banking partners how we expect the facility to possibly operate and what we anticipate local benefits and impacts will be as certain phases of the project are developed
6. To help further PIXID's groundwater banking project toward facility design, funding and eventual construction and implementation;
7. To help further the conversion of a significant regional groundwater depression into a usable groundwater bank for PIXID to temporarily store imported surplus water and thereby benefit PIXID's local groundwater conditions; and
8. Fine tune bank operations.

¹ Pixley ID's current surface water delivery system covers approximately 60% of the District's cropped area and is a significant limitation to the amount of surface water that the District can import to the area.

The development of a numeric groundwater model for a potential groundwater banking project will further the investigation of a potential groundwater banking opportunity, which is one of the highest priority goals listed in the GWMP.

Project Facilities, their location and area covered:

The area covered by the Project is roughly the eastern half of the Pixley ID.

New Groundwater Model:

No facilities will be developed through the effort to develop a new numeric groundwater model to evaluate the potential groundwater banking project within Pixley ID.

The approximate center of the potential groundwater banking site is at the intersection Tulare County Ave 84 alignment and Road 156 alignment. The groundwater recharge facilities are envisioned to be approximately 720 acres mostly comprised of T. 23 S, R. 25 E, Section 12 and 13, M.D.B.&M (see Figure 4-3). Surface water deliveries would occur through the Friant-Kern Canal, then be diverted to Deer Creek and then be diverted into the groundwater bank's recharge facilities at PIXID's Harris Check. The conveyance facility for banked supplies would be a lined ditch on the east side of the Tulare County Road 164 alignment and would travel south into Delano-Earlimart ID to intercept to existing surface water delivery laterals and made deliveries to their downstream service areas. The project concept for the groundwater bank is that it would be capable of recharging 30,000 acre-feet in a year for banking partners and would also be able to extract 30,000 acre-feet in a year for return. The maximum storable volume of groundwater in the bank has been estimated to be 100,000 acre-feet at any time. A 10 – 15% "leave behind" fraction has been envisioned. It is also envisioned that returned supplies to potential banking partners would come from DEID's Friant Division CVP contract entitlement with potential delivery throughout the Friant Division CVP service area.

New wells in the GW monitoring network:

The needed facilities for this portion of the Project involve 20 existing agricultural wells in the 3 mile radius around the potential groundwater banking site. The approximate center of the potential groundwater banking site is at the intersection Tulare County Ave 84 alignment and Road 156 alignment (see **Figure 4-4**).

As part of the investigation into the potential project concept, District staff located each existing agricultural groundwater well within a 3 mile radius around the potential groundwater banking site. 20 of these existing agricultural groundwater wells will be

selected and included in the District's semi-annual groundwater monitoring network. It is anticipated that the number of wells estimated to be included will be fairly easy to reach as it is likely that local landowners will want records of what their groundwater levels were prior to the development of the potential groundwater bank. No facilities will be developed for this portion of the Project, but each well will be surveyed using GPS to establish the precise location of the well as well as the elevation of its measuring reference point. This survey will bring the quality of the elevation and location information on these new wells to an equivalent level to the wells already in the groundwater monitoring network. Also each of the 20 new wells will be researched to determine if a well drillers report and construction records exists for the well or not, and if it does then the screened interval for the well will be recorded by the District to help in evaluation of groundwater level readings. Preference will be given to wells with this available information.

Two New Dedicated Monitoring Wells:

Two new dedicated monitoring wells will be developed around the perimeter of the proposed groundwater banking project site (T. 23 S, R. 25 E, Section 12 and 13, M.D.B.&M). These two monitor wells are anticipated to both be 500-foot deep and be 4-inch PVC casings. Each monitoring well will be outfitted with a battery power data logger, a data collection cable, a data collector (one for both wells) to facilitate the collection and retrieval of regular groundwater elevation readings from the wells. Both wells will have sanitary seals installed at 50-feet below ground surface as per Tulare County requirements. Both wells will have lockable metal housing fixed to concrete pads to prevent tampering with the well or accidental damage. Also each well will be surveyed using GPS to establish the precise location of the well as well as the elevation of its measuring reference point.

Quality and usefulness of information:

PIXID currently monitors groundwater in agricultural production wells. Dedicated monitoring wells have advantages over using production wells for groundwater monitoring, including the following:

- Groundwater levels cannot be measured in production wells while they are pumping, often resulting in discontinuous data with information missing in many years.
- Monitoring technicians may not know how long pumps have been turned off, and if groundwater has recovered to a static level.
- One may not know which aquifer is being monitored in production wells when construction details (e.g. depth, perforated interval) are missing.

