

3.3 Project 3 – Allensworth Tank Replacement and SCADA Upgrade

3.3.1 Introduction

The Allensworth Tank Replacement and SCADA Upgrade project (Project) will provide funding to address a critical water supply need in a DAC, the community of Allensworth. Allensworth is an economically-challenged community based on the comparison of the statewide median household income and is therefore classified as a DAC. The community is served water by the Allensworth Community Services District (ACSD or District). The ACSD is located in southwestern Tulare County and provides street lighting and domestic water service to its customers. The District is bounded by Avenue 24 to the south, Highway 43 to the east, its western boundary extends approximately 200 meters west of Young Avenue and its northern boundary extends approximately ½ mile north of Avenue 39. In total, the District encompasses an 804-acre area. The District's system is regulated by the Tulare County Environmental Health Services Division (Tulare Environmental Health), which is responsible for the administration and enforcement of the Safe Drinking Water Act involving systems in Tulare County with fewer than 200 connections. The District was formed in 1967 and at the time of its formation the ACSD was authorized to provide the following services:

- Water for domestic use
- Street lighting

The ACSD was established in accordance with the Community Services District Law, Government Code Sections 61000 and was formed to provide a permanent form of governance that can provide locally adequate levels of public facilities and services to residents and property owners within their jurisdictional boundaries. The District's water system serves approximately 116 active connections to a population of approximately 400.

The ACSD community water system consists of two wells (East well and West well), which are located approximately three miles east of the community. The wells are a few hundred feet apart on an east-west line and supply a common 6" pipe line to a 42,000 gallon storage tank. A transfer Pump Station consisting of a centrifugal pump is located at each well site and draws water from the tank and delivers it to a 5,000 gallon pressure tank and then to a network of pipelines for distribution to its customers. The water system contains no treatment method. In this regard, the ACSD's water system does not include a water treatment plant for water treatment.

The Allensworth Tank Replacement and SCADA Upgrade project consists of making improvements to ACSD's existing water system including (1) replacing the 42,000 gallon ground-level storage tank with an elevated 55,000 gallon steel tank and (2) upgrade to the

existing Supervisory Control and Data Acquisition (SCADA) system to allow for a more efficient, cost-effective, and more reliable operation of the DAC water supply.

The Project would be constructed by the ACSD under contract with Semitropic WSD and in collaboration with the County of Tulare. The ACSD would be responsible for all monitoring and reporting required for the project, including monitoring discussed in Attachment 6 of this application. The project budget and schedule are presented in Attachments 4 and 5. Additional information is included in Appendix 3.3-1 to this Section 3.3.

3.3.1.1 Goals and Objectives

The Project accomplishes multiple goals and objectives of the Poso Creek Integrated Regional Water Management Plan (IRWMP). Exhibit 3.3-1 below presents a selection of the Poso Creek IRWM Plan Objectives, and how the Project Goals and Objectives coincide with them:

Exhibit 3.3-1

IRWM Plan Objectives	Project 3 Goals and Objectives
Enhance Water Supply	<p>Project 3 will provide funding to replace an emergency supply tank in a DAC.</p> <hr/> <p>Project 3 will provide funding to improve a SCADA system to ensure reliability and decrease operating costs for ACSD which supplies a DAC.</p>
Maintain water supply costs at a level affordable to DAC communities and the continued viability of the agricultural economy which has developed in the area	Project 3 will provide funding to upgrade a SCADA system that will ensure reliability and decrease operating cost for ACSD which supplies a DAC and the Allensworth State Historic Park.

3.3.1.2 Purpose and Need

The Project will improve the water quality and water supply reliability to the DAC of Allensworth. With regards to water supply reliability, the Project will improve the reliability of both daily water supplies and emergency water supplies in the DAC of Allensworth. In addition, the Project will improve operational efficiency and ensure acceptable water quality. The Project consists of two elements as follows:

- Replacement of the ACSD’s water storage tank used for storing emergency supplies.
- Upgrade of SCADA control system.

Allensworth Community Services District is a small district serving a low-income customer base. As such, ACSD’s resources are extremely limited, yet the District is coping with a number of essential challenges which impact the health and safety of the residents. One of

ACSD's two supply wells ("East well") is contaminated with Arsenic, a common contaminant in the Poso Creek area (refer to Appendix 3.3-1 for a copy of the Compliance order for violations in Arsenic). The second well ("West well") is borderline for Arsenic, occasionally testing above the Maximum Contaminant Level (MCL). ACSD will begin work on a Feasibility Study that will analyze and recommend the best long-term solution to this contamination issue. The District is also a sub-grantee to Poso Creek IRWMP's Implementation Grant from Round 1 and is utilizing these funds to explore the feasibility of well modification to select for higher-quality groundwater.

In addition to contamination, ACSD is coping with an aged and dilapidating infrastructure. The 42,000 gallon storage tank that provides water supply reliability and emergency supplies is corroded and leaking, and cannot be filled to its full capacity due to holes in the tank. The tank is presumed to be the source of occasional total coliform contamination in the distribution system, and requires manual chlorination once per month to avoid violation of the Total Coliform Rule. Maintenance of the tank's poor condition is an operational burden and is costly to the ACSD. The tank dates to about 1984, and at nearly thirty years of age is at the end of its useful life. Replacement is the recommended course of action. Replacement will also allow a slight upgrade in capacity (from 42,000 to 55,000 gallons) which will allow for some expansion in the ACSD system. The ACSD struggles for lack of revenue and the ability to allow additional customers will be a benefit to its bottom line.

Currently, water supply reliability is another serious problem in Allensworth. Periodic failure of the electrical control system at the well sites and booster pumps has resulted in numerous unplanned water outages over the years. This problem is magnified by the limited storage capacity. Upgrading and improving the SCADA controls will drastically improve reliability. Daily operational efficiency will also be improved, eliminating the need to make trips to the control sites for manual operation.

The community of Allensworth is a District on the National list of Historic Places. The community has a long history with water problems. Within a few years of the community's founding, water problems began developing and by 1914 had become serious. Declining water tables throughout the area and increasing problems with alkali salts helped to stifle growth in the community. As the original settlers moved away, the land values declined, some of the houses were left empty, and others were rented or sold. By the 1950 and 60s, Allensworth became an impoverished area without drinkable water supplies; its only water wells were contaminated with Arsenic, and State health officials declared them unusable.

In 1967, the Allensworth Community Service's District was formed and at the time of its formation the ACSD was authorized to provide the following services to the community of Allensworth:

- Water for domestic use
- Street lighting

The ACSD was established in accordance with the Community Services District Law, and was formed to provide a permanent form of governance to provide locally adequate levels of public facilities and services to residents and property owners within their jurisdictional boundaries.

In the Poso Creek Region, Arsenic is a highly prevalent naturally occurring element in the groundwater due to the natural geology, predominantly found in the deeper parts of the aquifer. In order to obtain water of acceptable quality, the ACSD now develops water supplies for its water system from two wells located several miles outside the District boundaries. The wells were constructed three miles east of the community in order to avoid naturally occurring excessive levels of Arsenic in the aquifer underlying the community.

Although both wells were constructed outside of the District's boundaries in an area with lesser Arsenic levels, the East well still produces water that exceeds EPA and State standards for Arsenic. The problem well (the East well) has Arsenic levels of approximately 6 to 12 ppb. The acceptable MCL for potable water is an Arsenic level of less than 10 ppb. Currently to address the high Arsenic levels, water from this problem well must be blended with water from the other well, which also has Arsenic contamination that hovers around the MCL. The distances between each well and between the wells and the community cause serious operational problems (such as water hammer, well shutdown and uneven blending). This leads to water quality issues and water supply reliability issues which can only be addressed by replacing the water storage tank upgrading the SCADA system.

The operation and maintenance of the ACSD water system is exclusively financed through user and connection fees charged to system customers. Because ACSD's pool of customers consist of a very small and economically-disadvantaged pool of customers, it becomes difficult to finance system operation and maintenance including to address unexpected infrastructure failures, schedule capital projects (e.g. replacement of pipes and conveyances) and address water supply contamination in a timely manner.

The operation and maintenance of the ACSD water system is a significant financial liability because the ACSD does not have the mechanism in place to accumulate a healthy reserve to finance system operation and maintenance. The ACSD's pool of customers consist of a very small (approximately 116 connections) and economically disadvantaged pool of customers which makes it difficult to implement various revenue raising mechanisms such as rate hikes, benefit assessments, or special taxes to finance operation and maintenance of the water system. A recently proposed rate increase was defeated under Proposition 218. In this regard, the District's poor financial condition makes it difficult for ACSD to make any much needed maintenance on their water system absent state or federal grants/loans. Without any funding assistance, ACSD's water system is at a risk of experiencing complete failure and poses a health risk to the community of Allensworth.

The proposed Project was added to the Integrated Regional Water Management Plan for the Poso Creek Region after its adoption in collaboration between the RWMG and representatives from DAC communities. This Region includes the Applicants and several other water districts that share a common groundwater resource. In particular, the Projects were determined to be a high priority with regard to achieving the goals set forth in the Plan, where the overarching goal is improve water supply reliability and quality of supplies delivered to DAC areas within the Poso Creek Region.

3.3.1.3 Project Abstract

The Allensworth Tank Replacement and SCADA Upgrade project (the Project) will provide funding to address a critical water supply need in a DAC, the community of Allensworth. The Project will help address water quality and water supply reliability issues currently experience by ACSD. The Project consists of making improvements to ACSD's existing water system including (1) replacing an existing water tank and (2) upgrade of a SCADA system. The ACSD's wells were constructed three miles east of the community in order to avoid naturally occurring excessive levels of Arsenic in the aquifer underlying the community. One of the wells (east well) still produces water that exceeds EPA and State standards for Arsenic with levels of approximately 6 to 12 ppb, over the acceptable MCL for potable water of 10 ppb. To address the high Arsenic levels, water from the East well is blended with water from the other well, but the second well produces water that occasionally exceeds the MCL for Arsenic. The distances between each well and between the wells and the community cause serious operational problems (such as water hammer, well shutdown and uneven blending). This leads to water quality issues and water supply reliability issues which can only be addressed with replacing the water storage tank and improving the SCADA system. The (SCADA) system would allow for a more efficient, cost-effective, and reliable operation of the DAC water supply.

The Project would be constructed by the ACSD under contract with Semitropic WSD, as the Grant recipient and in collaboration with the County of Tulare. The ACSD has completed engineering evaluation of the tank rehabilitation, and the project can be easily constructed under a design-build contract with a tank contractor. No additional engineering is needed. The ACSD has received a bid for cost of upgrades to the SCADA system.

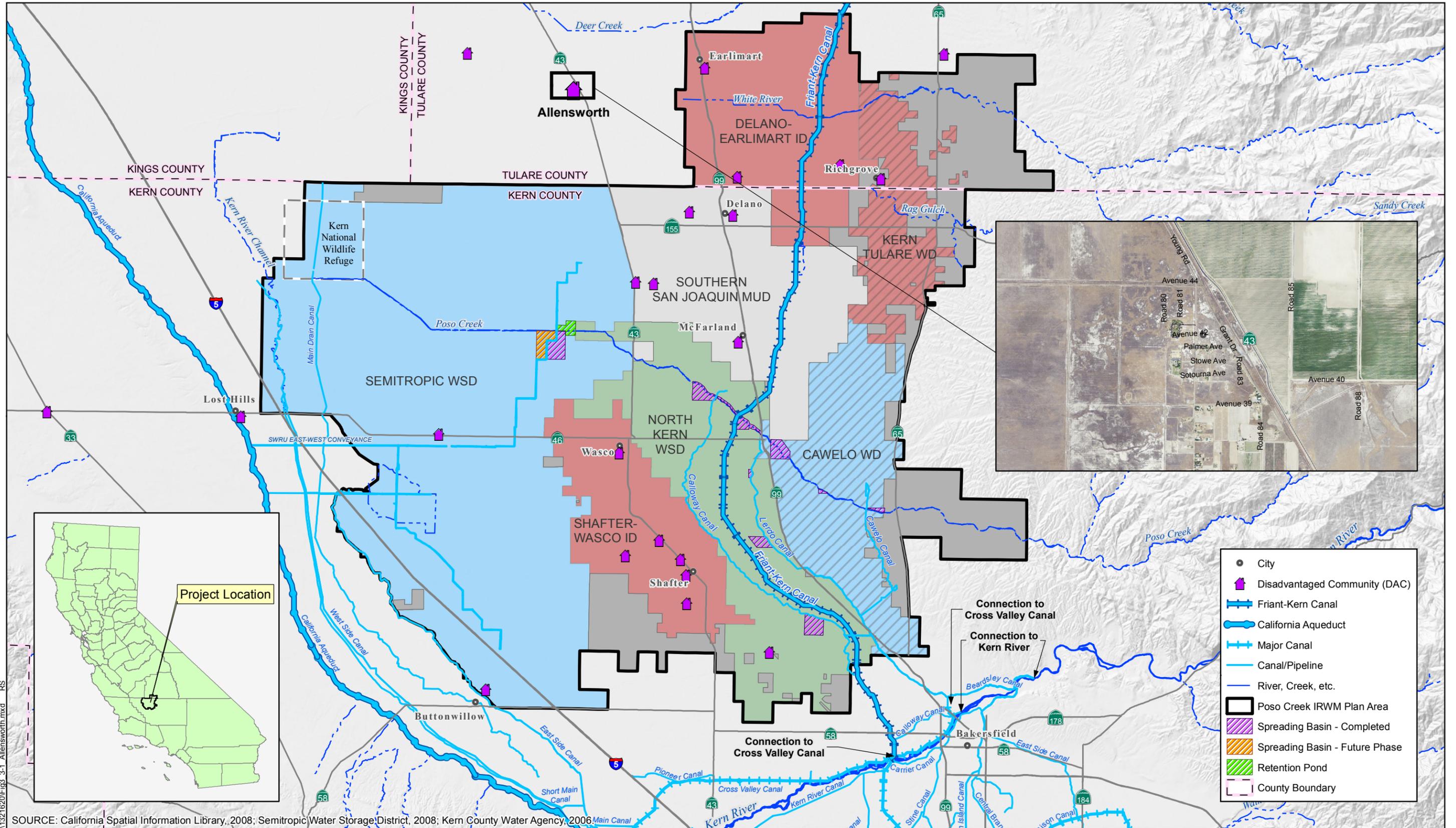
3.3.1.4 Integrated Elements of Project

The Project is a component of the Poso Creek IRWM Plan (Plan), specifically Project 29 of the Plan, to Assist Disadvantaged Communities to Enhance Water Supply, Drinking Water Treatment, and Waste Water Treatment Facilities. The Project will allow a small water supply system serving a DAC in the Poso Creek Region to better utilize its ground water supply and meet water quality objectives necessary to protect the health of its citizens. Under funding provided by the Round 1 Implementation Grant, ACSD is completing a feasibility study evaluating the use of well modifications to improve water quality. Under additional Proposition 84 funding provided by the Department of Public Health, a broader

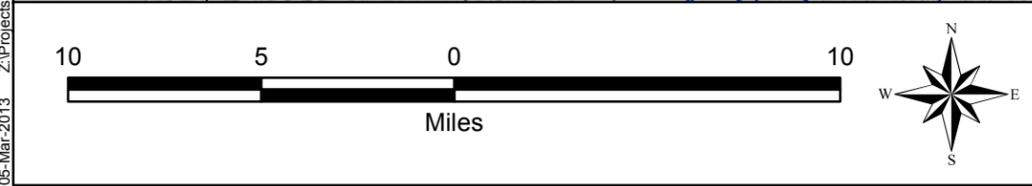
Feasibility Study is being conducted to analyze and recommend the best long-term solution to Allensworth's Arsenic problem. This Project would use the results of that work to provide benefit towards meeting one of the Region's highest priorities; providing an affordable water supply to users within the Region. This Region includes the Applicants and several other water districts that share a common groundwater resource.

3.3.1.5 Regional Project Map

The community of Allensworth is shown on Figure 3.3-1. Delineation of Census boundaries used as the basis for DAC status is as well.



SOURCE: California Spatial Information Library, 2008; Semitropic Water Storage District, 2008; Kern County Water Agency, 2006



Poso Creek IRWMP Implementation Grant Proposal
Poso Creek IRWMP Region



ALLENSWORTH TANK REPLACEMENT AND SCADA INSTALLATION PROJECT 3 LOCATION
MARCH 2013
FIGURE 3.3-1

05-Mar-2013 Z:\Projects\1321620\Fig3_3-1_Allensworth.mxd RS

3.3.1.6 Completed Work

The ACSD has retained an engineering consulting firm to prepare a Water Supply Assessment (WSA) for the ACSD water system. A draft copy, dated March 2012 has been prepared. The WSA evaluated the following: (1) existing demands; (2) future needs; (3) existing water infrastructure; (4) water quantity; (5) water quality; (6) possible mitigation measures; (7) evaluated alternatives; and (9) offered recommendations. A copy of the report is included in Appendix 3.3-1. No other work has been completed for this project.

3.3.1.7 Existing Data and Studies

The following technical reports define the ground-water quality problems in the Region and support the recommendations to pursue this project as discussed within the Poso Creek Region.

California Department of Public Health, Division of Drinking Water and Environmental Management. *Small Water System Program Plan*; October 2012

Aqua Resources, Inc. *West Bakersfield Ground Water Toxics Management Study*. Draft. 1986.

Community Self Help. *Summary of DAC Water Supply Issues*.

Kenneth C. Schmidt and Associates. *Biennial Groundwater Monitoring Report for the Semitropic Water Storage District Water Banking Project (2001-2002)*. 2005.

Kern County Health Department. *Kern County Ground Water Pollutant Study*. 1980.

Organic Chemical Contamination of Small Public Water Systems in Kern County Health Department: 1987.

Organic Chemical Contamination of Small Public Water Systems in Kern County Health Department: 1988.

SWRCB Sacramento. *West Bakersfield Area Ground Water Quality Management Study Final Report*. 1990.

3.3.1.8 Project Map

Figure 3.3-1 includes a site map showing the project geographical location and the surrounding work boundaries.

3.3.1.9 Project Timing and Phasing

It is expected that the Project will be completed in one phase although the Project can be completed in two phases inasmuch as the project elements can be completed independent of each other. Due to limited resources and funding, ACSD would not commence any work until receiving notification of a grant award. In this regard, the majority of the work would commence once notice is received of an award. The proposed schedule for implementation of the Project is included in Attachment 5, which matches with the project budget which is presented in Attachment 4.

Implementing Agency and Management of Project

The proposed Project will be implemented by the ACSD, which will enter into a Sub-grantee agreement with Semitropic WSD, the Grant recipient. The Project will be managed by Ms. Susie Rodriguez, District General Manager. Coordination between ACSD and the Grant recipient will be achieved through a formal workshop which will be conducted by the Grant recipient to kick-off the grant and by holding subsequent formal meetings, email and telephone communication etc. A written Monitoring and Reporting Plan will be developed and be the basis for documenting construction and operations that meet project objectives. It is noted that the participants of the Poso Creek Integrated Regional Water Management Group meets regularly and some time will be set aside at these meetings to coordinate any grant activities.

3.3.2 Proposed Work

Several tasks have been defined to complete the work and are organized to track with the Project Budget and Schedule. The sequencing of the work is addressed in the Project Schedule. Below is a description of the tasks that are part of the Work Plan.

3.3.2.1 Direct Project Administration Category (a)

Task 1 –Project Administration

With regards to project administration, work will include coordination of all project activities including budget, schedule, communication, and grant and cost-share administration (preparation of invoices and maintenance of financial records). Work related to grant administration will include: review and execution of a Subgrantee Agreement; attending a Grant kick-off meeting/workshop conducted by the Grant recipient to discuss grant requirements and establish the lines of communication and coordination through the grant process; preparation of invoices and maintenance of financial records; preparation of requests for Grant modifications (if any); and preparation of Grant deliverables, including monitoring reports containing the information discussed in Attachment 6 of this application.

It is expected that a formal Sub-grantee agreement will be executed with the Grant recipient setting forth requirements for grant compliance. Coordination between the Grant recipient

and the local sponsors will be achieved through a formal workshop conducted by the Grant recipient to kick-off the grant and subsequent formal meetings, email and telephone communication etc. It is noted that the participants of the Poso Creek Integrated Regional Water Management Group meets regularly and some time will be set aside at these meetings to coordinate any grant activities.

All work associated with this task will be completed by the ACSD and all costs will be tracked internally. In this regard, expenditures related to this task will not be used towards the non-State cost share match.

This work will be initiated when a notice of a Grant award is received.

Deliverables: (1) Preparation of invoices and grant modifications; (2) grant administration; and (3) preparation of other deliverables as required.

Task 2 – Labor Compliance Program

A third-party consultant will be retained to develop and implement a Labor Compliance Program (LCP). The LCP will follow the rules of the California Department of Industrial Relations (DIR). The LCP will enforce the prevailing wage requirements as stipulated in the Labor Code Section 1771.5. The goal of the LCP will be to accomplish the following: inform contractors about their prevailing wage obligations; monitor compliance by obtaining and reviewing certified payroll records throughout the construction of the project; investigate complaints and other suspected violations; and take appropriate actions when violations are found. Monthly reports will be prepared which will document compliance throughout construction of the project.

This work will be initiated prior to commencing with construction.

Deliverables: (1) Submit application to Department of Industrial Relations for approval of LCP; (2) development and implementation of an LCP.

Task 3 – Reporting

Work under this task will include preparing and submitting all reports as required. Based on inspection of a template of the DWR Grant Agreement it is expected that the following reports will be prepared and submitted: Quarterly Progress Reports; Project Completion Reports; Grant Completion Report; and Project Performance Reports. Construction and operational monitoring described in Attachment 6 to this application will be included in a Monitoring and Reporting Plan that will document how project objectives have been met and what measures might have been needed to modify the project as it is implemented.. The local sponsor (ACSD) will coordinate with the Grant recipient (Semitropic) to prepare and submit the reports specified above.

All work associated with this task will be completed by the ACSD and all costs will be tracked internally. In this regard, expenditures related to this task will not be used towards the non-State cost share match.

This work, including development of a Monitoring and Reporting Plan, will be initiated when a notice of a Grant award is received.

Deliverables: Submission of quarterly progress reports, project completion reports, grant completion reports and project performance reports as specified in the Grant Agreement.

3.3.2.2 Land Purchase/Easement Category (b)

Land Purchase/Easement

The proposed Project will be constructed on property owned by the ACSD. In this regard, it is anticipated that acquisition of easement will not be required.

3.3.2.3 Planning/Design/Engineering/Environmental Documentation Category (c)

Task 4 – Assessment and Evaluation

Work under this task will include evaluating and assessing the following:

- Evaluate the materials commonly used for replacement of tank construction and evaluate the expected service lives and life-cycle costs; and
- Evaluate constructability, maintenance, costs, site factors, security, water quality, and construction schedules of replacement of storage tank.

This work would be completed by the contractor under a design-build contract and is included in the engineering work.

Deliverables: Technical memorandum with recommendations.

Task 5 – Final Design

Due to the scale of the project, it is anticipated that ACSD will enter into an agreement with a consultant to do the work under Design-Build concept. In this regard, ACSD will work with the subconsultant to finalize the design concept and implement the project.

This work will be initiated when a notice of a Grant award is received.

Deliverables: Completion of project plans and specifications at the final level construction.

Task 6 – Environmental Documentation

Pursuant to the California Environmental Quality Act (CEQA), it is anticipated that an Initial Study will be prepared for construction of the project which will evaluate the project's potential for significant effects on the environment. It is anticipated that the Initial Study will indicate that the Project environmental compliance can be met through the preparation and filing of a Negative Declaration. The following subtasks will be performed as part of this task.

Subtask 6-1 – Project Description – Develop a project description to support the CEQA evaluation and prepare a preliminary assessment of necessary field evaluations including biological and archeological evaluations.

Subtask 6-2 – File Negative Declaration – A Negative Declaration will be prepared to satisfy the requirements of CEQA. As part of this process, activities will include preparing the Negative Declaration; providing technical support at the District's Board meeting to consider adoption of the Negative Declaration; and filing the Notice of Determination of the Negative Declaration once adopted.

The CEQA work has not been completed. Work under this task will commence once notice of a Grant award has been received. Any mitigation requirements will be included in the Monitoring and Reporting Plan and results included in Quarterly Progress Reports and Project Completion Reports.

Deliverables: File Notice of Determination.

Task 7 – Permitting

Permits required for the project include air quality from RAQCB, SWPPP from the RWQCB, and CDPH. It is anticipated that no regulatory permits will be required, inasmuch as the work will be performed on already disturbed property. In this regard, only permits related to construction will be required and application will be made for these permits prior to construction commencing. Compliance with any requirements will be monitored and results included in Quarterly Progress Reports and Project Completion Reports.

At this time, due to the nature of the work, it is not expected that any permits are necessary. However, consultation with the District's counsel will be made to verify.

All work associated with this task will be completed by the ACSD and all costs will be tracked internally. In this regard, expenditures related to this task will not be used towards the non-State cost share match.

This work will be initiated when a notice of a Grant award is received.

Deliverables: Obtain all permits prior to construction.

3.3.2.4 Construction/Implementation Category (d)

Task 8 – Construction Contracting

Since it is anticipated that this work will be completed with a Design-Build team, in this regard, the scope of work for this task is limited to the following: (1) identifying prospective contractors; (2) requesting cost proposal for constructing the work; (3) evaluating proposals; and (4) awarding the contract and issue the Notice to Proceed (NTP).

This work will be initiated when a notice of a Grant award is received.

Task 9 – Construction

Activities under this task include construction of all project work. Below is a description of all subtasks.

Subtask 9-1 – Mobilization and Site Preparation:

Mobilization – Work will consist of the mobilization of the contractor's forces and equipment necessary for performing the work required under the contract. Mobilization activities will include transportation of contractor's personnel, equipment, and operating supplies to the site; establishment of offices, buildings, and other necessary general facilities for the contractor's operations at the site; and securing all bonding.

Site Preparation – Work will include surveying the limits of the work area and clearing and grubbing the work area prior to construction work commencing.

Subtask 9-2 – Project Construction: Work under this task would include all activities necessary for construction of the project to be performed by a qualified Contractor. Activities will include procurement of all materials/equipment; site preparation; coordination of subcontractors; and construction of all contract work.

The work will include construction of the new tank and improvement of the SCADA system. Both components are described in detail below.

The construction components to be completed for the new replacement tank include: (1) demolishing the existing storage tank; (2) storage tank site earthwork; (3) installation of new tank and pipe refitting; and (4) completion of all final grading/site restoration.

For the upgrade to the SCADA system, work will include (1) replacing the existing control panel with a new unit; (2) installation of a new Programmable Logic Controller (PLC); (3) installation of a new pressure and level transmitter; (4) installation of all system wiring and (5) PLC programming.

Subtask 9-3 – Performance Testing and Demobilization: Testing and Commissioning - Work under this task will include all labor, material, and equipment to field start-up and test the project facilities. Part of the work under this task will include programming the new PLC, performing factory acceptance testing and all associated performance testing and startup services.

Demobilization - Activities include transportation of personnel, equipment, and supplies; disassembly, removal, and site cleanup of offices, buildings, and other facilities assembled on the site specifically for this contract.

This work will be initiated when the work in Task 8-Construction Contracting has been completed.

Deliverables: (1) Construct all project work.

3.3.2.5 Environmental Compliance/Mitigation/Enhancement Category (e)

Task 10 – Environmental Compliance

With respect to environmental compliance, it is expected that the Negative Declaration will confirm that the project will not have a negative impacts on the environment. In this regard, it is expected that work under this task will be limited to retaining a certified biologist to conduct a pre-construction biological survey prior to construction commencing to confirm that no environmentally sensitive species are present at the project site at the time of construction. Accordingly, under this task, a pre-construction biological survey will be coordinated and monitoring will be provided (if required) during construction. The results of mitigation monitoring will be included in the Monitoring and Reporting Plan and reported through Quarterly Progress Reports and Project Completion Reports. Monitoring data will be developed in a manner to be consistent in form to any relevant State databases.

Deliverables: Report of findings from pre-construction biological survey.

3.3.2.6 Construction Administration Category (f)

Task 11 – Construction Administration and Management

Given the nature of the work, and the fact that the work will be implemented by a Design-Build team, this task will be implemented by the team. Activities will include field inspection and Contract administration where the latter includes activities related to coordination between the Design-Build team including: attend periodic construction meetings; process technical submittals; process Requests for Information (RFI's); review contractor schedule and cash flows; process contract change order requests; prepare the monthly progress estimate; maintain as-built drawings and photographic records; and contract close-out.

With respect to field inspection, activities include inspection of materials and quality of work for conformance with the plans and Specifications.

This work will be initiated when the work in Task 8-Construction Contracting has been completed.

Deliverables: (1) Filing of the Notice of Completion; and (2) preparation of the “As-Built” plans.

3.3.3 Appendices

Appendices for this Project 3 Work Plan include:

- Appendix 3.3-1 – SCADA system bid
- Appendix 3.3-2 – Allensworth Health Compliance Order
- Appendix 3.3-3 – Allensworth Profile
- Appendix 3.3-4 – Allensworth Water Supply Assessment

The Data Management and Monitoring Deliverables are discussed in Attachment 6 of the application.



August 2, 2012

**Allensworth CSD
3336 Road 84
Earlimart, CA
Attention: Susie Rodriguez**

Proposal # B1229

RE: Instrumentation and Controls Proposal

Prousys, Inc. is pleased to provide you with the subject proposal for instrumentation and controls services.

To provide your customers with the system reliability that they require we highly recommend that you upgrade and automate your facility with current technology. This will include replacing the existing control panel with a new unit. This will include a Programmable Logic Controller (PLC). We will also install new pressure and level transmitters as well as the associated system wiring.

Scope

Prousys will provide the following materials, labor and services:

Item	Qty	Description
1	1	NEMA 12 Wall mount control panel w/ Rockwell Automation ControlLogix PLC
	Lot	Misc. panel materials as required
	Lot	Misc. filed installation materials as required
	1	Pressure transmitter
	1	Level transmitter
2	Lot	Services to include: Shop Drawings Panel Fabrication Factory Acceptance testing PLC programming Installation and start up services Operations manual

Total Cost for Items #1 thru #2

\$21,658.90

Taxes are Included

Clarifications / Exclusions

- No work shall begin until an Executed Contract and a agreed upon Payment Schedule is in place
- All electrical and signal cables external to Prousys provided equipment are not included
- Bonding is not included
- Prousys provides Delivery only Storage and Handling is by others





INSTRUMENTATION AND CONTROL SYSTEMS
THE LOGICAL SOLUTION FOR SEAMLESS INTEGRATION

Stand-by time and External Troubleshooting is not included in the Scope of Work and will be invoiced at the published rates. Stand-by time is defined as time spent on-site waiting for accessibility to the items included in the scope of work. This includes, but is not limited to, other delays beyond the control of and not contracted to Prousys, Inc. External troubleshooting is related to electrical or mechanical equipment outside of the items included in the scope of work or problems caused by external sources and/or influence.

Quotation is valid for 30 days

We appreciate the opportunity to bid this work. If you have any questions please contact Kevin Mueller at (661) 837-4001 x112.

Cc: Prousys, Inc.- Mike Irwin

B1229_Allensworth CSD_080212 KAM01 SCADA controls upgrade

Corporate Office:
4700 New Horizon Blvd.
Bakersfield, CA 93313
Phone: 661.837.4001
Fax: 661 837 4004





General Terms and Conditions

The attached proposal made by Prousys, Inc. ("Prousys") to ("Client") for instrumentation and controls services is subject to the below terms and conditions ("Terms and Conditions"). The attached proposal, together with the Terms and Conditions and any related purchase orders and change orders accepted by Prousys, are collectively referred to herein as the "Contract."

1. Billings and Terms of Payment

Monthly billings will be on a percent complete basis for labor expended and material received plus a projection of costs to the end of the month. Retention of 5% will be billed at the point of substantial completion of Prousys' portion of the work. All amounts are due net thirty (30) days. All payments thirty (30) days in arrears are subject to a finance charge of 2% per month on the outstanding balance. All merchandise sold is subject to lien laws. Prousys price is FOB factory.

2. Escalation

Prousys reserves the right to pass on to Client any increase in price from suppliers during the term of the Contract.

3. Warranty

Prousys warrants all equipment manufactured by Prousys to be free from defects in material and workmanship under normal use and service for a period of twelve (12) months from date of shipment. All parts or products not manufactured by Prousys will be covered only by the express warranty, if any, of the manufacturer. Prousys' above-described limited warranty does not extend to damage or wear caused by misuse, negligence, accident, corrosion, modification by Client, faulty installation, loss of product, or tampering in a manner to impair normal operation of the equipment.

4. Insurance

Prousys carries the following insurance.

Workmen's Compensation at the state required level

General Liability Each Occurrence	\$1,000,000
Personal & Adv injury	\$1,000,000
Products Aggregate	\$1,000,000
General Aggregate	\$2,000,000
Automobile	\$1,000,000
Excess Liability	\$4,000,000
Professional Liability Each Occurrence	\$1,000,000
Aggregate	\$1,000,000

5. Non-Solicitation of Employees

Notwithstanding any other provision of the Contract, Client shall not, directly or indirectly, employ, solicit for employment, or advise or recommend to any other person that such other person employ or solicit for employment, any person employed or under contract to perform services for or on behalf of Prousys (whether as a consultant, employee or otherwise), at anytime during the term of the Contract and for twelve (12) months following the earlier of the expiration or termination of the Contract or the termination of such person's employment or contract with Prousys.

6. Intellectual Property

Prousys shall retain all right, title and interest in all Intellectual Property (as defined herein) used, made or arising in connection with the Contract or otherwise provided or communicated to Client by or on behalf of Prousys. Without limiting the foregoing, Client shall not use any drawings or specifications prepared by Prousys, except for the purpose of confirming the quality of design and manufacturing of the products set forth in the attached proposal; and Client shall not photocopy, duplicate or in any way reproduce in whole or in part any drawings, specifications, or software which may be supplied by Prousys; provided, however, that the Client may make copies of and use such software for Client's internal purposes only, and not for rendering services or selling products to third persons. The Client shall not sell, license, sublicense, assign or otherwise

Corporate Office:

4700 New Horizon Blvd.
Bakersfield, CA 93313
Phone: 661.837.4001
Fax: 661 837 4004





transfer the Intellectual Property or any interest therein to anyone. As used herein, "Intellectual Property" means and includes any and all software, specifications, designs, processes, techniques, concepts, improvements, discoveries, ideas, and inventions, whether or not patentable, and all patents, copyrights, trade secrets and other intellectual property rights therein or related thereto.

7. Ownership of Software

Title to the application software provided to Client by Prousys under the Contract remains with Prousys, and Client is subject to any third party licenses. Prousys grants to the Client a personal, paid-up, perpetual, nonexclusive, non-assignable and non-transferable license, without right of sub-license, to use said application software in the application for which the software was designed in conjunction with the specified equipment.

8. Limits of Liability

IN NO EVENT, REGARDLESS OF CAUSE, SHALL PROUSYS ASSUME RESPONSIBILITY FOR OR BE LIABLE (A) UNDER ANY PENALTY CLAUSE OF FOR PENALTIES OF ANY DESCRIPTION, (B) FOR INDEMNIFICATION OF CLIENT OR OTHERS FOR COSTS, DAMAGES, OR EXPENSES ARISING OUT OF OR RELATED TO THE GOODS OR SERVICES PROVIDED UNDER THE CONTRACT OR FOR CERTIFICATION UNLESS OTHERWISE SPECIFICALLY PROVIDED HEREIN, OR (C) FOR ANY LOSS OF PROFITS, LOSS OF USE, BUSINESS INTERRUPTION, LOSS OF DATA, OR INDIRECT, INCIDENTAL, SPECIAL, OR CONSEQUENTIAL DAMAGES OF ANY KIND IN CONNECTION WITH OR ARISING OUT OF THE FURNISHING, PERFORMANCE, OR USE OF THE GOODS OR SERVICES PROVIDED TO CLIENT, INCLUDING RELATED DOCUMENTATION, OR ARISING FROM DELAY IN DELIVERY OR FURNISHING OF ANY SERVICES OR PRODUCTS, WHETHER ALLEGED AS A BREACH OF CONTRACT, OR TORTIOUS CONDUCT, INCLUDING NEGLIGENCE, OR OTHERWISE, EVEN IF PROUSYS HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. FURTHERMORE, PROUSYS'S LIABILITY ARISING OUT OF OR RELATED TO THE CONTRACT, INCLUDING FOR DIRECT DAMAGES, SHALL NOT EXCEED THE PURCHASE PRICE STATED IN THE ATTACHED PROPOSAL. THIS LIMITATION OF LIABILITY IS CUMULATIVE, WITH ALL PAYMENTS FOR CLAIMS OR DAMAGES IN CONNECTION WITH THE CONTRACT BEING AGGREGATED TO DETERMINE SATISFACTION OF THE LIMIT, SUCH THAT THE EXISTENCE OF ONE OR MORE CLAIMS WILL NOT ENLARGE THE LIMIT. IN ADDITION, THIS LIMITATION OF LIABILITY WILL APPLY REGARDLESS OF THE FORM OF ACTION, WHETHER IN CONTRACT OR TORT, INCLUDING NEGLIGENCE.

9. Termination of Contract

Cancellations or stop-work requests by Client on any order or part thereof, must be made in writing. Notwithstanding any such request, Client agrees to pay Prousys' standard contract labor rate for all labor incurred, and Prousys' net material costs for all materials purchased for that order, including any restocking charges incurred.

10. Delays

ACCELERATED/ DECELERATED PACE OF PROJECT EXECUTION:
FAST TRACK:

Client acknowledges that if Client requires a Systems Integrator (as defined below) to perform on an accelerated schedule (i.e. pace faster than the Systems Integrator's normal business procedure as dictated by the Systems Integrator's standard business practices), the risk of errors in the design and development of hardware and software increases as do certain costs such as but not limited to, express shipping of incoming purchases to the Systems Integrator, charges for expedited manufacture, development and/or delivery of hardware and/or software to the Systems Integrator and, express shipping to Client by the Systems Integrator. Client agrees that upon Client's request to the Systems Integrator to perform on an accelerated basis, Client will compensate the Systems Integrator (at Systems Integrator's then prevailing rates) for the additional costs incurred and work required as a result of the accelerated pace of project execution.

SLOW TRACK:

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A decelerated pace of project execution also causes additional work and costs. If Client decelerates the pace of project execution, Client shall bear the additional costs and expenses associated with such deceleration including but not limited to paying the Systems Integrator for "spin-up" time (inefficiency caused by starting and stopping) at the System Integrator's then prevailing rates. As used herein, "System Integrator" refers to any person or entity responsible for integrating software, hardware or other materials or equipment provided by Prousys into Client's computer network or other system(s).

11. Changes in Scope

Changes to work that are considered by Prousys to be beyond the scope of the present Contract will be addressed by Prousys describing to the Client in writing Prousys' understanding and assessment of the complete scope, cost, and schedule impact of the desired changes. Prousys will only take action on the requested changes when the Client has responded in writing that he/she/it agrees with the scope, cost, and schedule impacts.

12. Confidentiality

Any information, suggestions, or ideas transmitted by Client to Prousys in connection with performance hereunder are not to be regarded as secret or submitted in confidence except as may be otherwise provided in writing by Client and signed by a duly authorized representative of Prousys.

13. Dispute Resolution

It is agreed that any dispute arising under the Contract, including without limitation disputes relating to interpretation of the Contract terms or the performance, negligent performance or non-performance of the Contract or any part thereof, will be determined by submission to binding arbitration in accordance with the California Arbitration Act (California Code of Civil Procedure ["CCP"] sections 1280 – 1294.2) or any successor statute then in effect. Any such arbitration shall be held and conducted in Bakersfield, California, before one (1) neutral arbitrator who shall be selected by mutual agreement of the parties; provided, however, if agreement is not reached on the selection of an arbitrator within fifteen (15) days of a party's written demand for arbitration, then such arbitrator shall be appointed by the presiding judge of the Kern County Super Court in accordance with CCP section 1281.6. The discovery provisions of CCP section 1283.05 shall apply in the arbitration proceeding. The arbitrator's decision shall be based on California law. The arbitrator's decision may include monetary and/or equitable relief. The cost and fees of the arbitrator shall be borne by the non-prevailing party. In addition, the prevailing party shall be awarded reasonable attorney fees, witness costs and expenses, and other costs and expenses incurred in connection with the arbitration. ALL PARTIES TO THE CONTRACT, BY ENTERING INTO IT, ARE GIVING UP THEIR CONSTITUTIONAL RIGHT TO HAVE ANY SUCH DISPUTE DECIDED IN A COURT OF LAW BEFORE A JURY, AND INSTEAD ARE ACCEPTING THE USE OF ARBITRATION AS THEIR EXCLUSIVE REMEDY.

14. Governing Law

The Contract is governed in all respects by the laws of the State of California, without reference to any of its choice of law rules that would require the application of the law of any other jurisdiction.

15. Attorney Fees

If any proceeding or lawsuit is brought by either party hereto against the other relating to any dispute arising out of or relating to the Contract or the subject matter thereof, the prevailing party in such proceeding or lawsuit shall be entitled to receive, in addition to any other relief that may be awarded, its costs of suit, expert witness fees and reasonable attorneys' fees of outside counsel, including costs and fees on any appeal.

16. Limits of Actions

Except for any action by Prousys against Client for non-payment of the purchase price or other amounts owed to Prousys pursuant to the Contract (including any amendments and/or modifications hereto), any action for breach of the Contract must be commenced within one (1) year after the cause of action accrues, and no such action that is not commenced within such period may be maintained.

17. Storage of Materials on Site

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Fax: 661 837 4004





Materials stored on site to be installed by others are to be considered delivered to the site owner's care and custody. Materials stored on site to be installed by the Systems Integrator are to be considered in the care and custody of the Systems Integrator but are considered to be billable for progress billing in accordance with the progress billing procedures outlined in the Contract terms and conditions.

18. Taxes

The Client is responsible for all taxes.

19. Returns

All products and services described herein are sufficiently unique to prohibit any return for full or partial credit, other than under a warranty, unless specifically stated otherwise in the attached proposal. Prousys is not responsible for loss of or damage to products returned to it, unless notified in advance of the return and the Purchaser is given a Return Authorization Number which is prominently placed upon the shipping documents and packing container.

20. Staffing

To allow us to be able to manage our participation in the project most effectively, Prousys reserves the right to determine the personnel to perform the work under the Contract although Prousys will attempt to honor the requests for specific individuals.

21. Client's Obligations

At all times the Client is obligated to act in good faith and in a proper and appropriate manner including but not limited to working with Prousys to ensure Prousys' product performs as intended and if not, to clearly identify areas that require attention.

22. Force Majeure

Prousys shall not be liable hereunder by reason of any failure or delay in the performance of its obligations hereunder on account of strikes, shortages, riots, insurrection, fires, flood, storm, explosions, acts of God, war, governmental action, civil disturbances, terrorist acts, labor conditions, earthquakes, material shortages or any other cause beyond the reasonable control of Prousys, in which case Prousys may terminate the Contract and have no liability thereunder.

23. Severability

If any provision of the Contract is unenforceable or invalid under any applicable law or be so held by applicable judicial decision, such unenforceability or invalidity shall not render the Contract unenforceable or invalid as a whole. In such event, such provision shall be changed and interpreted so as to best accomplish the objectives of such unenforceable or invalid provision within the limits of applicable law.

24. Construction

The headings of sections of the Contract are for convenience only and are not to be used in interpreting the Contract. In the event of a conflict between any provision of these Terms and Conditions and the attached proposal or any related purchase order or change order, the provisions of these Terms and Conditions will control.

25. Entire Agreement/Assignment

The Contract, including any related purchase order or change order subsequently accepted by Prousys in writing, completely and exclusively state the agreement of the parties regarding its subject matter. The Contract supersedes, and its terms govern, all prior proposals, agreements or other communications between the parties, oral or written, regarding such subject matter. Subsequent modifications of the Contract shall be in writing and signed by both parties. The Contract shall not be assigned by either party without prior written approval of the other party.



