LOWER TULE RIVER IRRIGATION DISTRICT

Riparian Area Distribution System

PHASE II

Tulare County, CA

Application Submitted to

United States Bureau of Reclamation

For A

WaterSMART Water and Energy Use Efficiency Grant

for FY 2017

(Funding Opportunity Announcement No. BOR-DO-17-F012)

Lower Tule River Irrigation District

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January 18, 2017

LOWER TULE RIVER IRRIGATION DISTRICT

RIPARIAN AREA DISTRIBUTION SYSTEM

Table of Contents

Tables

Figures

ATTACHMENTS

A. LTRID Riparian Pipeline Service Area
B. Riparian Area Distribution System – Phase 2 Detailed Project Schedule
C. DCTRA Member Agencies
D. Spring 2015 Depth to Groundwater
E. Spring 2015 Groundwater Elevations
F. Fall 2015 Depth to Groundwater
G. Fall 2015 Groundwater Elevations
H. Spring 2016 Depth to Groundwater
I. Spring 2016 Groundwater Elevation
J. CEQA Notice of Determination

LOWER TULE RIVER IRRIGATION DISTRICT

RIPARIAN AREA DISTRIBUTION SYSTEM
Technical Proposal and Evaluation Criteria

I. Executive Summary

A. General Project Information

Proposal Name: LTRID Riparian Area Distribution System
Date: January 18, 2017
Applicant Name: Lower Tule River Irrigation District
City, County, State: City of Tipton, Tulare County, California

B. Project Summary

The Lower Tule River Irrigation District (*LTRID or District*) Riparian Area Distribution System project is principally a Criterion A project (*Water Conservation*) and secondarily a Criterion C project (*Energy-Water Nexus).* The project also includes components of Criterion B (Water Sustainability Benefits). The definitive purpose of this project is to:

- Replace an open channel distribution system with a pipeline distribution system to conserve water lost through seepage. Approximately 5,750 acres within LTRID are currently being served surface water through the existing open channels of the Tule River. The Tule River is a natural waterway that has significant seepage. The proposed project will relocate the distribution system from the Tule River channel to a pipeline distribution system.
- Provide in-lieu recharge (*offset groundwater pumping*) by providing surface water previously lost to seepage to the LTRID landowners in the Riparian Area covering approximately 5,750 acres.
- Maintain the existing Tule River natural channels in place for environmental and wildlife habitat and utilize as groundwater recharge “basins”. Surface water available during wet years as flood flows from Success and Millerton reservoirs shall be conveyed down the existing river channel as a means of groundwater recharge in the project area.

The District has separated the Project, which is not located on a Federal facility, into two (2) phases to distribute surface water to the Riparian lands as identified on **Attachment A: LTRID Pipeline Service Area**. Phase 1 is currently underway and includes the installation of 5.4 miles of new pipeline serving 2,200 acres. Funding has been secured for Phase 1 and the District is preparing the engineering design and easement acquisition portion of the project. Construction for the Phase 1 pipeline is scheduled to begin during the Spring of 2017.

This grant application for funding is solely for the Phase 2 portion of the project, which includes the installation of an additional 5.9 miles of new pipeline replacing the Tule River channels distribution system, serving approximately 3,550 acres summarized below:

PHASE 2:

- Lateral B – Construct Turnout in Tule River North Branch at Road 148 with 2.3 miles of new pipeline.
- Lateral C – Construct Turnout in Tule River North Branch at Road 136 and install 3.6 miles of new pipeline.

The proposed schedule to complete Phase 2 is identified in **Table 1: Project Schedule – Phase 2**. A detailed project schedule is included in **Attachment B: Riparian Area Distribution System – Phase 2 Detailed Project Schedule**.

Table 1: Project Schedule – Phase 2[1]

Item	Estimated Time to Complete
Feasibility Study / Initial Study / Environmental Assessment	*Completed*
Environmental Permitting	4 months
Surveying – Topographic Survey, Property Research/Easements/Right of Way Acquisition	8 months
Engineering - Plans, Specifications, and Estimates	8 months
Bidding	2 months
Initial Construction Staking	1 month
Construction Mobilization	1 month
Project Construction	9 months
Total Duration of Phase 2	**21 months[2]**
Estimated Start Date	**October 1, 2017**
Estimated Completion Date	**June 30, 2019**

[1]*Full Project Schedule provided in **Attachment B***
[2]*Some portions of project to occur simultaneously*

The proposed budget to complete the Phase 2 project is summarized in **Table 2: 2017 Funding Request Summary**. The District has agreed to pay for the non-federal grant funded portion of the project, or approximately $2.5 million, if awarded the grant funds, as identified in the **Official Resolution**.

Table 2: 2017 Funding Request Summary

FUNDING SOURCE	Percentage of Total Project Costs	FUNDING AMOUNT
Lower Tule River Irrigation District	**72.06%**	**$2,579,662.00**
Reclamation Funding	**27.94%**	**$1,000,000.00**
TOTAL PROJECT FUNDING:	**100.00%**	**$3,579,662.00**

The summary of the calculated water savings for the Phase 2 portion of the project by replacing the open channel water distribution system with a pipeline system is estimated to be 9,216 acre-feet per year as summarized in **Table 3: Surface Water Summary**. The amount of water saved during each year was calculated based upon field channel loss analysis completed by the District.

Table 3: Surface Water Summary

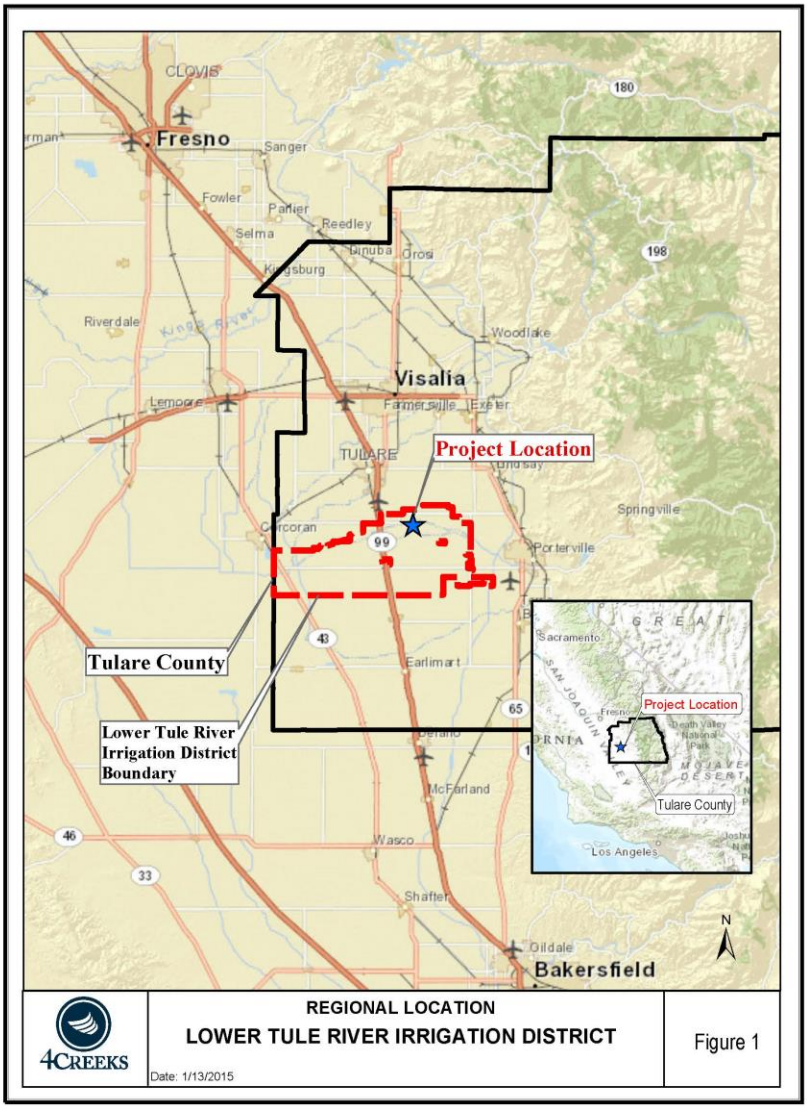
Item	Quantity (AF/YR)
LTRID **Average Annual Water Supply** (Local and Federal)	**248,240**
Estimated Water Conserved after Phase 2 Project	**9,216**

II. Background Data

A. Geographic Location

LTRID, located in Tulare County, California was formed in 1950 in order to provide a reliable and high quality supplemental surface water supply to its landowners who had previously met the water needs of their crops primarily by groundwater pumping. The District provides services to 103,034 acres within Tulare County, California and is located in the Central San Joaquin Valley, approximately 60 miles southeast of the City of Fresno and approximately 45 miles northwest of the City of Bakersfield. The community of Tipton lies near the middle of the District and is the largest community within the District boundary. State Highway 43, Highway 99, and Highway 190 travel through the District as shown in **Figure 1: Lower Tule River Irrigation District Regional Location**. Adjacent agricultural water agencies include Corcoran Irrigation District to the West, Tulare Irrigation District to the Northwest, Lindmore Irrigation District to the Northeast, Pixley Irrigation District to the South, Saucelito Irrigation District to the Southeast, and Porterville Irrigation District to the East.

FIGURE 1: Lower Tule River Irrigation District Regional Location



B. Water Supply Sources

Surface Water Supply

The District's average annual surface water supply totals approximately 248,240 AF/year. This supply is generated from two main sources, the Tule River runoff diverted from Success Reservoir, and Central Valley Project (CVP) imported surface water from the Friant-Kern Canal. The surface water supply for the district is drawn from pre-1914 Tule River water rights and contracts with Reclamation for CVP water from the Friant Division. The surface water supplies are summarized in **Table 4: Surface Water Supply Source**.

Table 4: Surface Water Supply Source

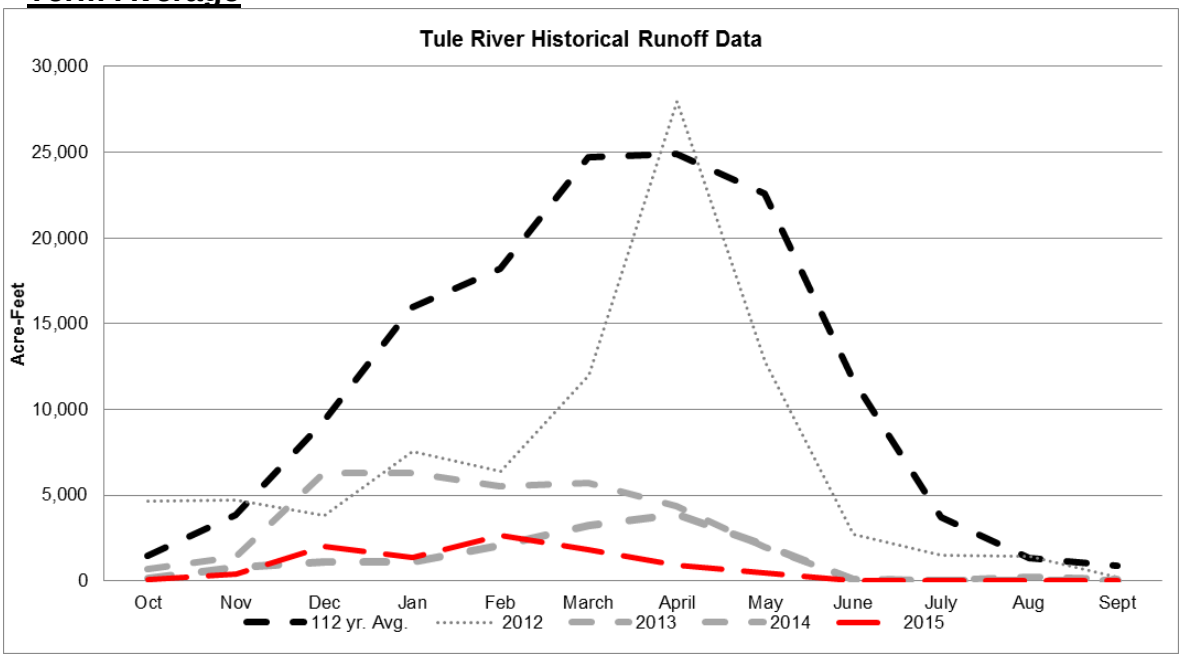
Surface Water Source	Average Annual Supply (AF)
Tule River	92,000 AF
Central Valley Project (Friant Division)	156,240 AF
TOTAL:	**248,240 AF**

Tule River Supply:

The Tule River is a natural water course within the Basin with water flows generated from precipitation and snow melt from the Tule River watershed in the Sierra Nevada Mountains. Surface water flow of the Tule River into the Basin is controlled by Success Reservoir. Success Dam and Reservoir is owned and operated by the United States Army Corps of Engineers (COE). During the flood season (November – April), the storage in the reservoir is controlled by the Flood Control Diagram of the COE, which requires flood releases if the storage exceeds a certain level in the reservoir. Outside the flood controlled season, the Tule River flow may be stored or released to satisfy the demands of the water rights holders downstream of Success Reservoir that are members of the Tule River Association (*Pioneer Water Company, Lower Tule River Irrigation District, Porterville Irrigation District, Vandalia Water District, and Downstream Kaweah and Tule River Association*).

Figure 2: Tule River Monthly Run-Off for 2012, 2013, 2014, 2015 & Long Term Average sets forth the monthly Tule River surface water runoff at Success Reservoir for calendar year 2012, 2013, 2014, and 2015 along with the 112-year long term average as obtained from the Tule River Association Annual Reports. During the calendar year of 2015, the Tule River runoff at Success Reservoir was 9,897 acre-feet or 7.2% of normal, as compared to the 112-year long term average annual Tule River inflow of 137,710 acre-feet.

FIGURE 2: Tule River Monthly Run-Off for 2012, 2013, 2014, 2015 & Long Term Average

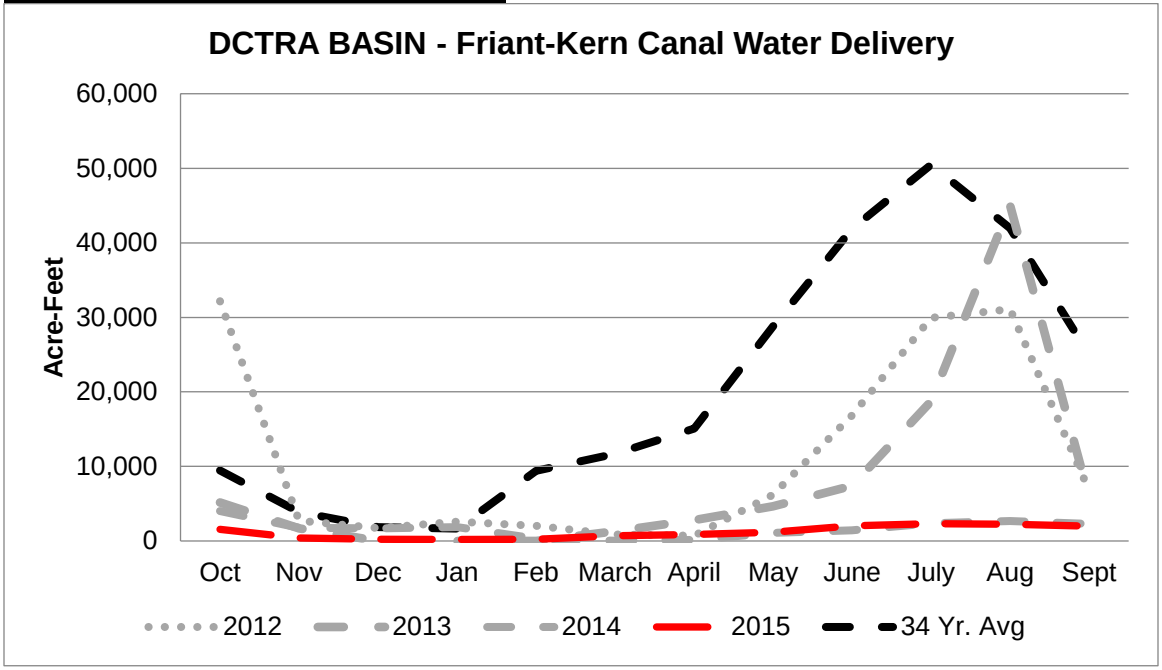


Central Valley Project Supply:

The CVP water originates from the Friant Division, and the Cross Valley Canal Project of the Central Valley Project under long-term contracts with the Bureau of Reclamation. Additional CVP water may be available to the member agencies in addition to the contracted amounts on a year to year basis through transfers from other contractors and the purchase of Section 215 surplus water depending upon the hydrologic conditions of the San Joaquin River and tributaries above Millerton Reservoir.

The CVP monthly surface water delivered to entities, from the Friant-Kern Canal, within the DCTRA Basin (excludes Stone Corral Irrigation District) for the year of 2012, 2013, 2014, 2015 compared to the historical long term average is represented in **FIGURE 3: Friant Kern Canal Monthly Surface Water Supply for 2012, 2013, 2014, 2015 & Long Term Average**. During the water year 2015, the Friant Kern Canal CVP water delivered into the Basin was 13,889 acre-feet and 5.9% of normal, as compared to the long term 34 year average annual CVP Water deliveries of 234,474 acre-feet. The water supply data was collected from the Friant Water Authority Annual Reports.

FIGURE 3: Friant Kern Canal Monthly Surface Water Supply For 2012, 2013, 2014, 2015 & Long Term Average



A. Existing Water Delivery System

Conveyance System: The existing District distribution system includes unlined earthen canals and pipeline distribution systems with reinforced concrete control structures and culverts at road crossings. Improvement districts were formed to provide local financing for the construction of the distribution systems. After completion, the facilities were turned over to the District for operation and maintenance. Collectively, the District owns or controls approximately 163 miles of open channel canals and approximately 47 miles of Tule River channels with 5 miles of pipeline. The estimated average annual canal and river seepage through the District's existing system is approximately 45,600 acre-feet, based upon District records of deliveries compared to the total available water in the system. The District has five main canals originating at the Friant-Kern Canal with capacity ranging from 25 cubic-feet per second (CFS) to 600 CFS. The main canals, described in **Table 5: LTRID Conveyance Facilities**, run from east to west with the fall of the Valley floor in the area. The capacity of the sub-laterals branching out from the main canals range from 5 CFS to 100 CFS. The District has approximately 810 farm service outlets. Water delivery measurements are performed by means of calibrated slide gate (meter gates). The District does not have groundwater extraction facilities. Each individual landowner provides his own well(s) to sustain irrigation during periods when the District does not have surface water available. Additionally, the District maintains and operates 18 regulation and recharge reservoirs totaling approximately 3,729 acres.

The on-farm irrigation efficiency is not regularly calculated by the District, but within the Region has been estimated to range from 75% to 85%. Seepage losses to the

earthen canal system are regularly estimated from measuring stations throughout the system.