- Electronic pressure transducers (data loggers) are more easily damaged or lost in production wells.

Overall there is increased confidence in the quality of data produced from monitoring wells compared to production wells not designed for monitoring.

The dedicated monitor wells and additional agricultural wells that will be monitored will add a significant number of additional observation locations within the southeastern portion of the District where a new groundwater banking facility is being considered. Together they will increase the District's monitored groundwater sites by 54%. The additional monitoring locations will provide much greater detail to the understanding of groundwater levels in the District and in the region. This information will also allow the District to develop much more detailed depictions of groundwater contours in this area.

The information on benefits and impacts to landowners in the area of the potential groundwater banking project developed through the numeric groundwater model will be accurate to industry standards and will be based on the best supporting data available. The information developed through the numerical model will evaluate historic data over an eleven year period (1995 – 2006) in an effort to consider banking project benefits and impacts in several different year types and combinations. This type of evaluation will be extremely useful to the District and local landowners as the District considers developing the banking project. Also the conceptual groundwater model and the geological information developed for the numerical model will better describe the aquifer system within Pixley ID and better inform the District about local groundwater resources.

7.2 Quality and Usefulness of the Information

Describe the quality and usefulness of the information that will be obtained using technically feasible methods. Include a discussion of data, technical methods, and analyses to be used. The level of detail should be sufficient to determine the technical feasibility of the proposed project.

The data obtained through the Project will be through technically feasible methods. For the depth to groundwater readings from additional monitoring wells these methods will include:

1. Measurement using a calibrated District sounder from a GPS surveyed reference point with District standard collection procedures, or
2. Measurement using a pressure calibrated data logger suspended at an elevation within a dedicated monitoring well with a means to download automated readings taken at regular intervals.

Both of these means of data collection are feasible and used very regularly in groundwater monitoring. The data collection methods are both very accurate when the

reference locations are surveyed to determine their precise elevation relative to other monitoring wells and where barometric data is available to account for longer measurement periods. Depth to groundwater readings will regularly be evaluated in groupings of similar depth wells and outliers identified and removed from the data sets.

The quality of the information obtained from the numeric groundwater model evaluating the proposed groundwater banking project will be very high as the model will have been developed by experienced and qualified specialists in groundwater modeling, the best available information will be used to develop the model and people with years of experience with the District will evaluate the results and provided input on the project team at key points along the way. Given the previously compiled data from the area surrounding the proposed groundwater banking project it is technically feasible to develop this kind of model and evaluate the banking project's benefits and impacts to local landowners. Please refer to Section 8.3.3.5 for a more detailed description of the type of numeric groundwater model planned for development and the technically feasible methods and software packages used to develop this evaluative tool.

The additional depth to groundwater information and the benefit and impact information developed from the numeric groundwater model will both be very useful to the District in groundwater management efforts. The depth to groundwater information will provide additional detail to the existing monitoring network and provide a more accurate representation of existing conditions in that area. The benefit and impact information developed for the potential groundwater banking project will help the District, potential banking partners, local landowners, and others understand how the likely operations of the project would affect them and provide an opportunity to try to minimize impacts and maximize benefits from the project.

The effort will be to employ qualified professionals to address technical issues within their areas of expertise to obtain the best data and evaluation of that data possible. It is the intention of the District to use regular project team meetings as a tool to receive updates on project progress, identify tasks that are not proceeding according to the project schedule and why they are not, identify means to address the issues delaying project tasks and document project progress, project management decisions and the status of expenditures versus the project budget.

The entire project will be evaluated through P&P's standard Quality Control process. This project management policy defines specific requirements and expectations of project managers and other team members in the preparation of quality deliverables. In

addition, supplemental tools are included to assist implementation of the expected actions.

7.3 Applicant Collaboration

Describe how the applicant collaborates with other local public agencies with regard to the management of the affected groundwater basin. Discuss and provide evidence that a process is or will be in place that informs groundwater users, stakeholders, and the general public about the project to be funded with the proposed grant and disseminates relevant reports and data. A stakeholder is an individual, group, coalition, agency or others who are involved in, affected by, or have an interest in the implementation of a specific program or project. Explain and document how federal and other State agencies will be contacted. Examples include workshops, regularly scheduled groundwater association meetings, public notices, informational mailings, and websites.