5.7

Compliance Order No. 2010-39

**COUNTY OF TULARE
ENVIRONMENTAL HEALTH SERVICES DIVISION**

Re: **ALLENSWORTH CSD**

To: Allensworth CSD
Star Route 1 Box 64 3336 RD 84
Allensworth, CA 93219

**COMPLIANCE ORDER
for
VIOLATIONS OF ARSENIC MAXIMUM CONTAMINANT LEVEL
December 21, 2010**

FINDINGS

The Allensworth Community Services District Water System (hereinafter Water System) is classified as a Community water system that operates under an annual permit issued by the Tulare County Environmental Health Services Division (EHSD). This water system has a total of 116 connections, with approximately 70 to 80 active accounts. The population served is approximately 400 persons. Two wells have been drilled three (3) miles east of the community to avoid naturally occurring excessive levels of arsenic in the aquifer underlying the community. The wells are a few hundred feet apart on an east-west line and they alternately supply a common six (6) inch line to a 42,000 gallon storage tanks at 3336 Ave. 84. Two centrifugal pumps draw water from the tank to a 5,000 gallon pressure tank nearby. An automated system activates the pumping/storage/pressure system. The wells have single check valves to prevent back flow to the wells from storage. The wells are drilled wells with submersible pumps. From the single pressure tank water enters the distribution system. **See Attachment A for Arsenic History.**

CONCLUSIONS OF LAW

Based on the above Findings, the Environmental Health Services Division (EHSD) has determined that the Water System has violated provisions contained in the California Health and Safety Code and Title 22, California Code of Regulations (CCR). These violations include, but are not limited to the following:

1. Health and Safety (H&S) Code Section 116555 (a)(1)&(3). Specifically, the Water System operates a well that produces water that does not comply with a primary drinking water standard.

2. H&S Code Section 116555(a)(3). Specifically, the Water System failed to ensure that a reliable and adequate supply of pure, wholesome, healthful, and potable water is provided.
3. CCR Section 64431. Specifically, the Water System exceeded the State of California Arsenic MCL level of 10 ug/L in the water supplied to the public.

ORDER

In order to ensure that the water supplied by the Water System is at all times safe, wholesome, healthful, and potable and pursuant of 116555 of the H&S Code, the Water System is ordered to take the following actions:

1. (a) Cease and Desist from failing to comply with H&S Code Section 116555 (a)(1) and (3) and CCR Section 64432(a) by ensuring that the system is provided with a reliable and adequate source of pure, wholesome, healthful, and potable water that is in compliance with all primary drinking water standards.

2. By February 28, 2011, submit to the Tulare County Environmental Health Services, for review and approval, a plan to correct the existing water quality problem and eliminate the need to deliver water to the users that does not meet the primary drinking water standards. The plan shall include a time schedule of completion and the plan shall address the following:

(1) Perform all required Arsenic sampling quarterly and provide results to this Office.

(2) Notification to all users quarterly that Arsenic concentration exceeds the MCL by posting, sending or hand-delivering the notices in English and Spanish.

(3) Provide Proof of Notification for Arsenic quarterly to the users, and a copy to this Office

(4) Explore various avenues to address the problem. **Approval by this Office is required before taking any action.**

Some of your options are:

- a. Treating for removal of arsenic
- b. Deepening the existing well and sealing off the contaminated aquifer
- c. Drilling a new well
- d. Connecting to an approved adjacent water system if applicable
- e. Supplying bottled or imported water (bottled or imported water **is not** an acceptable permanent alternative)

3. The Plan shall be re-evaluated and re-submitted every three (3) years.

4. Since the Water System must use its existing well to meet system demand, the Water System shall provide public notification, to be posted visible to the public. **See Attachment B for the EHSD Quarterly Arsenic Approved Public Notice.**

(a) Notification shall be provided by the Water System by continuous posting until the problem is corrected. Proof of notification shall be provided to the EHSD each quarter by the tenth day of the month after the end of each quarter. **See Attachment C for the EHSD Quarterly Arsenic Proof of Notification Form.**

5. The Water System shall collect and analyze the well quarterly for arsenic, and forward results to EHSD.

6. The EHSD reserves the right to modify the Order as it may deem necessary to protect public health and safety. Such modifications may be issued as amendments to this Order and shall be effective upon issuance.

7. All submittals required by this Order shall be addressed to:

Mr. Charles Hemans REHS III
Water Program Specialist
Tulare County Environmental Health Services
5957 S. Mooney Blvd.
Visalia, CA 93277

8. If the Water System is unable to perform the tasks specified in this order for any reason, whether within or beyond its control, and if the Water System notifies the EHSD in writing no less than five (5) days in advance of the due date, the EHSD may extend the time for performance if the Water System demonstrates that it has used its best efforts to comply with the schedule and other requirements of this Order.

9. If the Water System fails to perform any of the tasks specified in this Order by the time described herein or by the time subsequently extended pursuant to item 5 above, the Water System shall be deemed to have not complied with the obligations of this Order and may be subject to additional judicial action, including civil penalties specified in H&S Code, Sections 116725 and 116730.

10. The County of Tulare shall not be liable for any injuries or damages to persons or property resulting from acts or omissions by the Water System, its employees, agents, or contractors in carrying out activities pursuant to this Order, nor shall the County of Tulare be held as a party to any contract entered into by the Water System or its agents in carrying out activities pursuant to this Order

PARTIES BOUND

This Order shall apply to and be binding upon the Water System, its officers, directors, agents, employees, contractors, successors, and assignees.

SEVERABILITY

The requirements of this Order are severable, and the Water System shall comply with each and every provision thereof notwithstanding the effectiveness of any provisions.

12-21-10
Date



Lawrence A. Dwoskin
Director
Environmental Health Services Division
County of Tulare

Attachments:

- Attachment A – Historical arsenic results
- Attachment B – Public notification information
- Attachment C – Quarterly Proof of Notification
- Attachment D – Notice Template Instructions

Cc: Ms. Tricia Wathen, California Department of Public Health, Drinking Water Branch,
265 West Bullard Suite 101, Fresno CA 93704

IMPORTANT INFORMATION ABOUT YOUR DRINKING WATER

Este informe contiene información muy importante sobre su agua potable.
Tradúzcalo o hable con alguien que lo entienda bien.

**ALLENSWORTH CSD Has Levels of Arsenic
Above Drinking Water Standards**

Our water system OR Water produced by Well(s) _____ of our water system recently failed a drinking water standard. Although this is not an emergency, as our customers, you have a right to know what you should do, what happened and what we are doing to correct this situation.

Option 1: We routinely monitor for the presence of drinking water contaminants. Water sample results collected on [date] _____ showed arsenic levels of [level and units] _____. This is above the federal standard or maximum contaminant level (MCL) of 10 micrograms per liter (ug/L)

Option 2: We routinely monitor for the presence of drinking water contaminants. Compliance with the Arsenic maximum contaminant level (MCL) is based on the average concentration of four consecutive quarterly samples (or an annual average) for each well, unless fewer samples would cause the running annual average to be exceeded. The Federal standard for Arsenic is 10 micrograms per liter (ug/L). Testing results from Well No. _____ collected over the last year show that our system exceeds the Arsenic MCL of 10 ug/l. The average Arsenic concentration from this well is _____ ug/L.

What should I do?

- You **do not** need to use an alternative (e.g. , bottled) water supply. However, if you have specific health concerns, consult your doctor.
- This is not an emergency. If it had been, you would have been notified immediately. However, *some people who drink water containing arsenic in excess of the MCL over many years may experience skin damage or circulatory system problems, and may have an increased risk of getting cancer.*
- If you have other health issues concerning the consumption of this water, you may wish to consult your doctor.

What happened? What was done?

[Describe corrective action.]

We anticipate resolving the problem within [estimated time frame]

For more information, please contact:

CONTACT NAME: _____ PHONE NUMBER: _____

MAILING ADDRESS: _____

This notice is being sent to you by ALLENSWORTH CSD Date distributed: _____

State Water System ID#: 5400544

Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.

Secondary Notification Requirements

Upon receipt of notification from a person operating a public water system, the following notification must be given within 10 days [Health and Safety Code section 116450(g)]:

- SCHOOLS: Must notify school employees, students, and parents (if the students are minors).
- RESIDENTIAL RENTAL PROPERTY OWNERS OR MANAGERS (including nursing homes and care facilities): Must notify tenants.
- BUSINESS PROPERTY OWNERS, MANAGERS, OR OPERATORS: Must notify employees of businesses located on the property.

ARSENIC PROOF OF NOTIFICATION

As required by Section 116450 of the California Health and Safety Code, I notified **all users of water** supplied by

ALLENSWORTH CSD

of the failure to comply with the maximum contaminant level for ARSENIC during the:
1st 2nd 3rd 4th quarter of _____ (year).
(circle one)

Notification was made on to ALL water consumers _____
Date

by the following method(s):

Posting Sign Mailing Notice Hand Delivering of the written notice.

Print Name Here

Signature of Water System Representative

Date

DISCLOSURE: Be advised that Sections 116725 and 116730 of the California Health and Safety Code state that any person who knowingly makes any false statement on any report or document submitted for the purpose of compliance with the attached order may be liable for a civil penalty not to exceed five thousand dollars (\$5,000) for each separate violation or, for continuing violations, for each day that violation continues. In addition, the violators may be prosecuted in criminal court and upon conviction, be punished by a fine of not more than twenty-five thousand dollars (\$25,000) for each day of violation, or by imprisonment in the county jail not to exceed one year, or by both fine and imprisonment.

Please complete and return this Proof of Notification form along with a copy of your notification letter to the following:

**TULARE COUNTY
ENVIRONMENTAL HEALTH SERVICES
5957 S. MOONEY BLVD
VISALIA, CA 93277
(559) 733- 6441**

Due quarterly
ARSENIC MCL Failure
System Number: 5400544

ALLENSWORTH

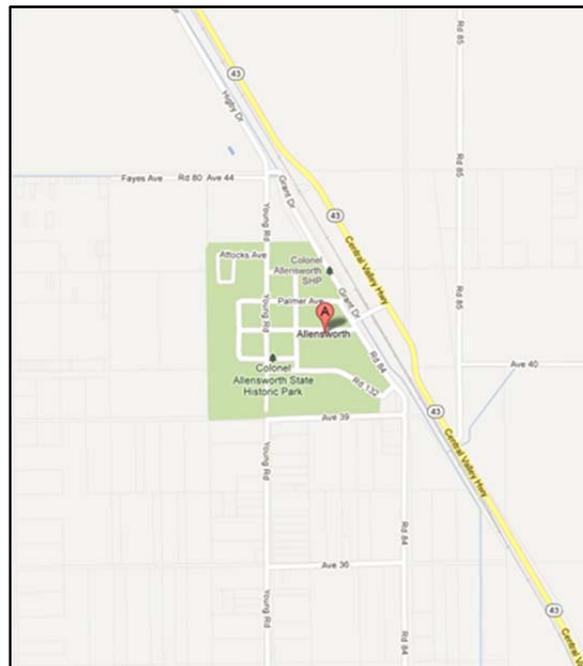
51-200 Connections Range
(119 Connections)

Location and Introduction

The Tulare County community of Allensworth is located in the southwestern corner of Tulare County, in the old lakebed area. Allensworth is about 8 miles west of Earlimart, along Highway 43. The current community is located immediately south of the historic settlement, which is now a state historic park and therefore not occupied.

1. When was community established and why

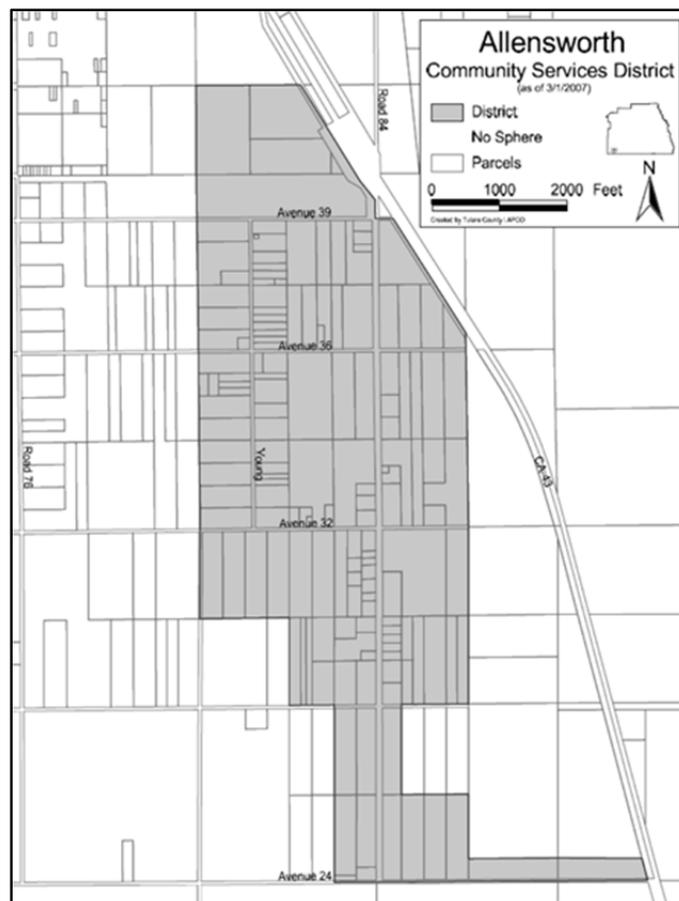
The historic town of Allensworth was established in 1908 by Colonel Allen Allensworth. Lt. Col. Allensworth was born into slavery, escaped, served in the Navy during the Civil War and later served for 20 years as the chaplain to the 24th Infantry, and he dedicated his life to the improvement of circumstances for African-Americans. He founded the colony of Allensworth to provide a home for the soldiers of the country's four all-black regiments and to create a community where, free of the bonds of racism, black families could work hard, become self-sufficient and prosper. Even though this utopian community prospered for less than 20 years, it's still celebrated today for its vision and the opportunity it presented for African-Americans to gain a foothold, buy land and establish themselves as leaders and professionals.



That townsite of Allensworth is now the Col. Allensworth State Historic Park. The present-day community of Allensworth is located immediately south of the old townsite, and bears little relation to the neat buildings preserved in the Park.

2. How old are the systems

Water has always been an issue in Allensworth. The lack of an adequate water supply was a partial cause of the utopian community's demise in the early 1900s. Up until 1966-7, community members depended on private wells for both domestic supply and irrigation of crops. At that time, the Allensworth Membership Water Company was formed and a community water system was installed. This older system's one well still exists and is located adjacent to the current District's office on Road 84. Lyles Pipeline Company donated a trencher to the community and it was used by community volunteers to install the water distribution system. In 1980, the community reorganized the structure of water system operations and dissolved the Membership (Mutual) Water Company and formed a community services district with the later taking over the assets and liabilities of the previous company. The CSD was formed with broad powers beyond the immediate needs to provide water.



In 1984? The Allensworth Community Services District was successful in receiving a State Safe Drinking Water Bond Law grant of \$400,000 which was used to investigate and implement a new source of water supply with arsenic levels compatible with then State and federal health standards. This process included a sampling of wells within roughly a five mile radius of the community. In general, wells in and near the community were found to produce water in the 100 to 150 ppb arsenic range. However, roughly three miles to the east in an area where the Phillips Brothers pumped water that irrigated crops in Allensworth, a relatively shallow pool of “low” arsenic water was found. At the time the MCL was 50 ppb, and these easterly wells were producing well below that level. A test well confirmed lower arsenic water above the Corcoran Clay which in this area is at a depth of about 350 feet. The resulting production well not only was low in arsenic, but did not produce water with a hydrogen sulfide odor which residents, though not pleased by its taste, had grown accustomed to. A roughly 3 and a half mile 6-inch transmission line was installed to transport water from the new well to the community. It fed a new 42,000-gallon gravity storage tank which through a bank of booster pumps pressurized a hydropneumatic tank.

In 1997, the District successfully applied for funding from USDA. USDA committed a grant of \$571,250 and loan of \$114,540. Additional grant funding was approved from the County of Tulare with HUD Community Development Block Grant funds for this \$685,790 project to drill a second well, install a larger (5,000 gallon) hydropneumatic tank and replace almost all of the water distribution system with 6-inch PVC water main. Through this project, the District installed sectionalizing gate valves, fire hydrants and new water service connections.

3. Median household income

Per the last decennial census to calculate median household income, the 2000 Census indicated the median annual income for households in Tulare County Census Tract 43 Block Group 1 that incorporates the community of Allensworth, was \$23,750 or 50.0% of the statewide median household income at that time. Since then the US Census Bureau no longer asks the income question in the decennial census, but rather collects income data through the continually occurring American Community Survey where a smaller sampling is done annually. This data is expressed as a 5-year adjusted average. The median annual household income for the past two rounds is expressed as:

Period	MHI	Margin of Error	% of State MHI
2005-2009	\$23,015	+/- \$4,664	38.1%
2006-2010	\$22,625	+/- \$3,635	39.5%
2007-2011	\$24,375	+/- \$7,504	39.5%

4. Monthly sewer rates and water rates, if known

There is no sewer service in Allensworth. The community is dependent on individual septic tank systems for sewage disposal. The current water rate is \$42.00/month for the first 1000 cubic feet of use, with metered rates kicking in after that (\$2 per 100CF). The CSD Board with input from a citizen's advisory committee is considering an adjustment of water rates at this time (November 2012). The estimated average monthly water bill is currently \$70 per month. This is approximately 3.7% of the 2006-10 estimated median household income for the community. The recommended new monthly rate is a base of \$42.00 (no water included) with a metered rate that begins at \$0.72 per hundred cubic feet (CCF), scaling up to \$2.00 per CCF, after 15,000 CCF of usage.

5. Billing methods for the community systems *Does the community use the property tax rolls to collect annually or semi-annually. Other services that might be on the same bill. Are bill paid by mail or is there an office drop off point. Discuss how this works for very small communities that do not have a formal billing process.*

The Allensworth CSD was formed after 1978's Proposition 13 and as such was not allowed to share in the distribution of property taxes collected by Tulare County. The District financially operates its water system totally as an enterprise fund with all operating revenue generated from customer user fees. Allensworth CSD staff manually reads water meters towards the end of each month and normally mails customer bills out just after the first of the following month. Customers therefore pay in arrears based on their water usage. The office manager generates bills, collects payments, and makes deposits to the Tulare County Treasurer's office in Visalia. Residents can mail or drop off payments at the ACSD office, but with no post office in town, most people drop off payments at the office. The office accepts checks and money orders. Deposits are delivered in person to Visalia, by the manager, about once a week. The District (which utilizes the County of Tulare Treasury as its depository) pays its bills by utilizing the County's Auditor-Controller's office to issue warrants (checks). Payment vouchers and an Order to Disburse Funds are approved monthly by the Board of Directors directing the County to issue warrants. When issued, the warrants are mailed to the ACSD thence the District general manager mails the warrants to vendors. This warrant process, depending on the dates vouchers are submitted takes anywhere from 2 to 4 weeks to issue a warrant. Though somewhat time consuming, this process consists of some additional oversight and documentation for each payment issued.

6. Are systems in the black or in debt?

The Allensworth CSD struggles constantly in staying financially afloat. In the past ten years, the District has had to borrow money once from Tulare County and twice from Self-Help Enterprises (SHE) and to cover operational costs. One financial crisis

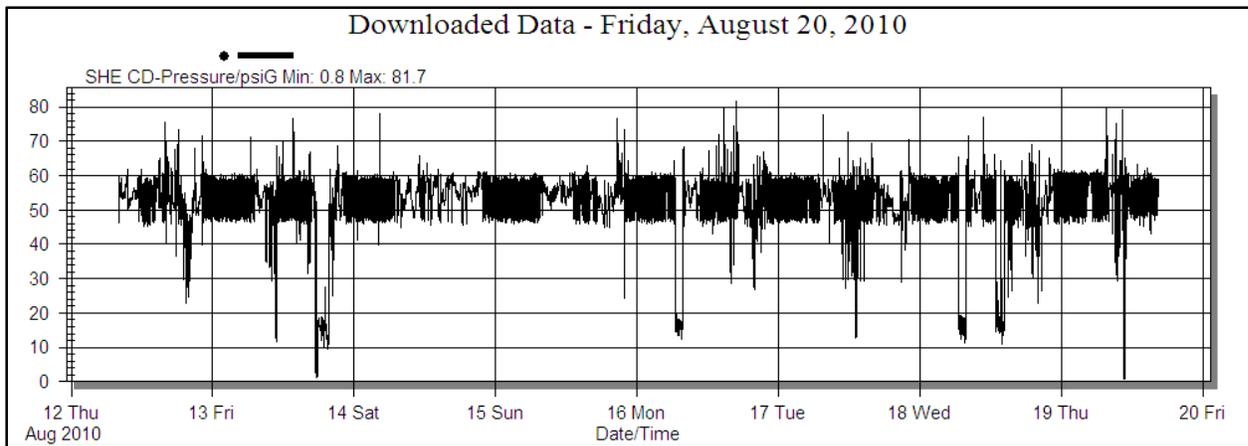
resulted due to payment of invoices from the District's fund at Tulare County when there were insufficient funds to cover warrants issued. The County approved a loan to the District to cover this short fall which took 3 to 4 years to pay back. Twice during this period, SHE has lent the ACSD funds to cover the costs of annual audits, as they fall behind on these repeatedly. Grant money for water project development has been jeopardized (though not yet lost) due to the District's tardiness in preparing audits. The District is also paying on the USDA loan that financed the water system improvements constructed in 1999. The District has virtually no money in reserves. The District is currently (November 2012) going through hopefully the final steps in a lengthy process to receive community buy-in to a rate increase that will improve revenues to meet required expenses. This process will culminate with a Proposition 218 hearing.

In the fiscal year 2010-11, the District's financial situation was as follows:

Description	Water System
Cash beginning of year	\$ 9,463
Operating Income	\$ 109,408
Operating Expense	\$ 140,083
Depreciation	\$ 22,482
Operating Exp. (w/o Dep.)	\$ 117,601
Non-operating Revenue	\$ 495
Non-operating Expenses	\$ 0
Cash end of year	\$ (2,886)
Change in Net Assets	\$ (32,555)
Interest Paid	\$ 5,171

7. Are systems run as a business or are the systems dealt with more issue by issue as they come?

The ACSD District operates as a business, but has its challenges. For example, a moratorium on new service connections has been in place since 2011. This moratorium is due to the lack of water supply in summer months to meet peak demand. Prior to the District issuing this moratorium numerous new connections were allowed which resulted in reduced pressure and supply to the rest of the community, especially near the existing connections located near the new connections. The District sought to gather information that would evaluate the capacity and pressure issues and then a recommended solution with cost estimate. The following is a snap shot of pressure readings in August 2010 dipping at times below 20psi.



Unfortunately, the District has few resources to provide a technical evaluation of the problem and assessment of potential solutions. Therefore, there has been little done to reverse the moratorium, despite some pretty heated objections from the community. Another wrinkle in this issue is that the County of Tulare has started issuing building permits along with well drilling permits to property owners that are unable to receive will serve letters from the District. As a result, new private domestic wells are being drilled in an area where it can almost be assured that arsenic levels will be in the 100 to 150 ppb range, ten to fifteen times the arsenic MCL.

A recent (2011) Municipal Services Review (MSR) by Tulare County LAFCO makes the following conclusion:

...[T]he District does not have the ability to implement traditional revenue generating mechanisms and is completely dependent [sic] on outside sources to fund even basic maintenance and operational costs. ...[T]he District faces challenges well beyond basic system operation/maintenance, meaning that any funding that is secured will not be used, at least not completely, to address the system's chronic contamination and groundwater supply issues. This approach is unsustainable and threatens the District's solvency.

8. Range of household budgets in the community *Discuss how much is spent on utilities such as sewer and water, if known. Are there discretionary funds in the typical households. If water or sewer rates go up what might get cut.*

Allensworth is severely disadvantaged, with 2006-10 ACS MHI indicating an MHI at less than 40% of the statewide MHI. The 2006-10 ACS indicates the following range of household incomes in the community:

Allensworth CDP, California	Annual Household Income Estimate	Margin of Error
Less than \$10,000	14.3%	+/- 15.5
\$10,000 to \$14,999	7.9%	+/- 11.1
\$15,000 to \$24,999	42.9%	+/- 18.6
\$25,000 to \$34,999	17.5%	+/- 15.6
\$35,000 to \$49,999	0.0%	+/- 41.5
\$50,000 to \$74,999	17.5%	+/- 13.9
Median Income (dollars)	\$22,625	+/- \$3,635

An estimated 65.1% of households have annual incomes less than \$25,000 and 82.6% of households have annual incomes less than \$35,000. As such, there is very little disposable income in the community.

Allensworth families in general don't have any room for flexibility in their budgets. There is very little local job opportunity (virtually none at all in Allensworth, other than at the school or a few farming jobs near the community) so those who are employed have to travel to work. Many families depend on farm labor for their major source of revenue so their incomes fluctuate seasonally. There are also many residents who depend on fixed-income sources such as disability and social security. The proposed rate increase has been an object of considerable controversy, with residents showing up in droves to community meetings, board meetings and water finance committee meetings to express the difficulty that many have in covering the expense for this basic necessity.

9. Population served

The 2010 United States Census reported that Allensworth had a population of 471. The population density was 151.8 people per square mile. The racial makeup of Allensworth was 158 (33.5%) White, 22 (4.7%) African American, 0 (0.0%) Native American, 8 (1.7%) Asian, 0 (0.0%) Pacific Islander, 279 (59.2%) from other races, and 4 (0.8%) from two or more races. Hispanic or Latino of any race were 436 persons (92.6%).

The average household size was 4.10. There were 142 housing units at an average density of 45.8 per square mile (17.7/km²), of which 56 (48.7%) were owner-occupied, and 59 (51.3%) were occupied by renters. The homeowner vacancy rate was 0%; the rental vacancy rate was 11.8%. 220 people (46.7% of the population) lived in owner-occupied housing units and 251 people (53.3%) lived in rental housing units.

10. Short description of water systems and sewer systems including number of connections adequacy of backup systems and MCL challenges if known

The ACSD has 119 active connections servicing 116 residences, the Allensworth School (with an ADA of 74) the Allensworth Community Center and the Allensworth State Historic Park.

The two District water wells that supply the community produce water that violates the Arsenic MCL. Though, these wells produce water very close to the 10ppb MCL level, and the west well's arsenic levels fluctuate above and below the MCL, the system still violates the arsenic MCL. As such, the District has a back-up source of water though not one that consistently provides potable water. It should be noted that the newer west well (equipped with a 20 hp motor) which went on line in May 1999 was drilled to a depth of 320 feet with a 12-inch casing installed to a depth of 315 feet; has a 50 foot conductor casing; is grouted to a depth of 90 feet; gravel packed from 90 to 240 feet; has a 10-foot cement seal from 240 to 250 feet in depth; and is gravel packed below that. The well was drilled at a time when it was anticipated that EPA and the state would lower the arsenic MCL below the 50ppb in effect at the time, however, it was not known what the new MCL would become. For that reason, the well was constructed in such a way that the 10-foot seal at the 240 to 250 foot depth level could be utilized to isolate water taken from the well.

Water pumped from the wells has intermittently exceeded the arsenic Maximum Contaminant Level set by EPA and CDPH. The chronic problem with Allensworth water quality has been the arsenic levels of water produced from the community's two wells. Attached is a table listing arsenic levels from both wells from 1990 through September 2012. This table shows that the east and west wells have produced water exceeding the nitrate MCL 18 and 4 times respectively over this period.

Allensworth Community Services District Arsenic Levels in Active Wells Arsenic MCL = 10 ppb		
Date	East Well #1 (ppb)	West Well #2 (ppb)
3/6/1990	17	
11/23/1993	16	
11/4/1996	15	
9/28/1999	10	
10/24/2002	9	
10/26/2005	11	
9/21/2007	11	
12/11/2007	12	
12/13/2007	13	
3/26/2008	13	
8/7/2008	10	
12/19/2008	11	
11/30/2010	12	13
3/29/2011	14	14
6/13/2011	12	12
8/8/2011	10	6
11/16/2011	11	11
4/5/2012	12	7
9/13/2012	12	9
Times Exceeding MCL	18	4
Old off-line well at storage tank site		
6/6/1996	65	

Good system records do not exist and much of the information that is known is in the head of the former maintenance worker, who still offers some help and services to the ACSD.

There is no community wide sewer system in Allensworth. The community depends on individual on-site septic tank systems for wastewater disposal. In wet years, the combination of a perched water table and tight soils creates problems for effective leaching of septic tank effluent.

11. Existing governing body such as County Service District, Public Utility District, Mutual water system, etc.

The Allensworth Community Services District provides water service to the unincorporated community of Allensworth. The District is governed by a 5-member board of directors (currently 4 members with one perpetual vacancy).

12. Decision making process *Is there a board of directors, designated lead home owner, long time unofficial leader, or is there a lack of good decision making process. History on this would be good.*

The Allensworth CSD Board of Directors is in charge of the decision making process related to the community's water system. This applies to policy decisions and other major decisions. The District General Manager provides the overall management of the system.

As a side note, within this small community in addition to the Community Services District Board, there is also an Allensworth Elementary School District board, a town council, and the Allensworth Progressive Association Board of Directors. Each fills its own role.

13. Discussion of operation and maintenance personnel for each community

Part-time or full time personnel, contractors used, any shared human resources with other communities or agencies.

The District has one full-time (30-hour) general manager. Currently they are also employing a second office worker, part-time. The general manager does most of the field work, with occasional support called in (see below).

A previous maintenance system employee has been available for assistance at times when needed.

The District utilizes a pump company for repairs as needed.

14. Discuss how district is managed such as independent manager, County personnel involved, CDPH personnel involved *Is the California Public Utilities Commission involved on rate setting or is it a local decision?*

The District has one full-time (30-hour) general manager that is accountable to the Board of Directors. The General Manager is a certified D1 operator even though her primary job responsibilities are (at least in theory) clerical/office duties. Since help in the field is not always available, she also reads meters and manages repairs. A previous maintenance system employee has been available for assistance at times when needed. The District utilizes a pump company for repairs as needed.

Since the ACSD water system has less than 200 connections, the system is monitored by the Tulare County Health & Human Services Agency, Tulare County Public Health Environmental Health Division. Tulare County is the Local Primacy Agency under the State Department of Public Health in monitoring compliance for and in enforcing EPA's Safe Drinking Water Act.

No CPUC. Most of their functions are entirely internal (budgeting, billing, operations, etc). The exception is their banking relationship with the Tulare County Treasurer.

15. Discuss problems that have been solved by community that could be applied as solutions by other communities.

Allensworth has had success with a water committee that has been meeting on an ongoing basis for about a year now. The committee is able to bring together District directors & staff, community members, and other interested parties to strategize and problem-solve.

The water committee started out by making a list of problems and then setting priorities for what issues to tackle first. The committee has made numerous recommendations to the Board, and their efforts have resulted in a campaign to eliminate "double dwellers" (multiple residences served by one service connection), some preliminary engineering studies, an effort to establish policies (personnel, etc.) and the rate adjustment that is currently underway.

16. Discuss largest unresolved problems/issues for the community and what is being considered to solve these problems, if any.

Allensworth has had arsenic problems since the 1960s. This is a huge unresolved problem. A regional project could be a good answer for them; the Strategic Growth Council grant awarded to Tulare County in 2012 will investigate the feasibility of a regional solution for Allensworth and Alpaugh, building on a potential partnership with Angiola Water District south of Corcoran.

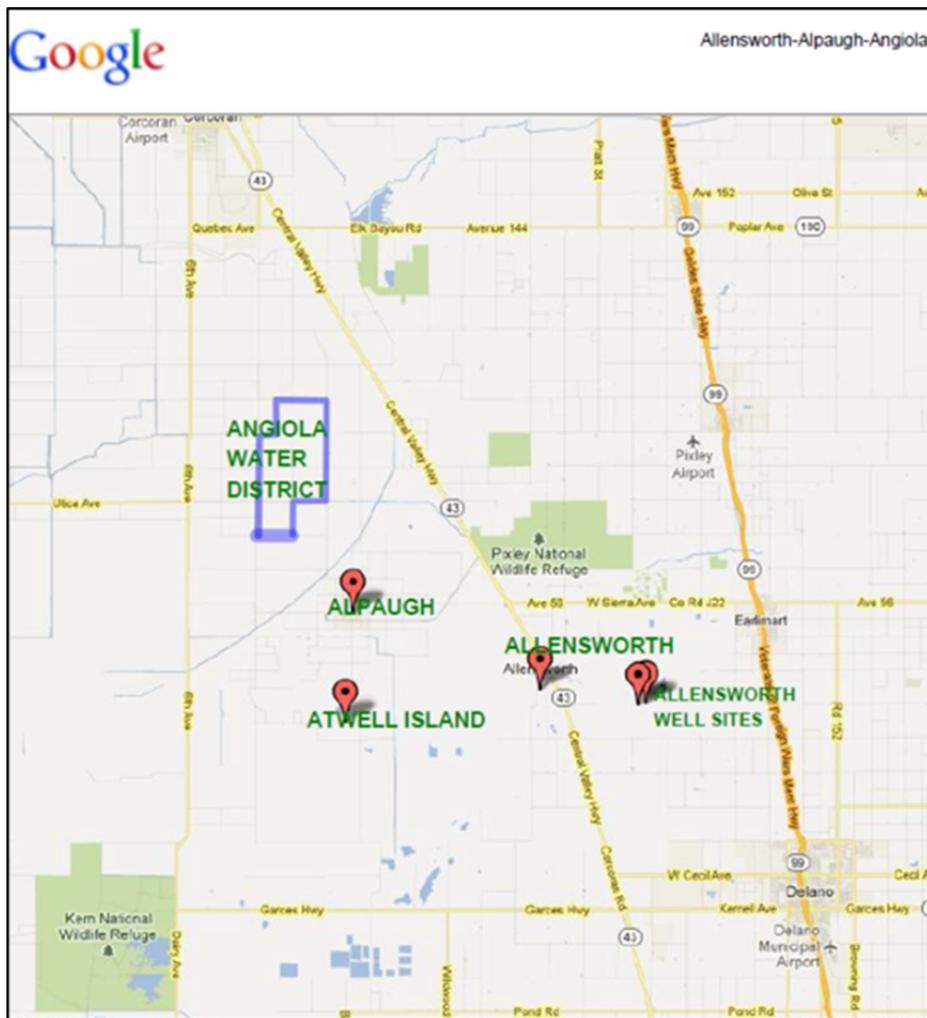
Allensworth's other big unresolved problem is their moratorium and the concern over insufficient water supplies.

Consolidation could be a good way to resolve Allensworth's water problems. Although it is located at a distance of several miles from Alpaugh, the two communities face similar problems with regard to economy of scale, contamination and revenue deficiencies. The Strategic Growth Council grant is a fantastic opportunity to explore this option, and should be coupled with the Tulare Lake Basin Disadvantaged Community Pilot Study to advance some solutions for the region.

The 2011 LAFCO MSR makes the following comment regarding consolidation:

One of the major obstacles to consolidation is the governance structure of the resulting entity; in particular, existing governing boards fear that the interests of their respective constituencies will no longer be advanced with the same vigor and empathy as before. This issue cannot be adequately addressed within the parameters of an MSR; however, it should be noted that Section 61030 (a) of the CSD law allows LAFCO to increase the number of members to serve on the initial board of directors of the resulting entity from 5 to 7, 9 or 11. Terms to be served by the new board of directors can also be set by LAFCO in accordance with Section 56886 (n). The expanded board of directors can be elected by division, with division boundaries being drawn according to community boundaries to ensure that customers of existing districts continue to have adequate representation on the new board.

The Alpaugh-Allensworth area also has some unique cultural and recreational resources (e.g. BLM's Atwell Island wetland restoration project, Allensworth State Historic Park, Pixley National Wildlife Refuge), and there is budding interest in leveraging these resources to create expanded opportunity for water resource development and tourism. For example, one idea is to build a trail system over pipeline easements that could move water (and hikers/birders/cyclists) between Atwell Island and Allensworth.



Water Supply Assessment
Allensworth Community Services District
Allensworth, Tulare County, California

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1.0 Introduction

1.1 Community of Allensworth

Allensworth is an unincorporated community located in southwestern Tulare County. It is a Census Designated Place with a population of 471 as per the US Census of 2010 (US Bureau of Census, 2010). Figure 1 shows the location of Allensworth in Tulare County.

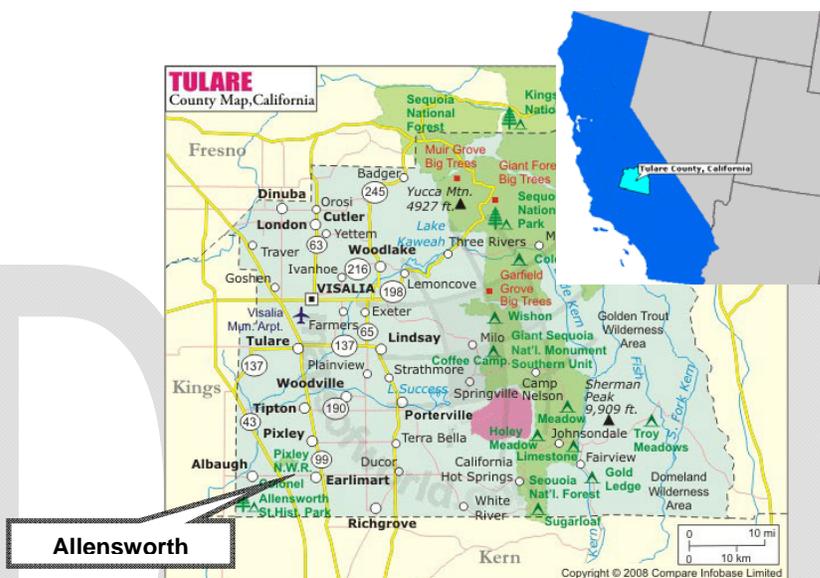


Figure 1 – Location of Allensworth

1.2 Allensworth Community Services District

The Allensworth Community Services District (ACSD), which was formed in 1967, provides domestic water service to the community of Allensworth. It is governed by a 5-member board of directors. ACSD serves approximately 116 active connections (LAFCO, 2011). The primary source of revenue for its operations is user fees. The basic user fee rate is \$40 (*to be verified*).

ACSD's jurisdiction is bounded by Avenue 24 to the south, Highway 43 to the east, its western boundary extends approximately 200 meters west of Young Avenue and its northern boundary extends approximately ½ a mile north of Avenue 39. ACSD boundaries encompass an 804-acre area. Figure 2 shows the approximate extents of the District's coverage.

1.3 Study Objectives

ACSD's water supply system suffers from chronic quality and quantity challenges. Some of these challenges are a function of local geographic/geologic conditions while others are prompted by a lack of secure financial resources. These limitations have led to a moratorium on new connections in Allensworth and notices of violation from state and federal public health regulatory agencies.

In the above context, ACSD is examining alternatives for improvements to the water supply system that can help mitigate the water supply situation. This study is an attempt to assess the existing nature of the water supply system, to identify current and future challenges, evaluate alternatives for improvements from the perspective of financial and technical feasibility, and identify funding sources that may be utilized to implement the improvements.

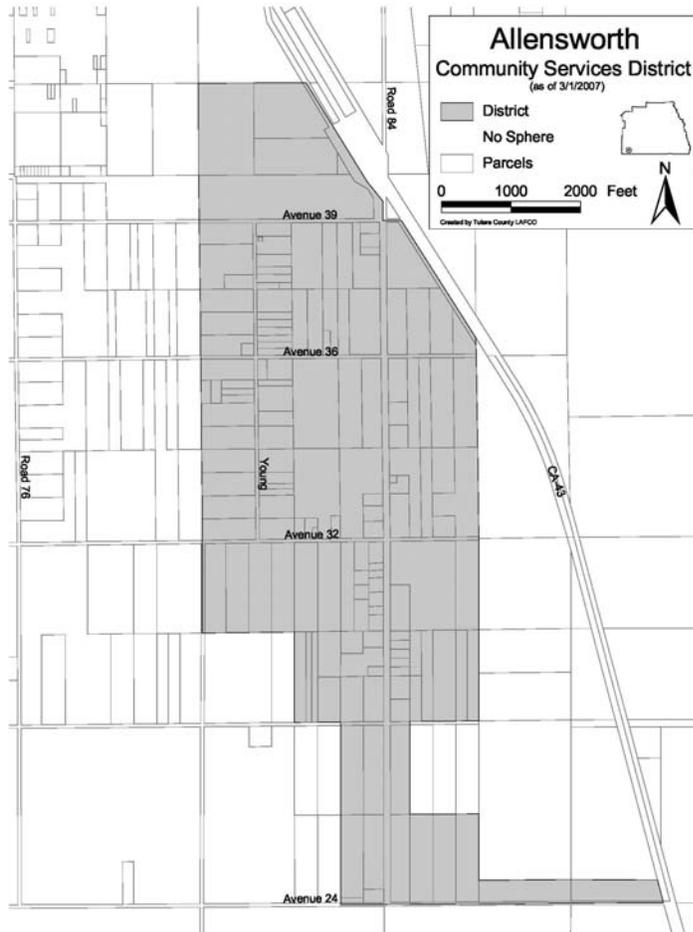


Figure 2 – Allensworth CSD boundaries

(Source – Tulare County LAFCO)

1.4 Study Method

Data for assessment has been collected through phone interviews with ACSD and Self Help Enterprises, documentation provided by District, and existing documentation on the quality and quantity aspects of the water system available in the public domain through organizations like Tulare County LAFCO and state agencies.

2.0 Water Demand Analysis

2.1 Existing Demand

Existing demand has been estimated on the basis of 2010 Census data. A part of the demand is currently fulfilled by ACSD but there is also presumed to be a significant component that is not supplied because of the moratorium on new connections (see Section 3.5) and water supply limitations.

The 2010 Census reports a population of 471 in Allensworth and 142 housing units. The fact that ACSD serves 116 connections highlights the pent-up demand that is currently not served (this is likely to be the case even if some of the existing connections serve more than one housing units).

Average domestic water consumption per person is a much-debated issue and there is no definitive number. However, an often cited statistic from the American Water Works Association (AWWA, 2012) states that the average *indoor*¹ water use is 69.3 gallons per capita per day (gpcd). For the sake of this calculation, the 2010 population number was increased by 15% to account for temporary residents.

Based on these assumptions, the current water demand in Allensworth is calculated to be approximately 37,500 gallons per day (GPD).

2.2 Future Needs Analysis

The 2000 U.S. Census estimated Allensworth's population to be 336 persons, which increased to 417 persons in 2010 indicating a decadal growth rate of 40%. Tulare County's growth rate during the same period was 20.2%. Assuming a 30% decadal growth rate over the next three decades, the following demands are forecasted for the next 20 years.

Year	Population	Total Demand (gpcd)
2012	542 ²	37,500
2020	612	42,400
2030	796	55,200

3.0 Existing Water Supply

3.1 Source of Supply

ACSD depends exclusively on groundwater for its supply.

3.2 Existing Water Infrastructure

This section describes the water extraction, storage and distribution infrastructure owned and operated by ACSD. Major elements of the system are shown in Figures 3 and 4. Most of the current infrastructure was rehabilitated in 1998 under a grant from the Rural Utilities Service of the US Department of Agriculture. This rehabilitation project entailed approximately 18,000 feet of new 6" water supply pipeline (*to be verified*).

¹ For the purpose of this study, only indoor water use has been considered

² 2010 Census population 471 plus 15% excess

3.2.1 Groundwater wells

ACSD owns and operates two wells drilled approximately 3 miles east of Highway 43 as shown in Figure 3. The wells are located approximately 0.25 mile from each other. A third well owned by ACSD on Avenue 32 (*location to be verified*) is currently dysfunctional. The distant location was chosen because of the presence of arsenic in the vicinity of the community.



Figure 3 – Location of groundwater wells

The West Well was drilled in 1984 to a depth of 250' and is equipped with a 10 hp submersible pump installed in 1995. The East Well was drilled in 1999 to a depth of 320' and has a 20 hp submersible pump. The (? - *to be verified*) Well was replaced in 2007.

The wells are connected via telemetry to the ACSD office and their operation is triggered by water levels in the storage tank. Well No. (?) (*to be verified*) has problems with the telemetry and/or control panels (*to be verified*). Both wells are susceptible to occasional pump failures.

3.2.2 Storage

The two wells supply a common 6" line to a 42,000 gallon storage tank located adjacent to the district's office. Two centrifugal pumps draw water from the larger tank to a 5,000 gallon pressure tank and then on to distribution. The wells have a single check valve to prevent back flow to the well from storage. The 42,000 gallon tank has developed corrosion on the inside surface.

3.2.3 Treatment

The water system contains no treatment method.

3.2.4 Distribution

ACSD has approximately 19,000 feet (*to be verified*) of 6" PVC distribution pipes in a network shown in Figure 4. Services lines are provided with 1", 1.5" and 2" iron and copper pipes. The district has seen numerous pipe failures which are likely because of improper installation. The existing system has a number of dead ends which preclude flushing and cleaning of certain sections.