Table 5: LTRID Conveyance Facilities

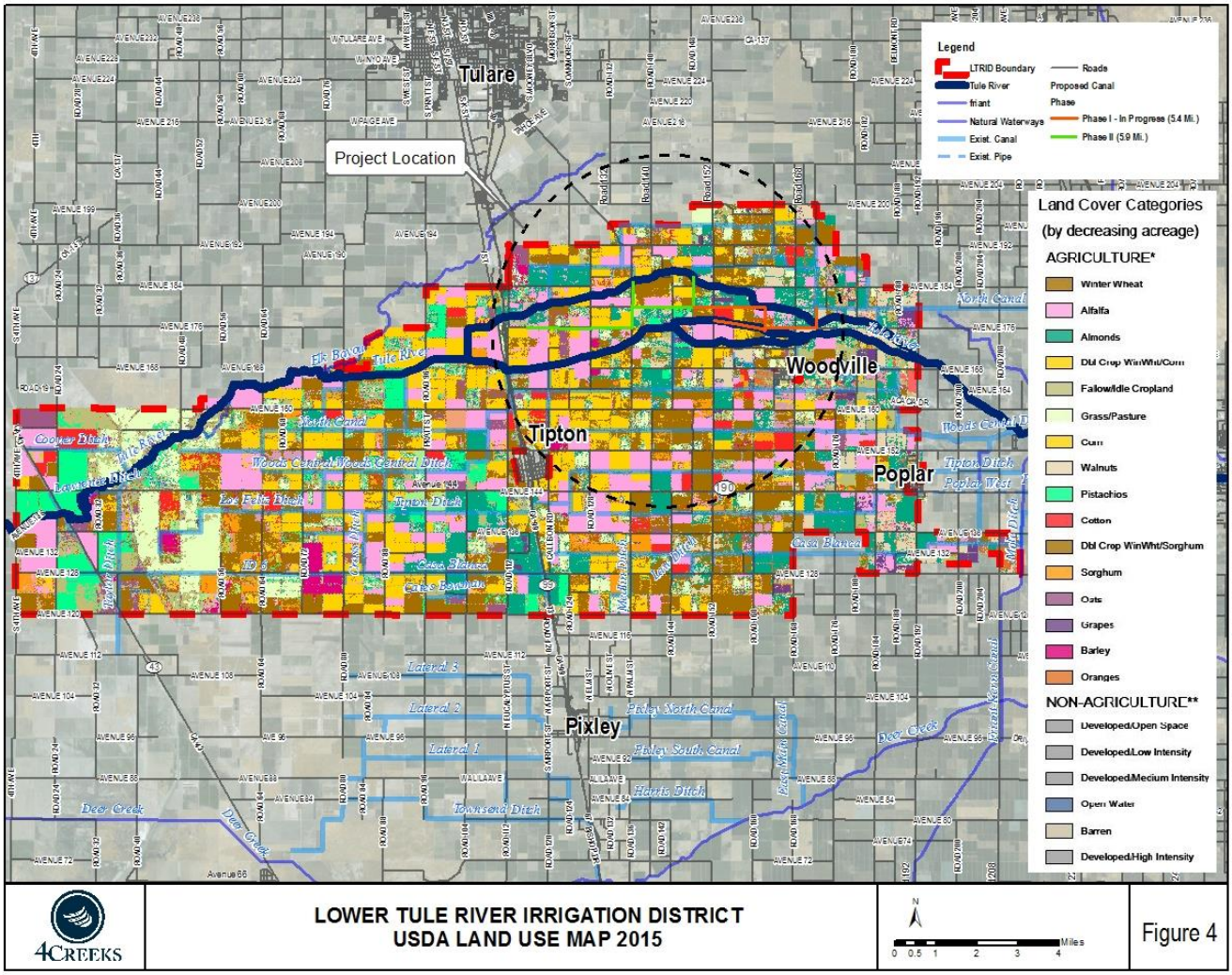
	Diversion Sources	Description
1	Friant-Kern Canal	Casa Blanca / Canal #1
2	Friant-Kern Canal	Poplar Ditch
3	Friant-Kern Canal	Tipton Canal / Canal #2
4	Friant-Kern Canal	Wood-Central / Canal #3
5	Friant-Kern Canal	North Canal / Canal #4
6	Tule River	Porter Slough
7	Tule River	Poplar Ditch
8	Tule River	Wood-Central Ditch
9	Tule River	#4 Cross Ditch
10	Tule River	McCarthy Diversion
11	Tule River	Creighton Ranch

Land Use: The total area within the District is 103,034 acres, and the irrigated area within the District is 85,000 acres. The major crops served in within the District are Corn, Alfalfa, Almonds and Cotton. Irrigation Method include Furrow (52.9%), Boarder Strip (44.2%), Sprinkler (0.4%) and Flood Irrigation (2.4%). **Table 6: LTRID Land Use** shows the acreage and percentage of crops grown in the district in 2015. **Figure 4: USDA Land Use Map** provides a visual of all land use within the District in 2015. The data for the Map and Table was provided by the United States Department of Agriculture National Agricultural Statistics Service.

Table 6: LTRID Land Use

Lower Tule River Irrigation District					
Land Use					
Crop Type	**Acreage**	**Percentage**	**Crop Type**	**Acreage**	**Percentage**
Corn	5,469	5.3080%	Open Water	214	0.2081%
Cotton	2,558	2.4822%	Developed/Open Space	3,265	3.1692%
Sorghum	2,237	2.1712%	Developed/Low Intensity	722	0.7008%
Sweet Corn	3	0.0028%	Developed/Medium Intensity	333	0.3229%
Barley	1,134	1.1001%	Developed/High Intensity	44	0.0423%
Durum Wheat	40	0.0388%	Barren	79	0.0767%
Winter Wheat	17,862	17.3358%	Shrubland	7	0.0069%
Rye	4	0.0041%	Grass/Pasture	6,202	6.0191%
Oats	2,058	1.9977%	Woody Wetlands	15	0.0147%
Safflower	64	0.0624%	Herbaceous Wetlands	33	0.0315%
Alfalfa	14,534	14.1055%	Pistachios	4,823	4.6813%
Other Hay/Non Alfalfa	440	0.4269%	Triticale	863	0.8377%
Sugarbeets	0.2	0.0002%	Carrots	0.4	0.0004%
Potatoes	1	0.0009%	Garlic	1	0.0011%
Other Crops	0.4	0.0004%	Olives	3	0.0030%
Watermelons	1	0.0007%	Oranges	939	0.9113%
Peas	73	0.0710%	Broccoli	88	0.0857%
Tomatoes	232	0.2254%	Peppers	1	0.0013%
Fallow/Idle Cropland	8,715	8.4579%	Pomegranates	72	0.0702%
Cherries	35	0.0337%	Nectarines	4	0.0035%
Peaches	1	0.0007%	Greens	1	0.0009%
Grapes	1,340	1.3009%	Plums	447	0.4340%
Other Tree Crops	94	0.0908%	Dbl Crop WinWht/Corn	9,353	9.0779%
Citrus	15	0.0141%	Dbl Crop Oats/Corn	108	0.1047%
Pecans	42	0.0408%	Lettuce	0.2	0.0002%
Almonds	11,199	10.8687%	Dbl Crop WinWht/Sorghum	2,307	2.2392%
Walnuts	4,960	4.8135%	Pears	0.4	0.0004%
Total				**103,034**	**100.00%**

FIGURE 4: USDA Land Use Map



III. Technical Project Description

The project will be broken into three major tasks:

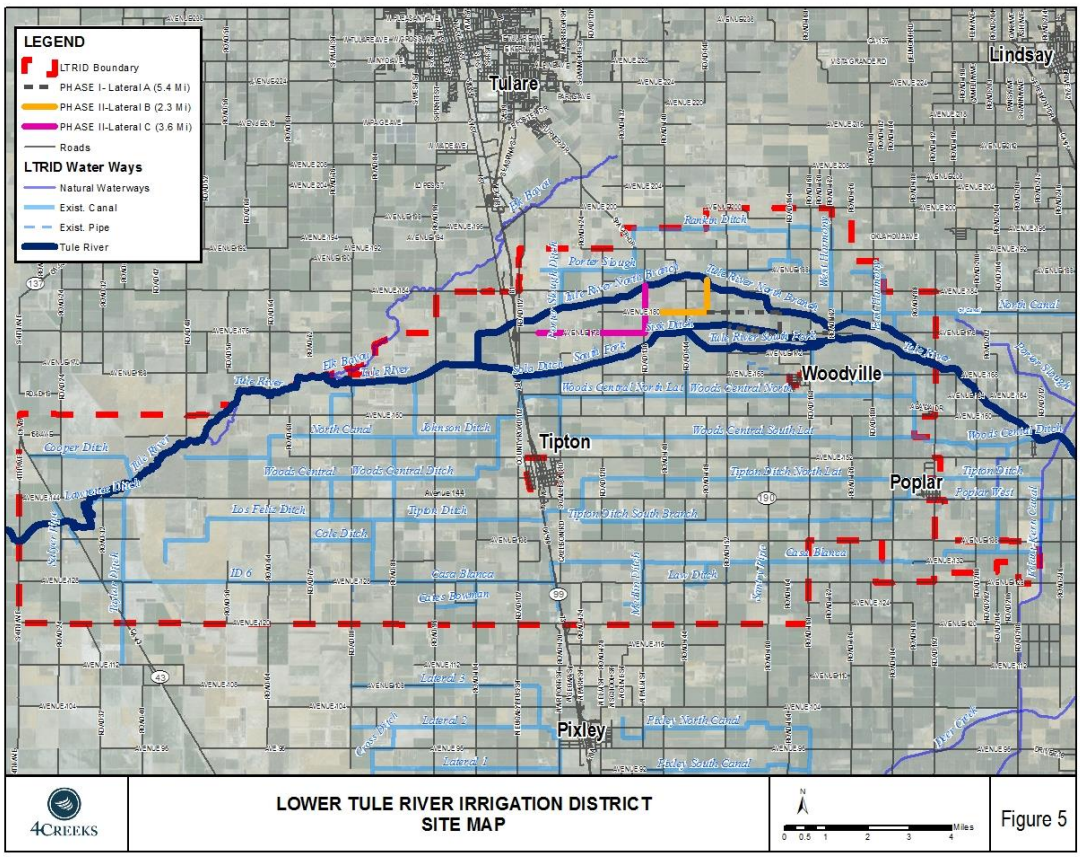
Task 1 – *Permitting and NEPA Documentation.* Assist the USBR with complying with the National Environmental Policy Act. (Compliance with the California Environmental Quality Act (CEQA) is already completed).

Task 2 - Construction *Documents and Right of Way Acquisition.* After the Permitting and Environmental documents are accepted, the construction documents, topographic survey, and design specifications will be prepared.

Task 3 – *Construction*. Prior to beginning the construction phase, the Phase 2 project will be bid out for the materials needed and any contractor work not able to be directly performed by the LTRID staff.

Figure 5: Site Map provides a breakdown both phases of the project and the areas in the District they will directly affect. Phase 1 of the project has been funded and is currently being designed, with construction beginning this year.

FIGURE 5: Lower Tule River Irrigation District Site Map



After construction staking and any pre-construction mitigation required by either cultural resources or biological impacts, the project will be constructed including turnouts, ditch structures, and pipelines as described below:

Phase 2 Project Description:

During the overall master plan design of the project, the Phase 2 portion of the project has been conceptually designed to ensure consistency with the Phase 1 project.

Lateral B (2.3 Miles) - South from Tule River and West along Road 180

The Lateral B Service Area includes approximately 2.3 miles of new pipeline. The pipeline starts at the Tule River North Fork at the Road 148 alignment. The pipeline travels 4,000 feet south, then turns west along the Avenue 180 alignment for 1.5 miles, terminating into Lateral C. This lateral will serve approximately 908 acres, 700 acres currently served by the Tule River channel (See **Attachment A – LTRID Pipeline Service Area**). The proposed capacity of the Lateral B canal system is estimated at 11.4 cfs. A summary of the service area a part of Lateral B is identified below in **Table 7 – Lateral B Service Area Summary**.

TABLE 7 – LATERAL B SERVICE AREA SUMMARY

APN	ACREAGE	OWNER
232-030-011	155.58	VAN BEEK RAYMOND J & KATHERINE A (T
232-030-025	78.73	F & J DE BOER FAMILY PROPERTIES LP
232-040-001	37.95	NAGEL ROBERT E & BETTY A (L EST)
232-040-002	75.25	PENN TIFFANY ANNE
232-040-003	38.50	NAGEL ROBERT E II & BEVERLY J
232-040-014	76.21	PICANSO MANUEL C & MARY G (CO-TRS)
232-040-015	38.27	FRINGS LAND COMPANY LP
232-040-023	38.64	F & J DE BOER FAMILY PROPERTIES LP
232-040-024	39.10	SIMONICH FARMS INC
232-040-028	35.28	SIMOES ANTONIO M & MARIA G
232-190-006	50.93	JOE LAWRENCE RIBEIRO FAMILY PTNSHP
232-190-007	0.96	JOE LAWRENCE RIBEIRO FAMILY PTNSHP
232-190-008	50.11	NAGEL JASON C & RENEE A
232-190-009	0.74	NAGEL JASON C & RENEE A
232-200-001	74.73	SIMONICH DONALD A (TRS) (MAR TR UWO
232-200-003	114.82	AGUIAR DANIEL M & KATHLEEN M(TRS)
232-200-004	1.02	AGUIAR DANIEL M & KATHLEEN M(TRS)
Total	**906.81**	**Acres**
Lateral B Capacity	**11.4**	**CFS**

Lateral C (3.6 Miles) - South from Tule River and West along Road 176

The Lateral C Service Area includes approximately 3.6 miles of new pipeline. The pipeline starts at the Tule River North Fork at the Road 136 alignment. The pipeline travels 6,000 feet south, then turns west along the Avenue 176 alignment for 2.5 miles at the end of Phase 2. This lateral will serve approximately 2,649 acres (See **Attachment A – LTRID Pipeline Service Area**). The proposed capacity of the Lateral C canal system is estimated at 33.1 cfs. A summary of the service area as part of Lateral C is identified below in **Table 7 – Lateral C Service Area Summary**.

TABLE 8 – LATERAL C SERVICE AREA SUMMARY

APN	ACREAGE	OWNER
232-020-034	16.95	LERDA CINDY A (TR RJL FT)
232-050-040	80.03	RIB-ARROW DAIRY
232-050-042	174.53	JOE LAWRENCE RIBEIRO FAMILY PTNSHP
232-060-009	253.78	HUNDAL PARVINDER(TR)
232-060-012	75.51	LEONEL J RIBEIRO SR FAM PTNSHP THE
232-060-015	0.58	LEYENDEKKER GERBEN F & PAULINE V (T
232-060-016	236.90	LEYENDEKKER GERBEN F & PAULINE V (T
232-060-017	1.04	LEYENDEKKER GERBEN F & PAULINE V (T
232-070-002	159.03	SEPEDA BROTHERS
232-070-003	79.01	SEPEDA BROTHERS
232-070-004	76.71	SEPEDA BROTHERS
232-070-012	319.16	AUKEMAN ROBERT L & KAREN M(TRS)(REV
232-070-015	413.07	LEYENDEKKER GERBEN & PAULINE (TRS)
232-070-016	5.60	LEYENDEKKER GERBEN F & PAULINE V (C
232-080-025	31.27	TULE RIVER PROPERTIES
232-080-029	120.29	SEPEDA AURORA (EXEC)
232-080-031	158.27	SEPEDA BROTHERS
232-180-001	156.03	JOE LAWRENCE RIBEIRO FAMILY PTNSHP
232-180-006	8.63	NAGEL RICHARD & JUDITH (TRS)
232-180-007	89.44	TULE RIVER PROPERTIES
232-190-001	52.00	JOE LAWRENCE RIBEIRO FAMILY PTNSHP
232-190-004	14.64	LERDA CINDY A (TR RJL FT)
232-190-005	9.42	PEARMAN JOHN D (TR)
232-200-002	117.42	AGUIAR DANIEL M & KATHLEEN M(TRS)
Total	**2,649.30**	**Acres**
Lateral C Capacity	**33.10**	**CFS**

IV. Evaluation Criteria

A. Criterion No. A: Quantifiable Water Savings

- **Describe the amount of water saved:**

The total flow capacity of the Phase 2 pipelines include the Lateral B pipeline with a capacity of 11.4 cfs and the Lateral C pipeline with a capacity of 33.1 cfs. These flow rates equate to a total of 88.3 acre-feet per day of water supply able to be delivered (1 cfs = 1.9835 acre-feet). During a normal water year, the pipeline would operate for 8 months (240 days), approximately 70% of the time. Based on this 8 month period, the amount of water delivered would be approximately 10,680 acre-feet. According to a River Riparian Loss study completed by the District in May of 2009, the seepage losses through the Tule River channel at the Phase 2 project site on normal years are approximately 4.4 acre-feet/day per mile of river reach at the project location (due to the natural waterways made up primarily of sand deposits). The total length of river reach that will be replaced with the Phase 2 pipeline distribution systems during irrigation water deliveries is 8.7 miles from the North Fork and South Fork of the Tule River. The total daily seepage loss through this section of river is 38.4 ac-ft/day. Therefore, in order for 88.3 acre-feet per day to be delivered to the riparian area through the river channel, 126.7 acre-feet per day is currently required to be diverted through the channel in order offset channel losses and meet the demand. The total water savings by avoiding seepage losses through the pipeline system is 240 days x 38.4 acre-feet per day, or 9,216 acre-feet per year for Phase 2.

- **Where is the water that will be conserved currently going?**

The 38.4 acre-feet of water that will be conserved each day, or 9,216 total acre-feet, is currently lost to seepage through the sandy bottom of the river channel. According to the River Riparian Loss study from 2009, it requires a minimum of 4.4 acre-feet of surface water per day for every mile of river through the riparian area of the Tule River, to exceed the percolation rate of the river channel and deliver surface water to the surrounding agricultural turnouts. With the proposed pipeline in place, the sum of this water lost to seepage will not have to be pumped down the channel, and may be used to supply surface water for longer periods of time during the high demand of the summer months.

Please address the following questions according to the type of project you propose to fund.

