REQUEST FOR PROPOSALS

ENGINEERING SERVICES FOR SOUTH TAHOE PUBLIC UTILITY DISTRICT

Diamond Valley Ranch Irrigation Improvements

1 INTRODUCTION

The South Tahoe Public Utility District (District) is seeking proposals from qualified engineering firms to provide design services for proposed irrigation improvements at the Diamond Valley Ranch, Alpine County, California (Figure 1). The proposed improvements will be used for the rerouting and underground piping of freshwater irrigation ditch segments, underground piping of freshwater and recycled water irrigation systems and application of freshwater and recycled water using flood, sprinkle and subsurface irrigation methods.

The selected consultant will be expected to assist the District:

1. Complete a 50% engineering design and estimate of probable costs for proposed fresh water and recycled water irrigation improvements;
2. Evaluate new irrigation system power requirements and use of existing power utility and/or new renewable energy sources;
3. Develop 100% final plans, specifications and estimates of probable costs for:
    a. One Flood Irrigation/Emergency Containment (FI/EC) area;
    b. Two center pivot sprinkle (CPS) systems; and
    c. Recycled and fresh water distribution systems.
4. Provide engineering information and plans, as needed, to satisfy construction permit, encroachment permit, CEQA and state funding environmental compliance requirements.

2 BACKGROUND

The District is the wastewater service provider for California residents in South Lake Tahoe, El Dorado County, CA. As such, the District collects and treats sewer flows generated in the Lake Tahoe basin and exports the treated wastewater (recycled water) to the eastern portion of Alpine County where it is used to irrigate agricultural lands for cultivation of pasture grass and fodder for ranching operations (Figure 2).

District El Dorado County operations include a wastewater treatment plant (WWTP) and recycled water export system. Alpine County operations include a 3,800 acre-feet storage reservoir, the Harvey Place Reservoir (HPR), and

recycled water conveyance system. Treated effluent from the WWTP (elev. 6258 ft msl) is pumped to the top of Luther Pass (elev. 7740 ft msl). The District's recycled water export line (C-line) extends from the top of Luther Pass to HPR, located immediately south and east of Diamond Valley. The elevation at the C-line outlet is approximately 5,703 feet above sea level. The District's Diamond Ditch carries recycled water from HPR (elev. 5563 ft msl) for application to irrigated lands in Wade Valley and Carson Valley, north of Diamond Valley.

The WWTP and recycled water facilities are operated under Waste Discharge Requirements (WDRs) Order No. R6T-2004-0010. The WWTP produces filtered and disinfected secondary effluent. The maximum permitted discharge from the WWTP is 7.7 million gallons per day (MGD), annual peak-day flow. Future average annual flows have been projected at 5.8 MGD, equivalent to 6,498 acre-feet per year of recycled water for export to Alpine County.

Land use changes in Wade and Carson Valleys would reduce the area of irrigable lands available for future recycled water application. In 2006, the District acquired Diamond Valley Ranch (DVR) to increase the operational flexibility and long term reliability for its recycled water system. In December 2009, the District adopted a Master Plan that identifies infrastructure and management projects to continue successful operation of the District's recycled water and freshwater systems in Alpine County, including DVR. In association with the Master Plan, the District also completed an Environmental Impact Report (EIR) in accordance with the requirement of the California Environmental Quality Act (CEQA). The EIR was also adopted in December 2009.

2.1 Diamond Valley Ranch

DVR is located in eastern Alpine County, approximately twenty-six (26) miles southeast of South Lake Tahoe, California (Figure 2). DVR encompasses an area of approximately 2,300 acres, in portions of: Sections 4 and 5, T10N, R20E; Sections 25, 35 and 36, T11N, R19E; and Sections 30, 31 and 32, T11N, R20E, MDBM. Ground surface across the area generally slopes to the northeast with elevations ranging from approximately 5720 feet in the southwest to 5400 feet in the northeast portions of the ranch.