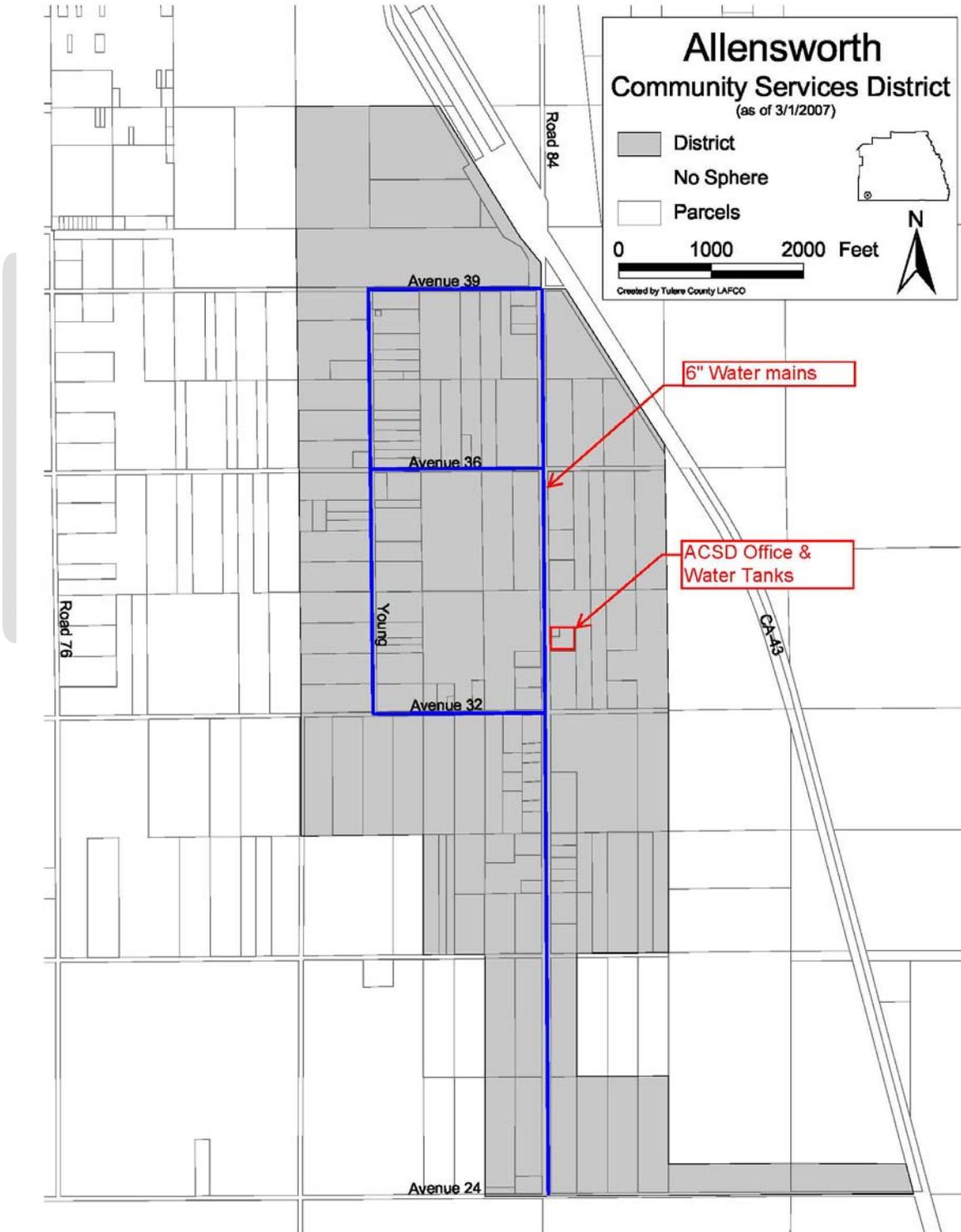


Figure 4 – ACSD Facilities (to be verified)

3.3 Assessment of Water Quantity

With the current infrastructure, ACSD often faces lack of adequate supply owing to one or more of the following failures occurring at different times:

1. Well pump failure
2. Failure of telemetry and/or controls
3. Pipe failures
4. Inability to flush certain sections of pipe network
5. Storage limitations on tank because of corrosion

On an average, ACSD is able to provide only x (to be verified) gpd as against the installed capacity of y (to be verified) gpd. Lack of adequate sources has also led to frequent outages.

3.4 Assessment of Water Quality

Poor water quality is perhaps the more significant of the problems with ACSD's water supply system. The water system has been cited for quality violations by Tulare County Environment Health, California Department of Public Health (CDPH) and the US Environmental Protection Agency (EPA). While monitoring violations have been reported on numerous occasions, what is more significant is that Maximum Contaminant Level (MCL) violations have been reported for both arsenic and bacteriological contamination in recent years.

EPA reports 5 violations of bacterial MCL and 7 violations of arsenic MCL between 2009 and 2011. California has arsenic MCL of 10 micrograms/liter but ACSD's water supply has been tested to have up to 14 micrograms/liter of arsenic. Figure 5 shows a summary of violations reported by EPA in recent years.

Violations and Enforcement Actions - Last 5 Years

Data Dictionary

Violations										Enforcement Actions			
Compliance Period	Violation ID	Rule	Contaminant	Category	Description	Measured Value	State MCL	Federal MCL	Resolved	Date	Category	Description	Agency
04/01/2011 - 06/30/2011	1100024	Arsenic	Arsenic	MCL	MCL, Average	0.012		0.010 mg/L					
04/01/2011 - 06/30/2011	1100025		Arsenic	MCL	MCL, Average	0.012		0.010 mg/L					
01/01/2011 - 01/31/2011	1100021	Total Coliform Rule	Coliform (TCR)	MCL	MCL, Monthly (TCR)			5% of samples					
01/01/2011 - 03/31/2011	1100022	Arsenic	Arsenic	MCL	MCL, Average	0.014		0.010 mg/L					
01/01/2011 - 03/31/2011	1100023		Arsenic	MCL	MCL, Average	0.014		0.010 mg/L					
12/01/2010 - 12/31/2010	1100018	Total Coliform Rule	Coliform (TCR)	MCL	MCL, Monthly (TCR)			5% of samples					
10/01/2010 - 12/31/2010	1100019	Arsenic	Arsenic	MCL	MCL, Average	0.012		0.010 mg/L					
10/01/2010 - 12/31/2010	1100020		Arsenic	MCL	MCL, Average	0.013		0.010 mg/L					
08/01/2010 - 08/31/2010	1000017	Total Coliform Rule	Coliform (TCR)	MCL	MCL, Monthly (TCR)			5% of samples					
02/01/2009 - 02/28/2009	0900016	Total Coliform Rule	Coliform (TCR)	MCL	MCL, Monthly (TCR)			5% of samples					
09/01/2008 - 09/30/2008	0800015	Total Coliform Rule	Coliform (TCR)	MR	Monitoring, Routine Major (TCR)			5% of samples					
04/01/2008 - 06/30/2008	0800013	Arsenic	Arsenic	MR	Monitoring, Regular			0.010 mg/L		07/10/2008	Informal	St Violation/Reminder Notice	State
04/01/2008 - 06/30/2008	0800014		Arsenic	MR	Monitoring, Regular			0.010 mg/L		07/10/2008	Informal	St Violation/Reminder Notice	State
01/01/2008 - 03/31/2008	0800012	Arsenic	Arsenic	MCL	MCL, Single Sample	0.013		0.010 mg/L		04/10/2008	Informal	St Violation/Reminder Notice	State
	0700011									02/10/2007	Informal	St Violation/Reminder Notice	State
	0700010									02/10/2007	Informal	St Violation/Reminder Notice	State

Figure 5 – Summary of violations reported by EPA

Bacterial contamination is presumed to be because of pipe failures at one or more locations in the system that allows interaction of the water supply with the contaminated surroundings.

3.5 New Water Connection Moratorium

On December 29, 2010, the ACSD Board adopted Resolution 2010-1109, which imposes a moratorium on new water connections and on the drilling of new wells within district boundaries. According to the resolution, the moratorium was prompted by the high cost associated with pumping groundwater from lower depths as a result of decreased groundwater levels coupled with the District's financial inability to drill new wells and therefore meet existing rate payer demand (LAFCO, 2011).

4.0 Possible Mitigation Measures

Specific problems identified in the water supply system, along with possible mitigation measures, are listed below. A summary of the mitigation measures is given in Table 1. Note that costs provided in this section are very approximate and should be used only for the purpose of advising further discussion on these alternatives.

4.1 Inadequate water supply

It appears that inadequate water supply is a function of improper functioning of a number of system components listed in Section 3.3. The possible mitigation measures are listed below:

4.1.1 Pump upgrades

It appears that the two groundwater pumps occasionally fail which leads to outages or reduction in supplies. Given the age of the pumps (approaching 15 years), replacement of the pumps with those of a higher capacity can increase the volume of supplies. This measure involves capital inputs in the vicinity of \$40,000.

4.1.2 Telemetry and/or control system repairs

This is a relatively easy measure that can be achieved if even a small amount of external funding to the tune of \$8,000 is available. While this fix will be useful, it is not expected to bring about a substantial impact on the water supply inadequacy.

4.1.3 Tank replacement

Interior corrosion of the 42,000 gallon tank is possibly causing a limitation in storage. While intermediate repair is an option, a complete overhaul would be more effective because of the age of the tank. Capital input for this measure is expected to be approximately \$35,000.

4.1.4 Pipe repair or replacement

The extent of pipe leaks and failures is not currently known, but it is plausible that these lead to a significant loss of water in the system. A comprehensive program of pipe repair or replacement would be very capital intensive and would have to be preceded by a detailed pressure testing study to identify failed or vulnerable points. The approximate cost of a comprehensive pipe network upgrade would be in the vicinity of \$300,000.

4.2 Bacteriological contamination

At this time, the exact source of bacteriological contamination is not known. However, based on an understanding of typical sources commonly seen in water supply system, the following mitigation measures for recurring bacteriological contamination may be possible.

4.2.1 Tank replacement

It is not clear if the corroded interior of the tank is causing exposure to contaminants but it is a possibility. Tank replacement details are provided in Section 4.1.3.

4.2.2 Pipe repair or replacement

It is very likely that water contamination is caused through pipe failures and subsequent exposure of supply water with surrounding contaminated soil or water. A comprehensive pipe repair approach is discussed in Section 4.1.4.

4.2.3 Well site upgrades

If the pipe network and tank are ruled out as possible sources of contamination, it is possible that the well site has contaminants that are entering the water at the source. A thorough review and treatment of the well site should be relatively economical, with an approximate estimate of \$5,000.

4.2.4 Eliminating dead-end pipe sections

It has been reported that the existence of a number of dead-end pipe sections in the system precludes pipe flushing and cleaning. It is possible that the lack of periodic flushing leads to bacterial colonization on the pipe interiors. Eliminating the dead-ends and completing the pipe network would be a capital-intensive exercise. Since the exact number of dead-end sections are not known at this time, estimating an approximate cost of mitigation is not possible.

A more economical solution to physically eliminating dead-ends is to provide end-of-pipe flush valves for cleaning purposes. An approximate cost may be estimated when the number of dead-end valves is available (*to be verified*).

4.3 High Arsenic Levels

Conventional arsenic remediation strategies primarily involve above-ground treatment that includes costs of building large treatment plants and costs associated with the disposal of sludge material. Because of the size of the district and financial limitations, such a conventional approach does not seem plausible.

The following possible measures have been identified for arsenic removal. Costs for arsenic removal vary widely, and it is not feasible to estimate a cost at this time without further work.

4.3.1 Small scale removal

It is encouraging that arsenic levels measured in the ACSD water supply do not exceed the MCL by a significant margin. While small scale arsenic removal is still largely in an experimental phase, it is reasonable to think that installation of a small-scale system may help to bring arsenic levels to below the MCL. Adsorption technologies are increasingly recognized as the most feasible treatment processes for small water systems such as those operated by ACSD.

4.3.1 Point of use filters

Another option for which external funding could be relatively easy to obtain are point-of-use filters which are "under sink" devices installed in rate-payers' houses. The relatively small number of the district's users make this a potentially fundable alternative.

Table 1 – Summary of possible mitigation measures

Issue	Potential Cause	Possible Mitigation	Estimated Cost
Inadequate supply	Pump failure	Replace pumps	\$40,000
	Telemetry/control failure	Repair telemetry/control system	\$8,000
	Tank corrosion	Replace tank	\$35,000
	Pipe failure	Comprehensive repair program	\$200,000
Bacteriological contamination	Tank corrosion	Replace tank	\$35,000
	Pipe failure	Comprehensive repair program	\$200,000
	Well site contamination	Identify and eliminate causes	\$5,000
	Dead-end sections	Complete network loops	NA
		Install end-of-pipe valves	NA
High arsenic content	Nature of groundwater	Small-scale treatment	NA
		Point of use filters	NA

5.0 Evaluation of Alternatives

Evaluation will be conducted after a joint review with ACSD regarding which alternatives are more feasible from the perspective of obtaining funding and implementation.

6.0 Recommended Improvement Strategy

Recommendations will be provided after completion of evaluation.

7.0 References

1. AWWA (2012). *Water Use Statistics*, American Water Works Association, Retrieved February 27, 2012, from <http://www.drinktap.org/consumerdnn/Default.aspx?tabid=85>
2. CDPH (Various). *Annual Compliance Report of Public Water Systems in California*, California Department of Public Health, Retrieved February 27, 2012, from <http://www.cdph.ca.gov/certlic/drinkingwater/pages/publications.aspx>
3. LAFCO (2010). *Group 4 Municipal Services Review*, Tulare County LAFCO, October 2011
4. U.S. Census (2010). *2010 Demographic Profile*, US Bureau of Census, Retrieved February 25, 2012, from <http://www.census.gov/popfinder/>

5. U.S. EPA (2012). *Enforcement & Compliance History Online*, US Environmental Protection Agency, Retrieved February 25, 2012, from <http://www.epa-echo.gov/cgi-bin/get1cReport.cgi?tool=sdw5&IDNumber=CA5400544>
6. US EPA (2000). *Technologies and Costs for Removal of Arsenic from Drinking Water*, US Environmental Protection Agency, December 2000.

8.0 Questions / Verification required

Section No.	Item to be verified
1.2	User fee
2.1	Population numbers
2.1	Demand in gpcd
3.2	Location of wells (map)
3.2.1	Location of redundant well
Figure 4	Verify pipe network
3.2.4	Length of pipes
3.3	Current supply
4.2.1	Number of dead end sections

DRAFT

3.4 Project 4 – Well Destruction Program

3.4.1 Introduction

The Well Destruction Program (Project) is primarily designed to provide funding to address critical water supply needs for several Disadvantaged Communities (DACs) in the region. This Project will provide a mechanism by which funding can be provided for identifying and properly destroying up to 15-wells that have no remaining useful purpose and that have a potential to contribute to DAC water quality problems if not properly destroyed. The overarching goal of this Project is primarily to safeguard the groundwater supply relied on by the DAC's and the region. Providing funding assistance for the proper destruction of unused/abandoned wells will encourage landowners to properly abandon their wells as required by the Kern County Environmental Health Services Department. Many unused and abandoned wells in the area were constructed years ago based on a poor design or are deteriorating because they have met their useful life. These wells, if not properly destroyed, can serve as a conduit and allow contaminants to enter the production zones in the groundwater aquifer, which is used by the DAC's and other users in the region for their water supply.

Improperly abandoned and destroyed wells may contribute to water quality problems in aquifer zones in the groundwater aquifer relied on by several DAC's for their water supply in the region including:

- Allensworth Community Services District
- Ducor Community Services District
- City of Wasco
- City of Delano
- Lost Hills Utility District

The Project will address critical water supply needs in these DAC's by providing funding for project development and implementation not available from other sources.

The program would be administered under the direction of Semitropic WSD in collaboration with the affected DAC's and community interest groups as well as the Counties of Kern and Tulare. The project budget and schedule are presented in Attachments 4 and 5. Additional information is included in Appendix 3.4-1 to this Section 3.4.

3.4.1.1 Goals and Objectives

The Project accomplishes multiple goals and objectives of the Poso Creek Integrated Regional Water Management Plan (IRWMP). Exhibit 3.4-1 below presents a selection of the

Poso Creek IRWM Plan Objectives, and how the Project Goals and Objectives coincide with them:

Exhibit 3.4-1

IRWM Plan Objectives	Project 4 Goals and Objectives
Enhance Water Supply Reliability of Surface Supplies	Project 4 will provide funding in at least 5 DAC areas to address critical water supply and/or water quality issues.
Protect quality of groundwater and enhance where practical	Destruction of problem wells will reduce potential contamination in DAC supplies.
Maintain water supply costs at a level affordable to DAC communities and the continued viability of the agricultural economy which has developed in the area	Project 4 will provide the subject DACs with the means to implement a more reliable water supply system and within each community's financial resources.

3.4.1.2 Purpose and Need

The Well Destruction Program will address critical water supply needs in DACs by providing funding for project development and implementation for the proper well destruction of wells that have no remaining useful purpose, funding for which is presently not available from other sources. Project funding will be used to:

- Buy down the cost of destroying unused wells that pose a threat to DAC and regional water supplies

Agricultural well owners often regard unused wells as potential backup in the event that additional supplies are needed. However, many of these unused well are often older wells constructed without regard to isolating poor quality zones and have deteriorated with time, in either case potentially allowing poor quality water to enter higher quality production zones. This can contribute significantly to water quality problems in near-by urban supply wells. Two common contaminants in DAC water supply wells are Arsenic and Nitrate (discussed below).

Of the contaminants found in the Poso IRWM Plan area's groundwater, there are two primary contaminants generally found in the groundwater used by DACs as their drinking water. These are Nitrate and Arsenic. Each of the DACs supported in this project rely exclusively on pumped groundwater for its municipal needs. When the EPA reduced the MCL for arsenic in drinking water from 50 ppb to 10 ppb with a compliance date of January, 2006, several DAC wells failed to meet the new MCL. The lower standard was adopted because living with arsenic-contaminated wells poses a serious health threat to DAC residents in particular. In the Poso Creek Region, Arsenic is a highly prevalent naturally

occurring element in the groundwater due to the natural geology, predominantly found in the deeper parts of the aquifer.

Another serious contaminate in the Poso IRWM Plan area groundwater is Nitrate. While nitrate is naturally occurring in soil, Nitrate in drinking water can come from natural, industrial, or agricultural sources (including septic systems, storm water run-off, and fertilizers). Levels of nitrate in drinking water can vary throughout the year. Due to its high mobility, nitrate can easily leach into groundwater. Possible health effects from short-term exposure to nitrates in drinking water can result in methemoglobinemia or Blue Baby Syndrome. Infants below the age of six months who drink water containing nitrate in excess of the MCL may quickly become seriously ill and, if untreated, may die because high nitrate levels can interfere with the capacity of the infant's blood to carry oxygen. Symptoms include shortness of breath and blueness of the skin.

Regionally, water levels in wells in the area have dropped substantially in dry years such as 2007 and 2008. This is because during dry years there is less surface water supplies diverted into the Region to support the local irrigated agriculture, urban, and environmental water uses and more pumping occurs. To the extent that surface water supplies are reduced, groundwater pumping for irrigation is increased. Inasmuch as the DACs and the surrounding agriculture rely on a common groundwater basin, agricultural pumping affects municipal pumping and vice versa. With Arsenic and Nitrate naturally occurring in the area, it is very important to properly destroy wells that have no remaining useful purpose so that the DAC's water supply is safeguarded from contaminants.

The proposed Project was added to the Integrated Regional Water Management Plan for the Poso Creek Region after its adoption in collaboration between the RWMG and representatives from DAC communities. This Region includes the Applicants and several other water districts that share a common groundwater resource. In particular, the Projects were determined to be a high priority with regard to achieving the goals set forth in the Plan, where the overarching goal is improve water supply reliability and quality of supplies delivered to DAC areas within the Poso Creek Region.

3.4.1.3 Project Abstract

The Well Destruction Program (Project) is primarily designed to provide funding to address critical water supply needs for several Disadvantaged Communities (DACs) in the region. This Project will provide a mechanism by which funding can be provided for identifying and properly destroying up to 15-wells that have no remaining useful purpose and that have a potential to contribute to DAC water quality problems if not properly destroyed. The overarching goal of this Project is primarily to safeguard the groundwater supply relied on by the DAC's and the region. Providing funding assistance for the proper destruction of unused/abandoned wells will encourage landowners to properly abandon their wells as required by the Kern County Environmental Health Services Department. Many unused and

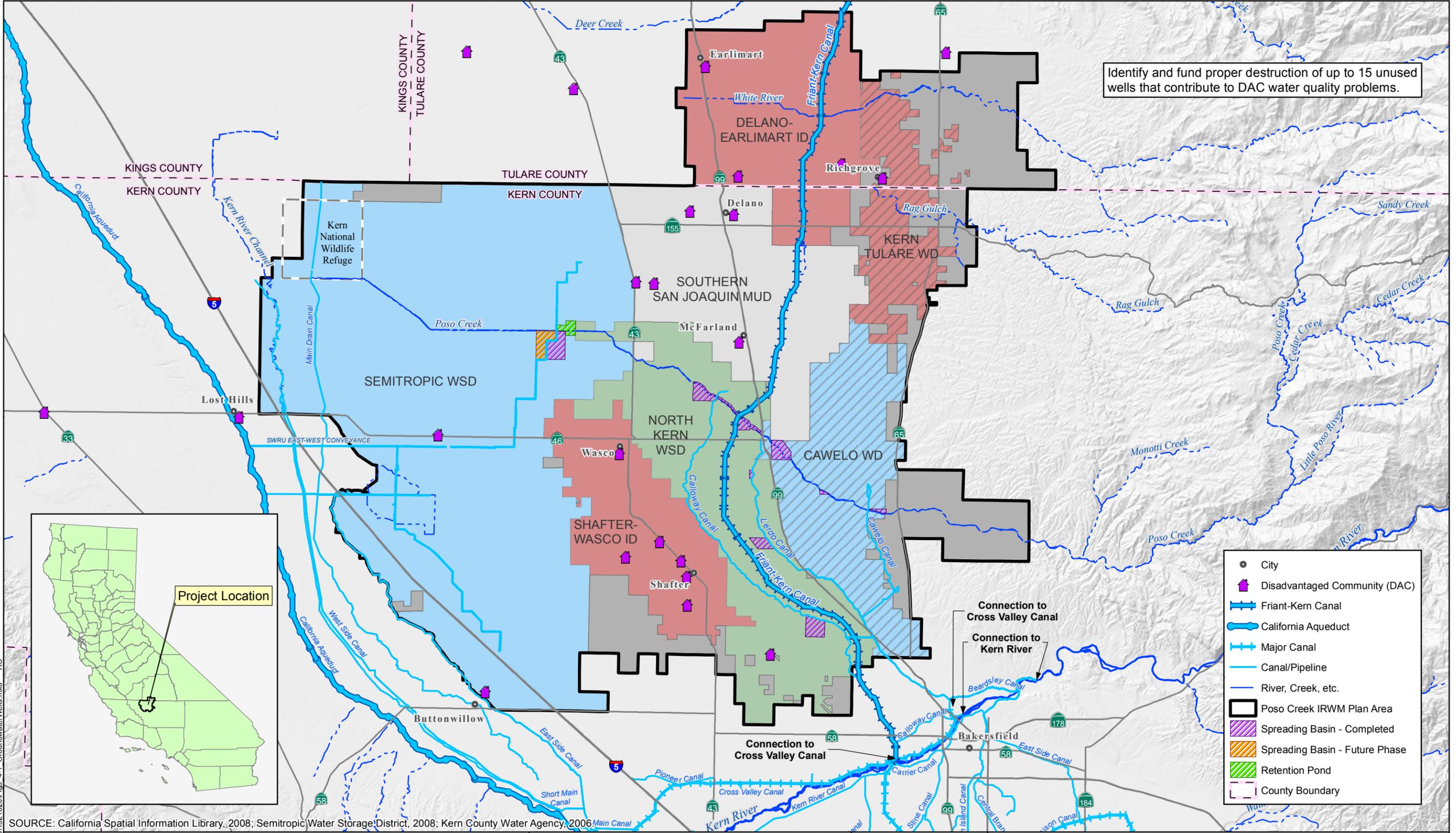
abandoned wells in the area were constructed years ago based on a poor design or are deteriorating because they have met their useful life. These wells, if not properly destroyed can serve as conduit and allow contaminants to enter the production zones in the groundwater aquifer, which is used by the DAC's and other users in the region for their water supply.

3.4.1.4 Integrated Elements of Project

The Project is a component of Poso Creek IRWM Plan, specifically Project 29 of the Plan, to Assist Disadvantaged Communities to Enhance Water Supply, Drinking Water Treatment, and Waste Water Treatment Facilities. The project will allow several small water supply systems in the Poso Creek Region to be better integrated in ground water development and still meet water quality objectives necessary to protect the health of their customers. The Project provides benefit towards meeting one of the Region's highest priorities; providing an affordable water supply to users within the Region. This Region includes the Applicants and several other water districts that share a common groundwater resource.

3.4.1.5 Regional Project Map

The communities of Allensworth, Ducor and Lost Hills, and the Cities of Wasco and Delano are shown on Figure 3.4-1.



Identify and fund proper destruction of up to 15 unused wells that contribute to DAC water quality problems.

- City
- 🏠 Disadvantaged Community (DAC)
- 🚰 Friant-Kern Canal
- 🚰 California Aqueduct
- 🚰 Major Canal
- 🚰 Canal/Pipeline
- 🚰 River, Creek, etc.
- 📏 Poso Creek IRWMP Plan Area
- 🟡 Spreading Basin - Completed
- 🟠 Spreading Basin - Future Phase
- 🟢 Retention Pond
- 📏 County Boundary

SOURCE: California Spatial Information Library, 2008; Semitropic Water Storage District, 2008; Kern County Water Agency, 2006



Poso Creek IRWMP Implementation Grant Proposal
Poso Creek IRWMP Region



GROUNDWATER WELL DESTRUCTION PROGRAM
PROJECT 4 LOCATION
MARCH 2013
FIGURE 3.4-1

05-Mar-2013 Z:\Projects\1321620\Fig3_4-1_GroundwaterWells.mxd RS

3.4.1.6 Completed Work

Semitropic WSD, the local sponsor leading this effort has prior experience implementing this program. In this regard, a process is in place and will be followed when implementing this program. The process includes the following:

1. Identifying abandoned wells in the region. A working group composed of Semitropic WSD, Self-Help Enterprises and a DAC representative will identify unused/abandoned wells that are in the vicinity of DAC that are encountering water quality issues. The working group will rely on records from the Kern County Environmental Health Department listing wells in the area that are no longer in service and that can pose a problem to DAC water quality if not properly abandoned/destroyed.
2. Preparing a letter for distribution to landowners describing the program and offering funding assistance for properly abandoning their unused well.
3. Developing and entering into a cost-share agreement with the participating landowners.
4. Landowner to make arrangements with a licensed water well (with C-57 license) contractor registered with the Kern County Environmental Health Services Department to have the work done.
5. Landowner to obtain County certification that the well has been satisfactorily destroyed and complies with the applicable County Ordinance.
6. Upon receipt of the County's certification and the contractor acknowledges that he has been paid, reimbursements will be made to the landowner.

A copy of the well destruction procedure information is included in Appendix 3.4-1 of Section 3.4.

3.4.1.7 Existing Data and Studies

The following technical reports define the ground-water quality problems in the Region and support the recommendations to pursue this project as discussed within the Poso Creek Region.

Aqua Resources, Inc. *West Bakersfield Ground Water Toxics Management Study*. Draft. 1986.

Community Self Help. *Summary of DAC Water Supply Issues*.

County of Kern. *Inventory of Unused Wells*.

Kenneth C. Schmidt and Associates. *Biennial Groundwater Monitoring Report for the Semitropic Water Storage District Water Banking Project (2001-2002)*. 2005.

Kern County Health Department. *Kern County Ground Water Pollutant Study*. 1980.

Organic Chemical Contamination of Small Public Water Systems in Kern County Health Department: 1987.

Organic Chemical Contamination of Small Public Water Systems in Kern County Health Department: 1988.

SWRCB Sacramento. *West Bakersfield Area Ground Water Quality Management Study Final Report*. 1990.

3.4.1.8 Project Map

Figure 3.4-1 includes a site map showing the Project's geographical location and the surrounding work boundaries.

3.4.1.9 Project Timing and Phasing

The Project is not part of a multi-phased project complex and can operate independently and be fully functional without implementation of other projects. The Project will consist of developing and implementing a program to assist in the proper destruction of wells that have no further reasonable use and which have not been properly destroyed. This type of program has been previously developed and implemented by the agricultural water districts, but funding has been limited. In this regard, once notice of a grant award is made, the program will be implemented. The project budget is presented in Attachment 4 and the schedule is presented in Attachment 5.

Implementing Agency and Management of Project

The proposed Project will be implemented by the Semitropic WSD, in cooperation with a working group consisting of Self-Help Enterprises and a DAC representative and with the assistance of the County of Kern. Semitropic WSD has developed and implemented such a program in the past, but due to limited funding has not continued the program. Mr. Paul Oshel, District Engineer for Semitropic WSD, will provide overall Project Management. Mr. Oshel will work closely with the other Project proponents on developing and implementing the Project, including compilation of results of well destruction activities and water quality measurements.

3.4.2 Proposed Work

3.4.2.1 Direct Project Administration Category (a)

Task 1 –Project Administration

With regards to project administration, work will include coordination of all project activities including budget, schedule, communication, and grant and cost-share administration (preparation of invoices and maintenance of financial records). Work related to grant administration will include: attending a Grant kick-off meeting/workshop conducted by the Grant recipient to discuss grant requirements and establish the lines of communication and coordination through the grant process; preparation of invoices and maintenance of financial records; preparation of requests for Grant modifications (if any); and preparation of Grant deliverables as required, including monitoring reports containing the information discussed in Attachment 6 of this application.

Since the local sponsor for this project is also the Grant recipient a formal Sub-grantee agreement will not be executed.

This work will be initiated when a notice of a Grant award is received.

Deliverables: (1) Preparation of invoices and grant modifications; (2) grant administration; and (3) preparation of other deliverables as required.

Task 2 – Labor Compliance Program

Due to the nature of the work, this project does not require that a Labor Compliance Program be developed and implemented.

Task 3 – Reporting

Work under this task will include preparing and submitting all reports as required. Based on inspection of a template of the DWR Grant Agreement it is expected that the following reports will be prepared and submitted: Quarterly Progress Reports; Project Completion Reports; Grant Completion Report; and Project Performance Reports. Monitoring of project activities, including results of well destruction activities and water quality measurements, described in Attachment 6 to this application will be included in all reports. The local sponsor will coordinate with the Grant recipient to prepare and submit the reports specified above.

This work will be initiated when a notice of a Grant award is received.

Deliverables: Submission of quarterly progress reports, project completion reports, grant completion reports and project performance reports as specified in the Grant Agreement.

3.4.2.2 Land Purchase/Easement Category (b)

Land Purchase/Easement

No land acquisition or easements are necessary to implement this project. In this regard, this task does not apply.

3.4.2.3 Planning/Design/Engineering/Environmental Documentation Category (c)

Task 4 – Assessment and Evaluation

The Project will be guided by a working group including the Semitropic WSD, Poso Creek IRWM RWMG, representatives from the DACs, Self-Help Enterprises and the County of Kern. As part of this task, the project sponsors will develop and implement the program. In a nut shell, the program will include the following activities:

Subtask 4-1 – Identifying abandoned wells in the region. A working group composed of Semitropic WSD, Self-Help Enterprises and a DAC representative will identify unused/abandoned wells that are in the vicinity of DAC that are encountering water quality issues. The working group will rely on records from the Kern County Environmental Health Department listing wells in the area that are no longer in service and that can pose a problem to DAC water quality if not properly abandoned/destroyed.

Subtask 4-2 – Preparing a letter for distribution to landowners describing the program and offering funding assistance for properly abandoning their unused well.

Subtask 4-3 – Developing and entering into a cost-share agreement with the participating landowners.

Subtask 4-4 – Landowner to make arrangements with a licensed water well contractor registered with the Kern County Environmental Health Services Department to have the work done.

Subtask 4-5 – Well driller to obtain County permit.

Subtask 4-6 – Well driller to destroy the well.

Subtask 4-7 – Landowner to obtain County certification that the well has been satisfactorily destroyed and complies with the applicable County Ordinance.

Subtask 4-8 – Upon receipt of the County’s certification and the contractor acknowledges that he has been paid; reimbursements will be made to the landowner.

This work will be initiated when a notice of a Grant award is received.

Deliverables: Certification by Kern County Environmental Health Services Department of well destruction.

Task 5 – Final Design

Design of each well destruction location will be pursuant to State guidelines and well industry practices. As part of the application to the Kern County Department of Public Health, each landowner seeking a permit to complete a well destruction will be required to retain a certified well driller holding a C-57 license and the well driller will be required to submit a proposal with their application that details the method of destruction and proposed materials. Reference is made to the state DWR Well Bulletins 74-81, 74-90. The applicant will be required to:

1. Describe the method to seal the well and the gravel or sand pack that is around the casing, such as over-drilling, or perforating or stripping the well casing and pressure grouting.
2. Identify the original drilling permit number(s) associated with the well(s). A copy of the original well completion report will need to be submitted.

This work will be completed as part of Task 4 – Assessment and Evaluation.

This work will be initiated when a notice of a Grant award is received.

Deliverables: Completion of proposal showing details of method of destruction and proposed materials for approval by the Kern County Environmental Health Services Department.

Task 6 – Environmental Documentation

Pursuant to California Environmental Quality Act (CEQA) guidelines, the Project is exempt from CEQA.

Task 7 – Permitting

Application to the Kern County Environmental Health Services Department will be made by a licensed well driller holding a C-57 license (which has been retained by the participating landowner to do the work) for a Well Destruction Permit. The Counties of Kern and Tulare issue permits within their jurisdiction. As each well is scheduled for destruction, the licensed well driller will be responsible for obtaining the necessary permits. The process requires that:

1. A completed application form be submitted;

2. A proposal be submitted that details the methods of destruction and proposed materials; and
3. A site plan be submitted showing the general location.

As part of the permitting process, the participating landowners will be required to submit a “Well Completion Report” (DWR Form 188) to the Department of Water Resources (DWR) and to the Kern County Environmental Health Services Department office within 30 days from well construction. Compliance with any requirements will be monitored and results included in Quarterly Progress Reports and the Project Completion Report.

This work will be initiated when a notice of a Grant award is received.

Deliverables: Well destruction permit.

3.4.2.4 Construction/Implementation Category (d)

Task 8 – Construction Contracting

The participating landowner will be responsible for contracting with a licensed water well driller registered with the Kern County Environmental Health Services Department. This work would be completed as part of Task 4 – Assessment and Evaluation.

Task 9 – Construction

Well destruction will follow State and County regulations and industry practices regarding techniques and materials. See attached Well abandonment guidelines for County of Kern.

This work will commence once the work in Task 7-Permitting has been completed and a permit has been issued.

Deliverables: Well destruction pursuant to State and County guidelines and regulations.

3.4.2.5 Environmental Compliance/Mitigation/Enhancement Category (e)

Task 10 – Environmental Compliance

Due to the nature of well destruction techniques, environmental compliance measures will not be required.

3.4.2.6 Construction Administration Category (f)

Task 11 – Construction Administration and Management

Due to the nature of the program, this task is not applicable. All work will be completed as part of Task 4-Assessment and Evaluation.

3.4.3 Appendices

Appendices for this Project 4 Work Plan include:

- Appendix 3.4-1 – Well Destruction Procedure Information

The Data Management and Monitoring Deliverables are discussed in Attachment 6 of the application.

Memorandum

To: Appendix 3.4-1
From: Sam Schaefer
Re: Water Well Destruction Information

Appendix 3.4-1 contains the following list of additional information for the administration of Project 4 - Well Destruction Program.

- 1) Kern County Environmental Health Services, Water Program – Water Well Permits Policy Manual
- 2) Kern County Public Health Services Department, Example form for Application for Water Well Permit
- 3) Public Health Services – Well Application Fees schedule
- 4) Kern County Water Supply Systems Ordinance – Well Destruction Approved Sealing Material
- 5) Water Well Destruction Procedures

KERN COUNTY ENVIRONMENTAL HEALTH SERVICES

Water Program

WATER WELL PERMITS POLICY MANUAL (PROPOSED CHANGE) (New wells, deepening, reconstruction)

SCOPE

The Kern County Ordinance Code, Chapter 14, provides for the design, construction, repair, and reconstruction of agricultural wells, domestic wells, cathodic protection wells, industrial wells, monitoring wells, observation wells, geothermal heat exchange wells, and test wells in such a manner that the groundwater of the county will not be contaminated or polluted, and that water obtained for beneficial uses will not jeopardize the health and safety or welfare of the people of this county. Any of the wells listed above must obtain a permit from the Environmental Health Services (EHS) Department prior to initiation of construction.

- I. WATER WELL PERMIT APPLICATION INQUIRIES (all forms are available on line at www.co.kern.ca.us/eh/WaterProgram.asp)

For inquiries on how to obtain a water well permit:

1. Supply a copy of "Application for a Permit to Construct, Reconstruct, Deepen or Destroy a Well."
2. Supply the list of approved well drillers, if requested. A C-57 license is required to drill a well, and the driller must be on the current list entitled, "Well Drillers Registered with the Kern County Environmental Health Services Department."
 - A. Be sure to check current memo of well drillers whose applications should not be accepted.

- II. WATER WELL PERMIT APPLICATION SUBMITTALS

For water well permit application submittals:

1. Collect a completed application form, including:
 - A. signature of contractor or owner (verification from drilling contractor required if only owner signature)
 - B. township, range and section - if lacking, assist applicant
 - C. Assessor's parcel number
 - D. map of well location with distances from roads, property lines, section lines, and distances from septic tanks, seepage pits, leach lines, and water wells on adjoining properties and well site property

- E. proposed depth, size, and type of casing
 - F. intended use and type of work done
2. Locate property information using the GIS mapping system on-line or in the Assessor's parcel books, zone map binder, and floodplain binder.
 - A. If GIS information is not the same as applicant, verify legal owner using KIPS.
 3. For all new domestic, industrial, and agricultural wells, review for approval of:
 - A. zoning
 - B. floodplain

Using the on-line GIS mapping information
 If unsure, ask a planner from the Planning Department.

Cathodic protection wells, monitoring wells, test holes, and well reconstructions do not require above review. If a cathodic well is in the road right-of-way, contact Roads to see if they will issue an encroachment permit for the cathodic well permit.

4. If EHS Building Plans Technician or the Planning Department cannot approve A. or B. above, do not accept fees or the application.
5. Determine if an existing well is being replaced or if any abandoned wells are located on the property site.
 - A. request an application to destroy a well is submitted if any abandoned wells or old well will not be used.
4. If the application is complete and meets all requirements (including distance from the section and mid-section lines for Ag. Wells), accept the application and appropriate fee. Complete the fee information portion of the EHS Department section.

Collect fee based on current ordinance.

7. Check on-line GIS mapping information and KIPS for correct owner information and maps. All information pages from GIS & KIPS should be attached to the application.
8. If GIS mapping information does not agree with the permit application, check KIPS. If it still does not agree, ask for a copy of the grant deed. Do not accept the application or fee.
9. If approval is necessary from the Floodplain Section, then accept both the fees and the application. Also collect an additional flood evaluation fee or a flood evaluation update fee. Note that "flood approval is required" on the

service request. Attach a copy of the receipt to the well permit application and give to Floodplain Management for review. Forward the application to the Water Program as usual.

FOR WATER WELL DESTRUCTION PERMIT APPLICATION SUBMITTALS:

1. Collect a completed application form, including:
 - A. signature of contractor or owner (verification from drilling contractor required if only owner signature)
 - B. township, range and section - if lacking, assist applicant
 - C. Assessor's parcel number
 - D. map of well location with distances from roads, property lines, section lines, and distances from septic tanks, seepage pits, leach lines, and water wells on adjoining properties and well site property
 - E. depth, size, and type of casing
2. Locate property information using the GIS mapping system on-line.
 - A. If GIS information is not the same as applicant, verify legal owner using KIPS.
3. If the application is complete and meets all requirements, accept the application and forward to Water Program.
4. A copy of the application is sent to the KCWA and the water district within which the well site is located. The Water Agency and the affected water district shall be allowed 48 hours to review the application and make contact with the property owner if either entity desire to obtain access to the well.
5. No up front fee is required. An hourly service fee is charged when destruction is completed.

III. WATER - WELL PERMIT APPLICATION REVIEW PROCESS

1. Receive completed application from counter Building Plans Technician.
2. Environmental Health Specialist reviews proposed location of the well and determines if an annular seal will be required.
 - A. Factors used to determine if an annular seal will be required.

Review maps and other information as noted on attached Exhibit A.

Review available water quality analysis data for the specific Township/Range/Section that the well will be located in and adjacent sections if necessary.

An annular seal is required if the water quality analysis data for the following constituents indicate differences in quality between the unconfined and confined aquifers (better quality required in the confined aquifer):

TDS	500 mg/L
NITRATE	20 mg/L
EDB	Any difference, unless MCL is exceeded in the confined aquifer.
DBCP	Any difference, unless MCL is exceeded in the confined aquifer.
URANIUM	Any difference, unless MCL is exceeded in the confined aquifer.

Other constituents may be used by the Environmental Health Specialist in conjunction with the above constituents to determine if an annular seal will be required.

3. If, after reviewing the available water quality analysis data, the Environmental Health Specialist cannot make a determination that an annular seal will or will not be required, the application is submitted to the Kern County Water Agency for a recommendation and the applicant is also advised that a recommendation from a private consultant may be submitted for review. No further action is taken on the application until a recommendation from the Water Agency and a private consultant, if retained, is received.
4. If an ESS flood review is required, the application will not be approved until a recommendation from ESS flood review is received.
5. A site inspection will be conducted by an Environmental Health Specialist or Technician.
6. The application is approved/disapproved by an Environmental Health Specialist (based upon requirements found in County Ordinance) a permit number is issued and letter written to the property owner and copy of the letter is mailed to the well driller and the Kern County Water Agency advising of the approval and any conditions that may be required.

Annular seal.
E-log.
Deeper top seal.

7. If the applicant chooses to have independent review of the decision for the location of the seal, a California certified hydrogeologist must be retained for that purpose at the applicant's cost.

8. An inspection of the installation of the annular seal is conducted.
9. Final inspection of the surface features (except destruction and cathodic protection wells) must be requested by the applicant, pump company, etc., and is performed by the Environmental Health Specialist or Technician.
10. All new agricultural wells shall be equipped with an approved air gap separation or an approved chemigation check valve assembly (a list of assemblies approved by the Department is posted on the Department web page and is available for review at the Department). Prior to final approval of the agricultural water well, the air gap separation must be constructed or the approved chemigation check valve assembly must be installed.

The Department may approve, on a case-by-case basis, an alternate backflow prevention device when the applicant or his representative demonstrates that the alternate device will be effective for preventing degradation of groundwater due to backflow.

11. The water quality (except destruction, monitoring and cathodic protection wells) is tested by the applicant and results submitted to the Kern County Environmental Health Services Department. For agricultural wells, the minimum testing shall be conducted for the following:
 - A. Irrigation Water Analysis
 - B. Arsenic
 - C. Fluoride
 - D. Organics
 1. EDB
 2. DBCP
 - E. Gross Alpha
12. Upon receipt of satisfactory water quality (except destruction, monitoring and cathodic protection wells), well driller's log (except destruction), and final inspection (except destruction and cathodic protection wells), the well is issued a water supply certificate.

EXHIBIT A

KERN COUNTY WATER SUPPLY SYSTEMS ORDINANCE

Guidelines for Kern County Water Agency Review of Kern County Water Well Ordinance Permits

Water well permit applications submitted to the Kern County Environmental Health Services Department (KCEHSD) should be sent to the Kern County Water Agency (Agency) for review when the permits meet any of the following conditions:

- Proposed well site falls within the northern extent of the Corcoran Clay as described by Metz, et al, 1991 (Figure 1).
- Proposed well site falls within the extent of the shallow groundwater conditions (Figure 1).
- Proposed well site is within 1 mile radius of a public drinking water supply well.
- Proposed well site is within 1 mile radius of the sphere of influence of any Kern County municipality (Figure 2).
- Proposed well site is within 1 mile radius of an established or proposed groundwater recharge/recovery facility (figure 3).
- Proposed well site is within 1 mile radius of an active or proposed dairy or feedlot operation (Figure 4).
- Proposed well site is within 1 mile radius of a biosolids composting, disposal, or land application area (Figure 4).
- Proposed well site is within 1 mile radius of a known or suspected hazardous waste site, active or inactive sanitary landfill, burn dump, hazardous materials facility.
- Proposed well site is within 1 mile radius of a known area of poor water quality (refer to Groundwater Quality Report San Joaquin Valley Kern County, California; March 1982).
- Proposed well site is within 1 mile radius of an active or proposed fruit or vegetable processing facility.
- All water well destruction permit applications should be reviewed by the Agency and water district having jurisdiction for the site.