The District is proposing funds for a Canal Lining/Piping project, which provides water conservation during irrigation water delivery through a pipeline system rather

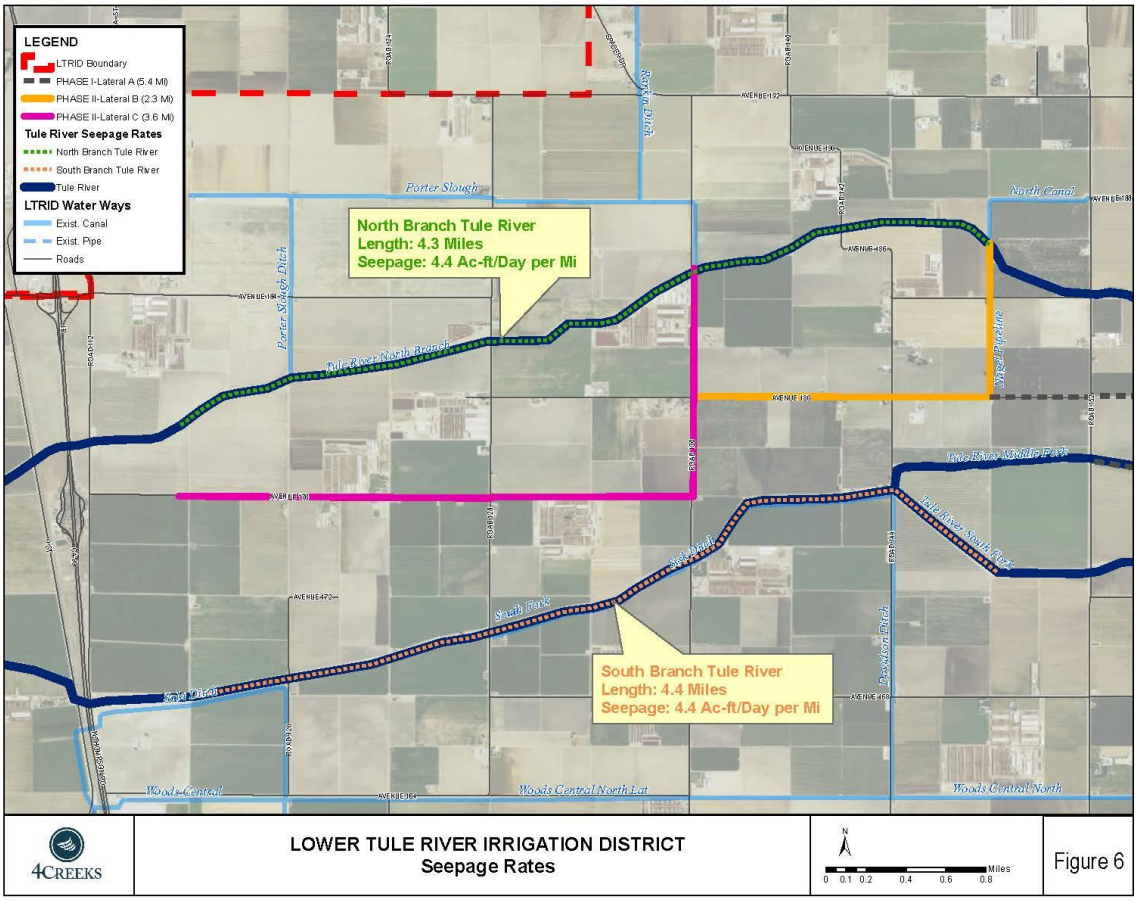
than conveyance through natural river open channels, which experiences significant seepage losses.

a) How has the estimated average annual water savings that will result from the project been determined? Please provide all relevant calculations, assumptions, and supporting data.

The estimated average annual water savings that shall result from the project have been determined using seepage loss data compiled by the District in 2009 through the Riparian Area of the Tule River. The study was completed on the Tule River downstream of the Friant-Kern canal between May 6, 2009 and May 22, 2009. Seepage losses were calculated through 15 separate reaches of the North, Middle, and Main Channels of the Tule River during an average water run. The seepage losses were determined based on the change in flow rate between flow structures when no turnouts were open or diversions were occurring in the system. The data presented in this study encompasses the sections of the river adjacent to the project location which shall remain dry during irrigation water deliveries upon completion of the Phase 2 pipeline project. A total of 8.7 miles, 4.3 miles from the North Branch Tule River and 4.4 miles from the South Branch Tule River, shall be bypassed. **Figure 6 – Lower Tule River Irrigation District Seepage Losses** illustrates the sections of the river downstream of the Lateral B headgate that will be avoided during irrigation water deliveries.

The data in the 8.7 miles of the Tule River demonstrated a seepage loss of approximately 75 acre-feet over the 17-day run in May of 2009 per mile of river channel. Based on this data, the average acre-feet/day for each mile of river lost to seepage is 4.4 ac-ft/day. The total daily seepage losses for all 8.7 miles of bypassed river channel is found to be 38.4 acre-feet/day. Over the average 240 days every year this reach of the channel has water flowing through it, the total annual seepage losses is 9,216 acre-feet of surface water. The Phase 2 pipeline diversion will eliminate the sum of these seepage losses during an average water year.

FIGURE 6: Lower Tule River Irrigation District Seepage Rates



b) How have average annual canal seepage losses been determined? Have ponding and/or inflow/outflow tests been conducted to determine seepage rates under varying conditions? If so, please provide detailed descriptions of testing methods and all results, If not, please provide an explanation of the method(s) used to calculate seepage losses. All estimates should be supported with multiple sets of data/measurements from representative sections of canal.

Seepage losses through the bypassed reach of the Tule River Channel have been determined through the data collected during a 17-day surface water run, occurring between May 6, 2009 and May 22, 2009. The District completed the 17-day run without allowing any surface water diversions to accurately determine channel losses downstream of the Friant-Kern Canal. Flow rate measurements were collected during the study at existing flow rate monitoring stations along river, where the District regularly collects flow measurements. A total study duration of 17 days was used to allow the river channel to reach a

state of relative saturation, as would be characteristic during regular irrigation water supply releases and flood releases through the channel during an average year.

c) What are the expected post-project seepage/leakage losses and how where these estimates determined (e.g., can data specific to the type of material being used in the project be provided)?

The expected post project seepage/leakage losses are minimal as the proposed project is a pipeline project. The pipeline material planned to be used is plastic pipe, SDR-35 or C-900, which have minimal (less than 1%) seepage or leakage losses. This pipe is similar to what is used for City municipal water systems or wastewater systems. Pipeline specifications shall meet or exceed the requirements of ASTM D1784. Pipeline connection gaskets, which seal the pipeline at the connection joints, shall conform to ASTM F477. The pipeline joint design shall be tested to the requirements of ASTM D3139. These and other pipeline specifications will be included in the specification portion of the engineered pipeline design at the time of design per the Project Schedule.

d) What are the anticipated annual transit loss reductions in terms of acre-feet per mile for the overall project and for each section of canal included in the project?

The anticipated annual transit loss reductions are minimal due to the plastic pipe and can be assumed to be less than 1% of the water delivered. The total annual transit loss reductions will be 9,216 acre-feet per year for the project. The pipeline will provide an annual water conservation savings of 1,059 acre-feet per mile of pipeline. As the entirety of the pipeline is to be constructed of the same material, water transit loss reductions are consistent through the full length of the pipeline.

e) How will actual canal loss seepage reductions be verified?

At the time of construction, proper construction quality controls and inspections prior to using the pipeline will be conducted, included air pressure testing and leakage inspection. During operations, the amount of water diverted will be identified along with the amount of water delivered to each landowner by a meter. After each water run, the meter readings will be compared to the water diverted into the pipeline and the actual seepage or leakage reductions will be identified.

f) Include a detailed description of the materials being used.

The materials to be used shall be SDR-35 Plastic Pipe, C-900 Plastic Pipe, or PVC P.I.P. pipeline. This will be determined at the time of bidding based on

the final design plans which specify pressure ratings, and depth to pipeline based on physical site characteristics. Pipeline specifications and installation requirements shall be provided during the engineering design phase of the project per the Project Schedule.

The head gates located at two locations along the Tule River to provide water to the pipeline shall be concrete structures. These structures shall be engineered to ensure longevity and minimal maintenance. Concrete shall be able to withstand the saturated conditions of the river channel when water is present in the channel and will ensure enough upstream head can be generated to operate the pipeline system effectively. Elevations and concrete structure design shall be completed during the Surveying and Engineering portions of the project per the Project Schedule.

The proposed canal lining/piping project by the District includes a groundwater recharge component by allowing excess surface water in to the natural river channels of the Tule River. During the winter months, when agricultural surface water diversions generally do not occur, flood waters are often released down the Tule River as part of the management program required by the Army Corp of Engineers at the Success Reservoir. During these release periods, surface water shall continue to be diverted down the existing river channel as is done currently rather than be diverted through the proposed pipelines. This ability to maintain the river channel in its current state will allow the surface water to percolate into the groundwater as groundwater recharge. By maintaining the natural state of the river channel, habitat to local flora and fauna will also continue to be protected.

B. Criterion No. B: Water Sustainability Benefits

Please describe in detail where the conserved water will go and how the conserved water is expected to increase water sustainability. Consider the following:

- **Will the Project commit conserved water to instream flows? If so, please address the following:**
  Yes, the project will allow for instream flows within the natural water course of the Tule River and shall increase the volume of water available for instream flows. Due to the conservation of surface water during the summer months when irrigation water demand is high, less surface water will be required to irrigate the present number of acreage. This excess surface water will either be made available to other adjacent District landowners to meet their irrigation demands, or stored in the existing Success Reservoir upstream of

the site and released during the winter months as flood release water, which is managed by the Army Corp of Engineers to regulate the volume of the reservoir. This flood release water will be directed down the existing Tule River channel and not through the proposed pipeline, as irrigation water is generally not required in the months when flood releases occur do to normal precipitation. The instream flows of the natural Tule River channel shall then be utilized for groundwater recharge not currently available due to lack of surface water conveyance efficiency.

- **Provide a detailed description of the mechanism that will be used (e.g., collaboration with a state agency or nonprofit organization, or other mechanisms allowable under state law) and the roles of any partners in the process. Please attach any relevant supporting documents.**

  Flood releases down the Tule River are currently overseen by the Army Corp of Engineers. The Army Corp maintains a daily schedule of Success Reservoir water levels that must be adhered to in order to keep adequate storage available in the reservoir for future storm events. When the water level exceeds the volume required in the schedule, flood releases are directed down the Tule River. The water efficiency proposed in this Phase 2 project will ensure more water is available in the reservoir. The coordination with the Army Corp allows the District to direct available flood release water to the most beneficial use. During the winter months of a normal precipitation year, the most beneficial use of that water shall be into the existing channel as groundwater recharge.

  The Phase 2 underground pipeline distribution system is designed to bypass the natural channels of the Tule River to mitigate any effects towards species in the area or instream flow through the water course. During construction, LTRID will initiate measures to avoid impacts to the Western Burrowing Owl, in compliance with US Fish and Wildlife Service (DFW) Biological Opinion and Long-Term Friant Division CVP Contract Renewal and Draft Staff Report of Burrowing Owl Mitigation. As part of the Environmental Permitting process, biological studies will be conducted prior to construction beginning as required by the DFW 1602 Lake and Streambed Alteration Program.

- **Indicate the quantity of conserved water that will committed to instream flows. Describe where the conserved water will be committed to increase instream flows (indicate specific stream reaches if applicable).**
  Water committed to instream flows is dependent upon excess supply not required for agricultural use. During releases from Success Reservoir, any water not diverted into the proposed pipeline will remain in the Tule River Channel as instream flows. As the new pipeline provides a significantly more efficient method of transferring water to landowners than the utilization of the natural river channels, more water will be available for instream flow then was previously due to seepage and transit losses. The seepage losses of the current reach of the Tule River are 38.4 acre-feet per day ad determined from the 2009 LTRID Riparian River Loss study. By reducing these losses to effectively zero through the installation of the Phase 2 pipeline, assuming 240 days per year of water conveyed through the Tule River in an average rainfall year, the quantity of conserved water that shall be committed to instream flows is 9,216 acre-feet per year.

- **Describe the benefits that are expected to result from increased instream flows. Will the increased instream flows result in benefits to fish and wildlife? If so, please describe the species and expected benefit of the project.**
  The greatest benefit of the increased instream flows from the Phase 2 project shall be to groundwater elevations in the project area as a result of direct groundwater recharge and in-lieu groundwater recharge. By reducing losses during summertime flows by 9,216 acre-feet per year, the volume of surface water available for groundwater recharge shall increase by 9,216 acre-feet per year. The proposed project is designed to leave the streambed and all existing flora and fauna undisturbed, thus sustaining the status any species dependent on the Tule River Channels as habitat.

- **Please describe the status of the species (e.g., federally threatened or endangered, a federally recognized candidate species, a state listed species of particular ecological, recreational, or economic importance), the relationship of the species to the water supply, and whether the species is adversely affected by a Reclamation project.**

Several species of plants and animals within the state of California have low populations and /or limited distributions. Such species may be considered “rare” and are vulnerable to expiration. In normal water years, flow through the Tule River is intermittent, occurring mostly during the spring and summer months for flood release and irrigation purposes. As an intermittent water supply, the channel is relied upon primarily for habitat and foraging by various species of mammals, birds, and amphibians.

Due to the intermittent flow of water, the Tule River provides habitat and foraging grounds for native wildlife species that varies in suitability by season. Any threatened or endangered species in the project area shall remain unaffected by the proposed project, as the channel shall remain intact throughout the project and following its completion. Surface water will continue to be diverted through the channel adjacent to the project site during periods of time whereas irrigation demand is low.

- **Will the increased instream flow result in benefits to habitat or other ecological benefits? If so, describe these benefits. Will the flows specifically benefit federally designated critical habitat?**
  This project is designed to leave the natural channels of the Tule River intact for species and habitat protection. The additional water available for instream flow shall allow the current habitat in the Tule River Channel to flourish.

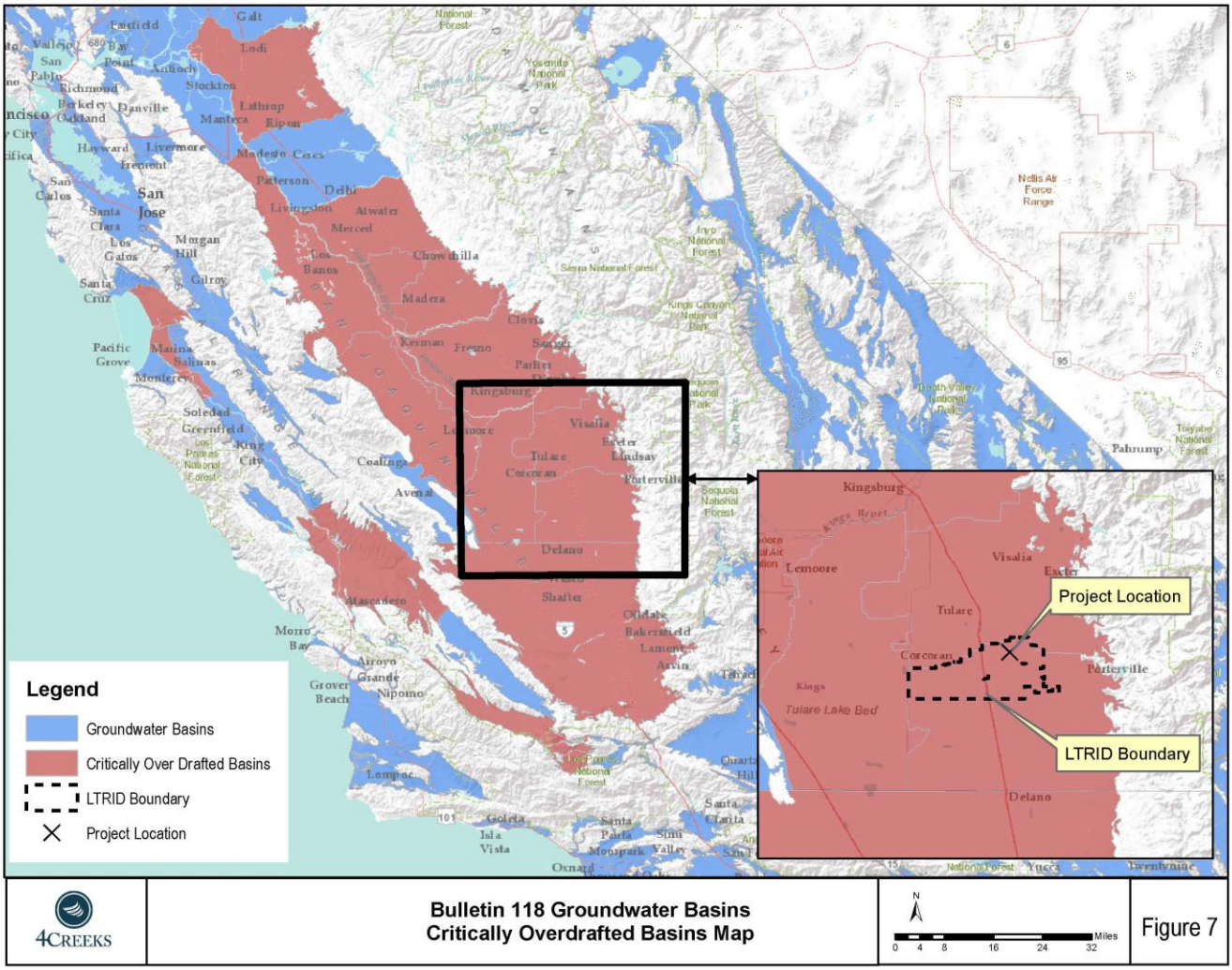
- **Will the increased instream flows result in other benefits not discussed above, including recreational, social, or economic benefits? If so, please explain.**
  Yes, the instream flows shall provide social and economic benefits to the local communities and groundwater users in the surrounding area. The conservation of water through the pipeline system will provide landowners in the project area with a reliable source of surface water. The additional surface water shall offset each individual landowners need to supplement crop demands with groundwater pumping. By decreasing pumping demand and using instream flows as recharge when there’s no demand for irrigation water in the project area, the groundwater supply in the aquifer, which is shared by local disadvantaged communities, shall become more sustainable.

- **Some projects may address water supply sustainability in ways other than committing water to instream flows. If the questions listed above are not applicable to your project, please address the following to explain how the water savings from the project are expected to result in a public benefit:**

    - **Is there a specific water supply sustainability concern in the region? What factors are contributing to the concern? Please include a description of the impacted geographic area and stakeholders, the partners that are collaborating to resolve the concern, and any other applicable information.**
      The entirety of the Lower Tule River Irrigation District is located in the Tule Subbasin, which has been designated by the California Department of Water Resources (DWR) to be a critically overdrafted basin and is subject to regulations set forth in the Sustainable Groundwater Management Act (SGMA) to develop and implement a Groundwater Sustainability Plan (GSP). See **FIGURE 7 – Bulletin 118 Groundwater Basins Critically Overdrafted Basins Map**. The factors contributing to the sustainability of groundwater concern are increased farming acreages, drought conditions in the project, and lack of available surface water supplies to the region. The Tule Subbasin public agencies have applied under SGMA to develop six (6) Groundwater Sustainability Agencies (GSA), tasked with developing a GSP through a common coordinated agreement.

      LTRID has been accepted as an exclusive GSA covering the district boundaries. Members of each GSA include cities, towns, disadvantaged communities, irrigation and water districts, storm water conservation districts, public utility districts, community services districts, and various public agencies. These entities shall work together as part of GSA to develop a plan and hydrologic model to achieve groundwater sustainability in the critically overdrafted region. The six GSA's cover the nearly 600,000 acres of the entire Tule Subbasin.