Process to inform GW users, stakeholders and general public:

Public outreach will include presentations at public Board of Directors meetings, posting of information on the District's website, posting in the District office, sending project information out to customers with a regular invoice, and dissemination of project information at the PIXID annual growers' meeting. These all are intended to inform the public about the project and solicit their input.

Specifically regarding the development of the numeric groundwater model evaluation, it is anticipated that the modeling consultant would regularly be in contact with District staff regarding progress on the effort and that this information would be regularly relayed to the PIXID Board of Directors at their monthly public meetings. Periodic project update memos would be generated by the consultant to formally document progress to help District staff and the Board of Directors to evaluate how to schedule related efforts. When the results of the numeric groundwater model area prepared and summarized they will first be presented to PIXID staff and the Board of Directors in a presentation at a public Board meeting. After this a joint PIXID and DEID Board of Directors meeting would be scheduled and the model results would be presented again. After this a meeting would be scheduled with the DCTRA Board of Directors to present the model results so that the member districts within the sphere of the groundwater management plan understood the planned operations, benefits and impacts of the potential project. After this the District would invite landowners in the area of the potential groundwater bank to a public meeting for the presentation of groundwater modeling results. Specific invitations would be sent to landowners in the area of the potential project, but the meeting would be publicly noticed and would be open to the public.

Document how federal and other State agencies will be contacted:

Information will be disseminated to the State of California, local water agencies, local growers and the general public through a variety of methods. Refer to Section 5.9, which provides a detailed discussion on information dissemination efforts.

Applicant Collaboration:

Pixley Irrigation District is located in the Tule Groundwater Sub-basin, which includes numerous municipalities, irrigation districts, water districts and private water companies. PIXID has made many efforts to communicate and coordinate with these agencies. Please see Appendix 4-A for a sample of support letters received. Below is a list of some agencies that Pixley ID has worked with in managing groundwater on a local and regional scale:

- Deer Creek and Tule River Authority
- Tule Integrated Regional Water Management Group
- Lower Tule River ID
- Delano-Earlimart ID
- Friant Water Authority
- Tulare Basin Wildlife Partners
- California Farm Water Coalition
- Agricultural Water Management Council
- Association of California Water Agencies

A description of each of the organizations follows:

Deer Creek and Tule River Authority

PIXID is a member of the Deer Creek and Tule River Authority (DCTRA), a 7-member group of water agencies that was formed to administer and manage surface water and groundwater in the Tule River and Deer Creek areas. The benefits of DCTRA membership also include conflict resolution mechanisms, and improved coordination among member agencies. The DCTRA opens lines of communication so that members can work together effectively to utilize, trade, and transfer water and within the context of a common groundwater area. Through their membership in DCTRA, PIXID is participating in a groundwater management plan. PIXID regularly purchases surplus water supplies from other DCTRA member entities such as Lower Tule River ID, Porterville ID, Saucelito ID, and Terra Bella ID.

Tule Basin Integrated Regional Water Management Group

PIXID is a participating agency in the Tule Basin Integrated Regional Water Management Group. PIXID attends its meetings and participates in other efforts and projects. The Group is developing an Integrated Regional Water Management Plan that is planned for completion in the fall of 2012.

Lower Tule River ID

Lower Tule River ID (LTRID) is immediately north of PIXID and has historically been a water management partner as both districts understand that the groundwater conditions in both districts impact all of their landowners. Both districts are a part of the DCTRA and there are many common landowners between the two districts. LTRID and PIXID's water supply partnership often presents itself when LTRID has surplus supplies and they make these uncommitted supplies available to PIXID first before seeking other transfer partners. LTRID has often agreed to transfer surplus supplies to PIXID at cost because of they understand the benefit to LTRID of having PIXID receive these supplies. LTRID and PIXID also share management, operations and maintenance staff, and equipment and support facilities.