EXHIBIT B

KERN COUNTY WATER SUPPLY SYSTEMS ORDINANCE

Well Construction Approved Sealing Material

Sealing material shall consist of neat cement, sand cement, concrete, or bentonite. Cuttings from drilling, or drilling mud, shall not be used for any part of the sealing material.

1. Cement-based Sealing Material:

- a. **Neat Cement.** For Types I or II Portland cement, neat cement shall be mixed at a ratio of one 94-pound sack of Portland cement 5 to 6 gallons of clean water.
- b. **Sand Cement.** Sand-cement shall be mixed at a ratio of not more than 188 pounds of sand to one 94-pound sack of Portland cement (2 parts sand to 1 part cement, by weight) and about 7 gallons of clean water, where Type I or Type II Portland cement is used. This is equivalent to a '10.3 sack mix.' Less water shall be used if less sand than 2 parts sand per one part cement by weight is used.
- c. **Concrete.** Concrete shall consist of Portland cement and aggregate mixed at a ratio of at least six-94 pound sacks of Portland cement per cubic yard of aggregate. A popular concrete mix consists of eight-94 pound sacks of Type I or Type II Portland cement per cubic yard of uniform 3/8-inch aggregate.

2. Bentonite Sealing Material

Bentonite used for annular seals shall be commercially prepared, powdered, granulated, pelletized, or chipped/crushed sodium montmorillonite clay. The largest dimension of pellets or chips shall be less than 1/5 the radial thickness of the annular space into which they are placed.

Bentonite clay mixtures shall be thoroughly mixed with clean water prior to placement. A sufficient amount of water shall be added to bentonite to allow proper hydration. Depending on the bentonite sealing mixture used, 1 gallon of water should be added to about every 2 pounds of bentonite. Water added to bentonite for hydration shall be of suitable quality and free of pollutants and contaminants.

Bentonite preparations normally require ½ to 1 hour to adequately hydrate. Actual hydration time is a function of site conditions and the form

of bentonite used. Finely divided forms of bentonite generally require less time for hydration, if properly mixed.

Dry bentonite pellets or chips may be placed directly into the annular space below water, where a short section of annular space, up to 10 feet in length, is to be sealed. Care shall be taken to prevent bridging during the placement of bentonite seal material.

Unamended bentonite clay seals should not be used where structural strength of the seal is required, or where it will dry. Bentonite seals may have a tendency to dry, shrink and crack in arid and semi-arid areas of California where subsurface moisture levels can be low. Bentonite clay seals can be adversely affected by subsurface chemical conditions, as can cement-based materials.

Bentonite clay shall not be used as a sealing material if roots from trees and other deep rooted plants might invade and disrupt the seal, and/or damage the well casing. Roots may grow in an interval containing a bentonite seal depending on surrounding soil conditions and vegetation.

Bentonite-based sealing material shall not be used for sealing intervals of fractured rock or sealing intervals of highly unstable, unconsolidated material that could collapse and displace the sealing material, unless otherwise approved by the enforcing agency. Bentonite clay shall not be used as a sealing material where flowing water might erode it.

3. Other Approved Sealing Material

Well proportioned mixes of silts, sands, and clays (or cement), and native soils that have a coefficient of permeability of less than 10 feet per year.

EXHIBIT C

KERN COUNTY WATER SUPPLY SYSTEMS ORDINANCE

Well Destruction Approved Sealing Material

Sealing material shall consist of neat cement, sand cement, concrete, or bentonite. Cuttings from drilling, or drilling mud, shall not be used for any part of the sealing material.

1. Cement-based Sealing Material:

- a. **Neat Cement.** For Types I or II Portland cement, neat cement shall be mixed at a ratio of one 94-pound sack of Portland cement 5 to 6 gallons of clean water.
- b. **Sand Cement.** Sand-cement shall be mixed at a ratio of not more than 188 pounds of sand to one 94-pound sack of Portland cement (2 parts sand to 1 part cement, by weight) and about 7 gallons of clean water, where Type I or Type II Portland cement is used. This is equivalent to a '10.3 sack mix.' Less water shall be used if less sand than 2 parts sand per one part cement by weight is used.
- c. **Concrete.** Concrete shall consist of Portland cement and aggregate mixed at a ratio of at least six-94 pound sacks of Portland cement per cubic yard of aggregate. A popular concrete mix consists of eight-94 pound sacks of Type I or Type II Portland cement per cubic yard of uniform 3/8-inch aggregate.

2. Bentonite Sealing Material

Bentonite used for annular seals shall be commercially prepared, powdered, granulated, pelletized, or chipped/crushed sodium montmorillonite clay. The largest dimension of pellets or chips shall be less than 1/5 the radial thickness of the annular space into which they are placed.

Bentonite clay mixtures shall be thoroughly mixed with clean water prior to placement. A sufficient amount of water shall be added to bentonite to allow proper hydration. Depending on the bentonite sealing mixture used, 1 gallon of water should be added to about every 2 pounds of bentonite. Water added to bentonite for hydration shall be of suitable quality and free of pollutants and contaminants.

Bentonite preparations normally require ½ to 1 hour to adequately hydrate. Actual hydration time is a function of site conditions and the form

of bentonite used. Finely divided forms of bentonite generally require less time for hydration, if properly mixed.

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Bentonite clay shall not be used as a sealing material if roots from trees and other deep rooted plants might invade and disrupt the seal, and/or damage the well casing. Roots may grow in an interval containing a bentonite seal depending on surrounding soil conditions and vegetation.

Bentonite-based sealing material shall not be used for sealing intervals of fractured rock or sealing intervals of highly unstable, unconsolidated material that could collapse and displace the sealing material, unless otherwise approved by the enforcing agency. Bentonite clay shall not be used as a sealing material where flowing water might erode it.

3. Other Approved Sealing Material

Well proportioned mixes of silts, sands, and clays (or cement), and native soils that have a coefficient of permeability of less than 10 feet per year.



**Kern County Public Health Services Department,
Environmental Health Division**

2700 "M" Street, Suite 300, Bakersfield, CA 93301
Phone (661) 862-8700 FAX (661) 862-8701
www.co.kern.ca.us/eh/

Permit/Well # _____

Starting Date _____

APPLICATION FOR WATER WELL PERMIT

APPLICATION MUST BE SUBMITTED AT LEAST TEN (10) WORKING DAYS PRIOR TO THE PROPOSED STARTING DATE

Mark Type of Permit:	<input type="checkbox"/> Construct New	<input type="checkbox"/> Reconstruct/Modify	<input type="checkbox"/> Deepen	<input type="checkbox"/> Destroy
----------------------	--	---	---------------------------------	----------------------------------

Type of Well

- | | | |
|--|---------------------------------------|--|
| <input type="checkbox"/> Domestic/Private (1) | <input type="checkbox"/> Agricultural | <input type="checkbox"/> Cathodic Protection |
| <input type="checkbox"/> Domestic (2-4 connections) | <input type="checkbox"/> Test Hole | <input type="checkbox"/> Vadose |
| <input type="checkbox"/> Domestic (5 or more connections) | <input type="checkbox"/> Monitoring | <input type="checkbox"/> Other _____ |

MARK ONE OF THE BOXES BELOW FOR THE PARTY RESPONSIBLE FOR PAYMENT OF FEES

OWNER'S INFORMATION				PROPERTY/FACILITY INFORMATION											
<input type="checkbox"/> Name:				<input type="checkbox"/> Name:											
Address:				Address:											
City:		State:		Zip:		City:		State:		Zip:					
Phone:			e-mail:			APN:			T: R: Sec:						
CONTRACTOR'S INFORMATION															
<input type="checkbox"/> Environmental Contractor:						<input type="checkbox"/> Drilling Contractor:									
Address:						Address:									
City:			State:		Zip:			City:			State: Zip				
Contact :				Phone:				Contact:				Phone:			
e-mail:						e-mail:									

LOCATION OF WELL:

TOTAL ACRES _____

Attach a plot plan with the exact location of water well with respect to the following items: property lines, adjoining properties, water bodies or courses, drainage pattern, roads, existing wells, structures, sewers or private disposal systems. **Include dimensions. Draw a 200' radius circle from well site location.** For **monitoring wells** provide a description of the facility to be monitored, including: location of tanks, proposed monitoring and placement, nearest street or intersection, location of any water wells or surface water within 500' radius of facility.

Provide detailed directions to site:

WELL CONSTRUCTION INFORMATION

METHOD: Reverse Rotary Rotary Air Rotary Hollow Stem Auger Other: _____

WELL NAME / NUMBER			
MAXIMUM WELL DEPTH			
SEALING MATERIAL			
SEAL DEPTH (HARD ROCK/UNCONSOLIDATED)			
CASING MATERIAL & GAUGE			
CASING - INSIDE DIAMETER			
SCREEN/PERFORATION DEPTH			
CONDUCTOR DEPTH			
CONDUCTOR DIAMETER			
DEPTH TO GROUNDWATER			
LOCKING WELL CAP			
BOREHOLE DIAMETER			
SCREEN MATERIAL & GAUGE			
TYPE OF BENTONITE PLUG & DEPTH			
FILTER PACK MATERIAL & SIZE			
SCREEN SLOT SIZE & LENGTH			
SEALANT PLACEMENT METHOD			

WELL DESTRUCTION INFORMATION

WELL NUMBER					
WELL DEPTH					
CASING MATERIAL					
SEALANT MATERIAL					
SEALANT PLACEMENT METHOD					
DESCRIBE DESTRUCTION PROCEDURE:					

GENERAL CONDITIONS FOR DESTRUCTION:

1. A well destruction application must be filed with this Department if a well is being destroyed that is not in conjunction with a test hole permit.
2. Destruction procedures must be followed as per UT-50.
3. Placement of the seal must be witnessed by a representative of this Department. Forty-eight hour advanced notice is required for an appointment.

SPECIAL CONDITIONS:

GENERAL CONDITIONS FOR ALL PERMITS:

Permit applications may be submitted to the Planning Department by county staff for zoning, access, and flood plain clearances prior to approval of the Environmental Health Services Department (EHS). If you are drilling within city's limits, you will have to receive approval from their Planning Department.

1. Permit applications must be submitted to EHS at least ten (10) working days prior to the proposed starting date.
2. Well site approval is required before beginning any work related to water well construction. It is unlawful to continue work past the stage at which an inspection is required unless inspection is waived or completed.
3. Other required inspections include: setting conductor casing, E-Logs, all seals, and final construction features.
4. In areas where a water well penetrates more than one aquifer, and one or more of the aquifers may contain water which is of a quality which may degrade the other aquifer(s) penetrated if allowed to commingle, an E-Log shall be required to determine the location of the confining clay layer(s) and assist in the placement of any required annular seal(s).
5. A phone call to the **Department Hotline at (661) 862-8788** is required 48 hours before the placement of any seals or plugs.
6. Approval of water quality and final construction features is required before the water well is put into use.
7. Construction under this permit is subject to any instructions by EHS representatives.
8. Any misrepresentation or noncompliance with required permit conditions, or regulations, will result in issuance of a "Stop Work Order."
9. A copy of the Department of Water Resources Driller's Report and water quality analyses must be submitted to EHS within sixty (60) days after completion of the work.
10. "Dry" holes must be properly destroyed within two (2) weeks of drilling. A water well destruction application must be filed with EHS.
11. The permit is void one (1) year after date of issuance if work has not been started and reasonable progress toward completion made. Fees are not refundable or transferable.
12. Lead appurtenances shall not be used in construction of any private or public water supply system. The use of solders containing more than 2/10 of 1% lead is prohibited in making joints and fittings in any private or public potable water system.
13. Drilling of a water well shall be performed by a C-57 contractor licensed in accordance with the provisions of the Contractors License Law (Chapter 9, Division 3, of the Business and Professions Code) unless exempted by that act, and registered to drill within the County of Kern.
14. Permittee shall assume entire responsibility for all activities and uses under this permit and shall indemnify, defend and save the County of Kern and/or Kern County Water Agency, its officers, agents, and employees, free and harmless from any and all expense, cost or liability in connection with or resulting from the exercise of this permit, including, but not limited to, property damage, personal injury, and wrongful death.

I UNDERSTAND THAT FUTURE DEVELOPMENT PERMITS MAY NOT BE ISSUED (KCOC 17.04.120) UNLESS RECORDED LEGAL ACCESS TO THE PROPERTY CAN BE DEMONSTRATED.

I certify that I am the owner of the above-described property, or the authorized representative of such owner, and that all the information I have furnished is current and accurate to the best of my knowledge, and I intend to construct the water well as represented above. I understand that all work is to be done in accordance with Kern County Ordinance Code Chapter 14.08, Bulletin 74-81 and all subsequent bulletins and the conditions of the Permit Application, including any conditions which may be added or changed by EHS upon review of this Application and issuance of the Permit. I further understand that any permit issued pursuant to this application is subject to such further conditions as may be deemed necessary to ensure compliance with the permit regulations.

Owner's Signature _____ Date _____ Authorized Agent or Agency _____ Date _____

THIS APPLICATION BECOMES A PERMIT WHEN APPROVED

<i>For internal use only</i>	
Permit Approved: _____ Date: _____ Expiration Date: _____	Total Fee: _____ Date Paid: _____ Receipt #: _____ <input type="checkbox"/> Cash <input type="checkbox"/> Check (# _____) Fee received by: _____
Zone: _____ Flood Plain Approval Required: <input type="checkbox"/> Yes <input type="checkbox"/> No	E-Log Required: <input type="checkbox"/> Yes <input type="checkbox"/> No Faxed to KCWA on _____ by _____

REASONS FOR DENIAL OR CONDITIONS OF PERMIT:

MATTHEW CONSTANTINE
DIRECTOR
PUBLIC HEALTH SERVICES



ENVIRONMENTAL HEALTH DIVISION

PUBLIC HEALTH SERVICES D E P A R T M E N T

June 1, 2010

WELL APPLICATION FEES

Application Processing Fee for all Wells:	\$ 75.00
Well Application: Domestic/Industrial	\$675.00
Well Application: Cathodic Protection	\$675.00
Well Application: Monitoring Well	\$675.00
Well Application: Test Hole (D.D)*	\$455.00
Well Application: Test Hole (D.C)**	\$675.00
Well Application: Agricultural Well	\$675.00
Well Application: Vadose Zone Well	\$675.00
Well Application: Destruction of Well	\$100.00/hr

* note: D.D = Drill and Destroy

**note: D.C = Drill and Completed

Flood review fees may be charged in addition to above fees if the property is in a flood zone.

For additional information regarding submittal of applications and fees, please call Nina Brennan at (661) 862-8753.

“ONE VOICE”

ANIMAL CONTROL

EMERGENCY MEDICAL SERVICES

ENVIRONMENTAL HEALTH

PUBLIC HEALTH

2700 "M" STREET, SUITE 300

BAKERSFIELD, CALIFORNIA, 93301

661-862-8700

WWW.CO.KERN.CA.US/EH

KERN COUNTY WATER SUPPLY SYSTEMS ORDINANCE

Well Destruction Approved Sealing Material

Sealing material shall consist of neat cement, sand cement, concrete, or bentonite. Cuttings from drilling, or drilling mud, shall not be used for any part of the sealing material.

1. Cement-based Sealing Material:

- a. **Neat Cement.** For Types I or II Portland cement, neat cement shall be mixed at a ratio of one 94-pound sack of Portland cement 5 to 6 gallons of clean water.
- b. **Sand Cement.** Sand-cement shall be mixed at a ratio of not more than 188 pounds of sand to one 94-pound sack of Portland cement (2 parts sand to 1 part cement, by weight) and about 7 gallons of clean water, where Type I or Type II Portland cement is used. This is equivalent to a '10.3 sack mix.' Less water shall be used if less sand than 2 parts sand per one part cement by weight is used.
- c. **Concrete.** Concrete shall consist of Portland cement and aggregate mixed at a ratio of at least six-94 pound sacks of Portland cement per cubic yard of aggregate. A popular concrete mix consists of eight-94 pound sacks of Type I or Type II Portland cement per cubic yard of uniform 3/8-inch aggregate.

2. Bentonite Sealing Material

Bentonite used shall be commercially prepared, powdered, granulated, pelletized, or chipped/crushed sodium montmorillonite clay. The largest dimension of pellets or chips shall be less than 1/5 the radial thickness of the annular space into which they are placed.

Bentonite clay mixtures shall be thoroughly mixed with clean water prior to placement. A sufficient amount of water shall be added to bentonite to allow proper hydration. Depending on the bentonite sealing mixture used, 1 gallon of water should be added to about every 2 pounds of bentonite. Water added to bentonite for hydration shall be of suitable quality and free of pollutants and contaminants.

Bentonite preparations normally require ½ to 1 hour to adequately hydrate. Actual hydration time is a function of site conditions and the form of bentonite used. Finely divided forms of bentonite generally require less time for hydration, if properly mixed.

Dry bentonite pellets or chips may be placed directly into the casing space below water, where a short section of casing space, up to 10 feet in length, is to be sealed. Care shall be taken to prevent bridging during the placement of bentonite seal material.

Unamended bentonite clay seals should not be used where structural strength of the seal is required, or where it will dry. Bentonite seals may have a tendency to dry, shrink and crack in arid and semi-arid areas of California where subsurface moisture levels can be low. Bentonite clay seals can be adversely affected by subsurface chemical conditions, as can cement-based materials.

Bentonite clay shall not be used as a sealing material if roots from trees and other deep rooted plants might invade and disrupt the seal, and/or damage the well casing. Roots may grow in an interval containing a bentonite seal depending on surrounding soil conditions and vegetation.

Bentonite-based sealing material shall not be used for sealing intervals of fractured rock or sealing intervals of highly unstable, unconsolidated material that could collapse and displace the sealing material, unless otherwise approved by the enforcing agency. Bentonite clay shall not be used as a sealing material where flowing water might erode it.

3. Other Approved Sealing Material

Well proportioned mixes of silts, sands, and clays (or cement), and native soils that have a coefficient of permeability of less than 10 feet per year.

WATER WELL DESTRUCTIONS

Water wells that are no longer in use (abandoned) or are no longer producing adequate supplies of water are required by state law and county ordinance to be destroyed according to established procedures.

Abandoned water wells can act as conduits for surface and subsurface pollution to enter groundwater supplies. Once polluted, groundwater is no longer drinkable.

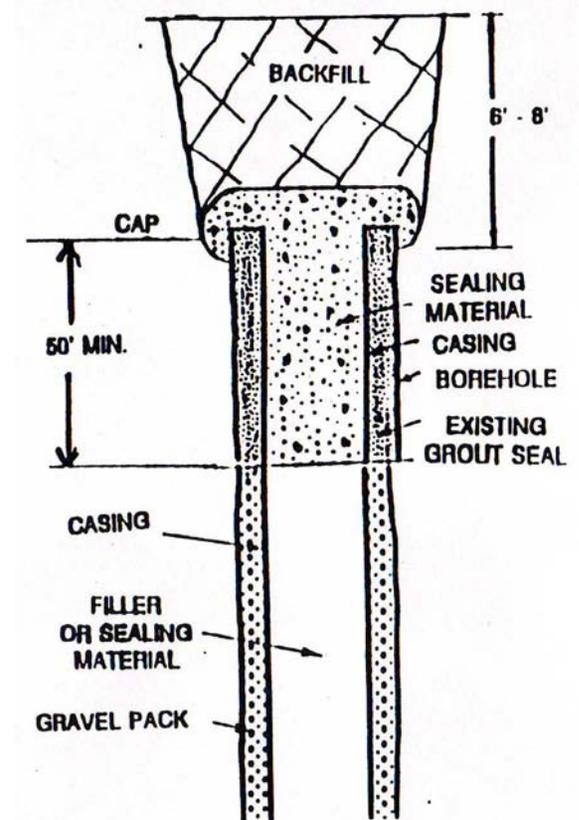
Abandoned wells can also be illegally used for the disposal of liquid and solid wastes, causing further degradation of the groundwater quality.

The following guidelines will enable you to destroy your well in compliance with those regulations:

1. An application for a permit to destroy the well must be submitted to the Kern County Public Health Services Department, Environmental Health Division, for review prior to the well destruction.

2. The contractor submitting an application must have a C-57 license and be registered with the Department.
3. A fee at the rate of \$100 per hour will be charged for the travel and inspection time.
4. Cut off casing six to eight feet (6'-8') below grade if in an urban area.
5. Sealing material shall consist of neat cement, sand cement, concrete, bentonite or other approved material. Cuttings from drilling, or drilling mud, shall not be used for any part of the sealing material.
6. With an aid of a tremie pipe, cement, concrete, or sand-cement grout in top 50 feet, spilling over to form a mushroom cap.
7. Placement of the 50-foot cement seal must be witnessed by a representative of this Division.

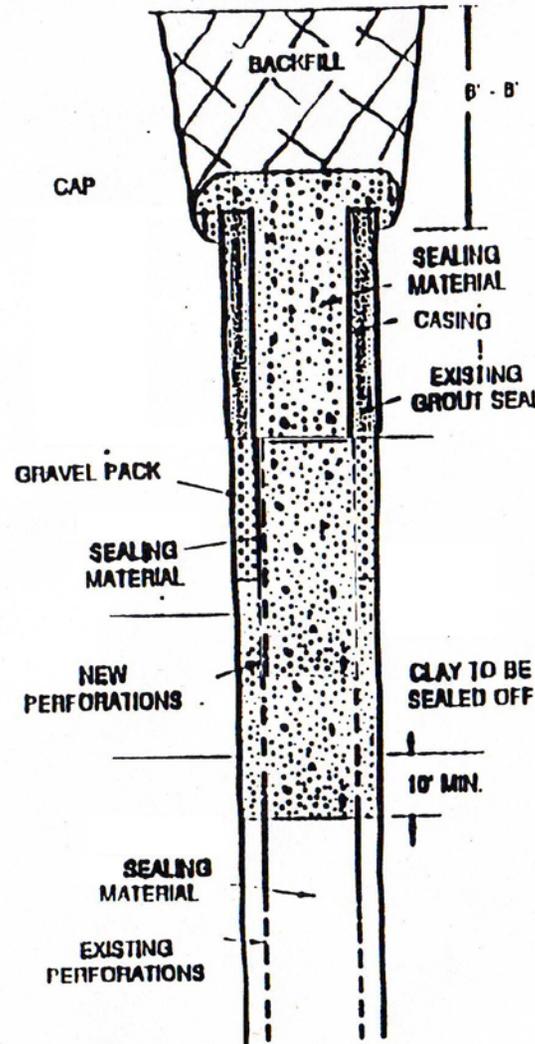
WELL DESTRUCTION



DESTRUCTION OF WELL WITH REGIONAL CONFINING CLAY

For wells that penetrate a regional confining clay, additional requirements are as follows:

1. Depth of the annular seal will be determined at the time the application is submitted or after the application is submitted to the Kern County Water Agency for review.
2. Casing may be required to be perforated across the regional confining clay with a mills knife or wire line casing shot.
3. The casing is to be immediately pumped full of approved sealing material with the aid of a tremie pipe from 10' below the regional confining clay to the top of the well casing.
4. The destruction procedures for the upper seal are the same as for the shallow well destruction.



WELL DESTRUCTION PROCEDURES

DEPARTMENT OF PUBLIC
HEALTH SERVICES,
ENVIRONMENTAL HEALTH DIVISION
2700 M STREET, SUITE 300
BAKERSFIELD, CA 93301

(661) 862-8700

October 2006

3.5 Project 5 – On-Farm Mobile Lab for Water Use Efficiency in support of Nutrient Management

3.5.1 Introduction

The North West Kern Resource Conservation District (NWKRCDD) is located in Northwestern Kern County and is comprised of 594,360 acres. The Eastern area encompasses the lower reaches of Poso Creek. Starting in the general areas of Knob Hill on the South and Mt. Poso on the North, Poso Creek runs through the northern portion of the district in a Northwesterly direction and outlets into the Kern National Wildlife Refuge. The western boundary is coterminous with the San Luis Obispo County line for 12 miles and also parallels the drainage trough of the valley for approximately 45 miles south from the Kern-Kings County line. The north is bounded by Kings and Tulare Counties. The most southern part of the RCD is bounded by the City of Taft.

NWKRCDD operates a Mobile Irrigation Lab that provides specific on-site evaluations of irrigation system performance to enable water users to improve water application efficiency which also supports optimum nutrient application. This is accomplished through on-farm irrigation system evaluations that provide observations and recommendations regarding system management and/or maintenance. Irrigation workshops are also conducted to provide information to landowners who might not otherwise receive an on-farm irrigation evaluation. The On-Farm Mobile Lab for Water Use Efficiency in Support of Nutrient Management project (Project) will support the Mobile Lab services available to an estimated 12,000 acres of irrigated farmland primarily within the North West Kern Resource Conservation District service area, as shown in Figure 3.5-1 of section 3.5.1.5. The Project will support efficient water management practices that help address a critical water supply need for several disadvantaged communities (DACs) in Tulare and Kern Counties by assisting to reduce nutrient loading associated with DAC water quality problems.

The program would be administered by the North West Kern Resource Conservation District under the direction of Semitropic WSD, as the Grantee recipient. The Project budget and schedule are presented in Attachments 4 and 5. The NWKRCDD 2013 Annual Report is included as Appendix 3.5-1 to this Section 3.5.

3.5.1.1 Goals and Objectives

The Project accomplishes multiple goals and objectives of the Poso Creek Integrated Regional Water Management Plan (IRWMP). Exhibit 3.5-1 presents a selection of the Poso Creek IRWM Plan Objectives, and how the Project Goals and Objectives coincide with them:

Exhibit 3.5-1

IRWM Plan Objectives	Project 5 Goals and Objectives
Enhance Water Supply Reliability of Surface Supplies	Project 5 will enhance Water Supply Reliability by evaluating irrigation efficiency improvements on 12,000 acres within the Region. Project 5 accomplishes the improvements through evaluation and instruction to growers in more efficient irrigation.
Maintain Groundwater levels at economically viable pumping lifts	More efficient irrigation will result in reduced pumping rates and less total withdrawal. Both reduced pumping rates and reduced withdrawal will lower pumping lifts and related energy costs.
Protect and enhance the quality of groundwater use by DACs	Water quality degradation due to NO ₃ is well documented. More efficient use of water in support of nutrient management is a demonstrated means to protect and improve groundwater quality. The project would help avoid the need for costly water treatment by DACs.
Maintain water supply costs at a level commensurate with the continued viability of the agricultural economy which has developed in the area	Reduced pumping rates will lower pumping lifts and related energy costs.

3.5.1.2 Purpose and Need

The On-Farm Mobile Lab for Water Use Efficiency in Support of Nutrient Management project (Project) will expand the Mobile Lab services to an estimated 12,000 acres of irrigated farmland primarily within the North West Kern Resource Conservation District (NWKRCDD) and all of Kern County. Information generated from irrigation system evaluations will provide information to the land owners that will enable them to better manage the water they have available to them by improving their irrigation scheduling, management and delivery methods, which supports fertilizer (nutrient) management.

The Mobile Lab provides specific onsite information about irrigation system performance that supports the grower to be more proficient in maintaining water application efficiency, which also supports nutrient management. In addition to the on-farm irrigation evaluations, irrigation workshops are presented annually to provide information to landowners who might not otherwise receive an on-farm irrigation evaluation.

In farming, irrigation water management is a critical component of a successful operation. Growers can better utilize water by implementing practices of land leveling and proper maintenance of a micro irrigation system. Direct benefits to the growers include: reduced energy costs for ground-water pumping, higher application distribution uniformities, lower deep percolation, and lower overall costs.

By demonstrating these benefits, more efficient practices have become institutionalized in the farming community. The proposed Project was an identified water management measure in the Integrated Regional Water Management Plan (Adopted July 2007) for the Poso Creek Region. This Region includes several water districts that share a common groundwater

resource and collaborate in management of surface water supplies. In particular, the Project was determined to be a high priority with regard to achieving the goals set forth in the Plan, where the overarching goals area's improve water supply reliability and cost management for both the Poso Creek IRWMP and Kern County Regions.

Of the contaminants found in the Poso IRWM Plan area's groundwater, there are two primary contaminants generally found in the groundwater used by DACs as their drinking water: nitrate and arsenic. Each of the DACs located within the Poso Creek IRWMP region rely exclusively on pumped groundwater for its municipal needs.

Nitrate is a serious groundwater contaminate in the Poso IRWM Plan area. While nitrate is naturally occurring in soil, Nitrate in drinking water can come from natural, industrial, or agricultural sources (including septic systems, storm water run-off, and fertilizers). Levels of nitrate in drinking water can vary throughout the year. Due to its high mobility, nitrate can leach into groundwater. Possible health effects from short-term exposure to nitrates in drinking water can result in methemoglobinemia or Blue Baby Syndrome. Infants below the age of six months who drink water containing nitrate in excess of the MCL may quickly become seriously ill and, if untreated, may die because high nitrate levels can interfere with the capacity of the infant's blood to carry oxygen. Symptoms include shortness of breath and blueness of the skin.

The proposed Project was added to the Integrated Regional Water Management Plan for the Poso Creek Region after its adoption in collaboration between the RWMG and representatives from DAC communities. This Region includes several water districts that share a common groundwater resource. In particular, this Project was determined to be a high priority with regard to achieving the goals set forth in the Plan, where the overarching goal is improve water supply reliability and quality of supplies delivered to agricultural districts and assist DACs with drinking water needs within the Poso Creek Region.

3.5.1.3 Project Abstract

The On-Farm Mobile Lab for Water Use Efficiency in Support of Nutrient Management (Project) will allow the Mobile Lab to provide evaluation to an estimated 12,000 acres of irrigated farmland primarily within the North West Kern Resource Conservation District (NWKRCDD) within Kern County. Information generated from irrigation system evaluations will provide information to the land owners that will enable them to better manage the water they have available to them by improving their irrigation scheduling, management and delivery methods, which supports fertilizer (nutrient) management.

The Mobile Lab provides assistance to agricultural landowners in the Region that consists of on-farm irrigation system evaluations and would be available to farms of all sizes. Contact is made directly with growers that might benefit from an on-farm analysis within water districts of the Region.

The evaluation or assessment process evaluates a working irrigation system including monitoring various components of the system, such as, water application and distribution uniformity. Evaluations vary depending on the system type, of which there are basically two; surface (or gravity flow) systems and pressurized systems:

1. Surface gravity flow systems are made up primarily of two different types, including furrow and flood (Border Strip), which take into account flow rate and soil types.
2. Pressurized systems include the various types of sprinkler and micro-drip based systems, which take into account pressure and flow rate.

3.5.1.4 Integrated Elements of Project

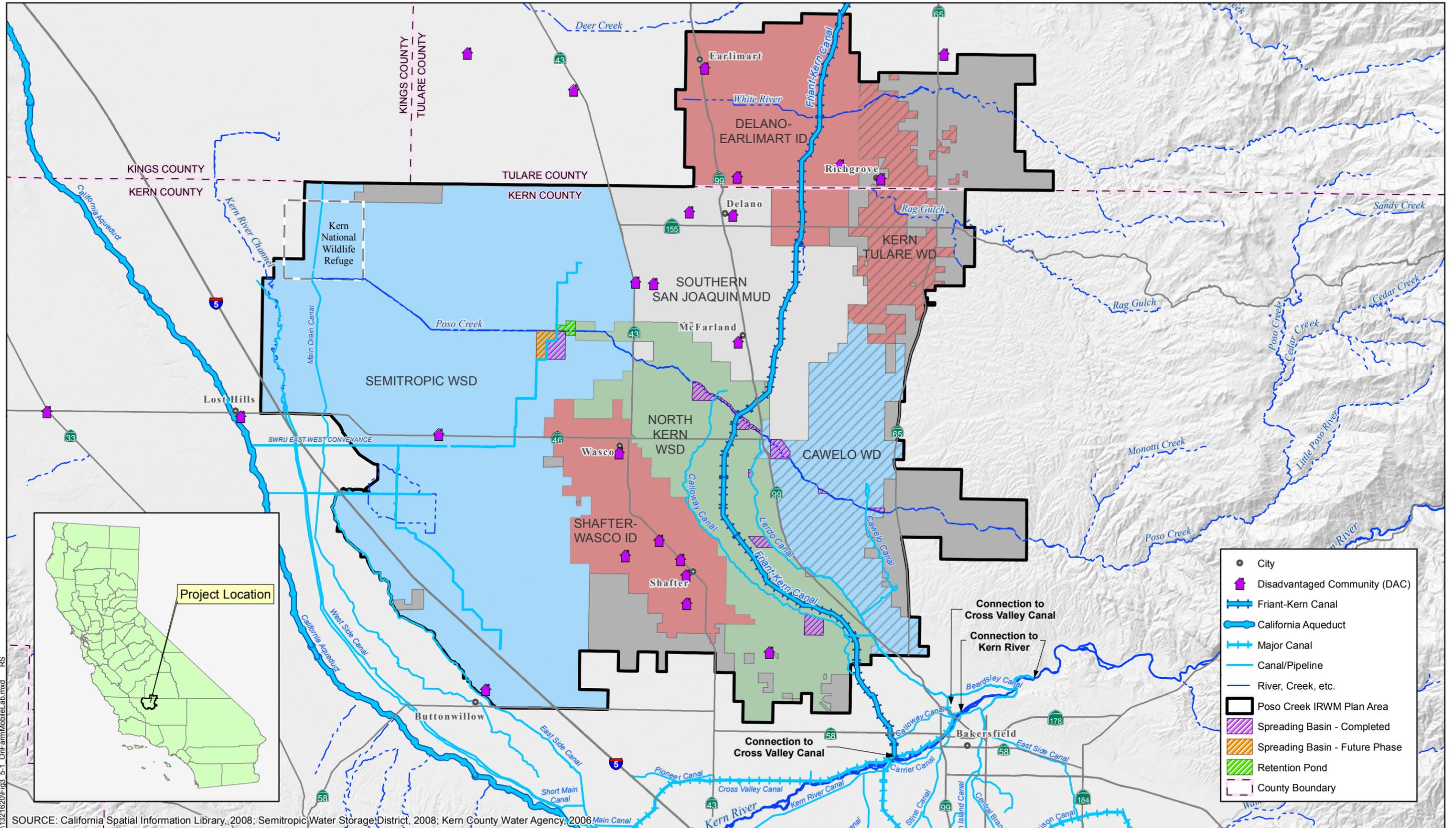
Funding for the On-Farm Mobile Lab Project has been identified and vetted during the regular implementation meetings of the Poso Creek IRWM Plan. This Project was recommended as a regional Project that supports water use efficiency throughout the Region. The NWKWCDC is a member of the Poso Creek IRWM Regional Water Management Group that has been meeting regularly since adoption of the Plan. During the past year, the Poso RWMG has identified the need to secure supplemental matching funds to ensure the On-Farm Mobile Lab services can be augmented to continue to provide a service in the Region.

The Poso Creek Plan identified non-structural and structural projects that focused on providing benefit towards meeting the Region's highest priority; regaining water supply reliability lost to the Region. This non-structural Project has a direct benefit of identifying on-farm methods to improve efficient use of water supply; it also provides support for efficient use of nutrients.

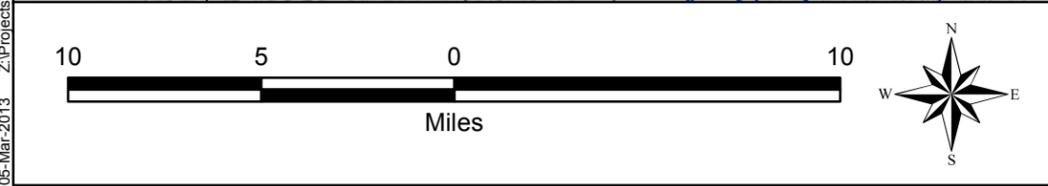
This project integrates with all other proposed projects because improved irrigation efficiency enhances flexibility for delivery of surface supplies, makes proposed improvements more effective and thereby reduces both the dependence on surface water importation and energy costs. Finally, reducing deep percolation by increasing irrigation distribution efficiency is a demonstrated, effective method to reduce NO₃ movement from the root zone to the groundwater, thus enhancing supplies for DACs.

3.5.1.5 Regional Project Map

The DAC areas of the region are shown by symbols on Figure 3.5-1. They include the communities of Allensworth, Lost Hills, and South Shafter whose projects are included in this application.



SOURCE: California Spatial Information Library, 2008; Semitropic Water Storage District, 2008; Kern County Water Agency, 2006



Poso Creek IRWMP Implementation Grant Proposal
Poso Creek IRWMP Region



ON-FARM MOBILE LAB FOR WATER USE EFFICIENCY IN SUPPORT OF NUTRIENT MANAGEMENT PROJECT 5 LOCATION
MARCH 2013
FIGURE 3.5-1

05-Mar-2013 Z:\Projects\1321620\Fig3_5-1_OnFarmMobileLab.mxd RS

3.5.1.6 Completed Work

The Mobile Lab is operated by the NWKRC and has successfully served the Region for years. Recently, various sources of funding has been reduced, therefore, the additional funding is critical to allow the service to operate. Because there are no project development costs, and no prior services will be considered as part of the project for the purposes of the grant application, there is no “completed work” per se. The Mobile Lab will provide service as requested and can mobilize expeditiously to perform the on-site evaluations. A copy of the 2012 Annual Operations Report is included in Appendix 3.5-1. This report summarizes all the site evaluations and findings that were performed for the 2012 calendar year.

3.5.1.7 Existing Data and Studies

The following technical reports define the ground-water quality problems in the Region and support the recommendations to pursue this project as discussed within the Poso Creek Region.

California Department of Public Health, Division of Drinking Water and Environmental Management. Small Water System Program Plan; October 2012

Center for Watershed Sciences, University of California, Davis. Nitrogen Sources and Loading to Groundwater, Addressing Nitrate in California’s Drinking Water with a Focus on Tulare Lake Basin and Salinas Valley Groundwater. 2012. Technical Report 2. Prepared for: California State Water Resources Control Board

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Community Self Help. *Summary of DAC Water Supply Issues.*

Kenneth C. Schmidt and Associates. *Biennial Groundwater Monitoring Report for the Semitropic Water Storage District Water Banking Project (2001-2002).* 2005.

3.5.1.8 Project Map

The On-Farm Mobile Lab for Water Use Efficiency in Support of Nutrient Management is a regional project, serving areas within and surrounding the Poso Creek Plan Region shown on Figure 3.5-1.

3.5.1.9 Project Timing and Phasing

This project is not part of a multi-phased project; it is a standalone project and is fully functional without implementation of subsequent projects. The Project will be performing on-site evaluations over a 2-year period as requested by farmers within its service area. Due to the nature of the work, the program can be implemented expeditiously. The proposed schedule for implementation of the Project is included in Attachment 5, which matches with the project budget which is presented in Attachment 4.

Implementing Agency and Management of Project

The proposed Project will be implemented by the North West Kern Resource Conservation District (NWKRC), which will enter into a Sub-grantee agreement with Semitropic WSD, the Grant recipient. The proposed Project will be performed under the direction of NWKRC, in coordination with water suppliers and landowners in the Poso Creek Region and Kern Region. The Mobile Lab is operated by NWKRC and has successfully served the Region for many years. NWKRC will manage the day to day operations of the Mobile Lab and be responsible for preparation of all reports to the Poso Creek RWMG. Coordination between NWKRC and the Grant recipient will be achieved through a formal workshop which will be conducted by the Grant recipient to kick-off the grant and by holding subsequent formal meetings, email and telephone communication etc. The annual report prepared by NWKRC and discussed in Attachment 6 will be provided to Semitropic and serve as the basis for reporting project success. It is noted that the participants of the Poso Creek Integrated Regional Water Management Group meets regularly and some time will be set aside at these meetings to coordinate any grant activities.

3.5.2 Proposed Work

3.5.2.1 Direct Project Administration Category (a)

Task 1 –Project Administration

With regards to project administration, work will include coordination of all project activities including budget, schedule, communication, and grant and cost-share administration (preparation of invoices and maintenance of financial records). Work related to grant administration will include: review and execution of a Subgrantee Agreement; attending a Grant kick-off meeting/workshop conducted by the Grant recipient to discuss grant requirements and establish the lines of communication and coordination through the grant process; preparation of invoices and maintenance of financial records; preparation of requests

for Grant modifications (if any); and preparation of Grant deliverables, including monitoring reports containing the information discussed in Attachment 6 of this application.

It is expected that a formal Sub-grantee agreement will be executed with the Grant recipient setting forth requirements for grant compliance. Coordination between the Grant recipient and the local sponsors will be achieved through a formal workshop conducted by the Grant recipient to kick-off the grant and subsequent formal meetings, email and telephone communication etc. It is noted that the participants of the Poso Creek IRWMP Regional Water Management Group meets regularly and some time will be set aside at these meetings to coordinate any grant activities.

All work associated with this task will be completed by the NWKRCD and all costs will be tracked internally. In this regard, expenditures related to this task will not be used towards the non-State cost share match.

This work will be initiated when a notice of a Grant award is received.

Deliverables: (1) Preparation of invoices and grant modifications; (2) grant administration; and (3) preparation of other deliverables as required.

Task 2 – Labor Compliance Program

Due to the nature of the work, this project does not require that a Labor Compliance Program be developed and implemented.

Task 3 – Reporting

Work under this task will include preparing and submitting all reports as required. Based on inspection of a template of the DWR Grant Agreement it is expected that the following reports will be prepared and submitted: Quarterly Progress Reports; Project Completion Reports; Grant Completion Report; and Project Performance Reports. Monitoring of project activities described in Attachment 6 to this application will be included in all reports. Reporting for Project 5 will contain a description of the assessment techniques used, the number of sites and acreage evaluated and the estimated amount of water conserved. The local sponsor will coordinate with the Grant recipient to prepare and submit the reports specified above.

All work associated with this task will be completed by the NWKRCD and all costs will be tracked internally. In this regard, expenditures related to this task will not be used towards the non-State cost share match.

This work will be initiated when a notice of a Grant award is received.

Deliverables: Submission of quarterly progress reports, project completion reports, grant completion reports and project performance reports as specified in the Grant Agreement.

3.5.2.2 Land Purchase/Easement Category (b)

Land Purchase/Easement

No land acquisition or easements are necessary to implement this project. In this regard, this task does not apply.

3.5.2.3 Planning/Design/Engineering/Environmental Documentation Category (c)

Task 4 – Assessment and Evaluation

The On-Farm Mobile Lab for Water Use Efficiency in Support of Nutrient Management Project will allow the Mobile Lab’s services to be provided to an estimated 12,000 acres of irrigated farmland primarily within the NWKRCDD and all of Kern County. Work under this task will include performing on-farm evaluations to evaluate and assess system performance and provide observations and recommendations regarding system management and/or maintenance. The process for evaluating a working irrigation system includes monitoring various components of the on-farm system, including water application and distribution uniformity. Evaluation will vary depending on the system type, of which there are basically only two; surface (or gravity flow) systems and pressurized systems.

Irrigation system evaluations provide information to the land owners of various sizes and enables Growers to better manage water applications. Contact will be made directly with growers that might benefit from an on-farm analysis within water districts of the Region.

This work will be initiated when a notice of a Grant award is received.

Deliverables: Completion of the NWKRCDD Mobile Lab’s Annual Report.

Task 5 – Final Design

The Mobile Lab program is well established and relies on proven, documented and defined standards and methodologies employed by the Cal Poly San Luis Obispo Irrigation Training & Research Center. Accordingly, this task does not apply.

Task 6 – Environmental Documentation

The project is exempt from any environmental requirements including the California Environmental Quality Act and the National Environmental Protection Act. In this regard, this task does not apply.

Task 7 – Permitting

No special permits are required to implement this project. In this regard, this task does not apply.

3.5.2.4 Construction/Implementation Category (d)

Task 8 – Construction Contracting

This task does not apply.

Task 9 – Construction

This task does not apply inasmuch as all the implementation work will be covered under Task 4- Assessment and Evaluation.

3.5.2.5 Environmental Compliance/Mitigation/Enhancement Category (e)

Task 10 – Environmental Compliance

This task does not apply inasmuch as the project involves activities that are exempt from CEQA and NEPA and no further monitoring or environmental compliance is necessary. The activities for implementing the project are not intrusive.

3.5.2.6 Construction Administration Category (f)

Task 11 – Construction Administration and Management

This task does not apply.

3.5.3 Appendices

Appendices for this Project 5 Work Plan include:

- Appendix 3.5-1 – NWKRCDC 2012 Annual Report

The Data Management and Monitoring Deliverables are discussed in Attachment 6 of the application.