FIGURE 7 – Bulletin 118 Groundwater Basins Critically Overdrafted Basins Map



The District is also part of two separate agencies that collectively oversee and coordinate aspects of Tule River operations and policy downstream of Success Dam. The Deer Creek and the Tule River Authority (DCTRA) is a joint powers authority of seven member agencies that jointly participate in a groundwater management plan over the Tule River and Deer Creek areas in southeastern Tulare County. The DCTRA has a board of directors mostly comprised of general managers from member agencies, holds regular board meetings and produces annual reports on conditions and changes within the service area. The Tule River Association (TRA) has five entities that are invested in the surface water management and the

Tule River downstream of Success Dam and cooperate to manage available resources according to entitlement on the river. The TRA has a board of directors that employs a Water master who collects and administers the flow records for the service area.

The District has collaborated for many years with other stakeholders to better utilize water supplies within the region, and this project is a continuation of that collaboration.

A result of the overdraft of the groundwater in this area is land subsidence. Studies completed by the USGS and other agencies that have completed studies in the area identify the area around the District as the epicenter of current land subsidence in the area. Land subsidence has major impacts to the landowners, requiring releveling of fields, canals no longer gravity flowing requiring additional pumping, and the permanent loss of groundwater storage due to the consolidation of the clays in the soils. The water savings and water efficiencies gained by the Phase 2 project will help alleviate the land subsidence occurring in this area.

- **How will the proposed project help to address this concern? Will water conserve through the project result in reduced diversions or be made available to help alleviate water supply shortages due to drought, climate variation, or over-allocation?**
  The improved management of surface water to the project area in a pipeline distribution system will allow landowners to alleviate their reliance on groundwater pumping for crop irrigation during normal and dry years. Currently, during dry or normal water years, it is very inefficient for the District to divert the scarce surface water supplies for the Phase 2 landowners into the Tule River channels because of the large amount of seepage, and therefore these landowners are reliant upon groundwater pumping during these years. Replacing the Tule River channels with the pipeline system allows the District to efficiently divert the limited surface waters available during dry and normal years to these landowners to keep the groundwater pumping to a minimum.

  The additional surface water supply saved through the implementation of this project will be available to adjacent District landowners to help achieve sustainable groundwater levels in the region due to the reduction of groundwater pumping.

The implementation of this project also provides the District with the ability during wet years to divert excess surface water to the natural Tule River channel to percolate into the groundwater aquifer, thereby banking excess water supplies during wet years for future use.

- **Will the project make additional water available to Indian tribes, and /or rural or economically disadvantaged communities? If so, please explain.**
  Yes, the project will make additional water supplies available to economically disadvantaged communities in the area by reducing groundwater demand. Many of the communities in the area are 100% reliant on groundwater pumping, such as Woodville and Tipton, directly adjacent to the proposed project. Therefore, reducing the amount of groundwater pumping for agriculture use, increases groundwater supply for these disadvantaged communities. This process of reducing the volume of groundwater required to be pumped to provide the same volume of readily available water in a localized area is referred to as in-lieu groundwater recharge.

- **Will water conserved through the project help to address water supply sustainability in a way not listed above?**
  Yes, the project sustainability is most realized in the sections described above, but additional sustainability will occur for each individual landowner connected to the Phase 2 pipeline. By having a direct connect to the pipeline system, with a more reliable water supply, the landowners will be incentivized to invest into their own farming management practices, finding ways to become more water efficient and sustainable on their farms.

C. Criterion No. C: Energy-Water Nexus

For projects that include construction or installation of renewable energy components, please respond to Subcriterion No. C.1: Implementing Renewable Energy Projects Related to Water Management and Delivery. If the project does not implement a renewable energy project but will increase energy efficiency, please respond to Subcriterion No. C.2. Increasing Energy Efficiency in Water Management. If the project has separate components that will result in both implementing a renewable energy project and increasing energy efficiency, an applicant may respond to both.

<u>Subcriterion No. C.2:</u> Increasing Energy Efficiency in Water Management

Describe any energy efficiencies that are expected to result from implementation of the water conservation or water management project (e.g., reduced pumping)

- **Please provide sufficient detail supporting the calculation of any energy savings expected to result from water conservation improvements. If quantifiable energy savings are expected to result from water conservation improvements, please provide sufficient details and supporting calculations. If quantifying energy savings, please state the estimated amount in kilowatt hours per year.**
  The LTRID distribution system is designed to primarily operate on gravity to avoid pump stations. In general, the surface topography of the district runs east to west, and therefore the main canals all flow east to west. This avoids pumping costs by the District.

  In addition, LTRID is involved in the operation, maintenance, and ownership of the hydro-electric turbine project located at Success Reservoir. During releases of surface water from the Reservoir, the water is diverted through the hydro-electric turbine which converts the energy to electricity and back into the Southern California Edison grid.

  One of the objectives of the Phase 2 project is to offset groundwater pumping by delivering more reliable surface water by gravity to landowners at their individual irrigation system headworks. The average pump size within the area is a 50 HP motor with an average of 140,000 kW/year. An estimated 36 wells are within the Phase 2 area (each well covers 100 acres on average) which on a normal water year would have a reduction of 93% of the energy usage. This would equate to approximately 5.0 MW/year of reduction. During wet years, this would be reduced more, during dry years this would not be reduced as much.

- **Please describe the current pumping requirements and the types of pumps (e.g., size) currently being used. How would the proposed project impact the current pumping requirements?**
  The average pump size within the area is a 50 HP motor with an average of 140,000 kW/year. An estimated 36 wells are within the Phase 2 area (each well covers 100 acres on average) which on a normal water year would have a reduction of 93% of the energy usage. This would equate to approximately

5.0 MW/year of reduction. During wet years, this would be reduced more, during dry years this would not be reduced as much.

- **Please indicate whether your energy savings estimate originates from the point of diversion, or whether the estimate is based upon an alternate site of origin.**
  The energy savings estimate originates from the point of diversion to the landowner.

- **Does the calculation include the energy required to treat the water?**
  There is no water treatment necessary, as the surface water of the Tule River and Friant Water supplies have historically been of exceptional high quality.

- **Will the project result in reduced vehicle miles driven, in turn reducing carbon emissions? Please provide supporting details and calculations. Describe any renewable energy components that will result in minimal energy savings/production (e.g., installing small-scale solar as part of a SCADA system)**
  The proposed design of the pipeline system will include a water turnout meter to each landowner within the Phase 2 Riparian Area. At each meter location, it is proposed to install a meter with Telemetry, powered by Solar, to prevent District staff from driving to each meter monthly. This area is approximately 10 miles from the District office and covers an area around 8 miles. Each trip saved would reduce the miles driven by 30 miles**.**

D. <u>Criterion D:</u> Addressing Adaption Strategies in a WaterSMART Basin Study

Proposals that provide a detailed description of how a project is addressing an adaptation strategy specifically identified in a completed Basin Study (e.g., a strategy to mitigate the impacts of water shortages resulting from climate change, drought, increased demands, or other causes) may receive maximum points under this criterion. Applicants should provide as much detail as possible about the relationship of the proposed project to the adaptation strategy identified in the Basin Study, including, but not limited to, the following:

- **Identify the specific WaterSMART Basin Study where this adaptation strategy was developed. Describe in detail the adaptation strategy that will be implemented through this WaterSMART Grant project and how**

the proposed WaterSMART Grant project would help implement the adaptation strategy.
Adaption strategies pertaining to this project were developed in the Bureau of Reclamation's Sacramento and San Joaquin Rivers Basin Study. The proposed distribution system project would enact several of the water management actions suggested in the Bureau's WaterSMART Basin Study by reducing water demand and improving operational efficiency.

The proposed canal lining/piping project improves reliability and increases the reach of the District's water conveyance systems. Agricultural water use efficiency actions such as conveyance system improvements, have the potential to reduce the overall agricultural water demand in the Central Valley. Improvements in water use efficiency only result in net water savings when the conserved water was not previously being recovered in hydrologic system (Bureau of Reclamation, 2016).

Improving operational efficiency is another adaption strategy utilized by the proposed project. During periods where excess surface water is available, water supplies will be diverted into the natural river channels to be used for groundwater recharge and banking. The project will also create In-lieu recharge through the offset of groundwater pumping by providing surface water previously lost to seepage to the LTRID landowners in the Riparian Area.

- **Describe how the adaptation strategy and proposed WaterSMART Grant project will address the imbalance between water supply and demand identified by the Basin Study.**
The adaption strategies proposed in the WaterSMART Basin study and implemented by the project will help to address the imbalance between water supply and water demand by allowing the district to direct water resources more efficiently to areas currently underserved by the District.

  Current drought conditions in the project area are extremely severe due to the lack of groundwater recharge caused by minimal flows down the Tule River. The shortage of available surface water additionally increases pressure on aquifers in and around the project area. By utilizing a pipeline distribution system in the project area instead of relying on natural channels of the Tule River, water can much more reliably be transferred to each landowner at smaller flows without losing substantial amounts of water to channel loss. Providing adequate surface water supplies to the project area will in turn

alleviate pressure on the groundwater aquifer by increasing groundwater supply through in-lieu recharge and direct recharge when excess surface water supply is available.

- **Identify the applicant's level of involvement in the Basin Study (e.g., cost-share partner, participating stakeholder, etc.).**
  The applicant was not involved in the formation of this Basin Study.

- **Describe whether the project will result in further collaboration among Basin Study partners.**
  The project will not result in increased collaboration between existing basin study partners

E. Criterion E: Expediting Future On-Farm Irrigation Improvements

If the proposed projects will help expedite future on-farm improvements, please address the following:

- **Include a detailed listing of the fields and acreage that may be improved in the future.**
  There will not be any additional acreage added to farming from this project, but rather surface water will be delivered to existing farms covering 3,550 acres in Phase 2. Because the water is proposed to be delivered to the farm headworks, each individual farm may elect to install additional pipelines to distribute the surface water through the farm efficiently, which would be eligible for NRCS funding.

- **Describe in detail the on-farm improvements that can be made as a result of this project. Include discussion of any planned or ongoing efforts by farmers/ranchers that receive water from the applicant.**
  Because the surface water delivery to replace groundwater pumping will reduce the landowner need on pumping and increase water available due to water conservation, the landowners may elect to install reservoirs to store water that could connect to future subsurface drip irrigation systems or micro-drip systems. Using groundwater to fill a reservoir is typically avoided because of the pumping costs and losses after pumping, but with surface water delivered, reservoirs become for feasible and allow for the implementation of more efficient and water conservation irrigation practices.

- **Provide a detailed explanation of how the proposed WaterSMART Grant project would help to expedite such on-farm efficiency improvements.**

By providing the landowner with a reliable source of water supply besides just groundwater, the landowner will be more confident and able to invest money into their farm to implement water efficiency improvements.

- **Fully describe the on-farm water conservation or water use efficiency benefits that would result from the enabled on-farm component of this project. Estimate the potential on-farm water savings that could result in acre-feet per year. Include support or backup documentation for any calculations or assumptions.**
  Currently farmers on the existing 3,550 acres to be improved do not have a stable and consistent water supply. Due to this inconsistency, they have been making farming decisions on a year by year basis. By providing the landowner with a reliable source of water, besides groundwater pumping, the landowner will be able to make decisions based on a consistent supply and water and invest into their farm by implementing water efficiency improvements. Many farmers may now implement water efficiency projects such as sub-surface drip irrigation which may reduce water usage by 1 acre-foot per acre per year if managed correctly.

- **Projects that include significant on-farm irrigation improvements should demonstrate the eligibility, commitment, and number or percentage of farmers/ranchers who plan to participate in any available NRCS funding programs. Applicants should provide letters of intent from farmers/ranchers in the affected project areas.**
  Many of the farmers within the 3,550-acre area are enrolled with the Tulare County Farm Service Agency (FSA) and USDA NRCS office. Because of the past uses of this program by the local landowners, it is assumed that many would implement and participate in available NRCS funding programs. At the time of this grant application the total number of landowners currently enrolled is not known.

- **Describe the extent to which this project complements an existing NRCS-funded project or a project that either has been submitted or will be submitted to NRCS for funding.**
  The project provides a more reliable source of water supply which complements sub-surface drip system investments and farm reservoir construction.

F. Criterion F: Implementation and Results

Subcriterion No. F.1: Project Planning

Does the project have a Water Conservation Plan and/or System Optimization Review (SOR) in place. Please self-certify, or provide copies of these plans where appropriate to verify that such a plan is in place.

Provide the following information regarding project planning:

(1) Identify any district-wide, or system-wide, planning that provides support for the proposed project. This could include a Water Conservation Plan, SOR, or other planning efforts done to determine the priority of this project in relation to other potential projects.
The District has a Water Conservation Plan, but a specific plan for this project has not been prepared. A Feasibility Study for the Phase 1 and Phase 2 project was completed in 2013 and adopted by the Board.

(2) Describe how the project conforms to and meets the goals of any applicable planning efforts, and identify any aspect of the project that implements a feature of an existing water plan(s).
DCTRA groundwater management plan encourages member agencies to utilize “available facilities and resources for conjunctive use through cooperative management”. This document also states that “Efficient water use and distribution within the management area will be encouraged” among member agencies. Also, this document states that the DCTRA’s management strategy for operation of facilities “consists of the construction and operation of facilities that address groundwater recharge, storage and extraction, conservation, contamination clean-up and water recycling”.

In the fall of 2013 the District commissioned a feasibility study to better serve its Riparian area. This report was reviewed by the Board of Directors and approved to proceed as the project met the objectives of the DCTRA plan and will help the District operate more efficiently with water supply.

Subcriterion No. F.2: Support and Collaboration

Describe the extent to which the project garners support and promotes collaboration.

Does the project promote and encourage collaboration among parties? Consider the following:

- **Is there widespread support for the project?**
  Yes, LTRID is part of the Deer Creek and Tule River Authority (DCTRA) which is entirely within the Tule Basin. The DCTRA has identified Basin Management Objectives between the parties to promote water efficiency and conservation type projects.

  The DCTRA is a Joint Powers Authority comprised of eight members. **ATTACHMENT C: DCTRA Member Agencies** identifies the location of the DCTRA members within the Basin. Stone Corral Irrigation District is the only member agency located outside the Basin. The eight members within the Basin covered by the Groundwater Management Plan are listed in **Table 9: DCTRA Participant Members.**

TABLE 9 - DCTRA Participant Members

DCTRA Participant Member	**Total Area** (acres)
Lower Tule River Irrigation District	103,625
Pixley Irrigation District	67,766
Porterville Irrigation District	16,997
Terra Bella Irrigation District	15,053
Saucelito Irrigation District	19,702
Tea Pot Dome Irrigation District	3,481
Vandalia Water Company	1,379
DCTRA Participant Members Total Area:	**228,660**
Public Agencies (CSD, PUD, Cities):	*13,352*
Remaining Areas within DCTRA Plan Boundary:	*47,436*
Total DCTRA Plan Boundary Area:	**289,448**

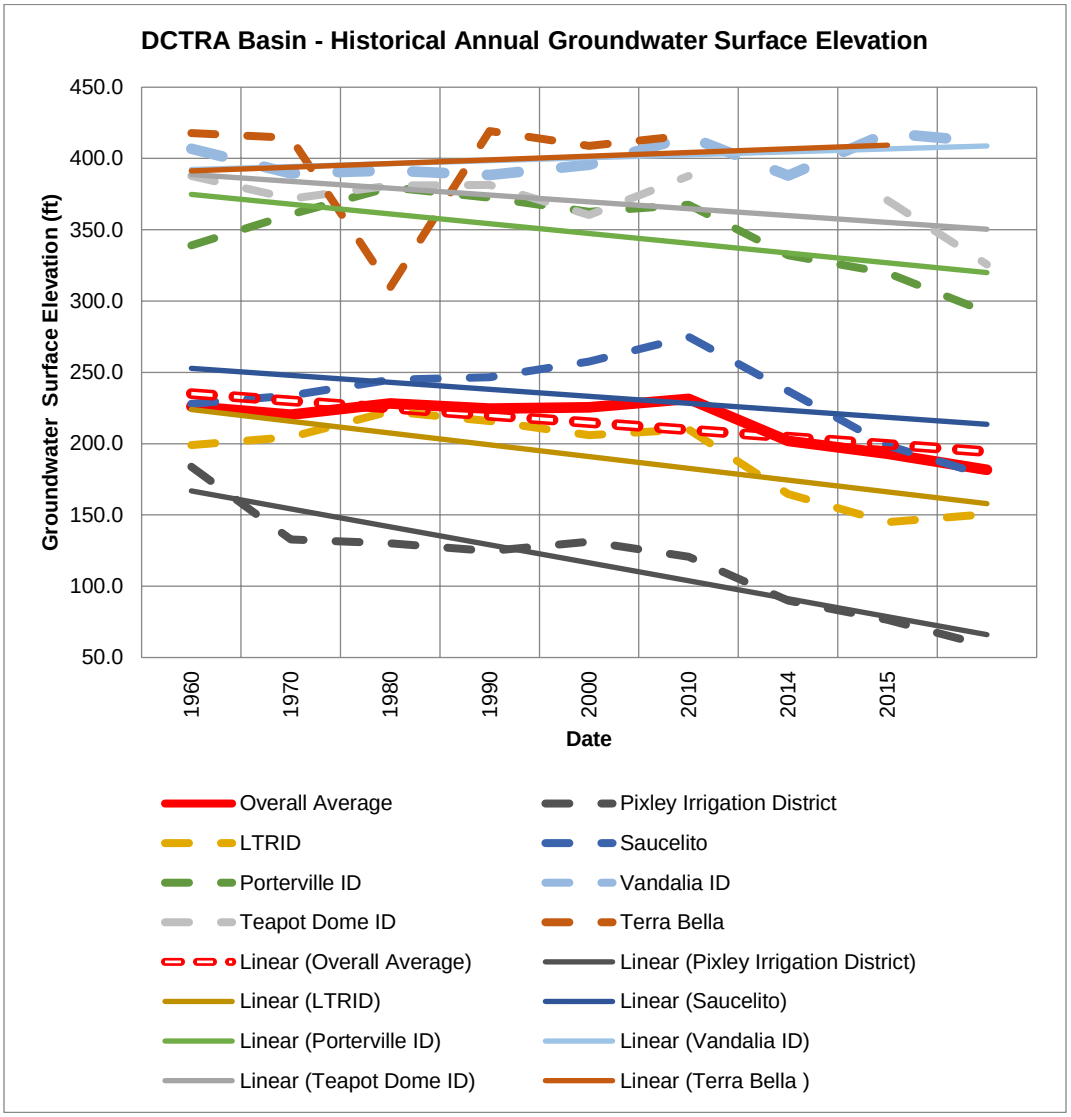
In order to guide the implementation of the Groundwater Management Plan, the DCTRA member agencies have developed five (5) Basin Management Objectives (BMO). These BMO's are the Plan key components to help maintain a more reliable groundwater supply for long-term beneficial uses within the Basin. The five BMOs are listed as follows:

1. To promote and realize groundwater resource protection;
2. To facilitate groundwater resource sustainability;
3. To develop groundwater resource understanding;
4. To develop groundwater basin understanding; and
5. To promote and facilitate information dissemination regarding the groundwater resource.