LTRID was also an important water supply partner that was evaluated in the 2011 PIXID System Optimization Review Study funded by a grant from the Bureau of Reclamation. Through this study a project was identified that used the existing capacity of an existing LTRID conveyance facility to help develop a new delivery system within PIXID that was not dependant on Deer Creek and therefore would not suffer the same high seepage losses as the other existing systems within PIXID. Also, through this study, the concept of a groundwater bank was conceptually evaluated and elevated as a District priority

Delano-Earlimart Irrigation District

Delano-Earlimart Irrigation District (DEID) is located along PIXID's southern border. The two districts have been investigating a potential groundwater banking project since they jointly funded a reconnaissance investigation into the concept in 2008. Since then they have created a joint committee to receive regular information on the progress of the project, have funded the development of a financial model for the conceptual project, have funded the development of a conceptual groundwater model, have funded the research and development of the data needed to undertake a numeric groundwater model and accomplished preliminary meetings with project area landowners regarding land rights, the project's status, and have established what lines of communication are for them regarding how the Districts are proceeding. DEID and PIXID have had joint Board of Director meetings related to groundwater banking project developments. DEID

is a neighboring Friant Division CVP contractor and is a member entity of the Poso Creek IRWM Group.

Friant Water Authority

PIXID is a member agency of the Friant Water Authority (FWA), an umbrella organization for 20 water agencies in the Central Valley. The FWA represents approximately 1,000,000 acres of federal water service contractors within the eastern San Joaquin Valley (Madera, Fresno, Kings, Tulare and Kern Counties). The FWA serves the information and representation needs of its members by developing, providing, and disseminating information to legislative, administrative and judicial bodies concerning a variety of water resources issues and operates and maintains the Friant-Kern Canal.

Tulare Basin Wildlife Partners

The Tulare Basin Wildlife Partners (TBWP), a non-governmental organization (NGO) that is incorporated as a 501(c) (3) in the State of California and is affiliated with the Tulare Lake Basin Working Group (TLBWG). The mission of the TBWP is to protect, enhance, and restore wildlife and their habitats in the Tulare Lake Basin. The mission of the TLBWG is to conserve and restore natural communities in the Tulare Basin by helping to coordinate existing and future projects among agencies and conservation organizations. The TLBWG currently includes 25 public agencies and private organizations. PIXID has worked on a groundwater banking and habitat restoration project with the TBWP at the DCTRA basins and in consideration of riparian habitat protection and enhancement along Deer Creek.

Agricultural Water Management Council

PIXID is a member of the Agricultural Water Management Council (AWMC or Council). The AWMC was formed in 1996, following the work of an advisory committee formed by Assembly Bill (AB) 3616, Agricultural Efficient Water Management Act of 1990. The Council consists of members of the agricultural and environmental communities and other interested parties. The members have an expressed goal to voluntarily develop Water Management Plans and implement Efficient Water Management Practices (EWMPs) to further advance water use efficiency. Members participate by signing a Memorandum of Understanding.

Association of California Water Agencies

PIXID is an active member of the Association of California Water Agencies (ACWA). ACWA fosters cooperation among all interest groups concerned with stewardship of California's water resources.

Tribal Entities

No tribal entities are located in PIXID.

Dispute Resolution

PIXID has a dispute resolution policy documented on Appendix C of the 2012 DCTRA GWMP (**see Appendix 3-3**). Since there are few private wells in the District groundwater disputes are uncommon. If they do occur they would probably involve neighboring agencies. As a result, PIXID has worked to develop cooperative and cordial relationships with neighboring districts. The policy will help ensure that disputes are resolved in an amicable manner.

7.4 Use of Products after Funds are Expended

Explain how ongoing use of the products derived from the proposed project will be funded after grant funds are expended. Additional State grant funds to continue with the funded project should not be a consideration. Provide examples of how often and under what funding mechanism monitoring wells will continue to be monitored, models maintained and used in the future, automated monitoring equipment maintained, or data management systems be updated and maintained. Include a discussion of measures that will be used to evaluate data and mechanisms to adapt the data collection process as new information is obtained. For proposals to develop a GWMP, explain how the GWMP will be implemented and how it will be funded.

On-going funding for and use of products:

PIXID is committed to funding an effort to gather groundwater level information throughout the District and evaluate it regularly so as to stay informed about conditions within the District and throughout the region in order to manage resources as effectively as possible. The effort to monitor the additional wells and new monitor wells will be included in the District's operating budget and will be a very small increase in comparison to their total operations and maintenance budget. It is anticipated that the effort to annually evaluate the semi-annual readings will also slightly increase due to the greater number of data points, but this is also understood to be a very small increase in terms of what is currently being allocated to the on-going effort. PIXID and the DCTRA regularly evaluate groundwater levels in within the seven member districts and generate

groundwater contours from the available data. These efforts will continue and will be improved through the newly available data within PIXID.