2012
Annual Report
of the
North West Kern
Resource Conservation District

2012 ANNUAL REPORT

of the

NORTH WEST KERN

RESOURCE CONSERVATION DISTRICT

5000 California Avenue, Suite #100

Bakersfield, CA 93309

DISTRICT DIRECTORS

President	- <i>Craig Fulwyler</i>
Vice-President	- <i>Jim Grundt</i>
Secty-Treasurer	- <i>Stephen Fanucchi</i>
Director	- <i>Bryan Bone</i>
Director	- <i>Dave Cosyns</i>
Director	- <i>James Forrest</i>
Director	- <i>Don Palla</i>
Director	- <i>Matthew Haddon</i>
Director	- <i>Vacant</i>

DISTRICT EMPLOYEES

District Manager	- <i>Brian Hockett</i>
District Secretary	- <i>Christine Aguirre</i>
Irrigation Technician	- <i>Melanie Hockett</i>

NATURAL RESOURCES CONSERVATION SERVICE PERSONNEL

District Conservationist	- <i>Brandon Bates</i>
Soil Conservationist	- <i>Carol Rush</i>
Soil Conservationist	- <i>Whitney Haraguchi</i>
Soil Conservationist	- <i>Celine Morales</i>
Soil Conservation Tech.	- <i>James Booth</i>
Conservation Specialist	- <i>Raul Ramirez</i>
Engineer	- <i>Marcos Perez</i>
WRP Engineer	- <i>Jose Lule</i>
Farm Bill Assistant	- <i>Kathy Fuller</i>

GENERAL INFORMATION

The North West Kern Resource Conservation District has pursued the goals of the District's Long Range Work Plan throughout the course of the year, emphasizing IWM. The district consists of 594,360 acres, reaching as far west as the north western portion of Kern County, then along the county line east of Delano, and then almost as far south as Taft, with areas in between that are not included in the boundaries.

The RCD board of directors has consisted of a nine member board since consolidation of three districts that took place in 2004. With the number of directors decreasing due to attrition, and the inability to find interested individuals, the current board of directors reduced the membership from nine to seven. This means that only four directors need to be in attendance in order to have a quorum, as opposed to five with a nine member board.

ACKNOWLEDGMENT

The Natural Resources Conservation Service (NRCS) provided assistance to the RCD through in-kind services, of which involved the usage of office space, information, materials within the office and office personnel.

ASSISTANCE

The RCD has provided secretarial assistance to the NRCS to process 187 incoming Environmental Quality Incentive Program (EQIP) applications, of which 62 were funded. Logged in 194 2013 EQIP applications and 8 Agricultural Water Enhancement Program (AWEP) applications. The RCD also assisted in handling various tasks that occur on a daily basis with the help of the district's secretary.

The RCD has also provided assistance to the NRCS through two separate agreements. These include Agreement No. 65-9104-0-803 to accelerate implementation of USDA Farm Bill Programs; Environmental Quality Incentive Program (EQIP) and Conservation Stewardship Program (CSP), June 24, 2010 through June 30, 2012; and Cooperative Agreement No. 65-9104-2-956 for EQIP, July 1, 2012 through June 30, 2013.

CONFERENCES

1. Attended the California Irrigation Institute's 50th Annual Conference on Jan. 30 – 31 at the Sacramento Hilton.
2. Attended the 67th Annual Conference of the California Association of Resource Conservation Districts on November 14-16 at Paradise Point Island in San Diego.

MEETINGS

1. Regular meetings of the RCD were held on the third Wednesday of the month at noon at Don Pericos in Shafter.

2. Attended and conducted the annual meeting of the San Joaquin Valley Resource Conservation & Development (RC&D) Area Council in January. With cuts to the national budget, the national RC&D program was eliminated as a line item by the President. The SJVRC&D is still a non-profit organization, but will need to make a decision about how to move forward. The District Manager of the North West Kern RCD serves as Treasurer of this organization.

3. Participated in steering committee meetings for the Poso Creek Integrated Regional Water Management Plan at the Semitropic Water Storage District on the 1st Tuesday of each month. Through the efforts of this management group, the RCD was awarded a \$84,000, two year, grant to do irrigation system evaluations for State water users. This grant is administered through the North Kern Water Storage District.

4. Conducted periodic safety meetings throughout the year for district employees, as well as for USDA/NRCS employees.

5. Participated in the Environmental Quality Incentives Program (EQIP) Local Work Group Developmental meeting on September 28 in the NRCS conference room to determine which practices would be cost-shared and to set the cost share level for each. This group is made up of local RCD directors, USDA employees and University of California Cooperative Extension personnel as well as local land owners.

WORKSHOPS

Participated in a joint Almond Update Meeting and Irrigation Workshop on March 28 at the UCCE office on So. Mt. Vernon Ave. in Bakersfield. The event was hosted by the UCCE (Farm Advisor, Blake Sanden), and the North West Kern RCD (District Manager, Brian Hockett). Donations were received from local irrigation vendors for sponsorship.

Topics covered included 1. Balancing efficiency and salinity; 2. System uniformity; 3. Cost Share programs; and 4. Pump improvement rebate program. The almond portion of the meeting covered such topics as 1. Fertility; 2. Water Demand; 3. Variety update; 4. Disease interaction and management; and 5. Plant stress & drought management.

AGREEMENTS

1. United States Bureau of Reclamation (USBR) Agreement R11AP20099, Water Conservation Field Services Program, Irrigation System Evaluations for Friant Water Users. September 27, 2011 through June 1, 2014. This agreement is administered through the Kern-Tulare Water District.

2. Natural Resources Conservation Service – see above under assistance.

3. Department of Water Resources – grant agreement administered by the North Kern Water Storage District.

POSO CREEK

After rains during the month of December caused flooding in several locations in 2010, the Semitropic Water Storage District (WSD), along with adjacent land owners, helped to plug some of the breaches in the levees to curtail flooding that was taking place in January.

Early in 2011, Kern County was declared a federal disaster area bringing FEMA in to help assess the damage in the areas where the levees broke. Damage surveys started in February with monetary assistance for the emergency work completed finally coming in October, 2011. With help from the W.M. Lyles Co., and direction from the Semitropic WSD, permanent work in Poso Creek to re-construct the levees that were breached was completed October, 2012.

FUNDING

The Mobile Lab is funded by the Water Districts of Kern County. In addition, the North West Kern RCD received funds from the Natural Resources Conservation Service, U.S. Bureau of Reclamation and the California State Department of Water Resources.

Contributions to the Mobile Lab for the 2012-2013 fiscal year were as follows:

1. Kern County Water Agency		\$0.00
2. North Kern WSD	\$	6,000.00
3. Lost Hills WD	\$	3,000.00
4. Arvin-Edison WSD	\$	6,000.00
5. Buena Vista WSD	\$	5,000.00
6. Kern Delta WD	\$	4,000.00
7. Cawelo WD	\$	5,000.00
8. Semitropic WSD	\$	10,000.00
9. Shafter-Wasco ID	\$	6,000.00
10. Tehachapi-Cummings CoWD	\$	1,000.00
11. Southern San Joaquin MUD	\$	3,000.00
12. Belridge WSD	\$	2,500.00
13. Henry Miller WD	\$	2,500.00
14. Kern Tulare WD	\$	750.00
15. Wheeler Ridge-MWSD	\$	3,500.00
16. Rosedale Rio-Bravo WSD	\$	750.00
17. Delano-Earlimart ID	\$	1,000.00
18. Berrenda Mesa Water District	\$	2,500.00
19. Other	\$	4,000.00
20. Evaluations	\$	7,500.00
21. USDA-NRCS EQIP Grant	\$	25,000.00
22. USBR - Mobile Lab Evaluations	\$	29,000.00
23. Department of Water Resources	\$	42,000.00
Total contributions -	\$	170,000.00

**MOBILE LAB PROGRAM
ANNUAL PROGRESS REPORT**

For services performed from January 1, 2012 to December 31, 2012.

IRRIGATION SYSTEM EVALUATIONS

A total of 100 evaluations were conducted on 15,936 acres during the 2012 irrigation season. Of this total, 24 evaluations were conducted under the EQIP program.

Table 1. Summary of evaluations conducted.

System Type	Crop	Number of Evaluations	Acres Evaluated	Average DU (%)
Micro Drip	Almonds	24	3,309	94
	Cherries	2	127	93
	Citrus	1	60	55 *
	Grapes	14	1,925	86
	Pistachios	20	4,077	92
	Pomegranates	3	763	88
	Total	64	10,261	
Micro Sprinkler	Almonds	25	4,601	87
	Cherries	1	25	88
	Citrus	5	450	58 *
	Pistachios	1	30	92
	Total	32	5,106	
Permanent Undertree Sprinklers	Almonds	4	569	88
Overall System Totals		100	15,936	

- *Note – Evaluations conducted in citrus were in areas where systems were primarily old and needed to be replaced (hence the low DU numbers), with not many new or relatively new systems included in the mix. As opposed to other crops where both new and old system were integrated to give a better average.*

Table 2. Evaluation summary by system type.

System Type	Crop	DU (%)	Acres	Age (yrs)	
<i>Micro/drip</i>	Almonds *	99	112	1	
	almonds	99	151	1	
	almonds *	99	75	2	
	almonds *	99	113	2	
	almonds	84	300	7	
	almonds *	84	36	2	
	almonds	93	76	13	
	almonds	87	300	?	
	almonds *	97	39	1	
	almonds *	97	38	1	
	almonds *	92	148	2	
	almonds	90	74	3	
	almonds	92	156	8	
	almonds	93	250	8	
	almonds *	99	70	2	
	almonds *	99	70	2	
	almonds	98	156	8	
	almonds	98	57	7	
	almonds *	96	605	2	
	almonds *	88	110	2	
	almonds	95	220	2	
	almonds	90	38	5	
	almonds	80	215	3	
	almonds	97	147	1	
		Cherries	98	62	10
		cherries	87	65	5
		Citrus *	55	60	40
		Grapes	80	140	15
		grapes	81	190	15
		grapes	87	144	?
		grapes	83	151	13
		grapes	69	152	13
		grapes	97	135	2
	grapes	87	149	14	
	grapes	96	310	7	
	grapes	82	36	1	
	grapes	90	30	1	
	grapes	94	74	7	
	grapes	96	210	1	
	grapes	80	54	10	
	grapes	88	150	1	

Table 2 (con't). Evaluation summary by system type.

System Type	Crop	DU (%)	Acres	Age (yrs)
<i>Micro/drip</i>	Pistachios *	96	73	1
	pistachios *	95	72	9
	pistachios *	80	59	2
	pistachios *	96	230	1
	pistachios *	92	76	1
	pistachios	90	232	7
	pistachios	74	425	7
	pistachios	97	153	12
	pistachios	95	103	12
	pistachios	88	116	7
	pistachios	97	233	14
	pistachios	96	305	12
	pistachios	96	153	2
	pistachios	97	135	2
	pistachios	93	150	12
	pistachios	91	152	12
	pistachios	87	458	12
	pistachios	95	314	20
	pistachios	89	38	8
	pistachios	97	600	1
	<i>Micro/drip</i>	Pomegranates	79	305
pomegranates		88	305	5
pomegranates		97	153	11
<i>Micro/sprinkler</i>	Almonds *	84	109	4
	Almonds *	80	145	5
	almonds *	92	37	1
	almonds	89	80	13
	almonds	86	308	14
	almonds	90	150	15
	almonds	91	170	5
	almonds	94	150	7
	almonds	83	80	19
	almonds	90	280	3
	almonds	94	603	1
	almonds	82	242	7
	almonds *	90	75	2
	almonds	95	102	8
	almonds *	92	58	2
	almonds	80	140	16
	almonds	87	45	2
	almonds	80	122	14
	almonds	89	304	8

Table 2 (con't). Evaluation summary by system type.

System Type	Crop	DU (%)	Acres	Age (yrs)	
<i>Micro/sprinkler</i>	almonds	65	95	9	
	almonds	94	156	7	
	almonds	88	73	20	
	almonds	82	436	7	
	almonds	85	150	2	
	almonds	78	491	7	
	Cherries *	88	25	15	
	Citrus *	42	160	7	
	citrus	65	48	20	
	citrus	28	80	20	
	citrus	68	72	19	
	citrus	85	90	3	
	Pistachios	92	30	?	
	Undertree Sprinklers	Almonds	87	160	16
		almonds	88	160	20
almonds		88	96	16	
almonds		89	153	20	

Distribution Uniformity is proportional to the age of the system. As aging takes place, without proper maintenance, pressures become inconsistent and emitters will tend to plug, thereby effectively reducing the overall system uniformity. The rate at which this occurs however depends on the quality of water and the type of maintenance program that is utilized on a given farm. When proper maintenance techniques are employed, system uniformities can remain relatively high for a long period of time. This becomes evident when looking at some of the numbers above where the DU is high even though the system may be fairly old.

(*) *EQIP*

OBSERVATIONS AND RECOMMENDATIONS

Water Conservation

The use of micro-irrigation systems has long been thought of as a vital component of conservation. This may be true in some sense, however, on a global basis it may not actually hold water. Conservation on the local level enables a water user to redistribute his/her water to be used more efficiently in the overall performance of the farming operation, as long as the system is functioning properly. However, this does not necessarily indicate that there are measureable amounts of the precious liquid that can be reallocated to destinations off of the farm. In many situations, where irrigation systems are not efficient, farmers are under irrigating and actually need to apply more water to the crop in order to meet the minimum amount required for evapo-transpiration.

Micro-Irrigation Systems

The main cause of non-uniformity during the irrigation season was due to a variation in system pressures. These variations were typically due to improperly set control valves, plugged hose screens and or debris that had accumulated in the sub mains and manifolds causing a reduction in pressure. By resetting valves and cleaning hose screens, most of the problems that occurred in these systems were corrected. With the elimination of these problems, overall system uniformity improved dramatically, as shown through later tests.

Other observations and recommendations made during the season included:

1. Installation or replacement of flow meter – This is an indispensable management tool that can help to monitor the amount of water applied throughout the season. Also, checking the flow meter frequently can help to detect system problems. For example, a steady decline in flow rate may indicate pump wear or a drop in the water level of a well. A slight decline in flow rate can indicate emitter plugging as well.
2. Opening Flush-outs more often – Upon opening some of the manifold flush outs, it was found that the water was quite dirty in some systems. Manifold flush-outs should be opened periodically to flush out silt and debris that was not removed by the filters. The frequency that is necessary will depend on the size of the manifold and the effectiveness of the filters.
3. Hose Flushing on a regular basis – Most water users were very good about flushing hose ends, but in some cases the water coming out the end of the hose was very dirty. With micro-irrigation systems, it is very important to periodically undo the ends of each individual line and flush the dirt and debris from it. If this is not done on a regular basis, the dirty water in the hoses can plug the emitters. The water was so dirty in one situation that it oozed out the end of the hose upon opening it. Hoses should be flushed as often as necessary depending on the quality of the irrigation water.
4. Emitter Plugging – This was found to be a problem in many situations. With micro-irrigation systems, bacteria and algae can build up inside the hoses and emitters and may eventually cause plugging. This can be avoided by regularly injecting chlorine or acid into the system, or some type of material that will promote the breakdown of these clogging agents. Emitters can also be replaced where needed.
5. Clean off Hose Screens – Hose screens are valuable for removing large particles that may have escaped from the filter system. However, they can be come plugged with algae or debris, thus reducing pressure to a given hose line, and thereby decreasing uniformity to the overall irrigation system. This was found to be the case in many situations throughout the irrigation season. Chlorine injection can prevent this from occurring, however, hose screens should be checked periodically for clogging. If they are clogged, they can be rinsed clean or replaced.
6. Leaks – It is important that irrigation workers are aware of leaks due to damaged hoses, missing emitters, etc. Even a small leak can reduce the pressure in a line and cause a non-uniform application of water. On several occasions, leaks were a contributing factor in the overall non-uniformity of the system.
7. Different Emitter Types – Mixing emitters can adversely affect the distribution uniformity by applying more or less water to those plants with different emitters.

Emitters are often mixed accidentally by irrigation workers when they come across a broken or plugged emitter in the field. When repairing these emitters, they may sometimes substitute a different emitter type because it is the only one available at the time. It is essential in this situation to match the replacement emitter with the existing ones in the field in order to maintain the proper flow and uniformity of the irrigation system. Most of the time, there may be one additional type of emitter due to the above mentioned situation. On various occasions however, there were several different emitter types in the field, leading to severe non-uniformity.

Preparing for the 2013 irrigation season

As growers are getting ready for the upcoming season, the Mobile Lab will be available to assist them with their irrigation needs. Being an efficient irrigation water manager is essential in today's environment, as we are faced with many water related issues that will impact the way we do business in the future.

3.6 Project 6 – South Shafter Sewer – Planning and Design

3.6.1 Introduction

The South Shafter Sewer – Planning and Design Project (Project 6 or Project) will provide funding to address a critical water quality issue in a DAC, the community of Smith Corner. Smith Corner is one of six communities located in the South Shafter area. It is an economically-challenged community based on the comparison to the Statewide Median Household Income (MHI), and is therefore classified as a DAC. The MHI for Smiths Corner in 2011 was \$27,298, which is approximately 44.2% of the Statewide MHI.

In the 1990's, nitrate and other contamination of South Shafter drinking water supplies forced the individual communities to abandon their respective wells and connect to the City of Shafter for clean drinking water. The City of Shafter provides water service to 67 households in Smiths Corner, which is home to approximately 524 residents. The residents of Smith Corner currently rely on septic systems, most of which are quite old, with failing leach fields that have been identified as a source of groundwater contamination. Most of the development in South Shafter occurred in the 1930s through 1950s. A more reliable sewer system for South Shafter has been considered for more than 30 years. In fact, Smith Corner was anticipated to connect to the Shafter sewer collection system before 1980. The community is in the unincorporated area of Kern County and has no special district serving its wastewater treatment needs.

The project will address an ongoing source of groundwater contamination in a DAC by providing funding for project development, including planning and design, not available from other funding sources. The Project involves the planning and design of a wastewater collection system and trunk line that will connect Smith Corner, one of six small DAC communities in the South Shafter area, to the City of Shafter/North of the River regional wastewater system. The County of Kern Engineering and Survey Services (Kern ESS or County of Kern) will pursue this project because this DAC is not served by an entity capable of performing this project.

The project would be performed by the County of Kern under contract with Semitropic WSD as the Grant recipient and in collaboration with the affected DAC s and community interest groups. The project budget and schedule are presented in Attachments 4 and 5. Additional information is included in Appendix 3.6-1 through 3.6-4 to this Section 3.6.

3.6.1.1 Goals and Objectives

The Project accomplishes multiple goals and objectives of the Poso Creek Integrated Regional Water Management Plan (IRWMP). Exhibit 3.6-1 presents a selection of the Poso Creek IRWM Plan Objectives, and how the Project Goals and Objectives coincide with them:

Exhibit 3.6-1

IRWM Plan Objectives	Project 6 Goals and Objectives
Protect quality of groundwater and enhance where practical	Project 6 will provide funding in a DAC area in an unincorporated area to address critical water quality issues in the community of Smiths Corner in south Shafter area.
	Design a sewer collection system (for subsequent construction funding) that will connect to the City of Shafter/North of the River regional wastewater system.
Maintain water supply costs at a level affordable to DAC communities and the continued viability of the agricultural economy which has developed in the area	Project 6 will provide the subject DAC with the means to implement a sewer collection system within the community's financial resources.

3.6.1.2 Purpose and Need

The South Shafter Sewer – Planning and Design Project will provide funding to address a critical water quality issue in a DAC, the community of Smiths Corner. Smith’s Corner is one of six communities located in the South Shafter area. The community is in the unincorporated area of Kern County and has no special district serving its wastewater treatment needs. The residents of Smiths Corner currently rely on an old septic system for their wastewater disposal which discharges into leach fields located in the individual properties. Most landowners have septic systems with failing leach fields that have been identified as a source of groundwater contamination. Most of the development in South Shafter occurred in the 1930s through 1950s. A more reliable sewer system for South Shafter has been considered for more than 30 years. In fact, Smiths Corner was anticipated to connect to the Shafter sewer collection system in the 1980s.

In an effort to evaluate the need for improving the sewer system, from January 2003 to June 2004, the Self-help Enterprises (SHE) conducted a Septic System Survey of the conditions of the existing sewage facilities for Smiths Corner and 5 other small DACs in the South Shafter area, including:

- Cherokee Strip
- Burbank
- Thomas Lane
- West Shafter and
- Southwest Shafter

The survey results showed that the aging and dilapidated septic system required increased pumping frequency due to septic tanks backing up, leach fields clogging from septic tank

solids and other issues. The survey results indicated that 63 percent of the septic systems required pumping one or more times in a three year time frame, and 35 percent have required pumping two or more times in a three-year time frame. Typically, septic tanks in good working order would only require pumping once every 3-5 years. In addition to the issues associated with the failing septic systems, the continued operation and use of the septic systems located close to local groundwater wells have raised concerns about water quality in the area. The majority of the houses receive potable water from the City of Shafter water distribution system, which was built in 1997. This water system replaced the local wells, which were relied by the South Shafter area for their source of water supply. However, there are still four active groundwater wells that are at risk of being contaminated by the aging septic system.

The project will address an ongoing source of groundwater contamination in a DAC by providing funding for project development including planning and design, not available from other funding sources. The Project would provide funding for:

- Developing a conceptual project including its governance; and
- Completing the design of the project and environmental documentation so that it is ready for construction when other funding resources become available.

The project would remove non-point source contamination sources in an area of high Nitrate in groundwater. Of the contaminants found in the Poso IRWM Plan area's groundwater, there are two primary contaminants generally found in the groundwater used by DACs as their drinking water. These are Nitrate and Arsenic. While Nitrate can occur naturally in soil, Nitrate in drinking water may come from natural, industrial, or agricultural sources (including septic systems, storm water run-off, and fertilizers). Levels of nitrate in drinking water can vary throughout the year. Due to its high mobility, Nitrate can easily leach into groundwater. Possible health effects from short-term exposure to nitrates in drinking water can result in methemoglobinemia or Blue Baby Syndrome. Infants below the age of six months who drink water containing nitrate in excess of the MCL may quickly become seriously ill and, if untreated, may die because high nitrate levels can interfere with the capacity of the infant's blood to carry oxygen. Symptoms include shortness of breath and blueness of the skin.

The proposed Project was added to the Integrated Regional Water Management Plan for the Poso Creek Region after its adoption in collaboration between the RWMG and representatives from DAC communities. This Region includes the Applicants and several other water districts that share a common groundwater resource. In particular, the Projects were determined to be a high priority with regard to achieving the goals set forth in the Plan, where the overarching goal is improve water supply reliability and quality of supplies delivered to DAC areas within the Poso Creek Region.

3.6.1.3 Project Abstract

The South Shafter Sewer – Planning and Design Project is designed to provide funding to address a critical sewage treatment need for a disadvantaged community (DAC) in the South Shafter area. This Project would provide for planning and design of a wastewater collection system and trunk line that will connect Smith Corner, to the City of Shafter/North of the River regional wastewater system. The residents of this community currently rely on septic systems, most of which are quite old, with failing leach fields that have been identified as a source of groundwater contamination.

The Project would provide funding for:

- Developing a conceptual project including its governance; and
- Completing the design of the project and environmental documentation so that it is ready for construction when other funding resources become available.

The project would be managed by the County of Kern under contract with Semitropic WSD as the Grant recipient. The resulting work products would be used as a basis for funding construction of the collection and mainline system to connect with existing sewer treatment facilities.

3.6.1.4 Integrated Elements of Project

The Project is a component of Poso Creek IRWM Plan (Plan), specifically Project 29 of the Plan, to Assist Disadvantaged Communities to Enhance Water Supply, Drinking Water Treatment, and Waste Water Treatment Facilities. The Project will fund the planning and design of a wastewater collection system that will allow a DAC in the Poso Creek Region to discontinue use of septic systems and connect to an existing sewer treatment facility. This Project provides benefit towards meeting one of the Region's highest priorities; protecting groundwater quality within the region. In addition, the Project would meet the IRWM Plan objective of assisting economically disadvantaged communities.

3.6.1.5 Regional Project Map

The communities of Smiths Corner, Cherokee Strip, Burbank, Thomas Lane West Shafter and Southwest Shafter are shown on Figure 3.6-1. Delineation of Census boundaries used as the basis for DAC status is shown.

3.6.1.6 Completed Work

The Project has been under development since the early 2000s, but due to limited resources and funding, it has not been implemented. In this regard, there is a list of documents that have been prepared in support of the project and area listed below:

- Feasibility Study/Preliminary Engineering Report
- Mitigated Negative Declaration
- Preliminary conceptual design and cost estimate

Feasibility Study/Preliminary Engineering Report – In October 2004, Carrollo Engineering in coordination with Self-Help Enterprise prepared a feasibility study/ preliminary engineering report that (1) assessed the existing septic system; (2) identified the need for the improvements; (3) evaluated alternatives for system improvement; and (4) made a recommendation for system improvements.

Mitigated Negative Declaration – In October of 2008, the Kern County Engineering and Survey Services Department prepared and filed a Mitigated Negative Declaration/NEPA Supplement.

Preliminary conceptual design and cost estimate – As part of the preliminary engineering report, a conceptual design and associated cost estimate was prepared for the project.

A copy of the documents referenced above is included in the Appendices of this Section 3.6.

3.6.1.7 Existing Data and Studies

The following technical reports define the ground-water quality problems in the Region and support the recommendations to pursue this project as discussed within the Poso Creek Region.

Aqua Resources, Inc. *West Bakersfield Ground Water Toxics Management Study*. Draft. 1986.

California Department of Public Health, Division of Drinking Water and Environmental Management. *Small Water System Program Plan*; October 2012

Center for Watershed Sciences, University of California, Davis. *Nitrate Source Reduction to Protect Groundwater Quality, Addressing Nitrate in California's Drinking Water with a Focus on Tulare Lake Basin and Salinas Valley Groundwater*. 2012. Technical Report 3. Prepared for: California State Water Resources Control Board

Center for Watershed Sciences, University of California, Davis. *Groundwater Nitrate Occurrence, Addressing Nitrate in California's Drinking Water With a Focus on Tulare Lake*

Basin and Salinas Valley Groundwater. 2012. Technical Report 4. Prepared for: California State Water Resources Control Board

Center for Watershed Sciences, University of California, Davis. *Groundwater Remediation, Addressing Nitrate in California's Drinking Water with a Focus on Tulare Lake Basin and Salinas Valley Groundwater*. 2012. Technical Report 5. Prepared for: California State Water Resources Control Board

California Department of Public Health, Division of Drinking Water and Environmental Management. Small Water System Program Plan; October 2012

Community Self Help. *Summary of DAC Water Supply Issues*.

Kenneth C. Schmidt and Associates. *Biennial Groundwater Monitoring Report for the Semitropic Water Storage District Water Banking Project (2001-2002)*. 2005.

Kern County Health Department. *Kern County Ground Water Pollutant Study*. 1980.

Organic Chemical Contamination of Small Public Water Systems in Kern County Health Department: 1987.

Organic Chemical Contamination of Small Public Water Systems in Kern County Health Department: 1988.

SWRCB Sacramento. *West Bakersfield Area Ground Water Quality Management Study Final Report*. 1990.

3.6.1.8 Project Map

Figure 3.6-1 includes a site map which shows the Project's geographical location and the surrounding work boundaries.

3.6.1.9 Project Timing and Phasing

This project is not part of a multi-phased project; it is a standalone project and is fully functional without implementation of subsequent projects. Due to limited resources and funding, local sponsor would not commence any work until receiving notification of a grant award. In this regard, the majority of the work would commence once notice is received of an award. The proposed schedule for implementation of the Project is included in Attachment 5, which matches with the project budget which is presented in Attachment 4.

Implementing Agency and Management of Project

The proposed Project will be implemented by the County of Kern Engineering and Survey Services (Kern ESS), which will enter into a Sub-grantee agreement with Semitropic WSD, the Grant Recipient. The Project will be managed by Kern ESS, in cooperation with Self-

Help Enterprises, local residents, and the City of Shafter. The County of Kern will receive engineering design assistance from an Engineering Consulting firm; to be selected at a later date. Coordination between Kern ESS and the Grant recipient will be achieved through a formal workshop, which will be conducted by the Grant recipient to kick-off the grant and by holding subsequent formal meetings, email and telephone communication, etc. No formal monitoring plan would be developed as the project does not include construction or operation phases. Reporting would be provided from the County of Kern to the Semitropic District for inclusion with Semitropic's reporting for other Projects. It is noted that the participants of the Poso Creek Integrated Regional Water Management Group meet regularly, and some time will be set aside at these meetings to coordinate any grant activities.

3.6.2 Proposed Work

Several tasks have been defined to complete the work and are organized to track with the Project Budget and Schedule. The sequencing of the work is addressed in the Project Schedule. Below is a description of the tasks that are part of the Work Plan.

3.6.2.1 Direct Project Administration Category (a)

Task 1 –Project Administration

With regards to project administration, work will include coordination of all project activities including budget, schedule, communication, and grant and cost-share administration (preparation of invoices and maintenance of financial records). Work related to grant administration will include: review and execution of a Subgrantee Agreement; attending a Grant kick-off meeting/workshop conducted by the Grant recipient to discuss grant requirements and establish the lines of communication and coordination through the grant process; preparation of invoices and maintenance of financial records; preparation of requests for Grant modifications (if any); and preparation of Grant deliverables, including monitoring reports containing the information discussed in Attachment 6 of this application.

It is expected that a formal Sub-grantee agreement will be executed with the Grant recipient setting forth requirements for grant compliance. Coordination between the Grant recipient and the local sponsors will be achieved through a formal workshop conducted by the Grant recipient to kick-off the grant and subsequent formal meetings, email and telephone communication etc. It is noted that the participants of the Poso Creek Integrated Regional Water Management Group meet regularly and some time will be set aside at these meetings to coordinate any grant activities.

All work associated with this task will be completed by the local sponsor and all costs will be tracked internally. In this regard, expenditures related to this task will not be used towards the non-State cost share match.

This work will be initiated when a notice of Grant award is received.

Deliverables: (1) Preparation of invoices and grant modifications; (2) grant administration; and (3) preparation of other deliverables as required.

Task 2 – Labor Compliance Program

This Project is not a construction project. Accordingly, this project does not require that a Labor Compliance Program be developed and implemented.

Task 3 – Reporting

Work under this task will include preparing and submitting all reports as required. Based on inspection of a template of the DWR Grant Agreement it is expected that the following reports will be prepared and submitted: Quarterly Progress Reports; Project Completion Reports; Grant Completion Report; and Project Performance Reports. No formal monitoring plan would be developed as the project does not include construction of operation phases. The local sponsor (Kern ESS) will coordinate with the Grant recipient to prepare and submit the reports specified above.

All work associated with this task will be completed by the local sponsor and all costs will be tracked internally. In this regard, expenditures related to this task will not be used towards the non-State cost share match.

This work will be initiated when a notice of a Grant award is received.

Deliverables: Submission of quarterly progress reports, project completion reports, grant completion reports and project performance reports as specified in the Grant Agreement.

3.6.2.2 Land Purchase/Easement Category (b)

Land Purchase/Easement

This Project is not a construction project. Accordingly, no land acquisition or easements are necessary to implement this project. In this regard, this task does not apply.

3.6.2.3 Planning/Design/Engineering/Environmental Documentation Category (c)

Task 4 – Assessment and Evaluation

Work under this task will be accomplished by completing the following subtasks:

- Subtask 4-1 – Update Preliminary Engineering Report
- Subtask 4-2 – Develop Revenue Plan
- Subtask 4-3 – Form County Service Area (CSA) for Purpose of Sewer Maintenance

The subtasks are described in more detail below.

Subtask 4-1 – Update Preliminary Engineering Report – In October 2004, Carrollo Engineering in coordination with Self-Help Enterprises, prepared a feasibility study/ preliminary engineering report that (1) assessed the existing septic system; (2) identified the need for the improvements; (3) evaluated alternatives for system improvement; and (4) made a recommendation for system improvements. Work under this task will include updating the preliminary engineering report.

Subtask 4-2 – Develop Revenue Plan – As part of the formation of a County Service Area (CSA), a revenue plan will be developed. The revenue plan will provide the CSA with a revenue stream to allow it to provide services to its customers.

Subtask 4-3 – Form County Service Area (CSA) for Purpose of Sewer Maintenance – The formation of a CSA will started concurrently with the development of a revenue plan, as the revenue plan itself is a part of the documentation required for the formation of a CSA. The purpose of forming a CSA is to allow small communities in unincorporated areas to pay for and receive specific services (police, fire, water, sewer, etc.) from the county. The process for creation of a CSA will be as follows:

- Hold a public meeting to determine interest in forming a CSA;
- Produce an estimated cost of providing service, including construction costs and annual maintenance costs (the Revenue Plan from Subtask 4-2);
- Obtain application and petition for formation of a CSA from the Local Area Formation Commission (LAFCO);
- Submit application and petition signed by more than 50% of property owners to LAFCO;
- Prepare a boundary map and legal description of the proposed service area;
- Review of boundary map and legal description by LAFCO;
- Advertise and hold a public hearing on the proposed CSA before the Board of Supervisors and LAFCO;
- Submit boundary map and legal description to the County Board of Supervisors for approval;
- If approved, the new CSA will be registered with the State; and
- A public hearing regarding collection of service charges will be conducted, and charges will be placed on tax bills for the following year.

The formation of the CSA provides a legal framework by which the residents may pay for and receive wastewater collection services.

This work will be initiated when a notice of a Grant award is received.

Deliverables: (1) Updated Preliminary Engineering Report; (2) Revenue Plan for the CSA; and (3) formation of the CSA.

Task 5 – Final Design

Since an engineering consulting firm has not been identified to complete the final design work, the Kern ESS will solicit proposals from prospective engineering consultants for design/engineering services. In this regard, as part of this task, the Kern ESS will draft a request for Proposals (RFP) soliciting bids for engineering consulting services. Part of the process will include: (1) preparing an RFP for engineering consulting services; (2) identifying prospective certified engineering consultants; (3) transmitting a copy of RFP; (4) evaluating proposals, technical expertise, costs etc.; and (5) awarding the contract to an engineering consulting firm. Once the engineering consulting firm is under contract to do the work, their scope of work would include designing and engineering the waste water system consisting of pipelines, a lift station, service connections, road repairs and site improvements/restorations. The engineering consultant's scope of work would include preparing a final design which would be accomplished by providing the following services: performing final hydraulic analysis of the system; (2) sizing the lift station; (3) designing jack and bore crossings; (4) utility verification; (5) final design; (6) construction cost estimate; (7) preparation of plans and specs.

Completion of this work would allow the Kern ESS to have a “shovel-ready” project for implementation for when funding becomes available.

Deliverables: Completion of project plans and specifications at the final level (100% level).

Task 6 – Environmental Documentation

In 2008, the Kern ESS prepared and filed a Mitigated Negative Declaration/ NEPA Supplement and Mitigation Monitoring Program for the Project. As part of this task, the Kern ESS will confirm with legal counsel if the existing Mitigated Negative Declaration still satisfied CEQA or if any supplemental information needs to be prepared to comply with the current laws regulating CEQA.

It is anticipated that this work will be initiated and completed in parallel with Task 5 – Final Design. Whether or not additional environmental review is necessary, any final mitigation requirements will be included in Quarterly Progress Reports and Project Completion Reports.

Deliverables: Approved and adopted updated CEQA documentation.

Task 7 – Permitting

This Project is not a construction project. Accordingly, no permits are required to implement this project. In this regard, this task does not apply.

3.6.2.4 Construction/Implementation Category (d)

Task 8 – Construction Contracting

This Project is not a construction project. Accordingly, this task does not apply.

Task 9 – Construction

This Project is not a construction project. Accordingly, this task does not apply.

3.6.2.5 Environmental Compliance/Mitigation/Enhancement Category (e)

Task 10 – Environmental Compliance

This Project is not a construction project. Accordingly, this task does not apply.

3.6.2.6 Construction Administration Category (f)

Task 11 – Construction Administration and Management

This Project is not a construction project. Accordingly, this task does not apply.

3.6.3 Appendices

Appendices for this Project 6 Work Plan include:

- Appendix 3.6-1 – South Shafter CEQA
- Appendix 3.6-2 – Cost Estimate
- Appendix 3.6-3 – Feasibility Study/Preliminary Engineering Report
- Appendix 3.6-4 – Health Department Letter

OCT 03 2008

MITIGATED
NEGATIVE DECLARATION/NEPA SUPPLEMENT

ANN K. BARNETT
AUDITOR CONTROLLER COUNTY CLERK
BY BM DEPUTY

TO WHOM IT MAY CONCERN:

Pursuant to the California Environmental Quality Act of 1970 (CEQA),* the State CEQA Guidelines,** and the Kern County Guidelines for Implementation of CEQA and State CEQA Guidelines,*** the Kern County Planning Department has made an Initial Study of possible environmental impacts of the following-described project:

APPLICANT: Kern County Engineering and Survey Services Department (PP07002)

APPLICATION: 5420 MDH 5-07; South Shafter Sewer Project

LOCATION: The area in and around the rural communities of West Shafter, Southwest Shafter, Thomas Lane, Smith Corner, Burbank, and Cherokee Strip, located 1 1/2 miles south of the City of Shafter, bounded by Beech Road to the east, Scaroni Avenue to the west, and San Diego Road to the south; being portions of Sections 16, 17, 20, 21, 22, 26, and 27, T28S, R25E, MDB&M, County of Kern, State of California.

DESCRIPTION OF PROPOSED PROJECT: The project is the construction of approximately 34,500 linear feet of sewer lines within the rural communities of West Shafter, Southwest Shafter, Thomas Lane, Smith Corner, Burbank, and Cherokee Strip. These sewer lines will connect to the Shafter/North of the River Wastewater Treatment Facilities, located approximately four miles southwest of the project sites, at the northeast corner of 7th Standard Road and Palm Avenue, 5 1/2 miles west of Highway 43 (Enos Lane). The force main alignment includes the construction of approximately 34,500 linear feet of pipe and five lift stations connecting to existing sewer lines between the communities and the treatment facility. Three lift stations operating in series are included; one at Southwest Shafter; one near Thomas Lane; and one at Smith Corner. Two independent lift stations connecting to the lift station at Smith Corner are also included; one at Smith Corner and one at Burbank. System requirements call for an average daily flow of 124,080 gallons per day (gpd), with a peak flow of 223,344 gpd. After construction of the force main system, all aboveground facilities and disturbances will be restored to their previously existing condition or better. The system will be sized to provide sewer service to 376 residential units and ten nonresidential units that are already existing, or could be developed, in the service area. The identified units will then be connected to the newly installed sewer systems, and the individual septic systems abandoned. The system is being proposed to remedy a high rate of septic system failures and to prevent potential degradation of groundwater in the above-mentioned communities. The project is proposed for funding by the U.S. Department of Agriculture Rural Utilities Service Financing Program and other sources. United States Department of Housing and Community Development Block Grants Funds may also be provided for the project. The formation of an assessment district and County Service Area Zone of Benefit will also be required.

COPY

MITIGATION MEASURES Included in the Proposed Project to Avoid Potentially Significant Effects (if required):

- (1) The project proponent shall comply with any requirements of the San Joaquin Valley Air Pollution Control District. Prior to commencement of construction, the proponent shall provide to the Lead Agency written verification from the San Joaquin Valley Air Pollution Control District (District) that the requisite approvals and permits have been obtained from the District for the project.
- (2) If any previously unknown historical, archaeological, or paleontological resources are discovered during the course of construction, work in the area of discovery shall be stopped and a qualified archaeologist or paleontologist contacted to evaluate the find and, if necessary, mitigate impacts prior to resumption of work.
- (3) Construction activities within 1,000 feet of an occupied residential dwelling shall be limited to the hours between 6:00 a.m. and 9:00 p.m. on weekdays and 8:00 a.m. and 9:00 p.m. on weekends except as specified in Chapter 8.36 of Title 8 of the Kern County Ordinance Code. Compliance with this measure shall entail Kern County Departments incorporating this requirement into any contracts entered into by the County with a third party in order to perform any of the required work associated with the project.

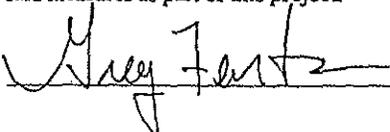
Notice of Environmental Department
Posted by County Clerk on 10/16/08
and for 30 days thereafter pursuant to
Section 21152(c)(1) of the Resource Code

2081

- (4) If any previously unknown oil wells are discovered, work in the area of discovery shall stop and the Department of Conservation/Division of Oil, Gas, and Geothermal Resources contacted to evaluate the find and, if necessary, mitigate prior to resumption of work.

INCLUSION OF MITIGATION MEASURES AS PART OF PROJECT:

I, as applicant/authorized agent, have reviewed the mitigation measures noted above and agree to include said measures as part of this project.

Signed:  Dated: 10/30/07

FINDINGS: It has been found that this project, as described and proposed to be mitigated herein, will not have a significant effect on the environment and that an environmental impact report (EIR) is, therefore, not required. A brief statement of reasons supporting such findings is as follows:

- (1) Proposed project does not appear to have a substantial demonstrable negative aesthetic effect.
- (2) Proposal would not appear to expose humans or structures to major geologic hazards.
- (3) Proposed action would not appear to induce substantial growth or concentration of population. Project would not displace a large number of people.
- (4) Proposed project design would not appear to disrupt or divide the existing geographic arrangement of an established community.
- (5) Proposal would not appear to conflict with established recreational, educational, religious, or scientific uses of the area.

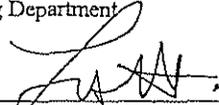
PUBLIC INQUIRY: Any person may object to dispensing with such EIR or respond to the findings herein. Information relating to the proposed project is on file in the office of the Planning Department at the address shown below. Any person wishing to examine or obtain a copy of that information or this document, or seeking information as to the time and manner to so object or respond, may do so by inquiring at said office during regular business hours.

A copy of the Initial Study is attached hereto.

PROPOSED NEGATIVE DECLARATION DATE: October 31, 2007
NEGATIVE DECLARATION REVIEW PERIOD ENDS: November 30, 2007

TED JAMES, AICP, Director
Planning Department

Kern County Planning Department
2700 "M" Street, Suite 100
Bakersfield, CA 93301
(661) 862-8600


By Lorelei H. Oviatt, AICP
Planning Division Chief

AGENCY CONSULTATION REQUIRED: Yes No

AGENCIES CONSULTED: Kern County Planning Department/Planning Operations; County Clerk; Shafter; BLM/Bak; Fish & Wildlife/Sac; Natural Resource Con Serv; Northwest Kern RCD; KC Engineering Services/Floodplain/Survey; KC Environmental Health; KC Fire; KC Sheriff; KC Roads; KC Waste Mgmt; Richard-Lerdo School Dist; Kern High School Dist; KC Superintendent of Schools; KC Water Agency; Shafter Parks and Rec; San Joaquin APCD; Kern Mosquito Abatement; Native Amer Heritage Council of KC; SBC; PG&E/Fresno; Sierra Club; So Cal Gas; Smart Growth Coalition/Bak; So San Joaquin Arch Info Center; Caltrans/Dist 6; Div of Oil and Gas/Bak; Fish and Game/Fresno; CA Highway Patrol; CRWQCB/Central; Thomas Road Improvement Program; Ray Chopra; CA Dept of Toxic Substance Control; Center on Race, Poverty & Environment/Delano/SF; Defenders of Wildlife; Div of Financial Asst; USDA/Rural Dev; City Manager/City of Shafter; Shafter Wasco Irrigation Dist; South Shafter Projects Committee; Self-Help Enterprises

STATE CLEARINGHOUSE NUMBER (if required):

INITIAL STUDY PREPARED BY: Michael D. Hollier, Planner 2 ((661) 862-8787)/Planning Department

DATE POSTED: 10-31-07 **DATE OF NOTICE TO PUBLIC:** October 31, 2007

* Public Resources Code, Section 21000, et seq.
** Title 14, Division 6, California Administrative Code, as amended
*** Resolution No. 88-068, adopted January 19, 1988

MDH:jc (10/29/07 - 5420B.ND)

Attachment

ENGINEERING & SURVEY SERVICES

CHARLES LACKEY, P.E., DIRECTOR

2700 M STREET, SUITE 570
BAKERSFIELD, CA 93301-2370
Phone: (661) 862-5100 Fax: (661) 862-5101
E-mail: ess@co.kern.ca.us
Website: www.co.kern.ca.us/ess



RESOURCE MANAGEMENT AGENCY

DAVID PRICE III, RMA DIRECTOR

Animal Control Department
Community and Economic Development Department
Engineering & Survey Services Department
Environmental Health Services Department
Planning Department
Roads Department

August 26, 2008

Board of Supervisors
Kern County Administrative Center
1115 Truxtun Avenue
Bakersfield, CA 93301

Agenda Date 8/26/08 File: South Shafter
Item No. 19 PM
Bd. Action Approved
Init. D Phelps

**CONSIDERATION OF ADOPTION OF
FINAL MITIGATED NEGATIVE DECLARATION/NATIONAL ENVIRONMENTAL POLICY ACT
(NEPA) SUPPLEMENT AND MITIGATION MONITORING PROGRAM FOR THE
SOUTH SHAFTER SEWER SYSTEM FOR THE
STATE SMALL COMMUNITIES WASTEWATER GRANT (S.D. #1)
Fiscal Impact: \$1,901.75; Budgeted; Discretionary**

This matter is the consideration and recommendation of adoption of the Final Negative Declaration and National Environmental Policy Act (NEPA) Supplement and Mitigation Monitoring Program for the South Shafter Sewer System. On September 18, 2007, your Board authorized Engineering & Survey Services Department to submit for the Small Community Wastewater Grant (SCWG) Financial Assistance Application for Planning and Design Grants for the South Shafter Sewer System. The Engineering & Survey Service Department has been working with Self Help Enterprises to obtain funding for a much needed sewer project for the communities of West Shafter, Southwest Shafter, Thomas Lane, Smith Corner, Burbank and Cherokee Strip of South Shafter.