The groundwater within the DCTRA Basin has been measured and collected intermittently from 1924 by the government, farmers, municipalities, and other agencies. The historical data has been compiled and organized under the Department of Water Resources California Statewide Groundwater Elevation

Monitoring (CASGEM) program. Using this data, in conjunction with DCTRA participant information, a graphical representation of long term groundwater elevations for each DCTRA Member from 1924 is identified in **FIGURE 8: DCTRA Basin Annual Average Groundwater Surface Elevations**. Based on this graphical representation, the past 10 years have consistently dropped at accelerated rates compared to the average.

FIGURE 8: DCTRA Basin Annual Average Groundwater Surface Elevations



- **What is the significance of the collaboration/support?**
  The District is part of two separate agencies that collectively oversee and coordinate aspects of Tule River operations and policy downstream of Success Dam. The Deer Creek and the Tule River Authority (DCTRA) is a

joint powers authority of seven member agencies that jointly participate in a groundwater management plan over the Tule River and Deer Creek areas in southeastern Tulare County. The DCTRA has a board of directors mostly comprised of general managers from member agencies, holds regular board meetings and produces annual reports on conditions and changes within the service area. The Tule River Association (TRA) has five entities that are invested in the surface water management and the Tule River downstream of Success Dam and cooperate to manage available resources according to entitlement on the river. The TRA has a board of directors that employs a Water master who collects and administers the flow records for the service area.

The District has collaborated for many years with other stakeholders to better utilize water supplies within the region, and this project is a continuation of that collaboration.

- **Will the project help to prevent a water-related crisis or conflict?**
  Yes, currently those landowners within the Phase 2 Riparian Area are upset that they do not receive the reliable surface water supplies as other landowners within the LTRID boundary, but are required to pay operational assessments.

- **Is there frequently tension or litigation over water in the basin?**
  Due to cutbacks of the CVP water due to the San Joaquin River restoration and the severe drought currently taking place, there is tension on whether there is adequate surface water to meet the needs of the basin. By conserving additional water within the LTRID boundary and providing a better distribution system to the Riparian Area farmers, this alleviates local concern and gives flexibility to the LTRID when water is available to be used in the most effective and efficient way possible.

- **Is the possibility of future water conservation improvements by other water users enhanced by completion of this project?**
  Yes, the more water conservation projects in the area will allow for surface water deliveries to cover more acres and extend the season of water deliveries.

<u>Subcriterion No. F.3</u>: Performance Measures

Provide a brief summary describing the performance measure that will be used to quantify actual benefits upon completion of the project (e.g., water

saved or better managed, energy generated or saved). For more information calculating performance measure, see Section D.2.2.5 Performance Measures.

The project will provide surface water to areas underserved. The benefits will be quantified by how much surface water is delivered annually to this area upon completion of the project as compared to past years.

Using pipeline to deliver water to the riparian project area will reduce the amount of water lost due to seepage/leakage. The amount of water saved by using piping will be determined after project completion by calculating the amount of water entering the pipeline compared to the amount of water delivered to landowners.

The project will also reduce the amount of groundwater pumped. This will be identified during the Spring and Fall groundwater monitoring of groundwater levels. Over time, a reduction of groundwater depth is anticipated in the area of the project.

G. Criterion G: Additional Non-Federal Funding

Up to 4 points may be awarded to proposals that provide non-Federal funding in excess of 50 percent of the project costs. State the percentage of non-Federal funding provided using the following calculation:

$$\frac{\$2,579,662.00}{\$3,579,662.00} = 72\%$$

The funds, materials and equipment contributed by the District come from a non-Reclamation source (paid for from District reserves). The District's Non-Federal Funding Commitment is included in the **Official Resolution**.

H. Criterion H: Connection to Reclamation Project Activities

Up to 4 points may be awarded if the proposed project is in a basin with connections to Reclamation project activities. No points will be awarded for proposals without connection to a Reclamation project or Reclamation activity.

The Lower Tule River Irrigation District has maintained a good working relationship with Reclamation while implementing projects, on schedule, which were funded by grants received by Reclamation.

American Recovery and Reinvestment Act – FY 2009

The USBR provided a grant of $2,143,533 in FY 2009 through the American Recovery and Reinvestment Act (ARRA) for the help the District address water shortages resulting from droughts, climate variability, climate change, and loss of water supplies due to the San Joaquin River Restoration Settlement and pumping restrictions due to the Delta Smelt. The project improved one mile of existing earthen canal and associated control structures and constructed 2.5 miles of new earthen canal and associated control structures. The improvements were completed on time and met all strenuous reporting requirements associated with ARRA Funding.

Water for America Challenge Grant – FY 2009

The USBR provided a grant of $300,000 in FY 2009 through their Water for America Challenge Grant Program for the Districts Enhanced Water Management and Marketing Project, Phase 1 Intertie Project. The project allowed the District to deliver water to the upstream ends of the District's distribution system in an effort to conserve losses through the sandy Tule River channel and maximize delivery of surface water resources when they are available to the largest service are possible. The improvements were completed within the required timeframe and enhanced the Districts distribution system while conserving water.

Field Service Grant – FY 2005

The USBR provided a grant of $25,000 in FY 2005 through their Field Service Program to update the District's website. The improvements were completed within the required timeframe, and have provided an improved information distribution tool for the District.

LTRID has been a long-term Friant Division CVP contractor since 1951 and a Cross Valley Canal contractor with the Bureau since 1975. In compliance with its long-term contracts, LTRID cooperates with the Bureau regarding scheduled deliveries, biannual depth to groundwater readings, water conservation plans and regular meetings regarding operations of the Friant Division as well as meetings associated with the CVP's other reservoirs and Delta export pumping.

1) **How is the proposed project connected to Reclamation project activities?**

   LTRID has a long-term Friant Division CVP contract for Class one and Class Two water contract with Reclamation**.**

2) **Does the applicant receive Reclamation project water?**

   The surface water supply for the district is drawn from pre-1914 Tule River water rights and contracts with Reclamation for Central Valley Project (CVP) water from the Friant Division.

3) **Is the project on Reclamation project lands or involving Reclamation facilities?**
   No.

4) **Is the project in the same basin as a Reclamation project or activity?**
   LTRID is in the Tulare Lake Basin Hydrologic Region and is also in the southern part of California's San Joaquin Valley Basin, which is in the same basin as the Friant Kern Canal (CVP).

5) **Will the proposed work contribute water to a basin where a Reclamation project is located?**
   All water conservation occurs in the Tulare Lake Basin hydrologic region, which is the same basin as the Friant Kern Canal (CVP)

6) **Will the project help Reclamation meet trust responsibilities to Tribes?**
   No.

V. Description of Performance Measures

The project combines water conservation through the reduction of system losses, improved delivery capabilities and reduces the amount of groundwater pumped.

The primary performance measure used to quantify benefits from the new Lateral will be to compare post project surface water deliveries with pre-project surface water deliveries. The proposed project will be providing surface water to an area currently underserved and by measuring post-project deliveries by pre-project deliveries it will give us quantifiable information regarding the expanded distribution system. Additionally, this information will provide a better understanding to the areas surface water needs and how to better manage that water.

The primary performance measure to determine the reduced amount of groundwater pumping in the Riparian area will be identified through Spring and Fall groundwater monitoring of groundwater levels.

As previously stated, Part of the Districts monitoring efforts include measuring the depth to static groundwater measurements are taken twice a year, once in the Spring *(February*) and again in the Fall (*October*). By comparing pre-project arithmetical annual average depth to groundwater of the wells measured with post project groundwater depth we can compare that to over 62 years of data and determine the seasonal and long term benefits of reduced pumping. It has been noted that in the past 62 years groundwater levels have dropped 51.9 feet. The more recent average in depth to groundwater for the past 13 years has dropped 22.3 feet. It is expected that over time, a reduction of groundwater depths is anticipated in the area proposed project.

A. Performance Measure No. A.5: Groundwater Recharge

In-Lieu Recharge

The total area served by Phase 2 is approximated 3,550 acres. This area is currently relies heavily on groundwater pumping. Based on the crop consumptive demands for the area of approximately 4.5 acre-feet/acre/year, the total water consumptive demand for this Phase 2 riparian area is 15,975 acre feet per year. On a normal water year, approximately 10,368 acre-feet of water is delivered, reducing the groundwater pumping by 65 percent.

Groundwater Supplies

The District does not own any groundwater wells and therefore has no direct use of groundwater supplies. However, groundwater is used by private landowners within the District to supplement the consumptive water needs for their lands beyond what surface water is provided. Groundwater pumping is increased during dry years with lack of surface water and reduced during wet years when there is

adequate surface water. The District tracks depths to groundwater in the area through a network of monitoring wells to help identify and address overdraft issues. In addition, the groundwater monitoring is used to address broader regional issues under the Groundwater Management Plan, a formalized plan prepared in conformance with State Law (*AB 3030, SB 1938*).

Part of the Districts monitoring efforts include measuring the depth to static groundwater measurements are taken twice a year, once in the Spring *(February*) and again in the Fall (*October*). Depth to groundwater contour maps for both the 2015 Spring and Fall measurements have been prepared and are included as **Attachment D and Attachment F**. Groundwater elevation contour maps for both the 2015 Spring and Fall measurements have been prepared and are included as **Attachment E and Attachment G**. Groundwater elevation and depth to groundwater maps have been prepared for spring of 2016 and are included as **Attachment H and I.**

Average depths to groundwater from the 2015 measurements are represented in **Table 11: LTRID 2014 Average Depth and Elevation to Groundwater.** Between the 2015 Spring and Fall sampling events, the average groundwater elevation dropped by twelve and eighty-seven tenths feet (12.87), as computed as the arithmetical average of all measurements within the LTRID boundary.

TABLE 10 - LTRID 2015 Average Depth and Elevation of Groundwater

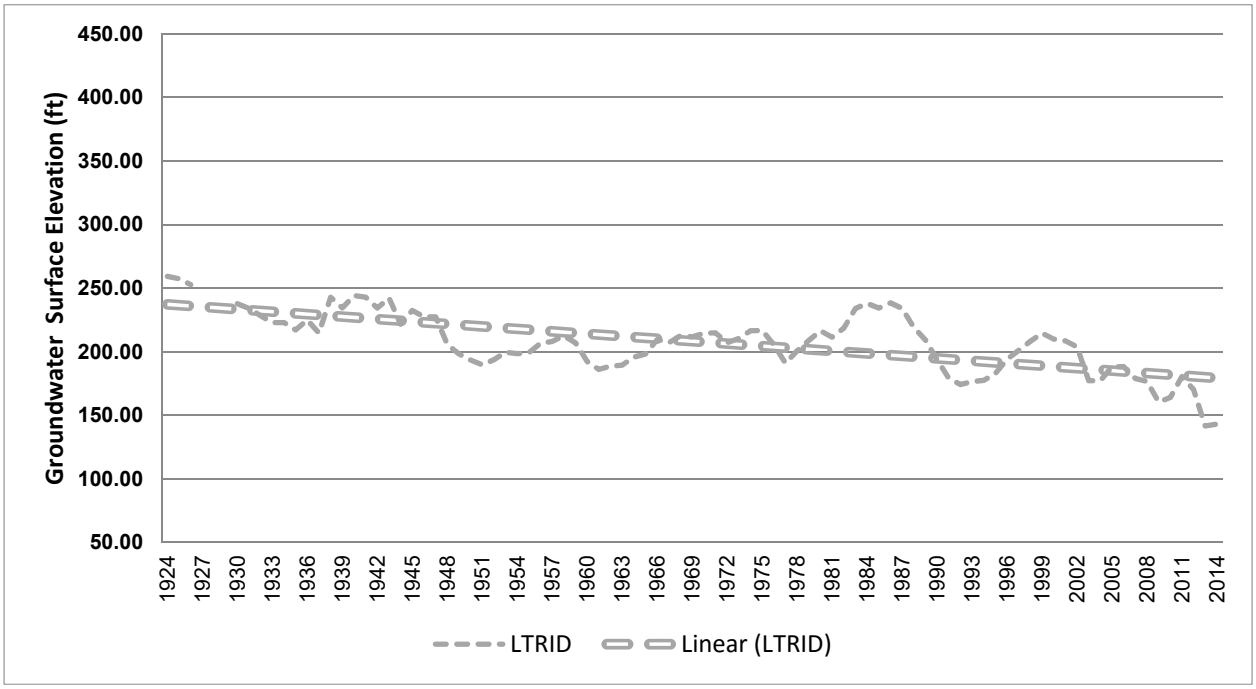
# of Wells Measured	*Spring 2015 Average Depth to Groundwater (ft.)*	*Spring 2015 Average Groundwater Elevation (ft.)**	*Fall 2015 Average Depth to Groundwater (ft.)*	*Fall 2015 Average Groundwater Elevation (ft.)*	*Change in Groundwater Elevation (ft.)*
52	137.67	147.22	150.54	111.69	(12.87)

Based upon the arithmetical annual average depth to groundwater of the wells measured, Summarized in **Table 12: LTRID Historical Average Depth to Groundwater** and **Figure 9: LTRID Historic Groundwater Surface Elevation**, the level in groundwater depth over the past 64 years has dropped 45.87 feet. The more recent average in depth to groundwater for the past 15 years has dropped 56.77 feet. The reason for the increase in depth to groundwater is due to additional land development, more than one crop per year, and less imported water due to environmental restrictions requiring pumping of additional groundwater. In addition, the recent data is more representative of the area than the older data because of additional data points.

Table 11: LTRID Historical Average Depth to Groundwater

LTRID Historical Average Depth to Groundwater								
1950	*1960*	*1970*	*1980*	*1990*	*2000*	*2010*	*2015*	*1950 - 2014 Change*
91.8	86.2	68.2	75.0	84.8	80.9	126.2	137.67	(45.87)

FIGURE 9: LTRID Historic Groundwater Surface Elevation



B. Performance Measure No. B.2: Increasing Energy Efficiency in Water Management

The LTRID distribution system is designed to primarily operate on gravity to avoid pump stations. In general, the surface topography of the district runs east to west, and therefore the main canals all flow east to west. This avoids pumping costs by the District.

In addition, LTRID is involved in the operation, maintenance, and ownership of the hydro-electric turbine project located at Success Reservoir. During releases of surface water from the Reservoir, the water is diverted through the hydro-electric turbine which converts the energy to electricity and back into the Southern California Edison grid

One of the objectives of the Phase 2 project is to offset groundwater pumping by delivering surface water by gravity to landowners at their individual irrigation system headworks. The average pump size within the area is a 50 HP motor with an average of 140,000 kW/year. An estimated 36 wells are within the Phase 2 area (*each well covers 100 acres on average*) which on a normal water year would have a reduction of 93% of the energy usage. This would equate to approximately 5.0 MW/year of

the energy usage. This would equate to approximately 5.0 MW/year of reduction. During wet years, this would be reduced more, during dry years this would not be reduced as much.

C. Performance Measure No. C: Projects that Benefit Endangered Species and/or Critical Habitat

The District has favorable habitat in the Tule Basin for various native species. The District takes great care as to not negatively impact the potential habitat of these animals and has sent many of their staff to Biological training to understand biological impacts in the area and help recognize habitat and species when encountered. As part of the proposed Phase 2 project, a Biological Survey was conducted as part of the Initial Study and Environmental Assessment which identified potential species. To mitigate the concern, a pre-project biological survey will be conducted within 3 weeks of construction to verify that no habitat or species are within the construction zone.

The underground pipeline distribution system is designed to bypass the natural channels of the Tule River to mitigate any effects towards species in the area. These channels will remain following the project to ensure potential habitat is not disturbed. During construction, LTRID will initiate measures to avoid impacts to the Western Burrowing Owl, in compliance with US Fish and Wildlife Service Biological Opinion and Long-Term Friant Division CVP Contract Renewal and Draft Staff Report of Burrowing Owl Mitigation.

LOWER TULE RIVER IRRIGATION DISTRICT

RIPARIAN AREA DISTRIBUTION SYSTEM
Environmental and Cultural Resources Compliance

The project has completed the CEQA process for the proposed project. An initial study has been completed and a biological resource study is being conducted for the project area. The initial study/negative declaration was adopted by the LTRID on January 12, 2015. A copy of the Resolution and Notice of Determination is included in **Attachment J: CEQA Notice of Determination.**

The California Natural Diversity Database (CNDDB) was searched for recorded biological sightings near the proposed project area. It was found that a portion of the Project has been included in the general area of San Joaquin Valley Kit Fox habitat. Other than this, no recorded sightings were found in the immediate area of the proposed project.

Although the burrowing owl is not known to inhabit the proposed project site at this time, they often invade squirrel burrows on pond and canal banks and rights-of-way. The western burrowing owl has been listed on the California Department of Fish and Game Species Concern. During construction LTRID will initiate measures in the area of construction to avoid impacts to the western burrowing owl, in compliance with US Fish and Wildlife Service Biological Opinion and Long-Term Friant Division CVP Contract Renewal and Draft Staff Report of Burrowing Owl Mitigation (CDFG 1994).

In the past, much of the Valley floor was habitat for the San Joaquin kit fox. Although, no natural habitat remains on the proposed Project site, it is possible that the kit fox may range through the proposed Project area. The District will conduct environmental pre-activity surveys prior to ground disturbing activities during initial construction in accordance with the US Fish and Wildlife Service Biological Opinion on Long-Term Friant Division CVP Contract Renewal (1998) and the US Fish and Wildlife Service Standardized Recommendations for Protection of the San Joaquin Kit Fox prior to or During Ground Disturbance (USFWS 1999) and standard practices for take avoidance conducted in Tulare County should protect this species. The US Fish and Wildlife Services has previously issued no jeopardy decision relative to normal operations and maintenance of canals relative to the San Joaquin kit fox.

To mitigate environmental concerns for riparian area the Tule river channel will not be altered or changed during construction of this project to project the habitat of any species in the area. The proposed underground pipeline will bi-pass the natural channels of the Tule River. Additionally, a pre-project biological survey will be conducted within 3 weeks of construction to verify that no habitat or species are within the construction zone.

LOWER TULE RIVER IRRIGATION DISTRICT

RIPARIAN AREA DISTRIBUTION SYSTEM REQUIRED PERMITS AND APPROVALS

Required Permits would include:

i. CEQA: A California Environmental Quality Act Negative Declaration was completed as part of the projects feasibility study A copy of the Resolution and Notice of Determination is included in **Attachment J: CEQA Notice of Determination.**

ii. Department of Fish and Wildlife: Submit application for 1602 permit for turnout construction within the natural channel of the Tule River

iii. Tulare County Encroachment Permit: Submit application for encroachment permit where pipeline crosses County roads

iv. Right of Way/Easements: Submit legal descriptions and easement documents to each private landowner where the proposed pipeline is proposed to be located.

v. Engineering/Design Work: A feasibility study has been completed for the project identifying the methodology of design, the anticipated pipeline locations, and the properties served by the new pipeline. This study will need to be updated and detailed construction plans and specifications prepared. LTRID staff will construct the project based on the final Engineer stamped and approved plans and specifications.