The development of a numeric groundwater model to evaluate the potential impacts and benefits of groundwater bank in the eastern half of PIXID will be a significant tool to aid the District in understanding of bank operations. PIXID and DEID have funded the development of data for the base information that the numeric model would be built from. The numeric model development will help to inform the District Board of Directors, staff, local landowners, growers, potential banking partners and the public about the foreseeable benefits and impacts of the development and operation of the groundwater bank. It is likely that after the groundwater bank is developed that the numeric model would continue to be used to refine bank operations and could be built upon for other applications needing modeled situations. Any further refinement or operation of the numeric groundwater model would be funded by the District and/or project partners. Using the developed model as a foundation, it would be possible for the District to consider other groundwater banking opportunities like in-lieu banking through Avenue 116 Lateral Project or other groundwater banking projects on the east side of the District.

Measures to evaluate data and adapt processes:

During the development of the two new dedicated monitor wells a soils testing professional will be on site logging the earthen material as the holes are drilled. Based on the information that is logged per section of depth, casing determinations will be made as to what intervals are screened and which are blank casing.

Regular measures will be used to evaluate the monitoring well data from the 20 wells added to PIXID's groundwater monitoring network and the two new dedicated monitor wells. Logged data will be recorded and compared with previous readings (well hydrographs). Observations will be take at the time of measurement to note any difficulty or oddity in the reading in order to identify problems like maintenance issues or failing equipment as quickly as possible. Wells are and will be segregated into categories of screened depth so that wells potentially showing lower, higher or a mixture of aquifers readings will not be mistaken for a common set of groundwater levels from one aquifer. Groundwater contours will be developed using both GIS software and the evaluation of a qualified professional with many years of experience consulting on local groundwater. Dedicated monitor wells will be sounded for depth to groundwater regularly so that this information can be compared to the level logger information that is downloaded from the loggers. Based on the timing of groundwater level



measurements, barometric pressure may also be accounted for if there was a significant change during the collection of a season's data.



July 12, 2012

OFFICERS

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Vice-President

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Division 1

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Division 2

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Division 3

Anton G. Caratan
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Dale R. Brogan
General Manager

Tom Lutterman
California Department of Water Resources
Division of Integrated Regional Water Management
Regional Planning Branch
PO Box 942836
Sacramento, CA 94236-0001

RE: Pixley Irrigation District P84 LGA 2012 Grant Application

Dear Mr. Lutterman:

The Delano-Earlimart Irrigation District (DEID) supports the plan of Pixley Irrigation District (PID) to reduce conflict over limited surface water resources in the southern San Joaquin Valley through further development of this local groundwater banking project to capture and regulate available supplies in above average years. Conjunctive use of available supplies has long been utilized in this area and will be more fully developed in this Proposition 84 LGA grant to further study and define the project through the Local Groundwater Assistance Fund.

DEID has long been connected and active in groundwater management policies in southern Tulare County, as has PID. It is the responsibility of local agencies to safeguard the available resources and to utilize them to their fullest potential. The investigation into groundwater banking projects along Deer Creek will potentially turn the vast available storage reservoir beneath the district from a burden into an asset while helping to better manage surface water supplies in wet years for the district and for potential partners.

DEID supports the project proposed by PID and believes it meets the Local Groundwater Management Assistance Act of 2000 goals: 1) conducting a water study and 2) carrying out groundwater monitoring and management activities. The proposed numerical model and monitoring network expansion will help better define local aquifer parameters, groundwater quality and aid the district in evaluating the potential of groundwater banking efforts to mitigate diminished surface water supplies.

Sincerely,

Dale Brogan, General Manager
Delano-Earlimart Irrigation District



Lower Tule River

Irrigation District

SINCE 1950

Anton G. Simonich
President

July 11, 2012

Gary Fernandes
Vice President

Jim Costa
Director

Tom Lutterman
California Department of Water Resources
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John Roeloffs
Director

Tom Barcellos
Director

RE: Pixley Irrigation District P84 LGA 2012 Grant Application

Daniel G. Vink
General Manager

Dear Mr. Lutterman,

Eric Limas
Treasurer

Lower Tule River Irrigation District supports Pixley ID's plan to reduce conflict over limited surface water resources in the southern San Joaquin Valley through further development of this local groundwater banking project to capture and regulate available supplies in above average years. Conjunctive use of available supplies has long been utilized in this area and will be more fully developed in this Proposition 84 LGA grant to further study and define the project through the Local Groundwater Assistance Fund.