On May 29, 2007, the Engineering & Survey Services Department took the opportunity to submit a request to the State Water Resources Control Board to be considered for placement on the statewide priority list to receive Proposition 40 and 50 grant funds for the project. Our application split the project into three (3) projects in hope that at least one would receive funding. All the above projects were placed on the priority list and it appears they may be eligible to qualify to receive partial funding in this grant cycle. These projects are within the state's priority group 15 for this year's funding cycle. We have been informed that the requested projects exceed the funds that will be available. Currently, the total estimated project cost to provide sewer service to this area is approximately \$9 Million. This grant program will fund up to 90 percent of the project costs; however, the community is limited to a combined maximum of \$2 Million from these grant funds. Staff has been advised by State staff to submit an application so that we may be considered to receive these funds. The application has been submitted and is currently under review. The completion of environmental review is an outstanding item on the State staff review list.

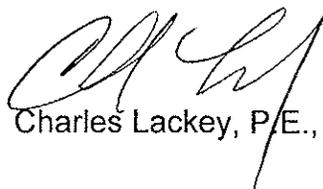
Staff from the Planning Department has prepared the appropriate environmental documents pursuant to the NEPA and the California Environmental Policy Act (CEQA) for the project. The Final Mitigated Negative Declaration prepared for the project includes a NEPA Supplement that is the

functional equivalent of a Findings of No Significant Impact (FONSI) and fully complies with all provisions of NEPA and CEQA. The Final Mitigated Negative Declaration/NEPA Supplement includes four (4) mitigation measures to address fugitive dust requirements, construction activities near residential neighborhoods, cultural resources and discovery of unknown oil wells. The Mitigation Measure Monitoring program reflects the procedures and compliance steps necessary to implement the mitigation measures. The Negative Declaration was filed with the State Clearinghouse for the required 30-day public comment period and notices were sent to property owners within 1,000 feet of the proposed sewer alignment. Comments from all agencies received during the circulation of the environmental document prepared for the request are attached to the document for your review and reference. No objections or adverse comments regarding this project were received during the public comments period.

As required under State CEQA Guidelines 15094 (d) this recommendation includes requesting the Clerk of the Board to file the Notice of Determination not only with the County Clerk but with the State of California Governors Office of Planning and Research. This is a requirement of projects that also involve a discretionary approval from a State agency. While we don't have funding for this project established at this time, the \$1,901.75 in filing fees will be absorbed within the Department's Operating Budget.

Therefore, **IT IS RECOMMENDED** that your Board adopt the Final Mitigated Negative Declaration/NEPA Supplement and Mitigation Monitoring program and authorize the Clerk of the Board to file the Notice of Determination with the County Clerk's Office and State of California Governor's Office of Planning and Research.

Sincerely,



Charles Lackey, P.E., Director

CL:RCD:Imc
I:\CLERICAL\BOARD\BOARD LETTERS\2008-2009\8-26-08\BI, SCWG Application South Shafter Neg Dec.doc

Attachments

cc: County Administrative Office
Resource Management Agency, Dave Price III
Planning Department

**MONITORING PROGRAM #3
FOR**

South Shafter Sewer Project
Kern County Engineering and Survey Services Department (PP07002)

1. **MITIGATION MEASURE** (from Negative Declaration):

Construction activities within 1,000 feet of an occupied residential dwelling shall be limited to the hours between 6:00 a.m. and 9:00 p.m. on weekdays and 8:00 a.m. and 9:00 p.m. on weekends except as specified in Chapter 8.36 of Title 8 of the Kern County Ordinance Code. Compliance with this measure shall entail Kern County Departments incorporating this requirement into any contracts entered into by the County with a third party in order to perform any of the required work associated with the project.

2. **JUSTIFICATION** (from Initial Study)

Measure recommended to provide the necessary assurances that noise impacts to adjacent residences are reduced to a less than significant level.

3. **TRUSTEE AGENCIES**

JURISDICTION

	YES	NO
State Department of Fish and Game		X
State Land Commission		X
State Department of Parks and Recreation		X
University of California		X

OTHER PUBLIC AGENCIES

Kern County Planning Department	X
Kern County Engineering and Survey Services Department/ Building Inspection Division	X

4. **MONITORING AGENCY/FIRM:**

Kern County Planning Department; Kern County Engineering and Survey Services Department/Building Inspection Division

5. **PROCEDURE - STEPS TO COMPLIANCE** (unique to each project)

A. The Department of Engineering and Survey Services will include this requirement in any contracts entered into with the County for performing any of the required work associated with this project.

6. **COMPLIANCE** (each procedure step to be signed off and dated by monitor)

A. The Department of Engineering and Survey Services will include this requirement in any contracts entered into with the County for performing any of the required work associated with this project.

7. **COMMENTS:**

8. Fees: _____ Receipt # _____ Date: _____ Rec'd By: _____

Prepared By: _____ Date: _____

**MONITORING PROGRAM #4
FOR**

South Shafter Sewer Project
Kern County Engineering and Survey Services Department (PP07002)

1. **MITIGATION MEASURE** (from Negative Declaration):

If any previously unknown oil wells are discovered, work in the area of discovery shall stop and the Department of Conservation/Division of Oil, Gas, and Geothermal Resources contacted to evaluate the find and, if necessary, mitigate prior to resumption of work.

2. **JUSTIFICATION** (from Initial Study)

Measure recommended to provide the necessary assurances that potential impacts on previously unknown oil wells that may be discovered on the property are reduced to a less than significant level.

3. **TRUSTEE AGENCIES**

JURISDICTION

	YES	NO
State Department of Fish and Game		X
State Land Commission		X
State Department of Parks and Recreation		X
University of California		X

OTHER PUBLIC AGENCIES

Kern County Planning Department	X
Kern County Engineering and Survey Services Department/ Building Inspection Division	X

4. **MONITORING AGENCY/FIRM:**

Kern County Planning Department; Kern County Engineering and Survey Services Department/Building Inspection Division

5. **PROCEDURE - STEPS TO COMPLIANCE** (unique to each project)

A. The Department of Engineering and Survey Services will include this requirement in any contracts entered into with the County for performing any of the required work associated with this project.

6. **COMPLIANCE** (each procedure step to be signed off and dated by monitor)

A. The Department of Engineering and Survey Services will include this requirement in any contracts entered into with the County for performing any of the required work associated with this project.

7. **COMMENTS:**

8. Fees: _____ Receipt # _____ Date: _____ Rec'd By: _____

Prepared By: _____ Date: _____

COST ESTIMATE

PROJECT NAME: **South Shafter Community Wastewater System - Smith's Corner**

Date: 13 March 2013

Description:

Design & construction of a sewer collection system to NOR/Shafter wastewater treatment plant for Smith Corners neighborhood.

PROJECT NAME: Smith Corner

ITEM NO.	ESTIMATED QUANTITY	UNIT OF MEASURE	ITEM	UNIT PRICE	EXTENSION PRICE
1	1	LS	Clearing & Grubbing	\$100,000.00	\$100,000
2	18,600	LF	Sawcut	2.00	37,200
3	1	LS	Develop Water Supply	10,000	10,000
4	1	LS	Trench Safety	12,000	12,000
5	178	EA	4" PVC Lateral	1,300.00	231,400
6	9,300	LF	8" PVC Sewer	75.00	697,500
7	1,320	LF	12" PVC Sewer	100.00	132,000
8	0	LF	Bore & Jack (12 & 8-inch Pipe)	300.00	0
9	0	EA	Lift Station	250,000.00	0
10	36	EA	Manhole	4,500.00	162,000
11	1,000	Ton	Asphalt Concrete	75.00	75,000
12	1,000	CY	Class II Aggregate Base	50.00	50,000
13	1	LS	Miscellaneous Off-site Improvements	10,000	10,000
14	1	LS	Finishing Roadway	5,000	5,000
Subtotal - Collection System:					1,522,100
- Trunk Line - Shafter Avenue -					
15	2,640	LS	12" PVC Sewer	100.00	264,000
16	300	Ton	Asphalt Concrete	75.00	22,500
17	300	CY	Class II Aggregate Base	50.00	15,000
18	7	EA	Manhole	4,500.00	31,500
Subtotal - Trunk Line System:					333,000

CONSTRUCTION COST

\$1,855,100

Total Sewer Fees (178 EDUs @ \$3,655/EDU)	650,590
Administrative & Legal	20,000
Preliminary Engineering	26,000
Bond Counsel	0
Environmental Process	12,000
Easements	30,000
Design Engineering	300,000
Bid Advertisement	15,000
Engineering/Survey/Lab - ESS	111,300
Construction Inspection - ESS	222,600
Contingency	185,500
Escalation (5%)	92,800
CSA Formation	12,000

TOTAL PROJECT COST - SMITH CORNER

\$3,532,890

Design Phase Only:

\$350,000

Cost per EDU (Parcel):

\$19,847.70

South Gate Enterprises

SOUTH SPAINISH WASTEWATER
TREATMENT PLANT

PRELIMINARY ENGINEERING REPORT

DRAFT

October 2004

Self-Help Enterprises

**SOUTH SHAFTER WASTEWATER
FEASIBILITY STUDY**

PRELIMINARY ENGINEERING REPORT

DRAFT

October 2004



Self-Help Enterprises
SOUTH SHAFTER WASTEWATER STUDY
PRELIMINARY ENGINEERING REPORT

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LIST OF REFERENCES

1. Boyle Engineering, April 1972. Areawide Water/Sewer Element and Program for the City of Shafter
2. Carollo Engineers, December 1998. Southwest Shafter Water Project, for the City of Shafter and Self-Help Enterprises
3. Self-Help Enterprises, 1997 Well Water Test Information
4. Carollo Engineers, October 1998, Wastewater Treatment Study Supplemental Draft Report, for the City of Shafter and Minter Field Airport District

Table 3 Estimated Construction Costs - Complete Gravity Flow Collection System South Shafter Wastewater Feasibility Study Self-Help Enterprises			
Item	Quantity	Unit Cost	Estimated Cost
Mobilization ⁽¹⁾			\$ 280,000
12 inch pipe (PVC)	5311 LF	\$65/LF	345,000
8 inch pipe (PVC)	29063 LF	\$55/LF	1,598,000
4 Inch force main (PVC)	100 LF	\$50/LF	5,000
Bore and Jack (for 12 and 8 inch pipe)	400 LF	\$300/LF	180,000
Lift Stations (5)	5	\$35000 each	175,000
Portable Generators (3)	3	\$30000 each	90,000
Wye Connections	348	\$100 each	35,000
Manholes	89	\$4090 each	364,000
Manholes with drop outlets	2	\$5000 each	10,000
Pavement Resurfacing	11634 LF	\$5/LF	52,000
Road Repair (ROW)	20168 LF	\$25/LF	504,000
Easement Repair	2572 LF	\$25/LF	64,000
Subtotal			\$3,702,000
Engineering, Legal, and Administrative (12 percent)			444,000
Subtotal			\$4,146,000
Estimating Contingency (15 percent)			622,000
Total Project Cost			\$4,768,000
Assuming 25 percent Loan			\$1,192,000

(1) Includes Clear and Grubb, Sheeting and Shoring.

O&M costs are expected to escalate at a rate of 3.0 percent annually. Assuming construction is completed and the collection system is in operation in the year 2007, the O&M costs for the first five years are estimated to be:

- Year 1 - \$34,000
- Year 2 - \$35,400
- Year 3 - \$36,800
- Year 4 - \$38,200
- Year 5 - \$39,600

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To	DAVE WARNER	Date	3-10-05	# of pages	1
Co./Dept.		From	PENNY CARLO		
Phone #		Co.			
Fax #	651-3634	Phone #	436 6616		
		Fax #			

South Shafter Wastewater Feasibility Study

Construction Items- Quantities

Item	Shafter Ave Sewer				Burbank & Cherokee Strip		Unit Costs	Total Costs
	Shafter Ave	Riverside Ave	Smith Corner	Burbank & Cherokee Strip	Total	Unit Costs		
Mobilization, C&G, S&S	5,311				5,311	\$65	\$280,000	
12 inch pipe (PVC)	--	14,547	8,590	5,926	29,063	\$55	\$345,000	
8 inch pipe (PVC)			100		100	\$45	\$5,000	
4 inch force main (PVC)			280	100	600	\$300	\$180,000	
Bore & Jack (for 12 & 8 inch pipe)	--	2	2	1	5	\$35,000	\$175,000	
Lift stations					3	\$30,000	\$90,000	
Portable Generators					348	\$100	\$35,000	
Wye Connections (1)		116	162	70	348	\$100	\$364,000	
Manholes	16	34	28	13	91	\$4,000	\$10,000	
Manholes w/ drop outlets	--	2	0	0	2	\$5,000	\$52,000	
Pavement Resurfacing (IF)					11634	\$5	\$504,000	
Road repair (ROW) (IF)					20168	\$25	\$64,000	
Easement repair (IF)					2572	\$25		
Purchase Easements							\$3,422,000	
Subtotal					Subtotal		\$3,702,000	
Engineering, Legal and Administration (12%)							\$444,000	
Subtotal							\$4,146,000	
Estimating Contingency (15%)							\$622,000	
Total Project Costs							\$4,768,000	
Assuming a 25% Loan							\$1,192,000	

SOUTH SHAFTER WASTEWATER FEASIBILITY STUDY PRELIMINARY ENGINEERING REPORT

1.0 SUMMARY

The South Shafter Wastewater Study Preliminary Engineering Report evaluates connecting six unsewered residential areas into the Shafter/North of the River/Wastewater Treatment Facilities (S/NOR WWTF), northwest of Bakersfield, California. The residential areas are: 1) West Shafter; 2) Southwest Shafter; 3) Thomas Lane; 4) Smith Corner; 5) Burbank; and 6) Cherokee Strip.

At present, wastewater disposal in the communities is handled solely by septic tank systems which discharge the tank water into leach lines and seepage pits located on the individual properties. Many residents are experiencing problems with their septic systems. This report addresses the engineering issues for a proposed project to connect the six communities to the S/NOR WWTF.

The recommended project is a conventional gravity flow collection system for conveyance to the S/NOR WWTF for treatment.

This report was prepared by Carollo Engineers, P.C., through a contract with Self-Help Enterprises (SHE). This report provides the technical support document for an application to the USDA Rural Development for funding assistance. The County of Kern will submit the application for the proposed collection system. SHE will assist the County.

1.1 Institutional Support for Project

The S/NOR WWTF is owned by the County of Kern, and receives flows from the City of Shafter, the NOR Sanitary District, and County Service Area 71. For this project, the six communities will need to purchase treatment capacity directly from the S/NOR WWTF via a County of Kern service district. The communities will also need to pay connection fees to the City of Shafter to connect to the trunk sewer that will deliver the flows to the S/NOR WWTF. There is available capacity in both the treatment plant and the trunk sewer. This is described in this report. Estimated buy-in costs and connection fees are provided in this report.

Both the County of Kern and the City of Shafter support the proposed project and confirm that these facilities have the capacity to receive the proposed flows. Letters of support are provided in Appendices A and B, respectively. A County Services Area (CSA) will be established for the areas to provide financial, legal, operational and administrative

capabilities to assure adequate construction and operations and maintenance of the proposed facilities. This is described in Section 10.

The local community is supportive of the project as well. The South Shafter Projects Committee is a group of concerned residents that have come together to work on the problems they are having with septic systems in the South Shafter Area. Years ago many of these same residents were instrumental in getting water to their respective communities via the South Shafter Water Project (Cherokee Strip, Burbank, Mexican Colony, Smith Corner, and Thomas Lane) and the Southwest Shafter Water Project (Southwest Shafter and West Shafter). SHE has assisted the residents by providing community organizing and technical assistance.

1.2 Public Hearings

One South Shafter Community meeting has been held on the proposed project. The hearing was held on April 29, 2004, at 8:00 p.m., at the Church of God in Smith Corner. Approximately 50 people attended. This was the first meeting following the door-to door survey that was conducted in 2003-2004 (see Section 3.3).

Two more meetings will be scheduled as part of the California Environmental Quality Act (CEQA) process to discuss environmental factors and to obtain public input. The CEQA process is outside the scope of service for this report.

2.0 PROJECT PLANNING AREA

2.1 Location

The six-unsewered residential areas are outside the City of Shafter city limits in a rural setting. The areas are shown in Figure 1. The six areas are in close proximity to each other. In general, the overall area is located just south of the City of Shafter, west of Beech Road, east of Scaroni Avenue, and north of San Diego Road.

West Shafter, Southwest Shafter, and Thomas Lane area are located in Ken County Census Tract No. 40. Smith Corner is at the southern boundary of Census Tract No. 40, with a few homes in Census Tract No. 42. Burbank is located within Census Tract No. 42, and Cherokee Strip is located in Census Tract No. 39.

For the majority of the residents, who reside in Census Tract 40, the household median income in 1999 was reported at \$27,634 by the U.S. Census Bureau. Incomes for Census Tracts 39 and 42 were reported at \$34,345 and \$29,219, respectively.

2.2 Environmental Resources

The majority of the land is utilized for residential lots, with very few commercial businesses. Farmland surrounds the areas. The areas are not located within a 100-year or 500-year floodplain (Figure 2).

There are no known historical or archaeological sites within the project areas. Appendix C contains a search of the cultural resources site record files for the Thomas Lane community. No cultural resources have been filed, and no new archaeological sites were found within one mile of the community. Based on the Thomas Lane survey, the likelihood of cultural resources being present in the six developments in this report is minimal.

There are no known endangered species or critical habitat in the proposed construction areas. Furthermore, endangered species habitat disturbance should not be a concern since construction will be located within public road right-of-ways and private lots. After construction, the aboveground conditions will be returned to their previous state.

2.3 Growth Areas and Population Trends

There is little projected growth for the communities other than the development of vacant lots and the filling of vacant units. Table 1 lists the number of occupied residential units and vacant lots in each area, as provided by Self-Help Enterprises. Presently, there are 320 "units" in the six areas combined. If all vacant units become occupied, and vacant buildable lots are developed, the number of homes in the future would total 376. This represents 17.5 percent growth overall, or 0.8 percent per year. For the purposes of this report, the 17.5 percent growth rate will represent a 20-year growth projection.

The 17.5 percent growth rate agrees with previous estimates for the area. In the 1998 Southwest Shafter Water Project (REF. 2), the 20-year growth rate was estimated at 15 percent for the areas of Thomas Lane, Southwest Shafter, and West Shafter. The 15 percent was based in part on a Kern COG estimated of 16 percent growth for Smith Corner, from 1990 to 2010.

Self-Help Enterprises has reported that the occupancy rate in the project area is 4.06 persons per household. Based on the occupancy rate and the number of vacant lots available for occupancy, the current population for the six areas overall is estimated at 1,299 people, and the future population is estimated as 1,527.

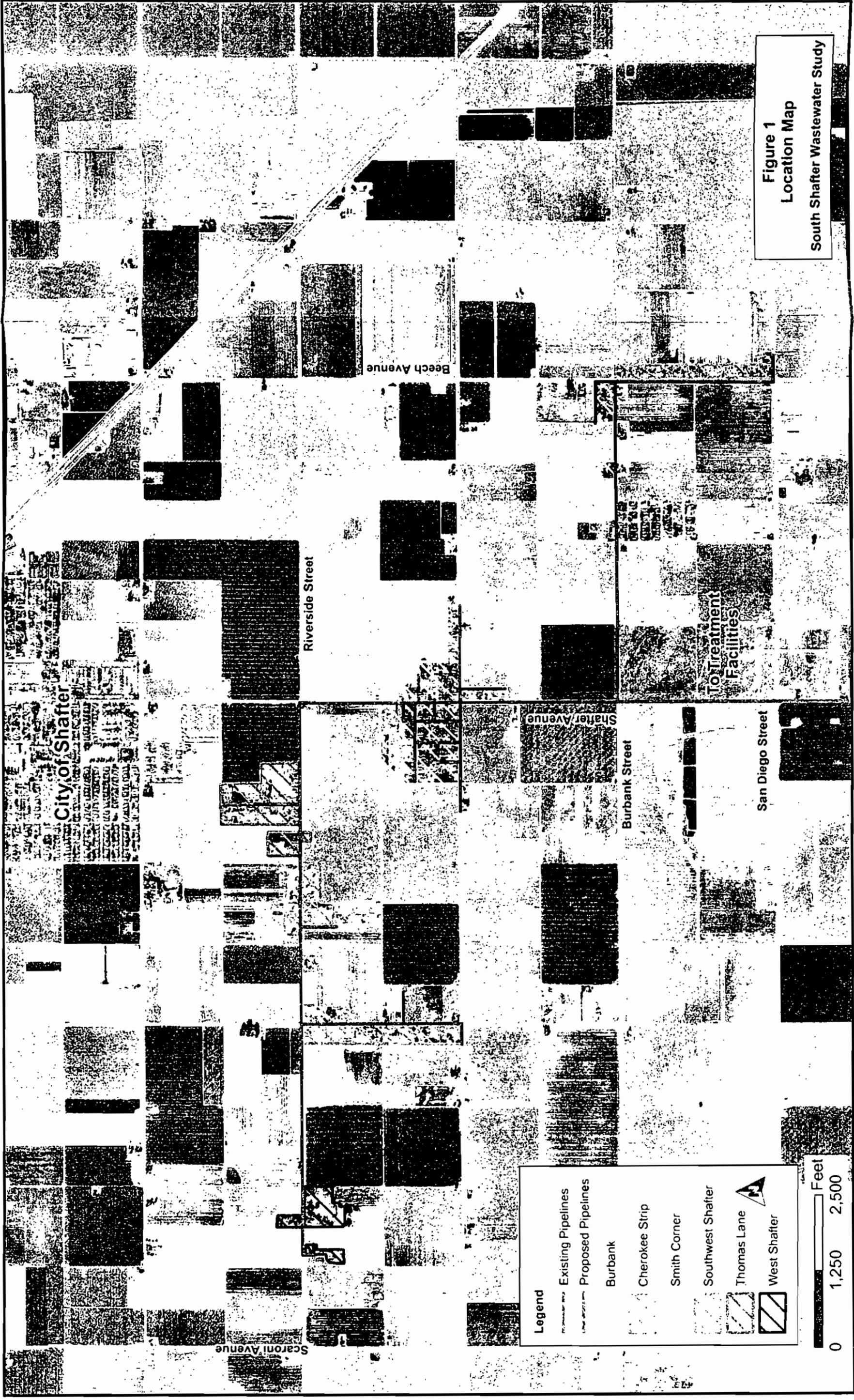
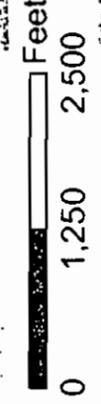


Figure 1
Location Map
 South Shafter Wastewater Study

Legend

- Existing Pipelines
- Proposed Pipelines
- Burbank
- Cherokee Strip
- Smith Corner
- Southwest Shafter
- Thomas Lane
- West Shafter



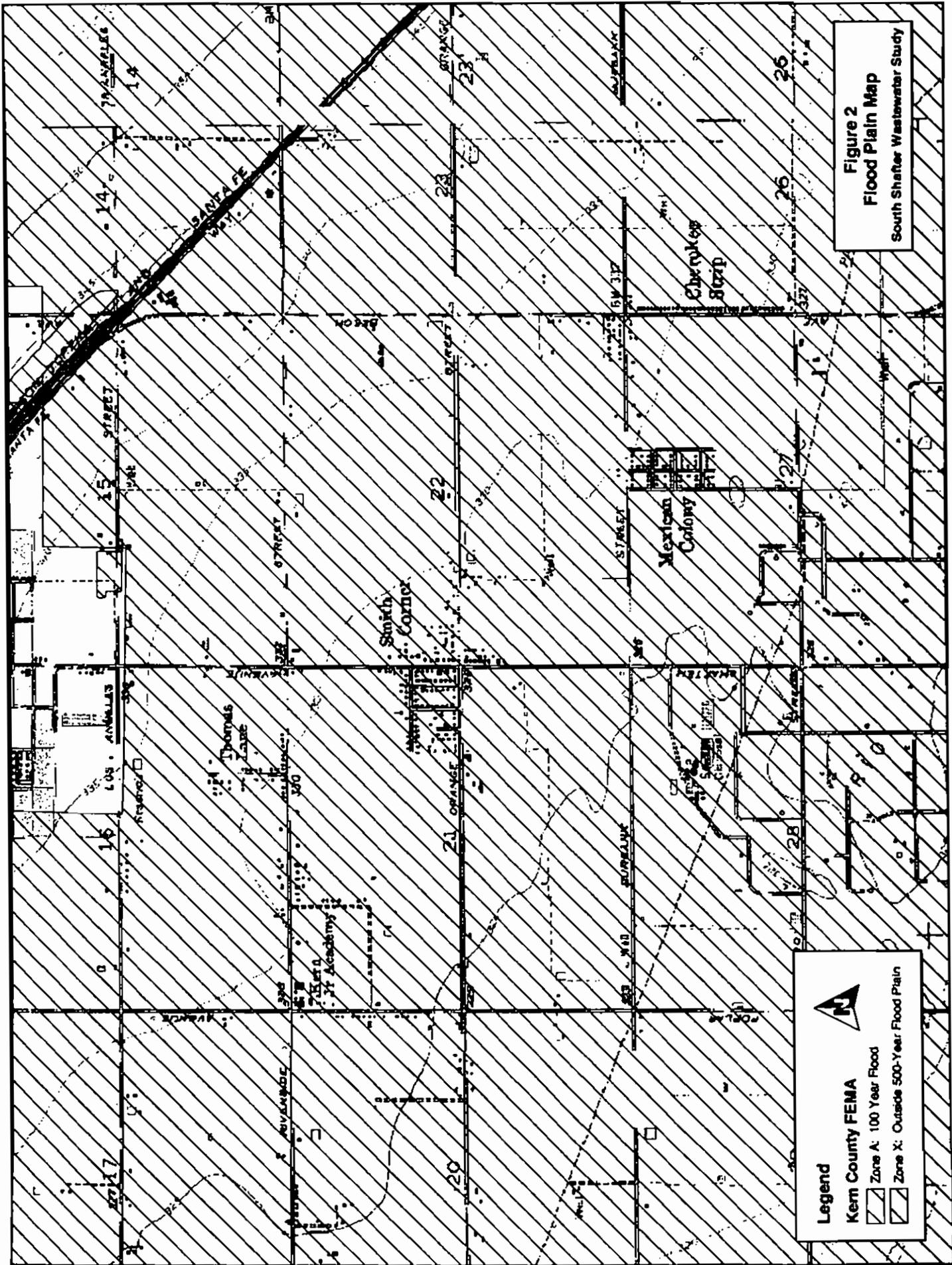


Figure 2
Flood Plain Map
 South Shafter Wastewater Study

Legend

Kern County FEMA

-  Zone A: 100 Year Flood
-  Zone X: Outside 500-Year Flood Plain

2.4 Nonresidential Units

The residential count above does not include the very few commercial businesses and nonresidential establishments in the area. They are listed below. The establishments are small. With the exception of the diner, the facilities are expected to be typical of a residential unit (kitchen and one or two restrooms), or less (restroom and no kitchen facilities). Wastewater flows are expected to be nominal and are neglected in calculations for projecting flows and sizing pipelines. The establishments are listed below:

West Shafter:	0 nonresidential units
Southwest Shafter:	1 school
	2 small shops
Thomas Lane	0 nonresidential units
Smith Corner	3 churches
	1 convenience store
	1 garage
Burbank	1 convenience store
Cherokee Strip	1 diner (restaurant)

3.0 EXISTING FACILITIES

3.1 Location

Land use maps for each community, showing the location of the residential units, vacant lots, and commercial businesses are provided in Appendix D.

3.2 History

The six residential areas rely on septic systems for their wastewater disposal needs. Most of the development in the project areas occurred in the 1930s, 40s, and 50s (REF. 1). Sewer development for some of the project areas has been considered for more than 30 years. In fact, Thomas Lane and Smith Corner were anticipated to connect to the Shafter sewer collection system before 1980 (REF. 2)

3.3 Condition of Existing Facilities

The condition of the existing facilities is based on the findings of the Septic System Survey, conducted by SHE from January 2003 to June 2004. The South Shafter Projects Committee completed most of the door-to-door surveying. Committee members were trained by SHE. The results of the survey are provided in Appendix E.

The survey was completed by 90 percent of the occupied homes in the six areas, with 2 percent refusing to participate, and 8 percent of the residents not home at the time of the survey. Overall, counting vacant units and vacant lots, the completion rate was 73 percent, with 7 percent not home, and 1 percent refusing to participate.

All septic tank systems in the six communities are located on individual lots and are owned and operated by the property owners. A few lots contain both a home and business. Some lots contain more than one home. In general, all developed lots contain at least one septic tank system. The location of the septic tanks is not standardized and may vary between the front and back of the lot, depending on the property layout.

The septic tanks discharge mostly to leach fields, but there are a number of seepage pits. Over all the areas, 39 percent have seepage pits, 45 percent have leach fields, and 16 percent have both seepage pits and leach fields.

Sixty-three (63) percent of the septic systems have required pumping one or more times in the past three years, and 35 percent have required pumping 2 or more times in the past 3 years. Typically, septic tanks should need pumping once every three to five years. The increased pumping may be due to saturated soil conditions on small lots. Over time, the soil surrounding seepage pits/leach fields become saturated, the septic tanks begin to back up, and the systems require more frequent pumping. It is also possible the increased pumping due to clogging of leach fields with septic tank solids. This occurs when the level of sludge within the septic tank is not carefully monitored and it is allowed to build up to a level where the solids flow into the leach field.

Approximately 51 percent of the homes dispose of their gray water into their yards. This is most likely done in an effort to avoid putting excess fluid into their septic systems. However, this method not only further saturates the soil surrounding the tanks, but also violates public health regulations.

According to SHE, many of the septic systems are beneath lots that are smaller than 10,000 square feet in area. This is particularly the case in Smith Corner, Burbank, parts of Thomas Lane, and parts of Southwest Shafter. The systems in place now are very old, and replacing them with new systems on the small lots would violate standards of the Kern County Environmental Health Services Department.

4.0 NEED FOR PROJECT

Based on the septic system survey, 86 percent of the homeowners in the overall area would prefer community sewers over septic tanks. Nine (9) percent of respondents would prefer to continue using septic tanks, and 5 percent did not know or had no opinion.

4.1 Health and Safety

In addition to the issues associated with failing septic systems discussed above, the continued use of multiple septic tank systems in proximity to local groundwater wells raises concerns about drinking water quality. The majority of the homes receive potable water from the City of Shafter water distribution system, which was built in 1997. The septic systems threatened the water supplies, and the new water system alleviated this problem. However, there are still a number of private wells in the areas. Four of the private wells on Riverside Avenue had nitrate concentrations exceeding the maximum contaminant level (MCL) in 1997 or 45 mg/L, and other wells show elevated levels of nitrates (REF 3).

4.2 System Operation and Maintenance (O&M)

The septic systems are individually owned by the property owners. Maintenance is up to the property owner. Lack of adequate management of the systems and the continued use of failing systems are significant concerns to both public health and the environment.

4.3 Growth

The local populations in the six areas are not expected to significantly change in the future. The only growth that is expected would result from filling vacant homes and developing the vacant buildable lots, as discussed above. The proposed wastewater sewer system will be designed to handle the current population plus expected future growth.

5.0 ALTERNATIVES CONSIDERED - SUMMARY

This report presents the preliminary layout of proposed sewers in the subject areas, and preliminary sizing of the pipelines and facilities, to convey the wastewater to the North of the River Wastewater Treatment Plant. The alternatives considered are:

- Alternative 1 – Complete Gravity Flow Collection System
- Alternative 2 – Continued Operation of Individual Septic Systems (no project)
- Alternative 3 – Replace All Septic Tanks

6.0 ALTERNATIVE 1 – COMPLETE GRAVITY FLOW COLLECTION SYSTEM

6.1 Description

This alternative involves all six areas discharging to new gravity sewers that will connect with the 30-inch diameter Shafter Avenue Trunk sewer (Figure 1). The Shafter Avenue Trunk Sewer will convey the flows to the S/NOR WWTF. The 30-inch diameter pipeline begins at the intersection of Burbank Street and Shafter Avenue, as shown in the Figure. The pipeline continues south, then west along Seventh Standard Road to the treatment plant, which is located at the intersection of Seventh Standard Road and Magnolia (location not shown on map).

The 30-inch diameter pipeline receives flows from a 10-inch diameter pipeline from the east, along Burbank Street (serving the Mexican Colony community), and flows from two existing trunk sewers from the north, along Shafter Avenue. One is a 12-inch diameter pipeline, and the other is an 18-inch diameter pipeline. These two pipelines deliver flows from the City of Shafter to the treatment plant.

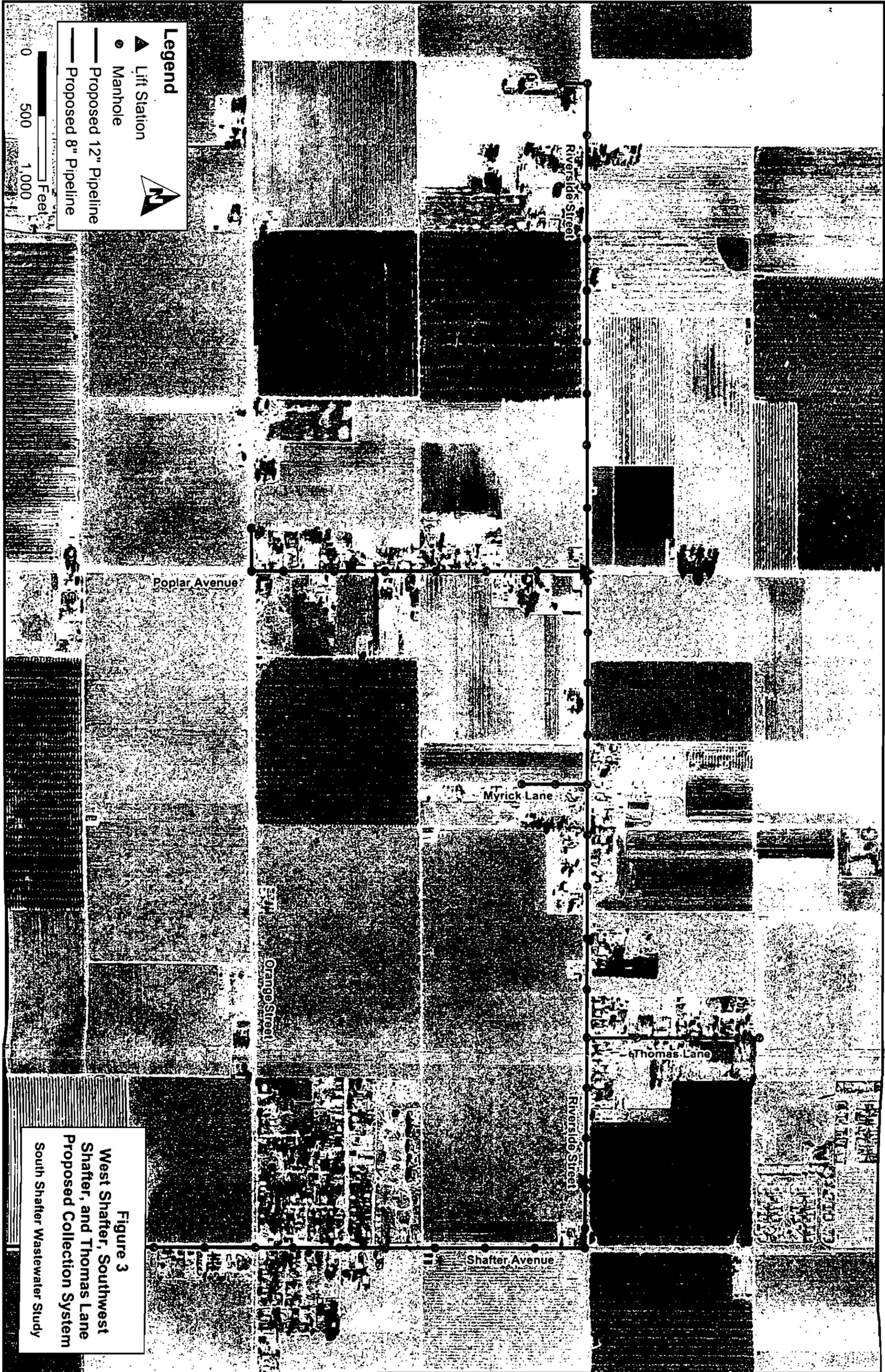
A new 12-inch diameter pipeline is proposed along Shafter Avenue, to extend from Riverside Street to Burbank Street. The total distance is one mile. It is proposed to lay the pipeline in the County right of way (ROW) along the west side of the road. This follows the same alignment as the 30-inch diameter pipeline. The alignment selection is discussed further in Section 6.4.

West Shafter, Southwest Shafter, and Thomas Lane communities would discharge to an 8-inch pipeline along Riverside Avenue (Figure 3). Due to the natural grade of the land, the trunk sewer will require two small lift stations along the route. The Riverside pipeline would discharge into the new 12-inch diameter pipeline along Shafter Avenue.

The Smith Corner area would discharge flows into the new 12-inch pipeline along Shafter Avenue. New pipelines within the community would all be 8-inch diameter. Two small lift stations will be required along Orange Avenue (Figure 4).

The Burbank and Cherokee Strip areas would discharge into a new pipeline along Burbank Street (Figure 5). One small lift station will be needed at the intersection of Beech Avenue and Burbank Street, to lift flows from Cherokee Strip. The new Burbank Street pipeline will tie into the existing trunk line that begins at Kennedy Avenue. From there, the flows will be conveyed to the Shafter Avenue 30-inch diameter trunk line.

Hydraulic calculations are provided in Appendix F. The calculations are preliminary, and will need to be confirmed during design. Overall, the calculations show that gravity flow collection systems are feasible in all of the proposed areas.

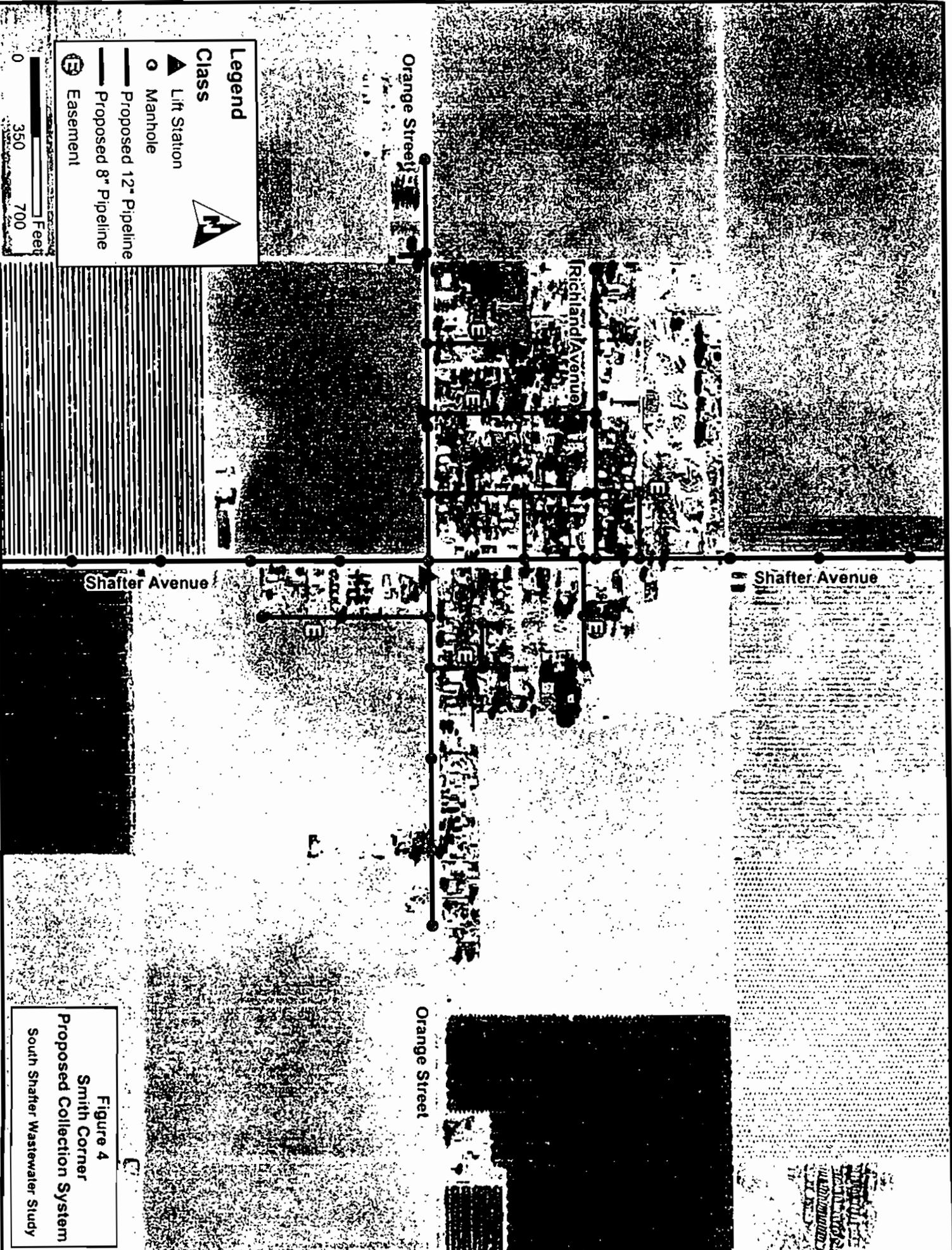


Legend

- ▲ Lift Station
- Manhole
- Proposed 12" Pipeline
- - - Proposed 8" Pipeline

0 500 1,000 Feet

Figure 3
 West Shafter, Southwest Shafter, and Thomas Lane
 Proposed Collection System
 South Shafter Wastewater Study



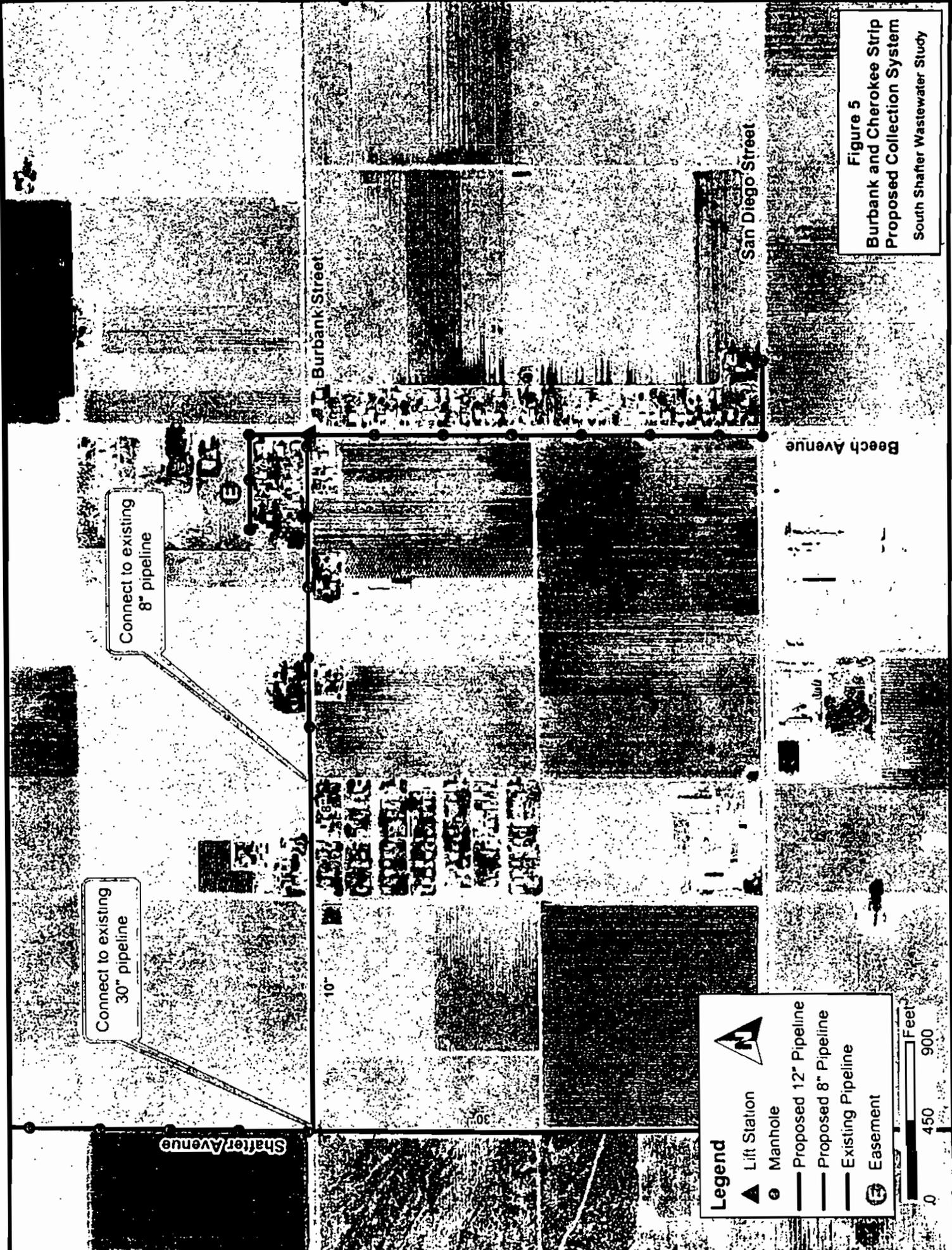
Legend

Class

- ▲ Lift Station
- Manhole
- Proposed 12" Pipeline
- Proposed 8" Pipeline
- ⓔ Easement



Figure 4
Smith Corner
Proposed Collection System
South Shafter Wastewater Study



Connect to existing
30" pipeline

Connect to existing
8" pipeline

Legend

-  Lift Station
-  Manhole
-  Proposed 12" Pipeline
-  Proposed 8" Pipeline
-  Existing Pipeline
-  Easement



Figure 5
Burbank and Cherokee Strip
Proposed Collection System
 South Shafter Wastewater Study

Overall, five small lift stations will be required. They will consist of duplex grinder pumps in wet wells. It is proposed that each lift station include a separate manhole immediately upstream of the wet well, to provide additional storage capacity in the event of a power outage. This will mitigate against potential backups in the sewer until power can be restored (see Section 6.7.2).