LOWER TULE RIVER IRRIGATION DISTRICT

RIPARIAN AREA DISTRIBUTION SYSTEM OFFICIAL RESOLUTION

RESOLUTION No. 2017-1-1

APPLICANT'S NAME: LOWER TULE RIVER IRRIGATION DISTRICT

WHEREAS, the Board of Directors of the Lower Tule River Irrigation District is in agreement that an application be made to the Department of the Interior, Bureau of Reclamation (Bureau) for Funding Opportunity Announcement No. BOR-DO-17-F012, WaterSMART: Water and Energy Efficiency Grant for FY 2017, and to enter into an agreement to receive a grant from this funding source if said application should be successful, the Bureau has available grant funds, and the District's contribution to the effort as described in the application be acceptable to the Bureau. The General Manager of the District is hereby authorized and directed to prepare the necessary date, conduct investigations, file such application and execute a grant agreement with the Bureau.

NOW THEREFORE, BE IT RESOLVED that the Board of Directors agrees and authorizes that:

1. **The Board of Directors has reviewed and supports the proposal submitted;**
2. **The District is capable of providing the amount of funding and in-kind contributions, specified in the funding plan; and**
3. **If selected for the WaterSMART Grant, the applicant will work with Reclamation to meet established deadlines for entering into a cooperative agreement.**

DATED: 1/10/2017

Daniel G. Vink, Secretary

LOWER TULE RIVER IRRIGATION DISTRICT

PROJECT BUDGET

A. Funding Plan

1. Funding Plan and Letters of Commitment

Letters of Commitment
There will be no source of project funding other than the applicant. No Letters of Commitment from third parties are required.

Certified District Financials
The District's Basic Financial Statements and Supplementary Information: Year Ended December 31, 2014 and 2015 (Certified Financials) are available to the Bureau upon request. Due to the page limit for the document the District self-certifies that "Lower Tule River Irrigation District Financial Statements and Supplementary information December 31, 2014 and 2015 will be made available to the Bureau if additional information is desired or if it is determined to be helpful to the reviewer of the Bureau.

1) **How will you make your contribution to the cost share requirements, such as monetary and/or in-kind contributions and source funds contribution by the application (e.g., reserve account, tax revenue, and/or assessments)?**
   The District has a reserve account that is more than healthy enough to meet the needed contributions for their portion of the project.

2) **Describe any in-kind costs incurred before the anticipated project start date that you seek to include as project costs.**
   None are expected

3) **What project expenses have been incurred?**
   $7,000 was spent in the Fall of 2014 on a feasibility and analysis of the proposed project. The benefit of this expense was to get a better understanding of the costs and benefits associated with the project. An additional $23,000 has been spent over the course of the 2015 fiscal year on CEQA and other environmental research associated with the project area. This early research allows for the client to

determine any potential permitting issues with the project, of which none have been encountered.

4) **Provide the identity and amount of funding to be provided by funding partners, as well as the Letters of Commitment.**
There are no additional funding partners for this project. All non-Reclamation funding will be provided by the applicant.

5) **Describe and funding requests or received from other Federal partners:**
No other funded requests have been submitted or received to other Federal Partners. See **Table 12 – Summary of Non-Federal Funding Sources**

6) **Describe any pending funding requests that have not yet been approved, and explain how the project will be affected if such funding is denied.**
There are no pending funding requests associated with this project.

TABLE 12 – SUMMARY OF NON-FEDERAL FUNDING SOURCES

Funding Sources	Funding Amount
Non-Federal entities	
Lower Tule River Irrigation District	$2,579,662.00
Non-Federal subtotal:	$2,579,662.00
Other Federal entities	
Other Federal subtotal:	$0.00
Requested Reclamation funding:	$1,000,000.00
Total project funding:	$3,579,662.00

TABLE 13 – FUNDING GROUP II FUNDING REQUEST

Funding Group II Request			
	Year 1 (FY 2017)	**Year 2 (FY 2018)**	**Year 3 (FY 2019)**
Funding Request	$1,000,000.00	$0.00	$0.00

B. Budget Proposal

TABLE 14 – FUNDING SOURCES

Funding Sources	Percent of Total Project Cost	Total Cost by Source
Recipient Funding	72.06%	$2,579,662.00
Reclamation Funding	27.94%	$1,000,000.00
Other Federal Funding	0.00%	$0.00
Totals	**100.00%**	**$3,579,662.00**

TABLE 15 – BUDGET PROPOSAL

Budget Item Description	Computation		Quantity Type	Total Cost	Recipient Funding	Reclamation Funding
	$/Unit	Quantity	(hours/days)			
Salaries and Wages						
LTRID Employees	$ 20.30	3500	hr	**$ 71,050.00**	$ 71,050.00	
Fringe Benefits					$ -	
LTRID Employees	$ 7.25	3500	hr	**$ 25,375.00**	$ 25,375.00	
Travel					$ -	
	$ 0.56	2000	mile	**$ 1,120.00**	$ 1,120.00	
Equipment				**$ -**	$ -	
Pipeline Dirt Work	$ 1.75	36928	cy	**$ 64,624.00**	$ 44,624.00	$ 20,000.00
Relocation/Demolitions	$ 2.00	36928	cy	**$ 73,856.00**	$ 73,856.00	
Supplies/Materials				**$ -**	$ -	
18" - 36" Pipeline	$ 60.00	31152	lf	**$ 1,869,120.00**	$ 969,120.00	$ 900,000.00
Relocation / Demolition	$ 225,000.00	1	ea	**$ 225,000.00**	$ 225,000.00	
Road Replacement	$ 5.00	3900	sf	**$ 19,500.00**	$ 19,500.00	
Turnout	$ 2,500.00	35	ea	**$ 87,500.00**	$ 37,500.00	$ 50,000.00
Ditch Structure (Drop, Headwall, Flume)	$ 10,000.00	6	ea	**$ 60,000.00**	$ 30,000.00	$ 30,000.00
Contractural/Construction				**$ -**	$ -	
Topographic Survey by Consultant	$ 150.00	167	Average/hr	**$ 25,050.00**	$ 25,050.00	
Property Research & Easements by Consultant	$ 125.00	200	Average/hr	**$ 25,000.00**	$ 25,000.00	
Right of Way Land Acquisition/Easement Land Cost by Consultant	$ 15,000.00	30.0	acre	**$ 450,000.00**	$ 450,000.00	
Nationwide 404 Permit by Consultant	$ 115.00	65	Average/hr	**$ 7,475.00**	$ 7,475.00	
DFG 1602 Permit by Consultant	$ 115.00	65	Average/hr	**$ 7,475.00**	$ 7,475.00	
Construction Plans & Final Design by Consultant	$ 115.00	1010	Average/hr	**$ 116,150.00**	$ 116,150.00	
Construction Staking by Consultant	$ 175.00	325	Average/hr	**$ 56,875.00**	$ 56,875.00	
Reporting by Consultant	$ 95.00	200	Average/hr	**$ 19,000.00**	$ 19,000.00	
					$ -	
Environmental	$ 125.00	400	Average/hr	**$ 50,000.00**	$ 50,000.00	
					$ -	
Other					$ -	
Contingency @ 10%				**$ 320,417.00**	$ 320,417.00	
Total Direct Costs				**$ 3,574,587.00**	$2,574,587.00	$1,000,000.00

Indirect Costs - 1.0%						
Employer P/R Taxes	$ 1.45	3500	hr	**$ 5,075.00**	$ 5,075.00	
Total Project Costs				**$ 3,579,662.00**	$2,579,662.00	$1,000,000.00
Percentage of Costs					*72.06%*	*27.94%*

Salaries and Wages – The average salary for a LTRID employee involved in this project is $34.50; of which 70% is payable in wages. The cost per line item is provided in **Table 15: Budget Proposal.**

Fringe Benefits – Fringe benefits for LTRID employees involved in the Project total 25% of the average salary per employee. Fringe benefits that are available to each employee are medical, dental and vision insurance; worker's compensation and short-term and long term disability. The cost per line item is provided in **Table 15: Budget Proposal.**

Travel – The costs in this line item are associated with the travel costs for the District's Consulting Engineer to travel to and from the Project site at the Consultant's bill rate of $0.56 per mile.

Equipment – LTRID owns and operates all the heavy equipment that will be used in this Project; because there will not be any rental costs associated with this project, all equipment costs are generated to include equipment usage and fuel consumption during earth moving activities. It is estimated that operation and maintenance per cubic yard of earth moving will cost $2.00.

Materials and Supplies – All supply and material costs are considered preliminary and are solely based on similar costs currently being constructed in the local area. Office Supply costs are for the preparation of any permitting, reporting documents and plan creation. LTRID is preparing all required reporting documents.

Contractual/Construction – LTRID will consult with a local engineering firm (4Creeks, Inc.) to assist with the design and completion of the project. Labor for the Engineering consultant will be to provide a detailed design, construction management and to assist LTRID in preparing all required reporting documents.

Environmental and Regulatory Compliance Costs – A minimum of 1.5 percent of the total Project cost are set aside for environmental

compliance costs as per the instructions in the application. However, CEQA compliance has already been accomplished and indicates NEPA compliance should not be onerous. This line item also assumes administrative time required to prepare, submit and attain the required permitting for the Project. It is hoped that unused funds from this category can be sued for other Project expenses if they are not needed for environmental compliance.

Other Costs – This line item includes a 10% contingency on all construction activities. A breakdown of contingency costs per line item is provided in **Table 15: Budget Proposal.**

Indirect Costs – The only indirect costs associated with the Project are Employer Taxes, which total 5% of the District's average salary per employee. The cost per line item is provided in **Table 15: Budget Proposal.**

Indirect Costs – The only indirect costs associated with the Project are Employer Taxes, which total 5% of the District's average salary per employee. The cost per line item is provided in **Table 15: Budget Proposal.**

Total Costs – Total Direct Costs are anticipated to be $3,574,587.00. Total Project Costs, which include Employer P/R Taxes, are anticipated to be $5,075.00.

A. Budget Forms

See the attached SF-424C Budget Form.

LOWER TULE RIVER IRRIGATION DISTRICT

RIPARIAN AREA DISTRIBUTION SYSTEM LETTERS OF SUPPORT

Pixley Irrigation District

SINCE 1958

Example Letter of Support:

January 18, 2017

Bureau of Reclamation
Acquisition Operations Branch
Attn: Ms. Rupal Shah
Mail Code: 84-27852
Denver Federal Center, Bldg 56, Rm. 1000
6th Avenue and Kipling Street
Denver, CO 80225

To Whom It May Concern:

It is my pleasure to write a letter in support of the Lower Tule River Irrigation District, Riparian Area Distribution System being submitted to the Bureau of Reclamation 2017 WaterSMART: Water and Energy Efficiency Grants by Lower Tule River Irrigation District.

We work cooperatively with the Lower Tule River Irrigation District on various water supply programs and recognize their need to continue to be able to improve their ability to use their existing water resources and provide opportunities to enhance the water supply delivered to their landowners. This project will further advance that effort through the various conservation and efficiency methods outlined in the application.

In Conclusion, I fully support the efforts of Lower Tule River Irrigation District as they seek external funding to support a project designed to serve additional landowners within the District. Any project that can help provide additional surface water to an area currently underserved and congruently reduce the amount of groundwater pumping in the district will provide immense benefits to our district, neighboring districts, and the Tule Subbasin as a whole.

Sincerely,

Dan Vink
General Manager

357 E. Olive Avenue
Tipton, CA 93272
(559) 686-4716
or (559) 752-5050
FAX (559) 686-0151
e-MAIL ltrid@ltrid.org

PIONEER WATER COMPANY
357 E Clive Ave Tipton Ca 93272

Example Letter of Support:

January 18, 2017

Bureau of Reclamation
Acquisition Operations Branch
Attn: Ms. Rupal Shah
Mail Code: 84-27852
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Sincerely,

Dan Vink
General Manager

357 E. Olive Avenue
Tipton, Ca 93272
Office: (559) 752-5050
Fax: (559) 686-0151

STONE CORRAL IRRIGATION DISTRICT

Protect farmer's and their water !

DALE WEST

MANAGER

37656 Road 172
Visalia CA 93292-9194
Mailing Address
P.O. Box 367
Ivanhoe, CA 93235

Phone & Fax: 559-528-4408
E-mail:
stonecorralidgm@gmail.com

January 18, 2017

Bureau of Reclamation
Acquisition Operations Branch
Attn: Ms. Rupal Shah
Mail Code: 84-27852
Denver Federal Center, Bldg 56, Rm. 1000
6th Avenue and Kipling Street
Denver, CO 80225

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Sincerely,
William D. West
General Manager

SSJMUD Southern San Joaquin Municipal Utility District

Mail:
P. O. Box 279
Delano, CA 93216

Shipping:
11281 Garzoli Ave.
Delano, CA 93215

Phone:
(661) 725-0610

Facsimile:
(661) 725-2110

Email:
water@ssjmud.org

January 7, 2017
Bureau of Reclamation
Acquisition Operations Branch
Attn: Ms. Rupal Shah
Mail Code: 84-27852
Denver Federal Center, Bldg 56, Rm. 1000
6th Avenue and Kipling Street
Denver, CO 80225

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Sincerely,

Roland Gross
General Manager

EXETER IRRIGATION DISTRICT

PRESIDENT
STANLEY L. COSART
SECRETARY/MANAGER
THOMAS G. WEDDLE
ATTORNEY
JEFFREY A. MEITH

150 SOUTH E STREET
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DIRECTORS
STANLEY L. COSART
JOSEPH E. FERRARA
ROBERT C. WARD
GREGORY V. CROSSON
RALPH E. FULLER

January 18, 2017

Bureau of Reclamation
Acquisition Operations Branch
Attn: Ms. Rupal Shah
Mail Code: 84-27852
Denver Federal Center, Bldg. 56, Rm. 1000
6th Avenue and Kipling Street
Denver, CO 80225

To Whom It May Concern:

It is my pleasure to write a letter in support of the Lower Tule River Irrigation District, Riparian Area Distribution System being submitted to the Bureau of Reclamation 2017 WaterSMART: Water and Energy Efficiency Grants by Lower Tule River Irrigation District.

We work cooperatively with the Lower Tule River Irrigation District on various water supply programs and recognize their need to continue to be able to improve their ability to use their existing water resources and provide opportunities to enhance the water supply delivered to their landowners. This project will further advance that effort through the various conservation and efficiency methods outlined in the application.

In Conclusion, I fully support the efforts of Lower Tule River Irrigation District as they seek external funding to support a project designed to serve additional landowners within the District. Any project that can help provide additional surface water to an area currently underserved and congruently reduce the amount of groundwater pumping in the district will provide immense benefits to our district, neighboring districts, and the Tule Subbasin as a whole.

Sincerely,

Thomas Weddle
General Manager

IVANHOE IRRIGATION DISTRICT
33777 ROAD 164
VISALIA, CALIFORNIA 93292-9176
TELEPHONE (559) 798-1118 • FAX (559) 798-2479

January 18, 2017

Bureau of Reclamation
Acquisition Operations Branch
Attn: Ms. Rupal Shah
Mail Code: 84-27852
Denver Federal Center, Bldg. 56, Rm. 1000
6th Avenue and Kipling Street
Denver, CO 80225

To Whom It May Concern:

It is my pleasure to write a letter in support of the Lower Tule River Irrigation District, Riparian Area Distribution System being submitted to the Bureau of Reclamation 2017 WaterSMART: Water and Energy Efficiency Grants by Lower Tule River Irrigation District.

We work cooperatively with the Lower Tule River Irrigation District on various water supply programs and recognize their need to continue to be able to improve their ability to use their existing water resources and provide opportunities to enhance the water supply delivered to their landowners. This project will further advance that effort through the various conservation and efficiency methods outlined in the application.

In Conclusion, I fully support the efforts of Lower Tule River Irrigation District as they seek external funding to support a project designed to serve additional landowners within the District. Any project that can help provide additional surface water to an area currently underserved and congruently reduce the amount of groundwater pumping in the district will provide immense benefits to our district, neighboring districts, and the Tule Subbasin as a whole.

Sincerely,

Thomas Weddle
General Manager

DELANO – EARLIMART IRRIGATION DISTRICT

January 18, 2017

Bureau of Reclamation
Acquisition Operations Branch
Attn: Ms. Rupal Shah
Mail Code: 84-27852
Denver Federal Center, Bldg 56, Rm. 1000
6th Avenue and Kipling Street
Denver, CO 80225

To Whom It May Concern:

It is my pleasure to write a letter in support of the Lower Tule River Irrigation District, Riparian Area Distribution System being submitted to the Bureau of Reclamation 2017 WaterSMART: Water and Energy Efficiency Grants by Lower Tule River Irrigation District.

Delano-Earlimart Irrigation District works cooperatively with the Lower Tule River Irrigation District on various water supply programs and recognizes their need to continue to be able to improve their ability to use their existing water resources and provide opportunities to enhance the water supply delivered to their landowners. This project will further advance that effort through the various conservation and efficiency methods outlined in the application.

In Conclusion, Delano-Earlimart Irrigation District fully supports the efforts of Lower Tule River Irrigation District as they seek external funding to support a project designed to serve additional landowners within the District. Any project that can help provide additional surface water to an area currently underserved and congruently reduce the amount of groundwater pumping in the district will provide immense benefits to our district, neighboring districts, and the Tule Subbasin as a whole.

Sincerely,

Eric R. Quinley
General Manager

14181 Avenue 24 • Delano, California 93215 • Telephone (661) 725-2526 • Fax (661) 725-2556
email deid@deid.us

TEA POT DOME WATER DISTRICT

☆ ☆ ☆
105 W. TEA POT DOME AVE • PORTERVILLE, CA 93257
TELEPHONE: (559) 784-8641

January 11, 2017

Bureau of Reclamation
Acquisition Operations Branch
Attn: Ms. Rupal Shah
Mail Code: 84-27852
Denver Federal Center, Bldg 56, Rm. 1000
6th Avenue and Kipling Street
Denver, CO 80225

To Whom It May Concern:

It is my pleasure to write a letter in support of the Lower Tule River Irrigation District, Riparian Area Distribution System being submitted to the Bureau of Reclamation 2017 WaterSMART: Water and Energy Efficiency Grants by Lower Tule River Irrigation District.