Beth Grote-Lewis
Assessor

Alex Peltzer
Legal Counsel

Lower Tule River Irrigation District has supported and appreciated Pixley ID's groundwater management policies in southern Tulare County. It is the responsibility of local agencies to safeguard the available resources and to utilize them to their fullest potential. The investigation into groundwater banking projects along Deer Creek will potentially turn the vast available storage reservoir beneath the district from a burden into an asset while helping to better manage surface water supplies in wet years for the district and for potential partners.

Lower Tule River Irrigation District supports the project proposed by Pixley ID and believes it meets the Local Groundwater Management Assistance Act of 2000 goals: 1) conducting a water study and 2) carrying out groundwater monitoring and management activities. The proposed numerical model and monitoring network expansion will help better define local aquifer parameters, groundwater quality and aid the district evaluating the potential of groundwater banking efforts to mitigate diminished surface water supplies.

Sincerely,

Dan Vink
General Manager

357 E. Olive Avenue
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(559) 686-4716
or (559) 752-5050
FAX (559) 686-0151
e-MAIL ltrid@ltrid.org



Protect farmer's and
their water !



STONE CORRAL IRRIGATION DISTRICT

July 12, 2012

DALE WEST

MANAGER

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Tom Lutterman
California Department of Water Resources
Division of Integrated Regional Water Management
Regional Planning Branch
PO Box 942836
Sacramento, CA 94236-0001

RE: Pixley Irrigation District P84 LGA 2012 Grant Application

Dear Mr. Lutterman,

Stone Corral Irrigation District supports Pixley ID's plan to reduce conflict over limited surface water resources in the southern San Joaquin Valley through further development of this local groundwater banking project to capture and regulate available supplies in above average years. Conjunctive use of available supplies has long been utilized in this area and will be more fully developed in this Proposition 84 LGA grant to further study and define the project through the Local Groundwater Assistance Fund.

Stone Corral Irrigation District has supported and appreciated Pixley ID's groundwater management policies in southern Tulare County. It is the responsibility of local agencies to safeguard the available resources and to utilize them to their fullest potential. The investigation into groundwater banking projects along Deer Creek will potentially turn the vast available storage reservoir beneath the district from a burden into an asset while helping to better manage surface water supplies in wet years for the district and for potential partners.

Stone Corral Irrigation District supports the project proposed by Pixley ID and believes it meets the Local Groundwater Management Assistance Act of 2000 goals: 1) conducting a water study and 2) carrying out groundwater monitoring and management activities. The proposed numerical model and monitoring network expansion will help better define local aquifer parameters, groundwater quality and aid the district in evaluating the potential of groundwater banking efforts to mitigate diminished surface water supplies.

Sincerely,

William D. West, Secretary/Manager
Stone Corral Irrigation District



Vandalia Water District
2032 S. Hillcrest
Porterville, Ca.93257

7/12/12

Tom Lutterman
California Department of Water Resources
Division of Integrated Regional Water Management
Regional Planning Branch
PO Box 942836
Sacramento, CA 94236-0001

RE: Pixley Irrigation District P84 LGA 2012 Grant Application

Dear Mr. Lutterman,

Vandalia Water District supports Pixley ID's plan to reduce conflict over limited surface water resources in the southern San Joaquin Valley through further development of this local groundwater banking project to capture and regulate available supplies in above average years. Conjunctive use of available supplies has long been utilized in this area and will be more fully developed in this Proposition 84 LGA grant to further study and define the project through the Local Groundwater Assistance Fund.

Vandalia Water District has supported and appreciated Pixley ID's groundwater management policies in southern Tulare County. It is the responsibility of local agencies to safeguard the available resources and to utilize them to their fullest potential. The investigation into groundwater banking projects along Deer Creek will potentially turn the vast available storage reservoir beneath the district from a burden into an asset while helping to better manage surface water supplies in wet years for the district and for potential partners.

Vandalia Water District supports the project proposed by Pixley ID and believes it meets the Local Groundwater Management Assistance Act of 2000 goals: 1) conducting a water study and 2) carrying out groundwater monitoring and management activities. The proposed numerical model and monitoring network expansion will help better define local aquifer parameters, groundwater quality and aid the district in evaluating the potential of groundwater banking efforts to mitigate diminished surface water supplies.

Sincerely,

Steve Drumright
General Manager
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