6.2 Design Criteria

Wastewater discharge estimates are based on 330 gallons per day (gpd) discharge from each residential unit. This is based on the City of Shafter's definition for an equivalent flow unit (EFU) (REF 4). The population density is estimated at 4.06 persons per unit, by SHE. Based on 330 gpd/unit, and 4.06 persons/unit, this equates to a per capita flow of 81 gpd. Based on a recent flow study, the unit flows are similar to the community of Lost Hills, in western Kern County.

Table 2 lists the projected wastewater flows for the communities. Both the average daily flow and the peak hourly flow are listed. The average flow from each area was determined using the number of units (current + future) listed in Table 1, multiplied by the unit flow (330 gpd). Peak flow was estimated using the peaking factor of 1.8, taken from the Kern County Standards.

Table 1 Residential Units and Vacant Lot Count South Shafter Wastewater Feasibility Study Self-Help Enterprises				
Community	Occupied Units	Vacant Lots	Vacant Buildable Lots	Vacant Nonbuildable Lots
Cherokee Strip	39	1	1	0
Burbank	29	1	3	5
Smith Corner	141	21	16	9
Thomas Lane	45	1	1	3
Southwest Shafter	54	4	7	8
West Shafter	12	0	0	0
Total	320	28	28	25

Based on the low per capita flow, and the use of new PVC sewers which minimize the potential for leakage, the possibility for infiltration and inflow (I/I) into the proposed system is considered negligible. Therefore, an I/I analysis is not included in this report.

Table 2 Projected Wastewater Flows South Shafter Wastewater Feasibility Study Self-Help Enterprises			
Community	Total Units	Average Daily Flow (gpd)	Peak Hourly Flow (gpd)
Cherokee Strip	41	13,530	24,354
Burbank	33	10,890	19,602
Smith Corner	178	58,740	105,732
Thomas Lane	47	15,510	27,918
Southwest Shafter	65	21,450	38,610
West Shafter	12	3,960	7,128
Total	376	124,080	

Kern County Development Standards were used for the preliminary sizing of the pipelines. The standards include a minimum cover of 4 feet, minimum slope requirements for various pipe diameters, and the use of PVC pipe. Also, in accordance with County Standards, the minimum pipe diameter is 8 inches.

6.3 Environmental Impact

Considering that all disturbed areas will be located within functioning roadways or within developed lots, it is unlikely that any negative environmental impact will be encountered. After construction of the sewers, the above ground conditions will be returned to their original state. It is possible that the installation of the sewer system could improve any areas that may have saturated soils due to failing septic tank systems.

6.4 Land Requirements

The majority of the sewer lines will be located within Kern County ROW. Some pipelines will be located within existing easements that traverse private property. One easement is located in Southwest Shafter (Figure 3). One easement is located in Burbank (Figure 5) In Smith Comer, there are several easements that will be accessed. They are identified in Figure 4.

With the exception of one easement in Smith Comer (southeast of the intersection of Orange Street and Shafter Avenue), all of the easements identified in the six communities are already established. The water system pipelines installed in 1997 are within these easements. Therefore, only one easement will need to be acquired by the County for the proposed project. If, during design, it is determined the pipeline to serve these homes can be located along Shafter Avenue, then this easement will not be needed.

6.5 Potential Construction Issues

Potential construction problems would involve traffic flow interruptions, road closures, avoiding existing pipelines along Shafter Avenue, and home access difficulties due to the location of construction within functioning roadways or private lots. Almost all roads within the communities would be blocked or partially constricted at some point during the sewer system installation. Thorough planning and scheduling prior to construction will help minimize this inconvenience.

6.5.1 Proposed Pipeline Along Shafter Avenue

As stated in Section 6.1, there are two existing wastewater pipelines under Shafter Avenue. The 12-inch diameter pipeline runs along the west side of Shafter Avenue, approximately 15 feet from the center line, in the ROW for some sections, or under pavement. There is also an underground telephone line along this alignment. The 18-inch diameter pipeline runs along the east side of the road, approximately 13 feet from the center road, in the ROW or under pavement. There is also a gas line and a water line on this side of the road.

The proposed 12-inch diameter pipeline would be located along the west side of Shafter Avenue, in the County ROW. There appears to be adequate room, however this will need to be confirmed during design. The underground telephone line may have to be relocated in some areas. This is not expected to be a problem, since sections were relocated during the construction of the 30-inch diameter pipeline.

6.5.2 Smith Corner

At Smith Corner, two pipelines will deliver flows from the east side of Shafter Avenue to the 12-inch diameter pipeline. The pipelines will have to cross under Shafter Avenue, to make the connection. The crossing at the intersection of Orange Street and Shafter Avenue will be a 4-inch diameter force main. This pipeline can be routed to avoid existing pipes during construction. The other crossing is located in the easement north of Orange Street. The pipeline is designed at this preliminary stage to cross the road at an elevation above the existing sewer pipelines. Based on information available, this appears to be feasible and that the 4 feet of minimum cover can be accommodated. If, during design, this will pose construction difficulties, a small lift station may need to be added.

Also at Smith Corner, southeast of the intersection of Orange Street and Shafter Avenue, a pipeline is proposed in an easement behind the homes bordering Shafter Avenue. This is because there does not appear to be enough clearance to install the pipeline in the ROW in front of the homes. If during design the survey indicates there is adequate room, this pipeline should be located in the ROW to save on construction costs.

With the exception of the easements, it is assumed that the pipelines at Smith Comer will be located under the pavement in the roads. The alignments will need to be verified during design.

6.5.3 Burbank Community and Cherokee Strip

It is proposed that the new 8-inch diameter pipelines serving this area be located under the pavement, and out of the ROW. Along Beech Avenue north of Burbank, there is a 12 KV power line overhead, a 16-inch diameter high-pressure gas line, and an irrigation line in the ROW. Along the north side of Burbank Street, there are two gas lines and a petroleum pipeline underground, plus the 12 KV power lines above. Due to these obstructions, it is assumed it will not be feasible to lay the new pipeline in the ROW. This matches the alignment of the existing 8-inch and 10-inch diameter pipeline along Beech Street that serves Mexican Colony. It is also located under the pavement.

6.5.4 West Shafter, Southwest Shafter, and Thomas Lane

It is assumed the pipelines and the two lift stations will all be installed in the ROW. The alignments will need to be verified during design.

6.6 Capacity in Existing Facilities

There is adequate capacity in the 30-inch diameter pipeline to handle the extra flows from the six communities. The pipeline has an estimated capacity of 9.0 (million gallons per day) mgd. Currently, flows are estimated at 1.25 mgd from the City of Shafter, and are expected to be 2.0 mgd in the year 2025.

Using a peaking factor of 2 for the City of Shafter, future peak flows would be 4.0 mgd. This leaves 5.0 mgd of excess capacity in the 30-inch diameter trunk sewer. Including the Mexican Colony flows with the proposed project flows, peak hour flows will be less than 0.3 mgd. Therefore, the Shafter trunk sewer has plenty of capacity for the proposed areas.

The existing 8-inch and 10-inch diameter pipelines along Burbank Avenue, which currently serve Mexican Colony, have sufficient excess capacity to accommodate the proposed peak flows of 0.045 mgd from Cherokee Strip and Burbank communities.

The S/NOR WWTF has a permitted capacity of 5.5 mgd (average dry weather flow), and a design capacity of 5.88 mgd average daily flow. Construction has begun on an expansion project that will increase capacity to 7.5 mgd. The expansion is expected to be completed by the end of 2005. Current flows are averaging 5.3 mgd into the plant, which includes approximately 1.25 mgd from the City of Shafter. The City of Shafter has a purchased capacity of 2.0 mgd in the S/NOR WWTF. Shafter flows are projected to be approximately 2.0 mgd in the year 2025.

Once the expansion is completed, and capacity is at 7.5 mgd, there will be adequate capacity to handle the small flows projected for this proposed project (0.124 mgd, average daily flow).

The communities will need to purchase their own capacity from NOR to have the wastewater treated. The communities will also need to pay connection fees to the City of Shafter to discharge to the trunk sewer. These costs are discussed in Section 10.

6.7 Cost Estimate

6.7.1 Capital Costs

Table 3 shows the estimated costs for constructing the complete gravity flow collection system.

It should be noted that the local residents will have to pay an additional cost in order to abandon their existing systems and construct a private house lateral to connect to the new sewer. These costs are not included in the total project costs. The costs will be paid by the individual landowner at the time of connection. Costs for this work are estimated at \$850 to \$1500 per household (Appendix G). These costs are approximately \$320,000 to \$564,000 for all 376 connections.

6.7.2 Operations and Maintenance (O&M) Costs

O&M costs for this alternative include costs for occasional maintenance of the collection system and lift stations. The proposed system contains 6.5 miles of pipeline, 93 manholes, and 5 small lift stations. Occasionally blockages occur in sewer pipelines that must be cleared. Also, it can be expected that the lift stations will be out of service during a power outage on occasion.

Assuming 3 power outages per year for each lift station, and 2 call-outs for blockages, the total staff time needed to maintain the collection system would be 44 hours per month (assuming 2 persons per trip). Assuming an hourly cost of \$60/hour (including benefits), and \$5,000/year for materials, the total annual cost to maintain the system is estimated at \$31,400. It is assumed the Kern Sanitation District crews will service the areas (see Section 10). It is also assumed the Kern Sanitation Authority already possesses a truck with emergency standby generator for two lift stations, to provide power during temporary outages.

**Table 3 Estimated Construction Costs - Complete Gravity Flow Collection System
South Shafter Wastewater Feasibility Study
Self-Help Enterprises**

Item	Estimated Cost
Mobilization ⁽¹⁾	\$ 280,000
12 inch pipe (PVC)	345,000
8 inch pipe (PVC)	1,598,000
4 inch force main (PVC)	5,000
Bore and Jack (for 12 and 8 inch pipe)	180,000
Lift Stations (5)	175,000
Portable Generators (3)	90,000
Wye Connections	35,000
Manholes	364,000
Manholes with drop outlets	10,000
Pavement Resurfacing	52,000
Road Repair (ROW)	504,000
Easement Repair	64,000
Subtotal	\$3,702,000
Engineering, Legal, and Administrative (12 percent)	444,000
Subtotal	\$4,146,000
Estimating Contingency (15 percent)	622,000
Total Project Cost	\$4,768,000
Assuming 25 percent Loan	\$1,192,000

Handwritten notes:
 - \$84/mo/EDU (with arrow pointing to \$4,146,000 subtotal)
 - \$46/mo (with arrow pointing to \$1,192,000 loan amount)
 - \$37/mo (with arrow pointing to \$1,192,000 loan amount)
 - \$37,000 (written next to \$1,192,000 loan amount)

(1) Includes Clear and Grubb, Sheeting and Shoring.

O&M costs are expected to escalate at a rate of 3.0 percent annually. Assuming construction is completed and the collection system is in operation in the year 2007, the O&M costs for the first five years are estimated to be:

- Year 1 - \$34,000
- Year 2 - \$35,400
- Year 3 - \$36,800
- Year 4 - \$38,300
- Year 5 - \$39,800

Handwritten calculations:
 - \$8.85/mo/EDU on \$1,000,000
 - \$28/mo/EDU
 - \$37/mo/EDU
 - 10.1%
 - 1,708,000

7.0 ALTERNATIVE 2 – CONTINUED OPERATION OF INDIVIDUAL SEPTIC SYSTEMS (NO PROJECT)

7.1 Description

This alternative proposes to leave the existing septic systems to function under the current conditions and continue to allow the property owners to maintain their own system. This alternative would not require new construction. However, property owners have reported the deficiencies of the present septic tank systems, and 86 percent would prefer to abandon their systems and connect to a community sewer. This alternative would not address the concerns of many South Shafter area residents.

7.2 Environmental Impact

As discussed previously, failing septic systems can be a source of concern regarding public health issues. One possible concern is the surfacing of sewage due to plugged leach fields or seepage pits. Under saturated conditions, the sewage can follow the path of least resistance and end up on the ground surface where it can lead to health problems such as disease transmission. Secondly, disposal of gray water is occurring. This is a violation of public health regulations and should be discontinued.

7.3 Cost Estimate

The costs associated with this alternative consist only of continued operation and maintenance (O&M) and replacement of the individual septic systems.

Based on the pumping rates reported in the survey results, approximately 35 percent of the septic tanks are pumped more than two times in three years, and 65 percent are pumped once every three years. For the purpose of estimating costs, it is assumed that 35 percent of the systems are pumped once every three years. It is also assumed that the remaining systems (65 percent) are pumped once every 3 years.

Based on a pumping cost of \$212, provided by SHE, and 348 total units (occupied and vacant) the annual O&M costs would be approximately \$42,000.

Although a septic tank can easily last at least 20 years with proper maintenance, the tank's service life can be cut short by neglect. Replacement costs for a new septic tank plus a new leach field or seepage pit are estimated at \$4,500 (Appendix G). To replace all units would cost \$ 1.6 million in current prices. Prices will increase depending on how many years into the future septic tanks are replaced, and it is not known how many tanks would be replaced in any given year. All replacement costs as they are incurred in the future for this alternative would be in excess of the annual O&M costs.

8.0 ALTERNATIVE 2 – REPLACE ALL SEPTIC TANKS

8.1 Description

This alternative involves leaving all homes on septic tanks, but replacing the systems twice over the course of 40 years. This project assumes the first replacement would be at the onset of the planning period, and the second replacement would occur in 20 years. This alternative also assumes that funding will be obtained to finance both installations.

8.2 Environmental Impact

Replacing all of the septic tanks would lessen the potential environmental and public health impacts, as compared to Alternative 2, however, due to small lot sizes for a large number of the homes, there will still be potential threats to public health and the environment. The Kern County Environmental Health Services Department does not allow septic systems on lots smaller than 10,000 square feet.

8.3 Estimated Cost

Based on a cost of \$4,500 to install a septic system and disposal field, the cost to replace the systems in the first year would total \$ 1.6 million for 348 units. Assuming an interest rate and inflation rate of 4.5 percent, the total present worth to replace tanks two times, once in the first year and again in twentieth year would be \$3.2 million.

Additional O&M costs would be incurred for occasional pumping of the septic tanks. Pumping would be less frequent than in Alternative 1. O&M costs were not estimated for this alternative.

9.0 COMPARISON OF ALTERNATIVES

9.1 Advantages/Disadvantages

Alternative 1 is the most protective of the public health and the environment. Furthermore, this alternative would provide the majority of the members of the six communities with the type of wastewater disposal system that they prefer. Alternative 1 is the most expensive.

Alternative 2 does not provide a long-term solution to the wastewater disposal situation for the six communities. Furthermore, the alternative would do nothing to address the current inadequacies of the septic systems, and would do nothing to alleviate public health concerns for the possible contamination of groundwater, or the discharge of gray water to the surface. This does not comply with County Standards.

Alternative 3 would be an improvement over Alternative 2, but there would still be the potential for groundwater contamination and the discharge of gray water to the surface. This is because many of the lots are less than 10,000 square feet, and are thus too small to provide the adequate area for leach fields or seepage pits. Therefore, this alternative does not provide full compliance with the County standards for the protection of public health and the environment.

10.0 RECOMMENDED ALTERNATIVE

Alternative 1, construction of a complete collection system, is the recommended alternative.

10.1 Legal Authority

In order to apply for federal and state grants and loans the proposed areas to be sewered need to establish the legal authority to administer and maintain the collection systems. Although the establishment of the legal authority is beyond the scope of this report, a brief discussion on the likely process for establishing the legal authority has been documented.

The two methods requiring the least time and effort for establishing legal authority are: 1) Annexation into the City of Shafter, and 2) Establishment or expansion of a County Service Area.

Because the communities are relatively close to the City of Shafter, annexation into the City could be an options for the proposed sewered areas. Currently the City provides a water system to all the areas in the proposed project. Annexation into the City would automatically make the City of Shafter the legal authority. The City also has the administrative and field personnel capacity to administer and maintain the areas. However, there is currently no interest by the City in annexing the areas into the City. Therefore, this option has been ruled out for the proposed project.

10.1.1 County Service Area

A County Services Area (CSA) will be established for the proposed areas. The CSA will maintain the system and an assessment district would be used for lien recovery. The CSA will probably contract with the Kern Sanitation Authority for maintenance.

Kern County currently has the legal authority to administer and maintain a sewered area known as the Mexican Colony, which is a cluster of homes at the intersection of Burbank Street and Mannel Avenue, just west of Cherokee Strip and Burbank community (Figure 1). The CSA is known as CSA No. 23 and it was established in the early 1970s.

The process to expand the CSA No. 23 for the proposed areas in this project was briefly discussed with Kern County Staff. The process is much like an annexation in which legal

maps must be developed and submitted to the County for legal description, to LAFCO for formal boundary extensions and to the State Board. The fees to the County, LAFCO and State Board would total approximately \$7,000. Other costs include engineering fees to develop the necessary maps and prepare the legal descriptions of the areas to be sewered. This entire process requires six to twelve months to complete.

10.2 Project Costs

34,000

As shown in Table 3, the total project costs are \$4.8 million. As shown in Appendix H, O&M costs were assumed to be ~~\$25,000~~ initially and to escalate at a rate of 4.0 percent annually. Assuming the project is funded with a 75 percent grant and 25 percent loan combination, the loan becomes \$1,250,000 for the project. This amount includes the interest accumulated during the construction period.

The alternative will require users to purchase the capacity at the S/NOR WWTF, and to pay a connection fee for the pipeline costs. The cost to purchase treatment capacity will be \$1,677 per equivalent flow unit (EFU), which is defined as 330 gpd/unit. The connection fee cost, to cover costs to tie into Shafter's 30-inch diameter sewer will be \$176 per unit.

Table 4 summarizes the total buy-in costs for the residents, based on 348 occupied residents. The commercial establishments will be assessed a separate connection fee based on their EDUs, if they choose to tie into the system. Since the number of commercial establishments is so small, and flows are nominal, these fees are not included in the calculations.

Table 4 Regional WWTF and City of Shafter Trunk Line Buy-In Costs South Shafter Wastewater Feasibility Study Self-Help Enterprises		
	Cost per Connection	Total Buy-In Costs⁽¹⁾
S/NOR WWTF	\$1,677	\$583,596
City of Shafter Trunk Line	\$176	\$61,248
Total Buy-In	\$1,853	\$644,844
(1) Based on 348 Connections.		

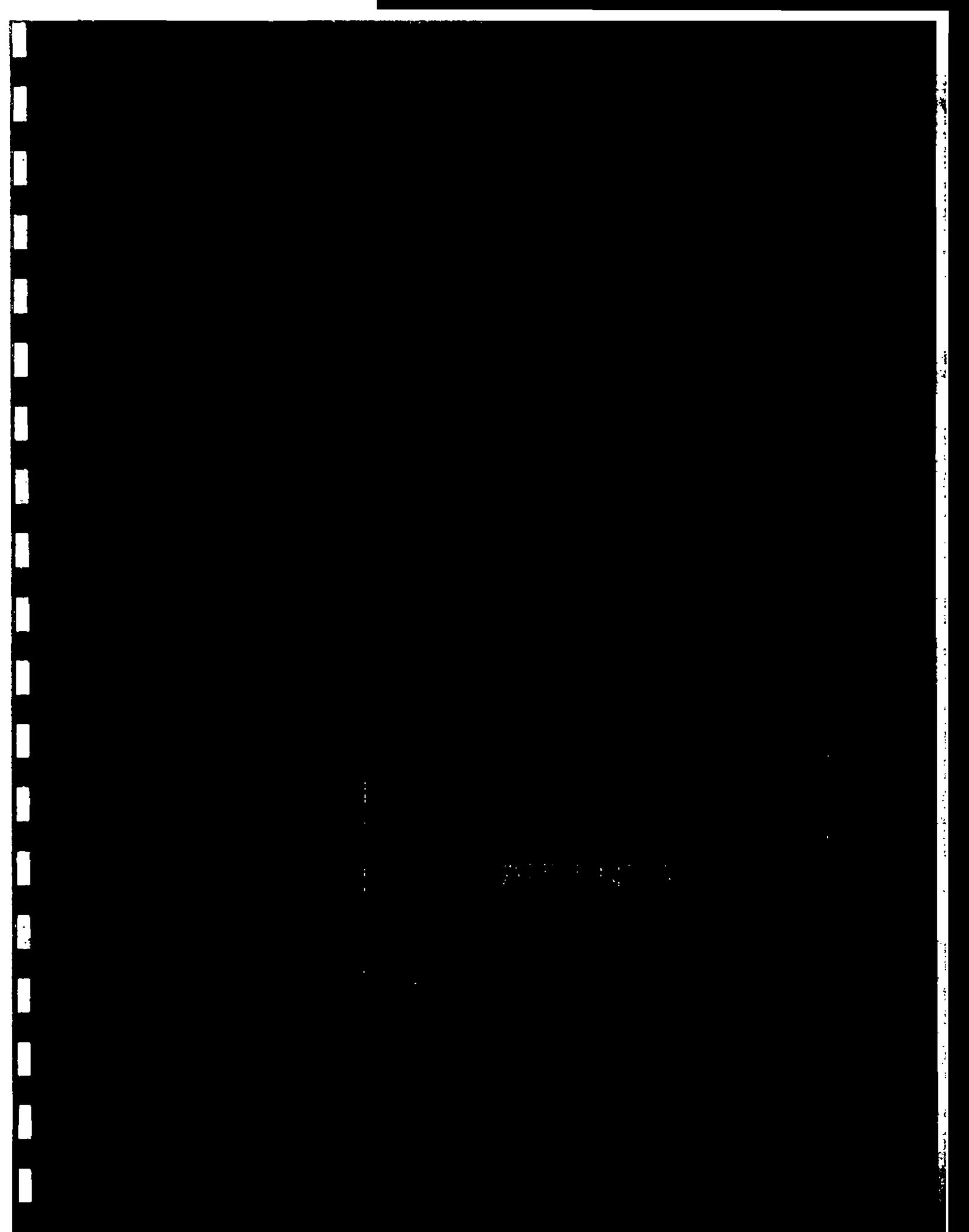
Table 5 summarizes the costs per residential connection. These include the infrastructure buy-in costs, costs to construct a sewer lateral and connect to the new sewer, and the average annual sewer bill. Sewer rate calculations are provided in Appendix H.

Table 5 Estimated Costs Per Residential Connection South Shafter Wastewater Feasibility Study Self-Help Enterprises	
	Cost per Connection
Infrastructure Buy-In Costs ⁽¹⁾	\$1,853
Connection to New Sewer ⁽²⁾	\$1,500
Annual Sewer Bill (40 year average)	\$379
(1) Buy-In costs for the NOR WWTF and City of Shafter trunk line in Shafter Avenue. (2) Construction cost for sewer lateral from the home to sewer lines in the streets. (3) Annual sewer bill based on a loan of 25 percent of the total project costs amortized over 40 years and annual operation and maintenance costs (see Appendix H).	

11.0 IMPLEMENTATION SCHEDULE

Table 6 presents the proposed implementation schedule for the project.

Table 6 Implementation Schedule South Shafter Wastewater Feasibility Study Self-Help Enterprises	
Date	Item
December 2004	Prepare Draft PER
December 2004	Submit Loan Application
December 2004	Public Hearing
February 2005	Begin CSA Expansion Process
March 2005	Final PER
April 2005	Complete Environmental Documents
May 2005	Public Hearing
October 2005	Begin Design
March 2006	Complete Design
June 2006	Start Construction
May 2007	Complete Construction



APPENDIX A - LETTER FROM CITY OF SHAFTER

APPENDIX B - LETTER FROM COUNTY OF KERN

**APPENDIX C - HISTORICAL RESOURCES INVENTORY -
THOMAS LANE COMMUNITY, 1994**

California
Archaeological
Inventory



FRESNO
KERN
KINGS
MAADERA
TULARE

Southern San Joaquin Valley
Information Center
California State University, Bakersfield
2001 Stockdale Highway
Bakersfield, California 93311-1099
805/664-2288 FAX 805/664-2413

To: John Guinn, Director (RS# 134)
RE: South Shafter Water Project-Thomas Lane Community
County: Kern
Map(s): Rio Bravo 7.5'

The Information Center is under contract to the State Office of Historic Preservation and is responsible for the local management of the California Historical Resources Inventories. The Center is funded solely by research fees, and a grant from the State Office of Historic Preservation. The Information Center does not conduct fieldwork and is not affiliated with any archaeological consultants who conduct fieldwork.

CULTURAL RESOURCES RECORDS SEARCH

The following are the results of a search of the cultural resources site record files at the Southern San Joaquin Valley Information Center. These files include known and recorded archaeological and historic sites, inventory and excavation reports filed with this office, and properties listed on the National Register of Historic Places, the California Historical Landmarks, and the California Inventory of Historic Resources.

The following summarizes the current information available on the subject property based on the records outlined above.

PRIOR CULTURAL RESOURCE INVENTORIES OF THE SUBJECT PROPERTY AND SURROUNDING AREAS

There have been no previous archaeological investigations on the subject property. However, there have been two surveys on the immediately adjacent property. No cultural resources were recorded as a result of this survey. There has been one survey conducted within a one mile radius of the project area, that also resulted in no new archaeological sites being found.

KNOWN CULTURAL RESOURCES ON THE SUBJECT PROPERTY

There are no recorded archaeological sites on the subject property, and the likelihood of resources being present on the surface is minimal due to the existing development.

(RS# 134)

KNOWN CULTURAL RESOURCES IN THE VICINITY OF THE PROJECT PROPERTY

There are no recorded archaeological sites on immediately adjacent property or within a one mile radius of the subject property. There are no listed historic properties on or adjacent to the project.

CULTURAL RESOURCE SENSITIVITY OF THE PROJECT PROPERTY

There is always the possibility that archaeological resources might be present, either on the surface or under the surface of any project area. However, given the fact that your project will be done completely in the existing County road right-of-ways, the overall sensitivity is not known. You do not indicate what actual impact will result from the abandonment of the existing water wells. If there is no construction or excavating, then no further investigation is necessary. Very little systematic archaeological work has been done in this vicinity prior to development, so consequently very little is known about the area to predict where resources might or might not be located or to determine the archaeological sensitivity of any specific property.

RECOMMENDATIONS

No further archaeological work is recommended at this time. However, during construction of the pipeline, if any cultural materials are unearthed, all work must halt until a qualified archaeologist can be called in to evaluate the findings and make appropriate recommendations regarding mitigation, sensitivity and significance. If any bones are unearthed, all work must halt. The County Coroner must be called in to collect the remains. He then has 48 hours to determine whether the bones are human and determine if they are Native American or of other ethnic origin. He would then take the necessary steps as required by law. Construction workers and/or equipment operators are not to remove human remains under any circumstances-this is the Coroner's responsibility.

Please let us know if we may be of further assistance.

By:



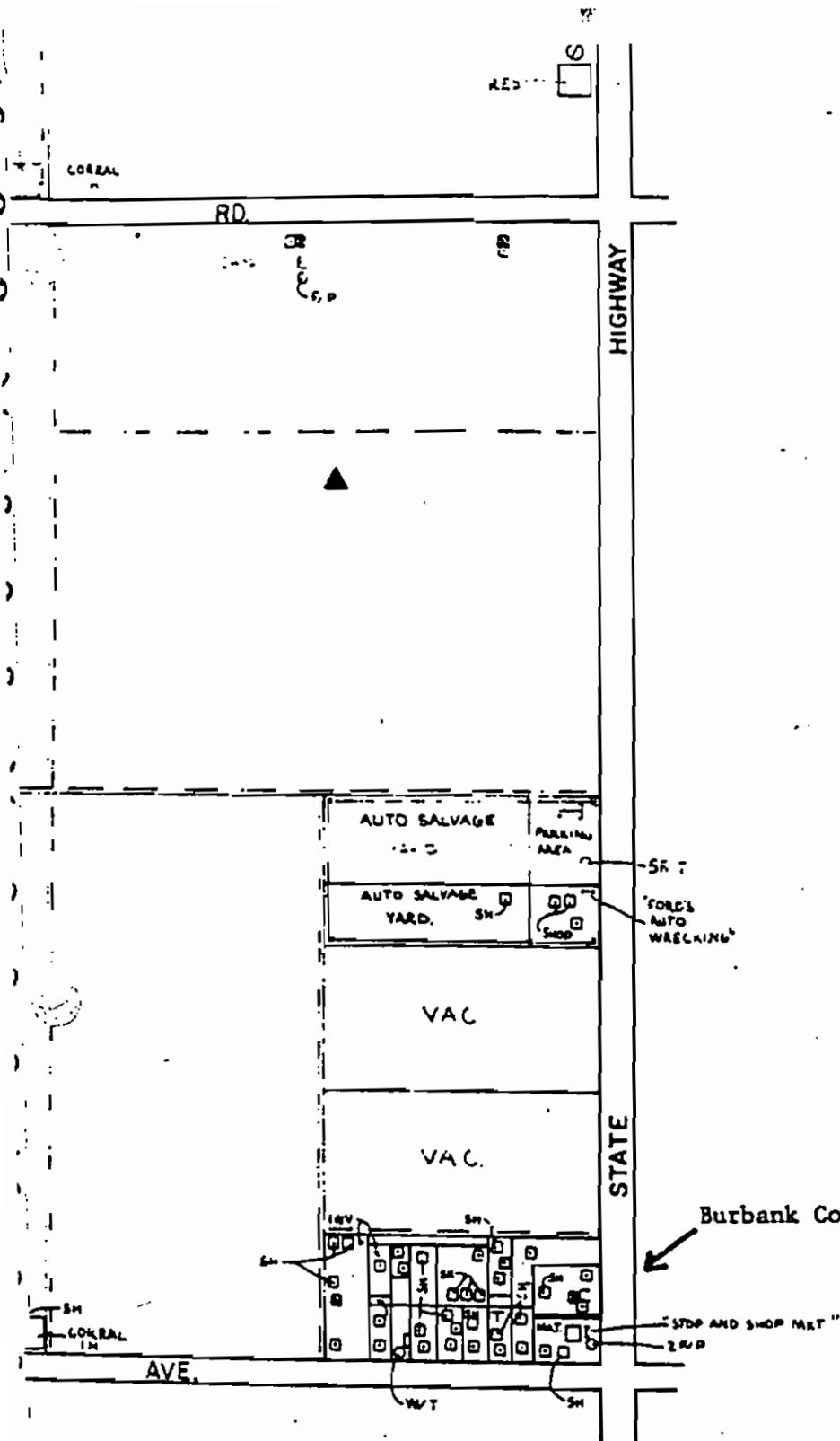
Adele Baldwin
Staff Archaeologist II

Date: May 31, 1994

Fee: \$90.00/hr. fee

Invoice #: 5548

APPENDIX D - LAND USE MAPS



1" = 40'

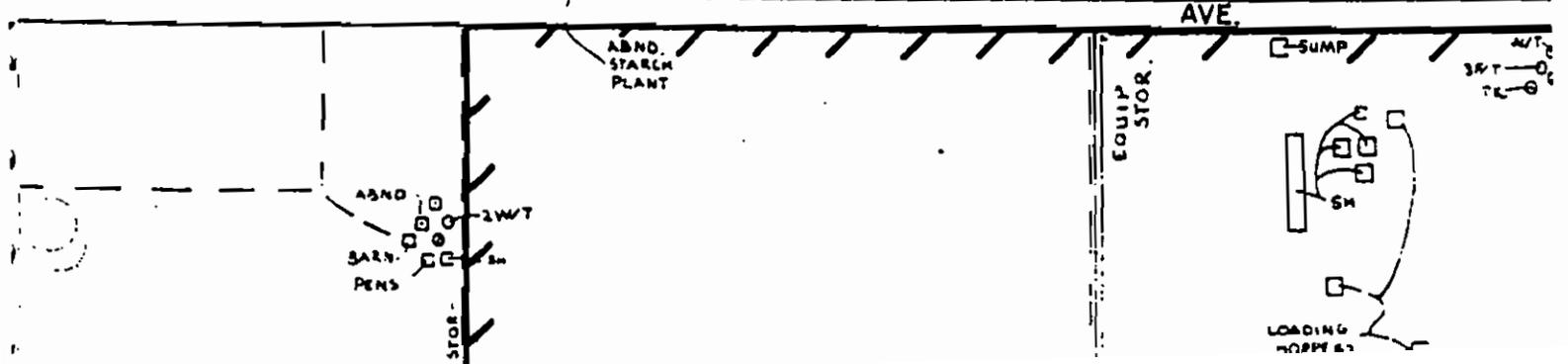
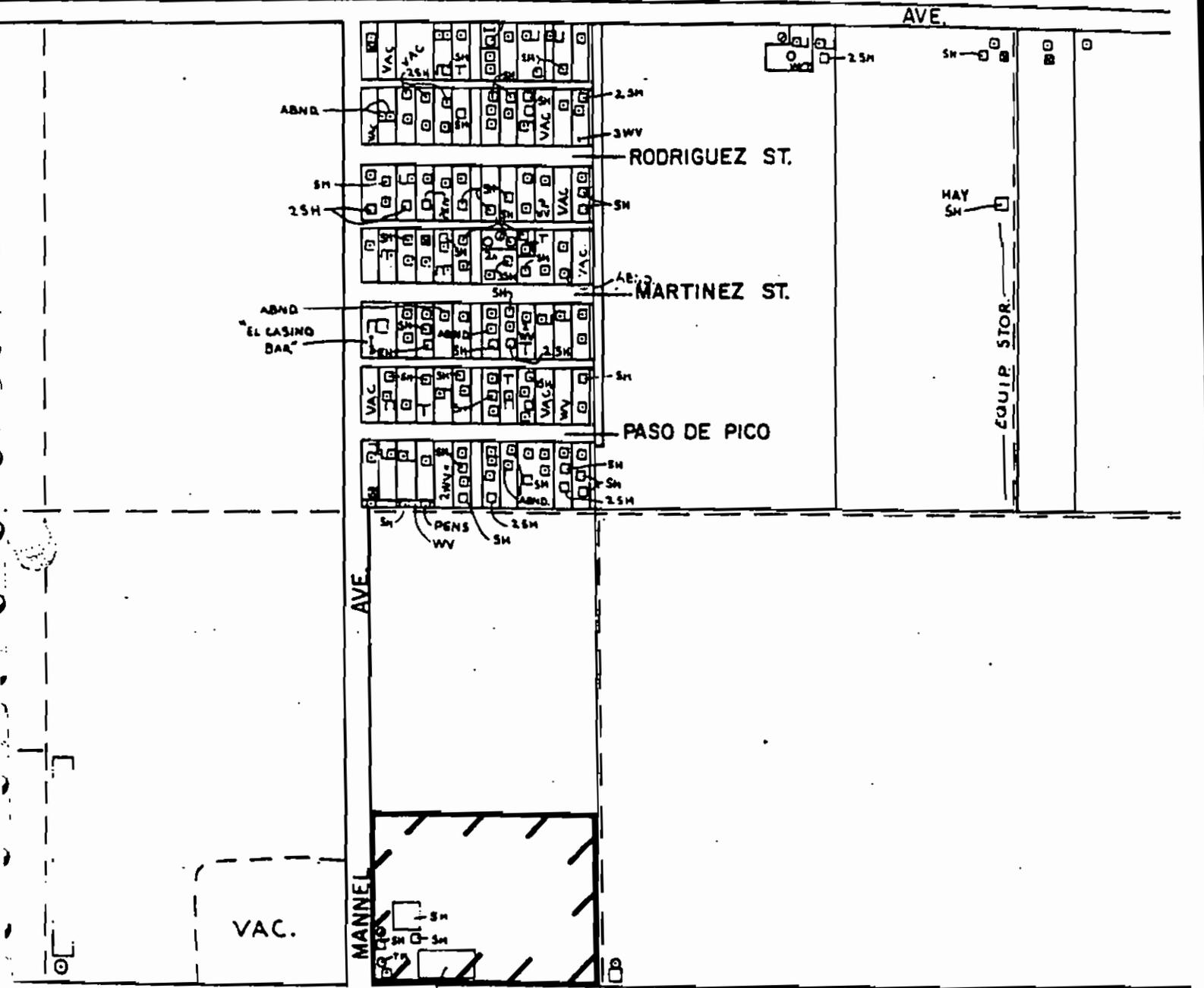


BASE MAP PREPARED BY: P.D.P. 7/7
 LAND USE MAP PREPARED BY: P.D.P. 7/7

KERN COUNTY PLANNING

Mexican Colony

ABNO. PLAN



RIVERSIDE

SH
W/T

AVE.

"PARKER'S
AUTO
WRECKING"

AUTO
SAVAGE
YARD.

"50 CHAPTER AVE.
"RED" ABND"

"HYUNDA CAL
LEARN GOOD"

Smith's Corner

PENS

SH

SH

35A

ABND.
MLT.

ORANGE

ALMAE'S
TAVERN
ABND.
MLT.

ABND
SH

CORRAL 1A
SH

VAC.

SH

SH
SHOP

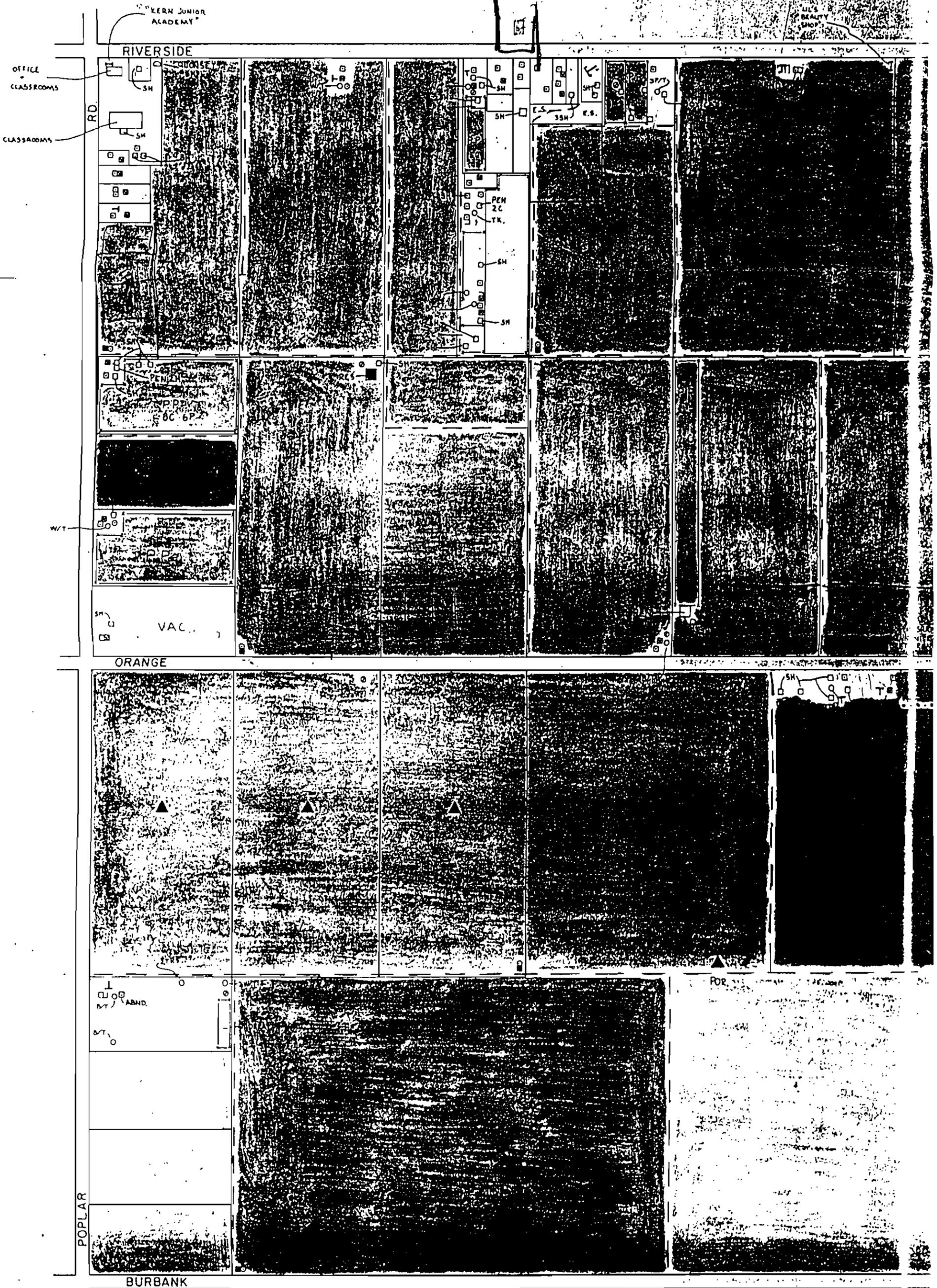
SH
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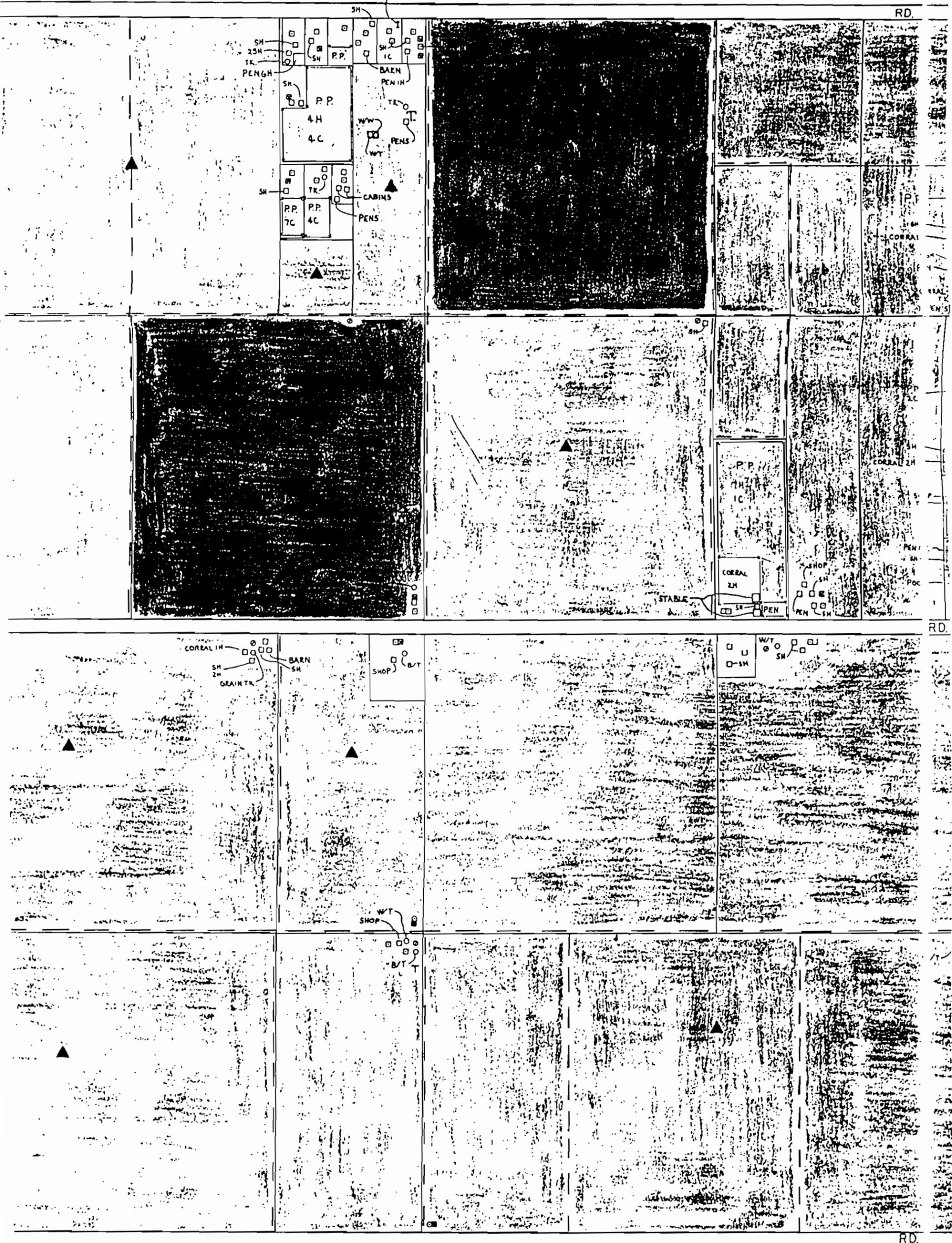
Riverside & Poplar



8/25 LUM # 29 21

RIVERSIDE RD.