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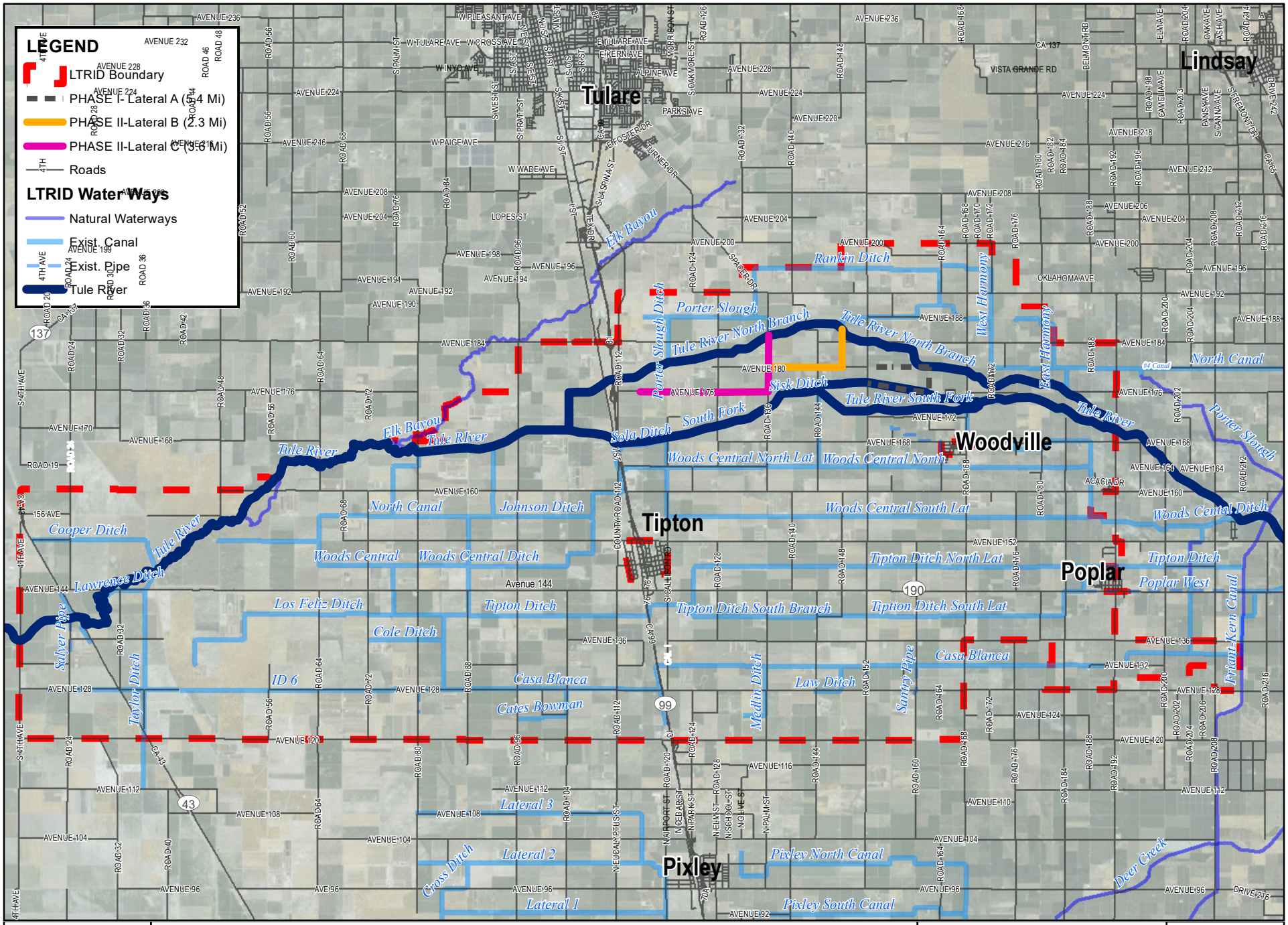
Sincerely,

Keith Norris
General Manager

LOWER TULE RIVER IRRIGATION DISTRICT

ATTACHMENTS



4CREEKS

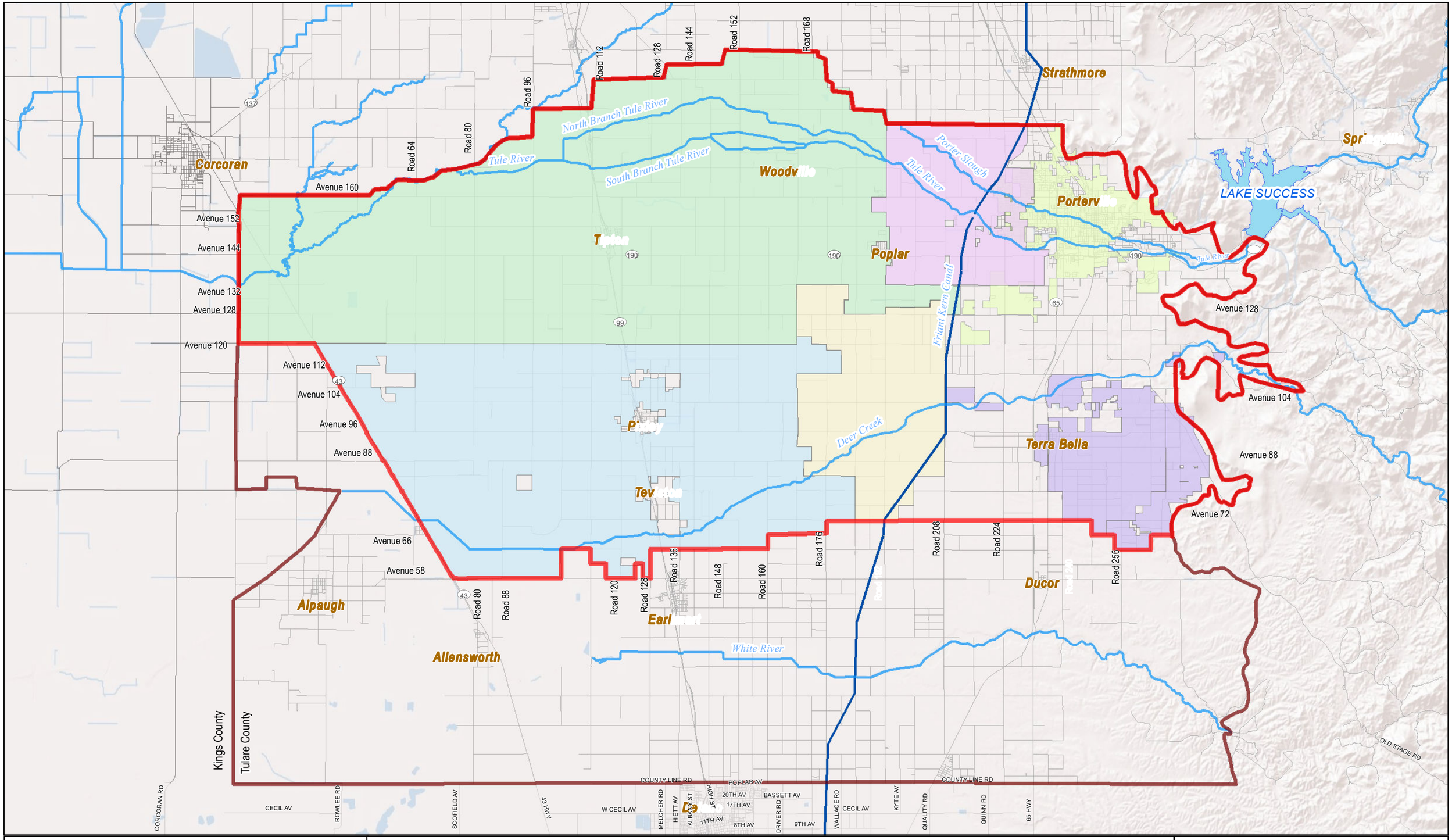
LOWER TULE RIVER IRRIGATION DISTRICT
Riparian Area Service Area

N

0 0.5 1 2 3 4 Miles

Attachment A

ID	Task Name	Duration	Start	Finish
1	**Task 1: Feasiblity and Environmental Assessments**	Complete		
2	1.1: Feasibility Study	Complete		
3	1.2: Environmental Assessment	Complete		
4	**Task 2: Environmental Permitting**	**90 days**	**Mon 10/2/17**	**Fri 2/2/18**
5	2.1: Clean Water Act Section 404 Permit (Nationwide) for Two Locations at Tule River	90 days	Mon 10/2/17	Fri 2/2/18
6	2.2: DFW 1602 Permit for Two Locations at Tule River	90 days	Mon 10/2/17	Fri 2/2/18
7	**Task 3: Surveying**	**175 days**	**Mon 10/2/17**	**Fri 6/1/18**
8	3.1: Topographic Survey of Project Site	45 days	Mon 10/2/17	Fri 12/1/17
9	3.2: Parcel Research for Parcels Involved with Project	45 days	Mon 10/2/17	Fri 12/1/17
10	3.3: Draft Easements, Negotiate with Landowners, and Record with County of Tulare	130 days	Mon 12/4/17	Fri 6/1/18
11	3.3: Right of Way Acquisition with County of Tulare	90 days	Mon 1/29/18	Fri 6/1/18
12	**Task 4: Engineering**	**175 days**	**Mon 12/4/17**	**Fri 8/3/18**
13	4.1: Complete Construction Drawings and Plan Set	130 days	Mon 12/4/17	Fri 6/1/18
14	4.2: Complete Specifications	65 days	Mon 4/2/18	Fri 6/29/18
15	4.3: Engineer's Cost Estimate	45 days	Mon 6/4/18	Fri 8/3/18
16	**Task 5: Bidding**	45 days	**Mon 7/2/18**	**Fri 8/31/18**
17	**Task 6: Initial Construction Staking**	20 days	**Mon 9/3/18**	**Fri 9/28/18**
18	**Task 7: Construction Mobilization**	20 days	**Mon 9/3/18**	**Fri 9/28/18**
19	**Task 8: Project Construction**	**195 days**	**Mon 10/1/18**	**Fri 6/28/19**
20	8.2: Construction	195 days	Mon 10/1/18	Fri 6/28/19
21	8.1: Construction Staking	195 days	Mon 10/1/18	Fri 6/28/19



0 0.75 1.5 3 Miles

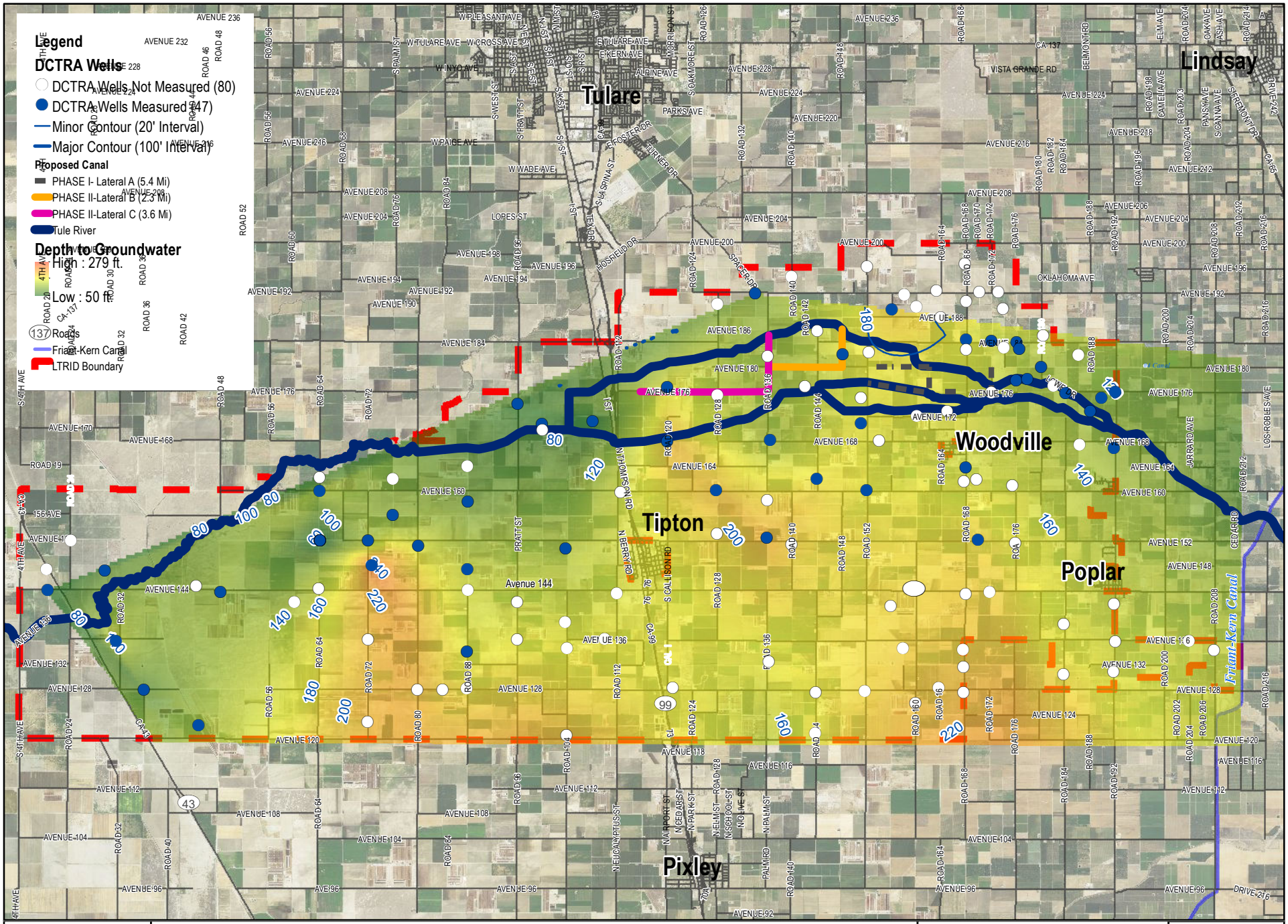
324 S. Santa Fe., Ste. A
Visalia, California 93292
(559) 802-3052

Legend

- DCTRA Boundary
- Tule Groundwater Subbasin
- LTRID Boundary
- Pixley ID Boundary
- Porterville ID
- TBID Boundary
- Saucelito ID
- Teapot Dome WD
- Vandalia WD
- City of Porterville
- LakeSuccess
- Waterways
- Friant-Kern Canal
- Streets

Attachment C
DCTRA Membership Districts

Deer Creek Tule River Authority



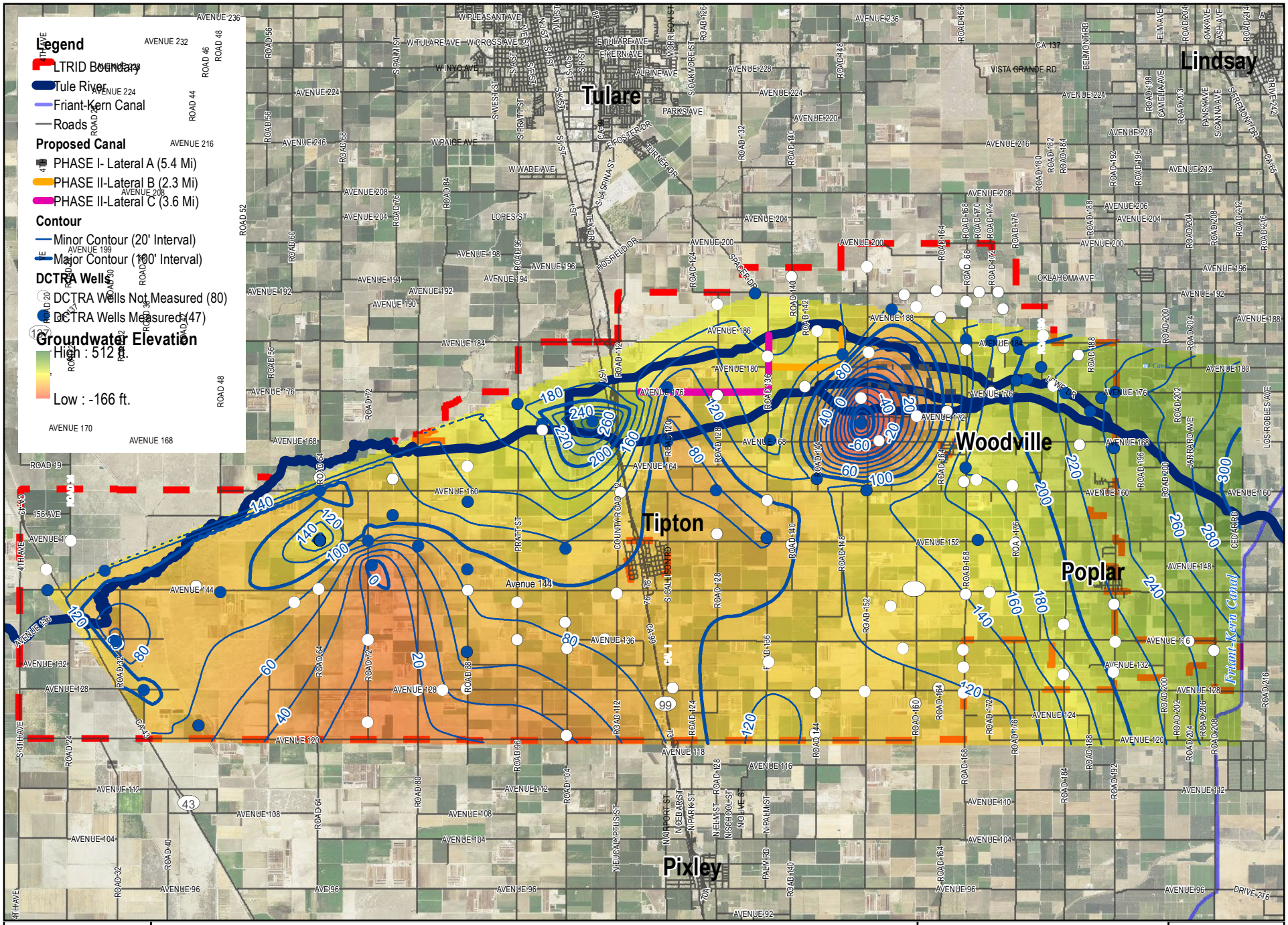
4CREEKS

LOWER TULE RIVER IRRIGATION DISTRICT
Spring 2015 Depth to Groundwater

N

0 0.5 1 2 3 4 Miles

Attachment D



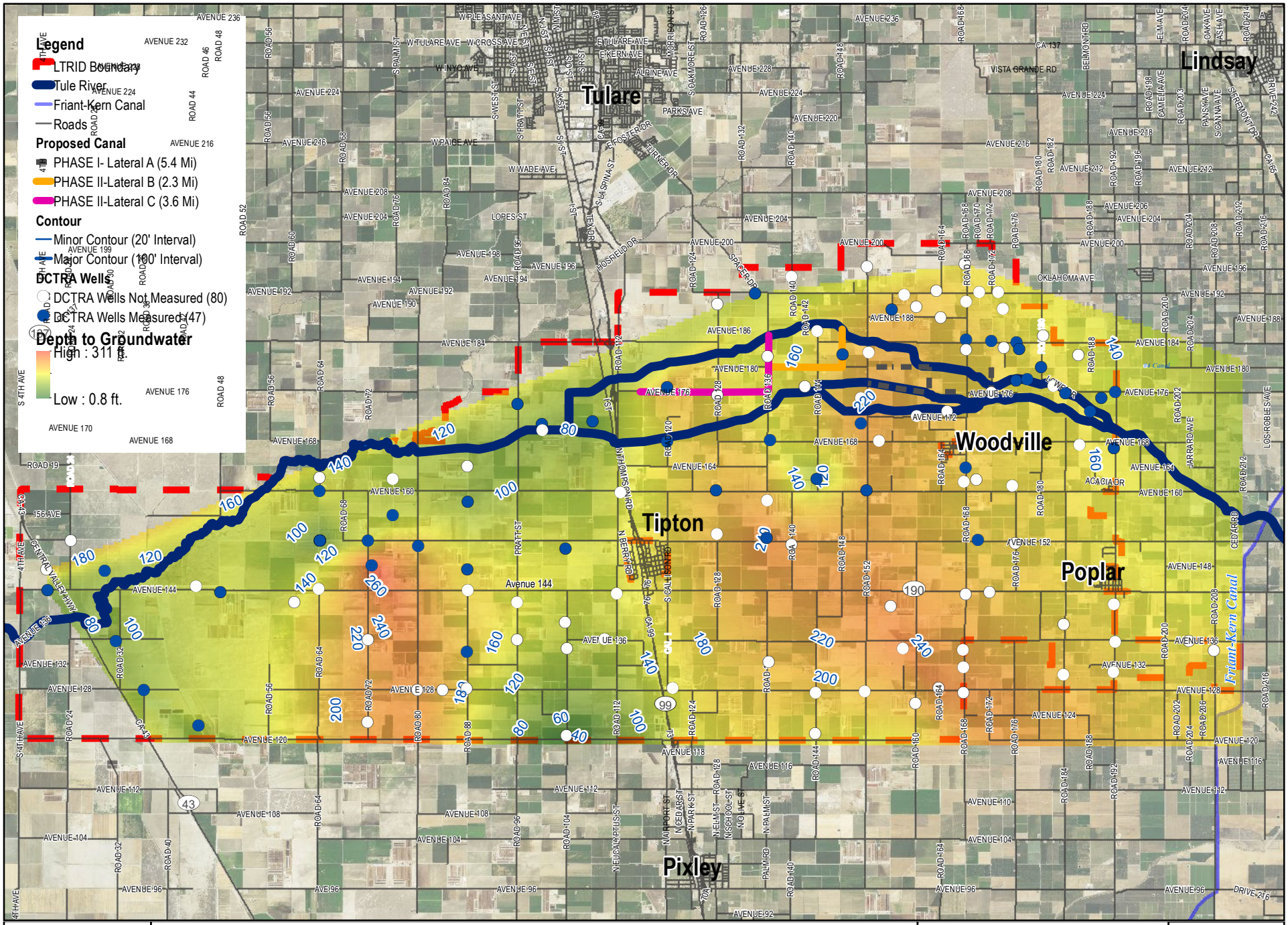
4CREEKS

LOWER TULE RIVER IRRIGATION DISTRICT
Spring 2015 Groundwater Elevations

N

0 0.5 1 2 3 4 Miles

Attachment E



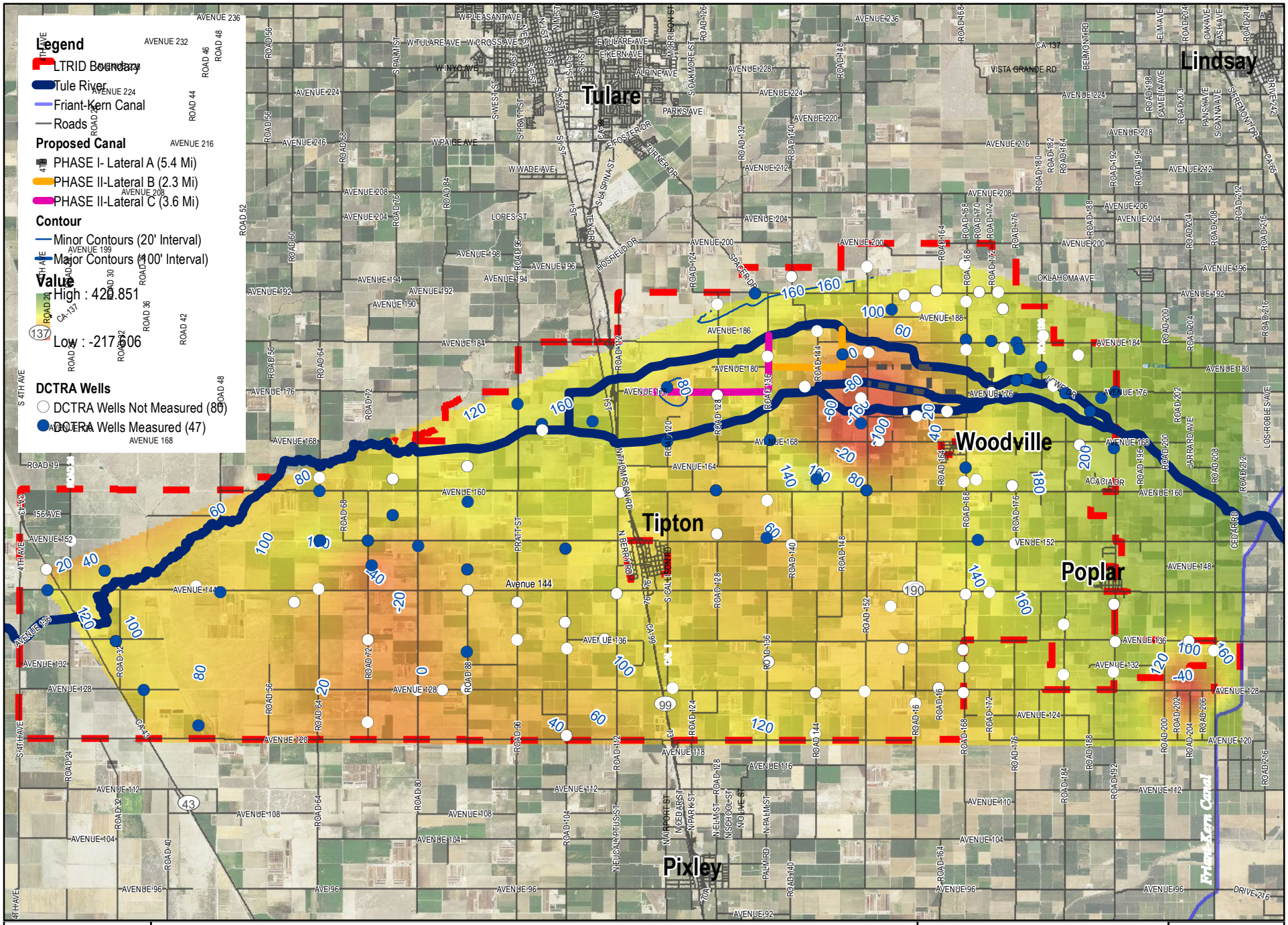
4CREEKS

LOWER TULE RIVER IRRIGATION DISTRICT
Fall 2015 Depth to Groundwater

N

0 0.5 1 2 3 4 Miles

Attachment F



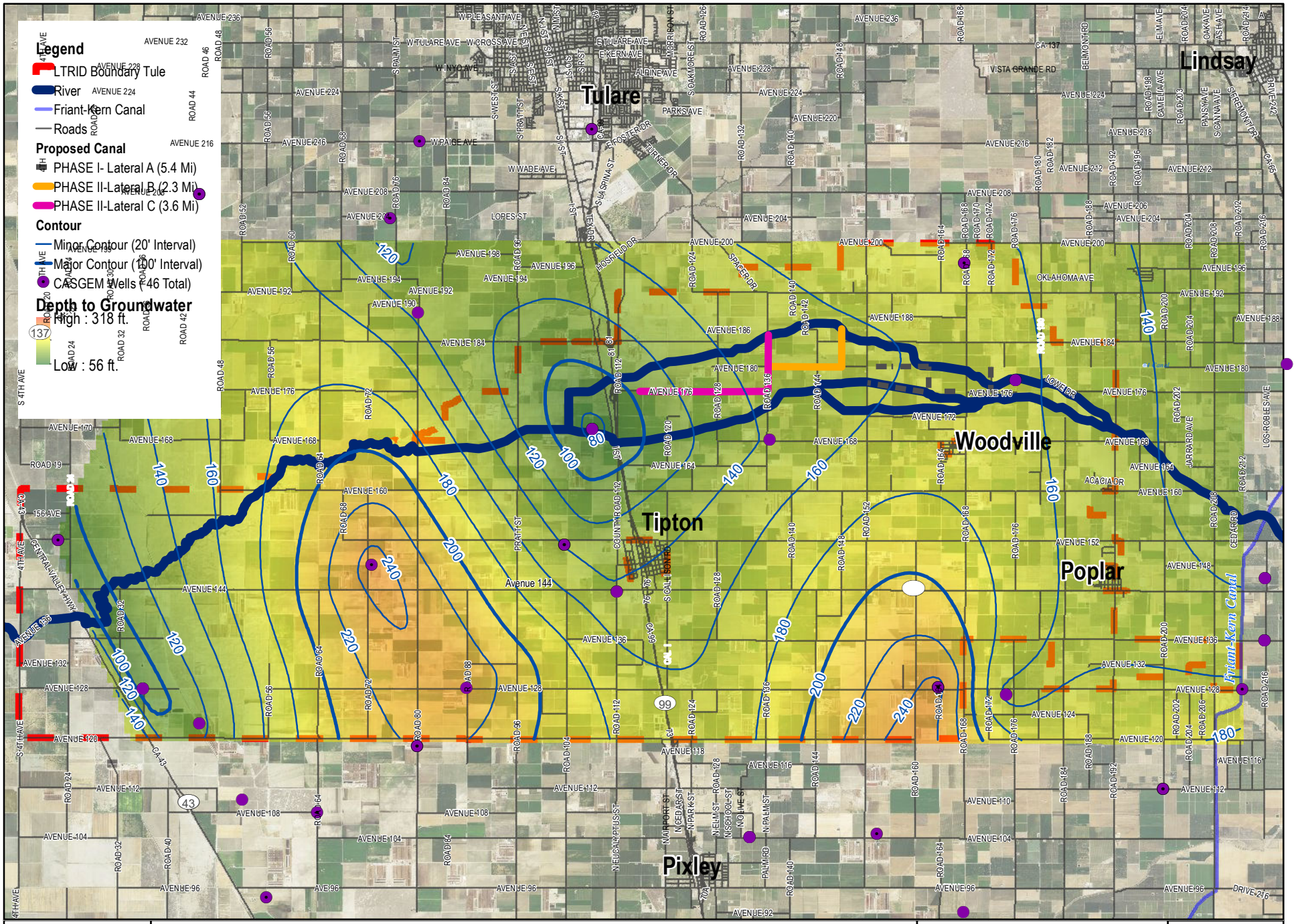
LOWER TULE RIVER IRRIGATION DISTRICT
Fall 2015 Groundwater Elevation

4CREEKS

N

0 0.5 1 2 3 4 Miles

Attachment G



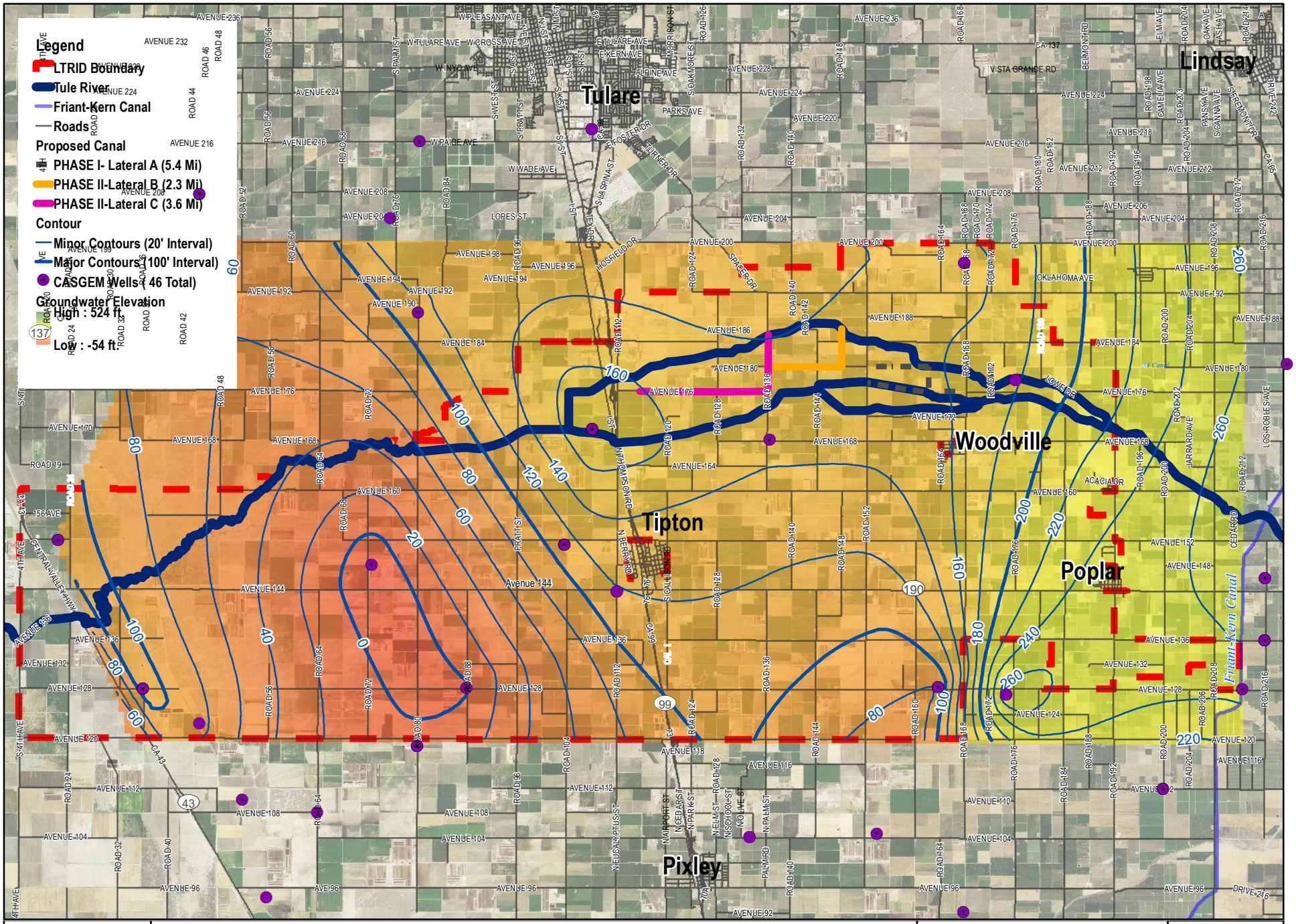
LOWER TULE RIVER IRRIGATION DISTRICT
Spring 2016 Depth to Groundwater

4CREEKS

N

0 0.5 1 2 3 4 Miles

Attachment H



LOWER TULE RIVER IRRIGATION DISTRICT
Spring 2016 Groundwater Elevation

4CREEKS

N

0 0.5 1 2 3 4 Miles

Attachment I

Print Form

Notice of Determination

Appendix D

To:

☒ Office of Planning and Research

U.S. Mail: P.O. Box 3044, Sacramento, CA 95812-3044

Street Address: 1400 Tenth St., Rm 113, Sacramento, CA 95814

☒ County Clerk
County of: Tulare
Address: 221 South Mooney Boulevard
Visalia, CA 93291

From:
Public Agency: Lower Tule River Irrigation District
Address: 357 E. Olive Avenue
Tipton, CA 93272
Contact: Dan Vink
Phone: 559-686-4716

Lead Agency (if different from above):
Address:
Contact:
Phone:

SUBJECT: Filing of Notice of Determination in compliance with Section 21108 or 21152 of the Public Resources Code.

State Clearinghouse Number (if submitted to State Clearinghouse): 2014121045

Project Title: Lower Tule River Irrigation District Distribution System project

Project Applicant: Lower Tule River Irrigation District

Project Location (include county): North of Ave 172, south of Ave 188, east of SR 99, and west of RD 180, Tulare

Project Description:
The proposed project is the construction of new pipelines and replacement of an existing pipeline to better serve water users within the Lower Tule River Irrigation District (LTRID) service area. From east to west, the project extends approximately 12.6 miles and consists of 3 different laterals to connect to each other at all junctions. The pipeline will be buried and sections of the pipeline will stay outside of the right-of-way (ROW) of the roads. Project impacts will be temporary and constrained to a swath 20 to 30 feet wide for the entire length of the alignment. The approximate area of proposed temporary impact is 46 acres.

This is to advise that the Lower Tule River Irrigation District (☒ Lead Agency or ☐ Responsible Agency) has approved the above described project on January 13, 2015 (date) and has made the following determinations regarding the above described project.

1. The project [☐ will ☒ will not] have a significant effect on the environment.
2. ☐ An Environmental Impact Report was prepared for this project pursuant to the provisions of CEQA.
   ☒ A Negative Declaration was prepared for this project pursuant to the provisions of CEQA.
3. Mitigation measures [☒ were ☐ were not] made a condition of the approval of the project.
4. A mitigation reporting or monitoring plan [☐ was ☒ was not] adopted for this project.
5. A statement of Overriding Considerations [☐ was ☒ was not] adopted for this project.
6. Findings [☐ were ☐ were not] made pursuant to the provisions of CEQA.

This is to certify that the final EIR with comments and responses and record of project approval, or the negative Declaration, is available to the General Public at:
Lower Tule River Irrigation District

Signature (Public Agency): _____ Title: GM

Date: January 13, 2015 Date Received for filing at OPR: _____

Authority cited: Sections 21083, Public Resources Code.
Reference Section 21000-21174, Public Resources Code.

Revised 2011

Shafter~Wasco Irrigation District

P.O. Box 1168
Wasco, California 93280
❖
Business Office: (661) 758-5153
Fax: (661) 758-6167
Water Department: (661) 758-5369

January 4, 2017

Bureau of Reclamation
Acquisition Operations Branch
Attn: Ms. Rupal Shah
Mail Code: 84-27852
Denver Federal Center, Bldg 56, Rm. 1000
6th Avenue and Kipling Street
Denver, CO 80225

To Whom It May Concern:

I wish to support the Lower Tule River Irrigation District, Riparian Area Distribution System being submitted to the Bureau of Reclamation 2017 WaterSMART: Water and Energy Efficiency Grants by Lower Tule River Irrigation District.

The Shafter-Wasco Irrigation District works cooperatively with the Lower Tule River Irrigation District on various water supply programs and recognize their need to continue to be able to improve their ability to use their existing water resources and provide opportunities to enhance the water supply delivered to their landowners. This project will further advance that effort through the various conservation and efficiency methods outlined in the application.

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Sincerely,

Dana Munn
General Manager
Shafter-Wasco Irrigation District