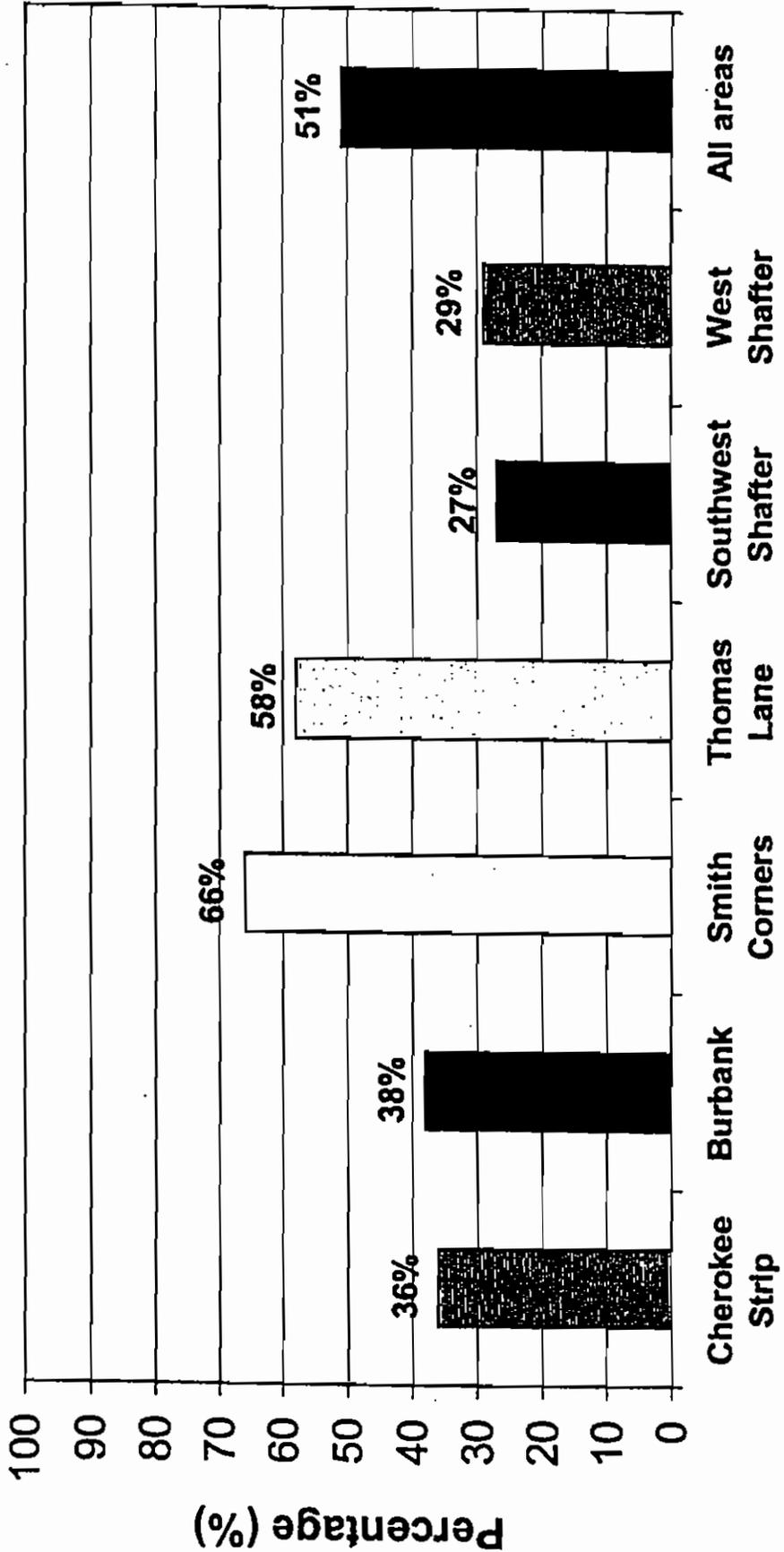
"VERLINE'S HOBBY SHOP"



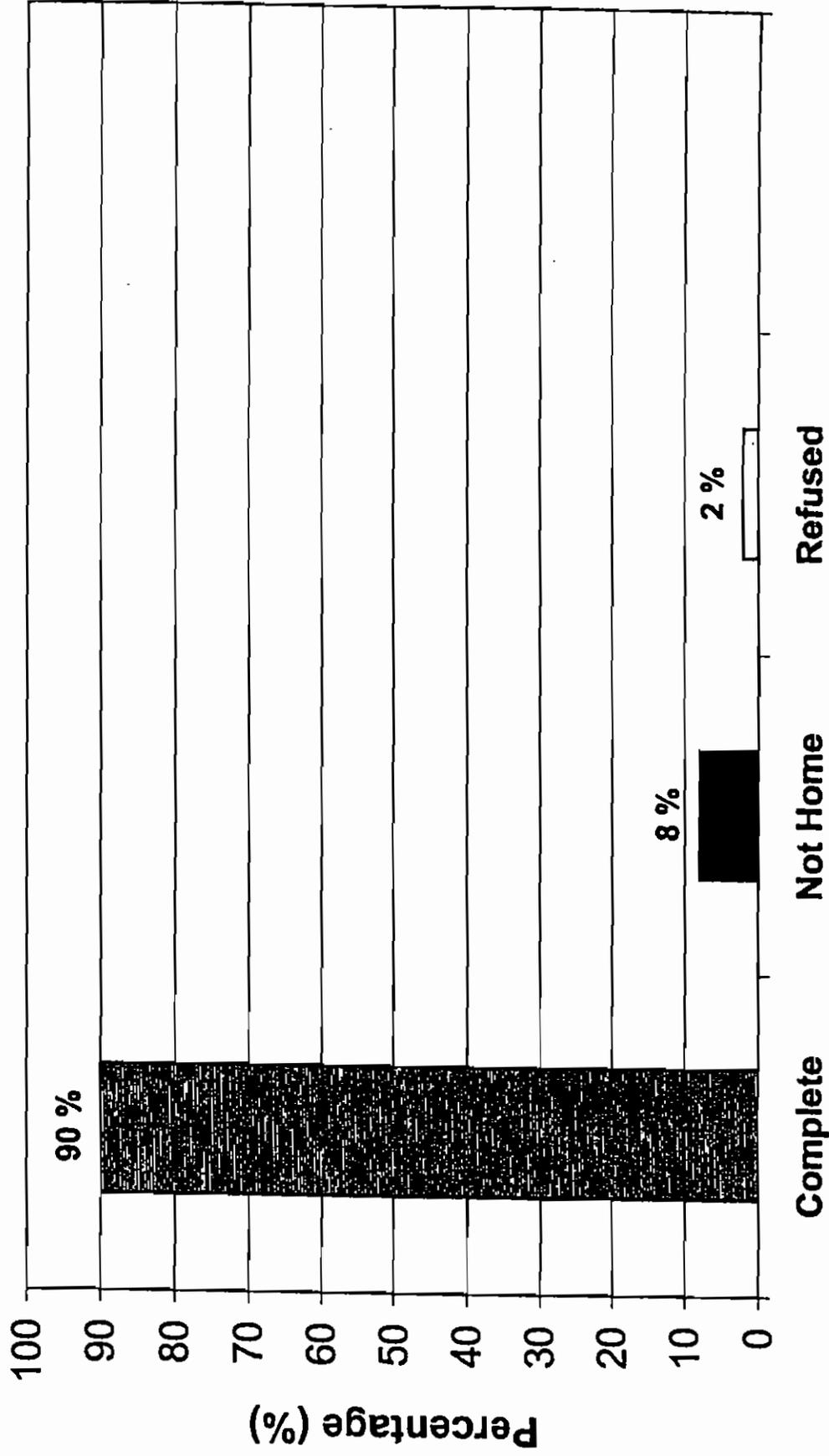
SECTION IS
IVE"

APPENDIX E - SEPTIC SYSTEM SURVEY RESULTS

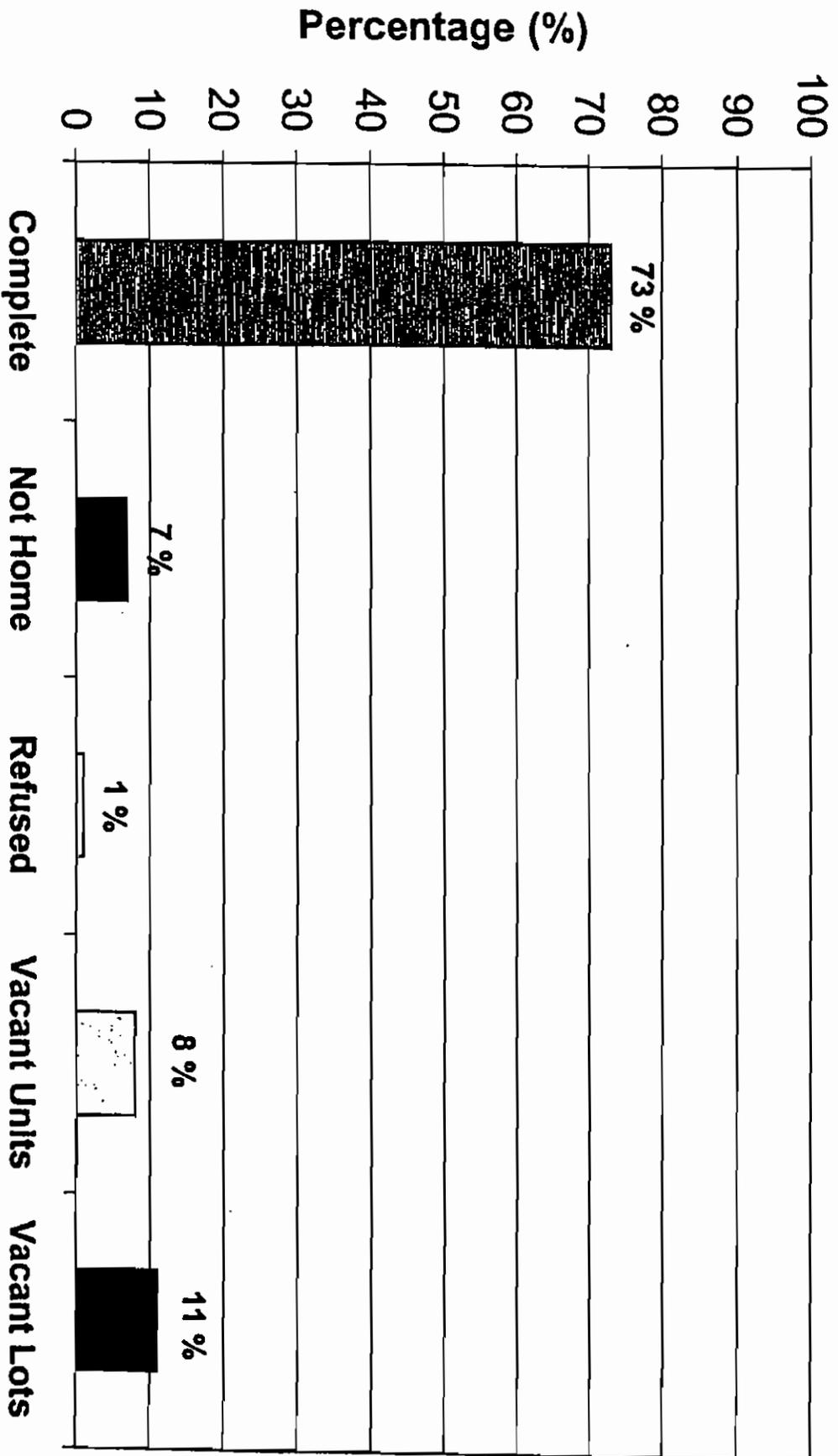
Percentage of Septic Systems Disposing Gray Water into the Yard / Porcentaje de los Sistemas Sépticos que Descargan Agua Gris en el Patio



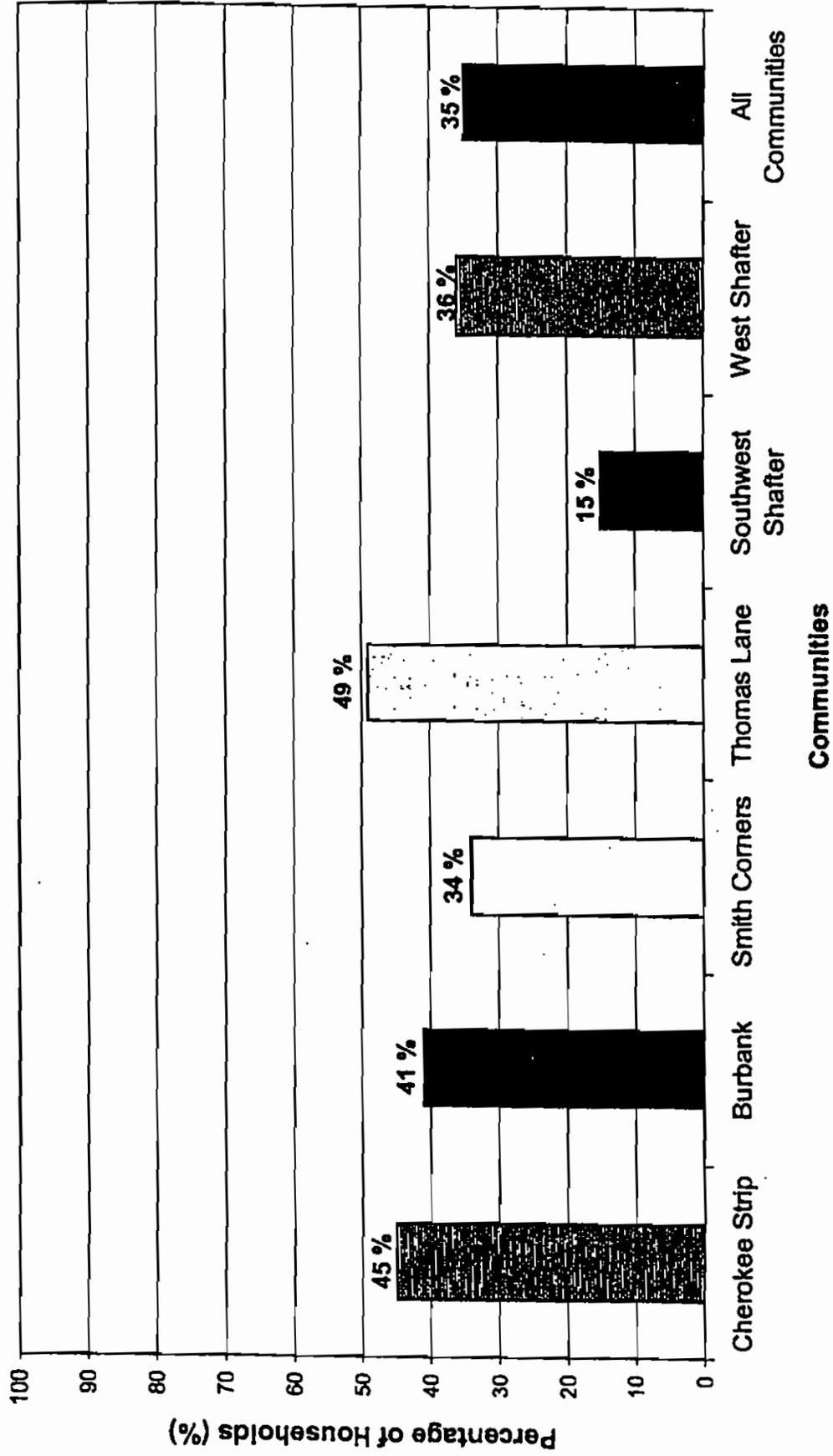
Occupied System Survey Response



Survey Results



Percentage of Septic Systems Pumping Septic Tanks Two or More Times in Three Years



APPENDIX F - HYDRAULIC CALCULATIONS

**Beech Avenue and Cherokee Strip
Preliminary Design**

Ground Elevations are Estimates

Alignment	Length (ft)	Pipe Diam (in)	Slope	Downstream Elevs		Upstream Elevs	
				Ground	Invert	Ground	Invert
Burbank, A to B	2000	8	0.003	330	320.75 existing pipe invert	332	327
Beech Ave, E to D	385	8	0.0025	332	324.8 drop outlet into E	332	325.75
Easement, D to C	500	8	0.0025	332	325.75	332	327
Beech Ave, E to F	2641	8	0.0025	332	314.4	327	321
San Diego St., F to G	400	8	0.0025	327	321	327	322
Total pipe length (ft)	5926						

Lift Station at Point E. Invert = 314.4. Receive flows from D and F. Pumps flows into B.

Flows into lift station at Point E:

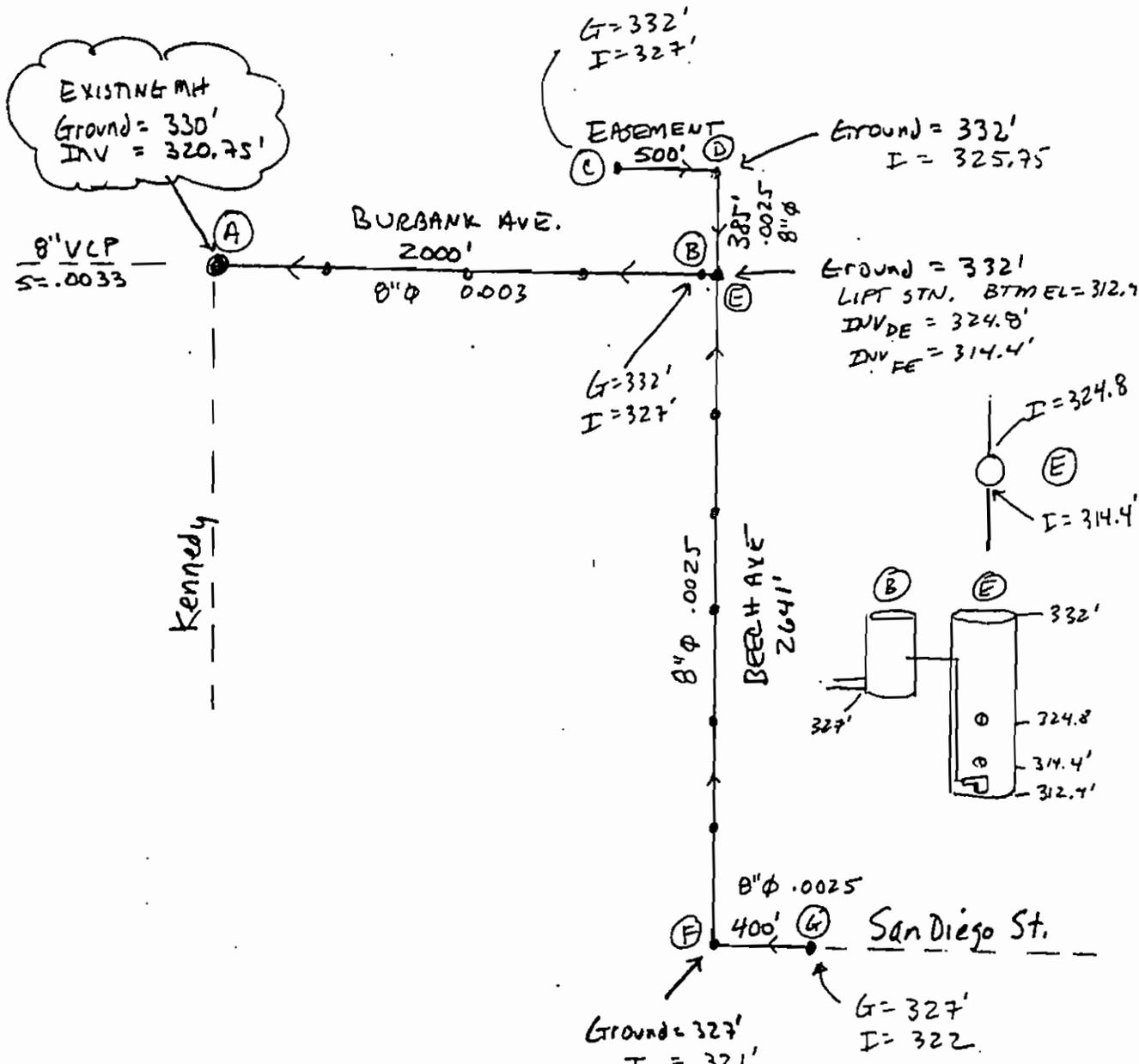
From Cherokee Strip, $Q_{peak} = 24,354$ gpd.

From Burbank, $Q_{peak} = 10,000$ gpd. (assume half of total Burbank flow)

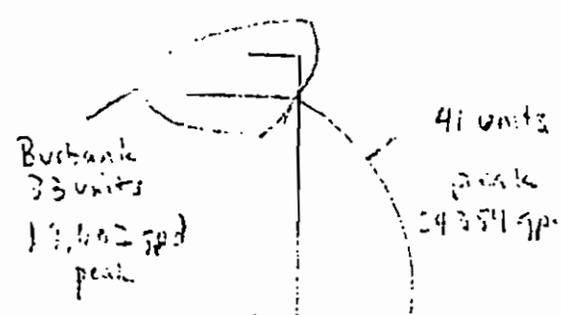
Total Flow = 34,354 gpd (estimate)

Total flow is less than criteria which requires Q to not exceed d/D of 0.7, and $Q_{0.7} = 320,000$ gpd.

BY PC DATE 9-27-04 SUBJECT BURBANK + SHEET NO. OF
 CHKD. BY DATE CHEROKEE STRIP JOB NO.



- All pipes 8" φ
- min cover = 4'
- # manholes = 13
- ▲ # lift stns = 1
- all slopes ≥ .0025



Smith Corner
Preliminary Design

Ground Elevations are estimated

Alignment	Length (ft)	Pipe Diam (in)	Slope	Downstream Elevs		Upstream Elevs	
				Ground	Invert	Ground	Invert
Shafter Ave, C to B1	1273	8	0.0025	329	320.82	330	324
Side Road E1 to D	100	8	0.0025	329	321.6	329	321.85
Side Road E2 to D	100	8	0.0025	329	321.6	329	321.85
Side Road D to B1	310	8	0.0025	329	320.82	329	321.6
Shafter Ave, B1 to B2	217	8	0.0025	328.5	320.28	328.5	320.82
Easement B3 to B2	800	8	0.0025	328	320.28	327	322.28
Shafter Ave. B2 to A2	250	8	0.0025	328	319.65	328	320.28
					A2 = lift stn		
Easement S1 to S3	220	8	0.0025	329	323.75	329	324.3
Easement S2 to S3	125	8	0.0025	329	323.75	329	324.06
Easement S3 to T	307	8	0.0025	328.5	323.3	329	323.75
	Pipeline to cross over existing pipelines under Shafter Ave, then drop down into manhole at Station 19 + 55 w/ invert. 312.57.						
Easement P to Q	420	8	0.0025	328.5	322.3	328.5	323.35
Richland Ave, R1 to R2	269	8	0.0025	328.5	323.13	328.5	323.8
Richland Ave, R2 to R3	310	8	0.0025	328.5	322.35	328.5	323.13
Orange Avenue, F to H	782	8	0.0025	327	318.9	327.5	320.88
Easement G to H	380	8	0.0025	327.5	318.9	327	319.85
Orange Ave, H to K	279	8	0.0025	327.5	318.2	327.5	318.9
Richland Ave, I to J	789	8	0.0025	328.5	320.05	328	322.02
Easement, J to K	740	8	0.0025	327.5	318.2	328.5	320.05
					K = lift stn		
Orange Ave, O1 to O2	269	8	0.0025	327.5	322.02	327.5	322.69
Smith Lane, M2 to O2	330	8	0.0025	327.5	322.02	328	323.05
Orange Ave, O2 to A1	310	8	0.0025	328	321.24	327.5	322.02
Smith Lane L to M1	330	8	0.0025	328	322.64	328.5	323.46
Alley M1 to N	310	8	0.0025	328.5	321.86	328	322.64
Total pipeline length	8590						

Lift Station @ Point A2. Invert = 319.65. Receive flows from Orange Ave., e/o Shafter Ave. Pump flows into ____ inch force main to discharge into manhole along Shafter Ave. Trunk, @ Stn 26 + 40, w/ invert = 320.54.
Flows into Lift Stn = 53,000 gpd (Qpeak) (assume 1/2 of total flows from Smith Corner).

Lift Station @ Point K. Invert = 318.2. Receives flows from Orange Ave, west of K, and from Richland Ave, from Points I-J-K. Pump into manhole @ Point O1, w/ invert = 322.69.
Flows into Lift Stn = 27,000 gpd (Qpeak) (assume 1/4 of total flows from Smith Corner).

Total flow at either lift station is less than criteria that requires Q not to exceed d/D of 0.7, and Q_{0.7} = 320,000 gpd.

JOHN CAROLLO ENGINEERS

BY PC DATE 10-04-04 SUBJECT SMITH CORNER SHEET NO. 1 OF 1

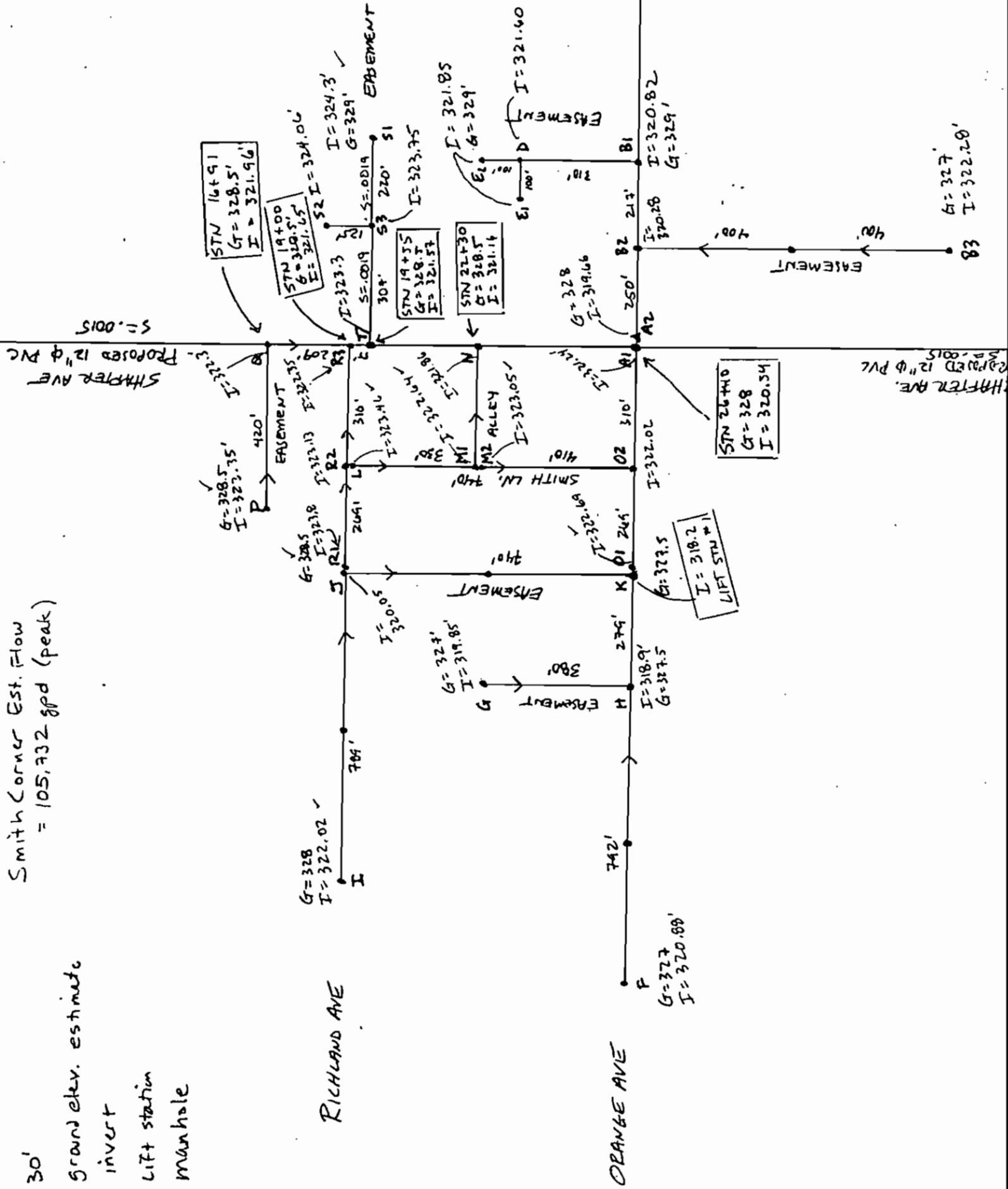
CHKD. BY _____ DATE _____ PRELIMINARY DESIGN JOB NO. 7012-ADD

PRELIMINARY DESIGN

Smith Corner Est. Flow
= 105,732 gpd (peak)

- 1" = 30'
- G = ground elev. estimate
- I = invert
- ▲ = lift station
- = manhole

12" ϕ PIPE - ALL SLOPES = .0015
 8" ϕ PIPE - ALL SLOPES = .0025 UNLESS NOTED OTHERWISE
 ALL PIPES = 8" ϕ EXCEPT SHAFER AVE. TRUNK, WHICH IS 12" ϕ
 MINIMUM COVER = 4'
 # manholes = 28 (on 8" ϕ PIPELINES)
 # Lift Stns = 2



**Riverside Avenue Communities - W. Shafter, SW Shafter, and Thomas Lane
Preliminary Design**

Ground elevations are estimated.

Alignment	Length (ft)	Pipe Diam (In)	Slope	Downstream Elevs		Upstream Elevs	
				Ground	Invert	Ground	Invert
Road A' to A	250	8	0.0025	325	319	325	319.63
Riverside A to B	3800	8	0.0025	328	309.5	325	319
					B = lift stn		
Orange C to D	360	8	0.0025	325	319.1	325	320
Poplar D to B	2700	8	0.0025	328	312.35	325	319.1
					drop outlet into B		
Riverside E to G	1700	8	0.0025	330	318.75	328	323
Myrick F to G	650	8	0.0025	330	318.75	330	320.38
Riverside G to H	2000	8	0.0025	330	313.75	330	318.75
Thomas Lane I to H	1287	8	0.0025	330	322.78	331	326
					drop outlet into H		
Riverside H to J	1200	8	0.0025	331	310.75	330	313.75
					J = lift stn		
Riverside K to L	600	8	0.0025	332	325.2	331	326.33
					L discharge into manhole for 12 inch trunk		
Total pipe length (ft)	14547						

Lift Station at Point B. Invert = 309.5, ground elev. = 328. Receives flows from A and D. Pumps flows into E.

Lift Station at Point J. Invert = 310.75 ground elev. = 331. Receives flows from H. Pumps flows into K.

Flows into lift station at Point B = flows from W. Shafter. $Q_{peak} = 7,128$ gpd.

Flows into lift station at Point J = flows from W. Shafter, SW Shafter, and Thomas Lane.

Total peak flow = 73,656 gpd.

Total peak flow into Shafter trunk at Point L = 72,656 gpd.

Total flow is less than criteria which requires Q to not exceed d/D of 0.7, and $Q_{0.7} = 320,000$ gpd.

JOHN CAROLLO ENGINEERS

Riverside Ave. Communities

BY PC DATE 10-04-04 SUBJECT West Shafter, SW SHEET NO. 1 OF 1

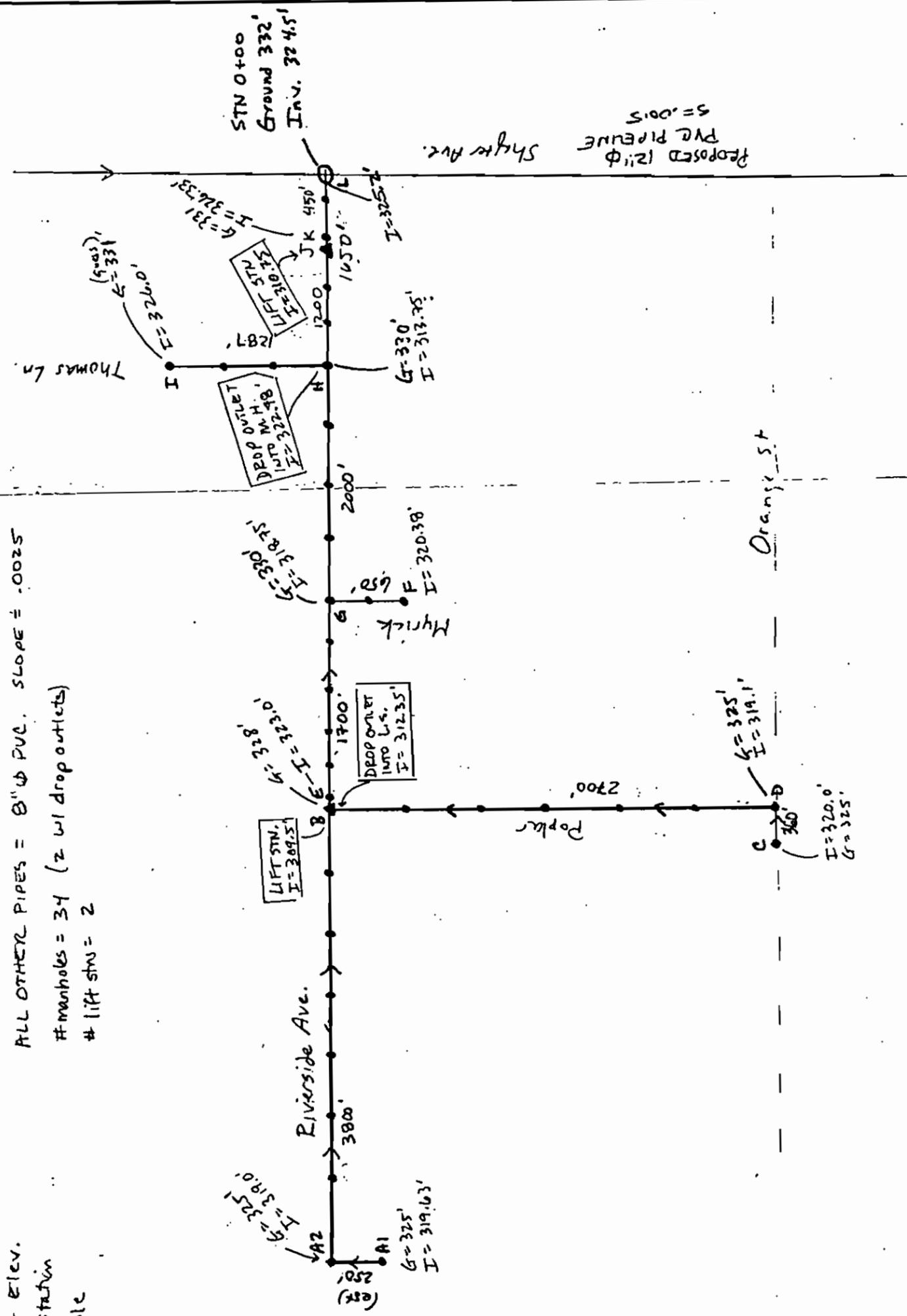
CHKD. BY DATE Shafter + Thomas Ln. JOB NO. 7012A00

PRELIMINARY DESIGN

SHAFTER AVE: PROPOSED TRUNK = 12" Ø PVC. SLOPE = .0015
 ALL OTHER PIPES = 8" Ø PVC. SLOPE = .0025
 # manholes = 34 (2 w/ drop outlets)
 # lift stns = 2

G = Ground Elev. est.
 I = Invert Elev.
 ▲ = Lift station
 ● = Manhole

Location	Flow (gpd)
Thomas Ln	27,518
SW Shafter	38,610
W Shafter	7,128
Total	73,656



SCALE 1" = 100'

**APPENDIX G - SEWER CONNECTION, LEACHFIELD,
CESSPOOL COST ESTIMATES**

South Shafter Sewer Connection, Leachfield and Cesspool Cost Estimates*

	Abandon Septic Tank & Connect to Sewer	New Leachfield	New Cesspool	New Septic Tank, with Cesspool or Leachfield
	Abandonar Tanque Septico y conectar al Sistema de Albanal	Nueva Linea de Filtracion	Nueva Poso de Filtracion	Nueva Tanque Septico con Nueva Poso de Filtracion o Nueva Linea de Filtracion
Contractor # 1	\$850	\$2,500	\$2,500	\$4,500
Contractor # 2	\$1,500	\$1,600 to \$1,800	\$1,600 to \$1,800	
Thomas Lane (actual bill)			\$1,600	
Poplar Ave (actual bill)		\$2,225		
Price Range*	\$850 to \$1,500	\$1,600 to \$2,500	\$1,600 to \$2,500	\$4,500

* Costs will be different because of location and number of septic tank/cesspools, sewer connection location, difficulty of construction and access that will change with each house.

** Los costos seran diferentes por causa o motivo de localidad y cantidad de tanques septicos/posos de filtracion, sitios de conexcion de albañal, dificultad de construccion y acceso que cambiara con cada casa.

** These costs for connecting to a community sewer assume connecting other area homes to the sewer at about the same time.

** Estos costos tocante conectando a una sistema de albañal de la comunidad toma en cuenta conectando hogares de otros areas al sistema de albañal casi al mismo tiempo.

These cost estimates were obtained by South Shafter Projects Committee members .

Estos presupuestos de costos fueron obtenidos por miembros del Comite de Proyectos de Sur de Shafter.

APPENDIX H - ESTIMATED SEWER RATES

**SW Shafter Sewer Study
40 - Year Cost Recovery**

Loan Amount	\$1,254,000	
O&M Costs	\$34,000	
Interest Rate on Loan	4.5%	
Inflation	3.0%	
Payback Period	40	years
Total No. of EDU	348	

Year	Debt.	Inflated O&M	Total	Cost/EDU
1	\$67,650	\$34,000	\$101,651	\$292
2	\$67,650	\$35,020	\$102,672	\$295
3	\$67,650	\$36,071	\$103,724	\$298
4	\$67,650	\$37,153	\$104,807	\$301
5	\$67,650	\$38,267	\$105,923	\$304
6	\$67,650	\$39,415	\$107,072	\$308
7	\$67,650	\$40,598	\$108,255	\$311
8	\$67,650	\$41,816	\$109,474	\$315
9	\$67,650	\$43,070	\$110,729	\$318
10	\$67,650	\$44,362	\$112,023	\$322
11	\$67,650	\$45,693	\$113,354	\$326
12	\$67,650	\$47,064	\$114,726	\$330
13	\$67,650	\$48,476	\$116,139	\$334
14	\$67,650	\$49,930	\$117,594	\$338
15	\$67,650	\$51,428	\$119,093	\$342
16	\$67,650	\$52,971	\$120,637	\$347
17	\$67,650	\$54,560	\$122,227	\$351
18	\$67,650	\$56,197	\$123,865	\$356
19	\$67,650	\$57,883	\$125,552	\$381
20	\$67,650	\$59,619	\$127,289	\$366
21	\$67,650	\$61,408	\$129,079	\$371
22	\$67,650	\$63,250	\$130,922	\$376
23	\$67,650	\$65,148	\$132,821	\$382
24	\$67,650	\$67,102	\$134,776	\$387
25	\$67,650	\$69,115	\$136,790	\$393
26	\$67,650	\$71,188	\$138,865	\$399
27	\$67,650	\$73,324	\$141,001	\$405
28	\$67,650	\$75,524	\$143,202	\$412
29	\$67,650	\$77,790	\$145,469	\$418
30	\$67,650	\$80,123	\$147,803	\$425
31	\$67,650	\$82,527	\$150,208	\$432
32	\$67,650	\$85,003	\$152,685	\$439
33	\$67,650	\$87,553	\$155,236	\$446
34	\$67,650	\$90,179	\$157,864	\$454
35	\$67,650	\$92,885	\$160,570	\$461
36	\$67,650	\$95,671	\$163,358	\$469
37	\$67,650	\$98,541	\$166,229	\$478
38	\$67,650	\$101,498	\$169,186	\$486
39	\$67,650	\$104,543	\$172,232	\$495
40	\$67,650	\$107,679	\$175,369	\$504

Average \$379



ENVIRONMENTAL HEALTH SERVICES DEPARTMENT

STEVE McCALLEY, R.E.H.S., Director

2700 "M" STREET, SUITE 300
BAKERSFIELD, CA 93301-2370
Voice: (661) 862-8700
Fax: (661) 862-8701
TTY Relay: (800) 735-2929
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RESOURCE MANAGEMENT AGENCY

DAVID PRICE III, RMA DIRECTOR

Community and Economic Development Department
Engineering & Survey Services Department
Environmental Health Services Department
Planning Department
Roads Department

May 10, 2005

Mr. Doug Patteson, Senior WRC Engineer
Central Valley Regional Water Quality Control Board
Fresno Office (5F)
1685 "E" Street
Fresno, CA 93706

SUBJECT: SOUTH SHAFTER SEPTIC SYSTEM PROBLEMS

Dear Mr. Patteson:

This Department has reviewed the results of the Septic Tank Performance survey conducted by the South Shafter Projects Committee and Self-Help Enterprises. As you are aware, this community is not served by a community sewer system and is therefore served by about 345 septic systems. Responses were received from 282 (90%) of the 313 occupied systems.

Survey results show that 35% of the systems had their septic tanks pumped two or more times in the last three years and 64% of the systems had their septic tanks pumped once or more in the past three years. These pumping rates are higher than the normal pumping frequency of once every three to five years and suggest that the systems are in a failing state. Fifty-one percent of those surveyed indicated that they are running laundry and kitchen grey-water onto their yards to keep from overloading their septic systems. This above ground disposal of grey-water is a violation of law and contrary to good health practice.

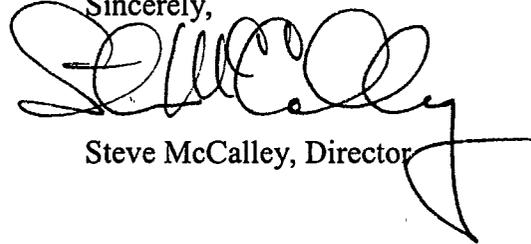
A 1997 water system survey found that 30% of the area's domestic wells had levels of Nitrates in violation of drinking water standards and 48% of wells had elevated nitrate levels between 23 ppm and 45 ppm. The use of septic tank systems has been shown to be a potential contributor to these levels.

The failing septic systems and above ground grey water disposal increases the possibility of groundwater contamination and creates a potential pollution and public health problem. This department supports a community sewer system to mitigate these issues.

Page Two
May 10, 2005

The Kern County Engineering and Survey Services Department is actively seeking Project funding to plan, design, construct, and connect the area to a regional wastewater treatment.

If you have any questions or need additional information, contact me at (661) 862-8717.

Sincerely,

Steve McCalley, Director

SMc:jg

cc: Jim Marshall, State Water Resources Control Board
Jon McQuiston, Supervisor, Kern County Board of Supervisors
Juanita Gracia & Juana Ruelas, South Shafter Projects Committee
Chuck Lackey, Kern County Engineering & Survey Services
Dave Warner, Self-Help Enterprises