The District has allocated 4.0 million dollars through 2012 and an additional 6.0 million dollars through 2020 for the engineering, permitting and construction of irrigation improvements in Diamond Valley. Figure 3 is a conceptual layout of the proposed improvements. The intent of these improvements is to:

1. Maximize the amount of irrigable land within DVR that can be used for recycled water application while maintaining required setbacks from wetlands, fresh water irrigation ditches, water supply wells and public roads;
2. Prevent impacts to surface water irrigation ditches and streams; and

3. Prevent impacts to shallow groundwater.

The conceptual layout is provided as starting point for development of the engineering pre-design. Brief descriptions of the proposed improvements are provided in the following section.

2.1.1 Recycled Water Irrigation System Improvements

Recycled water irrigation system improvements generally include:

1. DVR Pipeline Loop;
2. Flood Irrigation/Emergency Containment Areas (FI/EC);
3. Center Pivot Sprinkle (CPS) Irrigation Areas;
4. Subsurface Drip Irrigation (SDI) Area;
5. Recycled Water Distribution System; and
6. Recycled Water Pump-back Staging Area;

2.1.1.1 Diamond Valley Ranch Pipeline Loop

Figure 3 shows the general layout for the Diamond Valley Ranch (DVR) Pipeline Loop. The DVR Pipeline Loop is the proposed mainline to reroute the existing 21-inch C-Line to DVR. The 18-inch pipeline is planned to branch from the C-Line at the intersection of CA-89S and Diamond Valley Road and extend approximately 15,000 feet crossing the DVR to loop and tie back into the C-line within the north ½ of Section 5, T10N, R20E for discharge to HPR. The pipeline loop would be used as the mainline for distributing recycled water under pressure to all recycled water irrigation areas in Diamond Valley. Pressure readings measured at hydrants situated on the C-line along CA-89S ranged from 30 to 60 psi under static conditions and from 40 to 70 psi under pumping conditions.

Design survey, geotechnical investigation and engineering drawings for the initial 7,100 feet of the pipeline loop, extending from the intersection of CA-89S and Diamond Valley Road to the west margin of FI/EC #1 are completed. The remainder of the pipeline loop is near the 50% stage of development with a horizontal alignment completed.

2.1.1.2 Flood Irrigation/Emergency Containment Areas

Figure 3 shows the general layouts for the Flood Irrigation/Emergency Containment (FI/EC) Areas located in the northeast ¼ of Section 36 and southeast ¼ of Section 25, T11N, R19E. The FI/EC is planned as irrigated pasture land bounded by earthen embankments along the perimeter to form two containment areas (FI/EC #1 and FI/EC #2). The containment areas would be used:

1. During normal operation as a flood irrigated pasture for grazing or cultivation of hay; and
2. In case of a flood event, a temporary impoundment for recycled water.

The FI/EC Areas would receive fresh water from a mainline sourced by a irrigation pond located near the center of Section 36, T11N, R19E and would receive recycled water from feeder lines directly connected to the DVR Pipeline Loop.

The fields are envisioned to be graded concordant with the natural topography toward the north and east. Drain lines would be constructed along the east perimeter of FI/EC #1 to connect to FI/EC #2. A drain line connected to a pump staging area would be constructed near the northeast corner of FI/EC #2. The drain line would be used during normal operation as a fresh water outlet to direct water toward pastures east of the containment areas. Following a flood event, the drain line would be used as a conveyance to pump impounded recycled water back to the DVR Pipeline Loop for distribution to the CPS irrigation areas or HPR.

Based on the conceptual layout, the FI/EC may cover an area of approximately 53 acres with a combined temporary storage volume of approximately 318 acre feet (assuming a 6-foot perimeter embankment).

Engineering design for the FI/EC is in the initial stages of development.

2.1.1.3 Center Pivot Sprinkle Irrigation Areas

Figure 3 shows the general layouts for the Center Pivot Sprinkle (CPS) Irrigation Areas which includes four fields ranging in size from about 40 to 50 acres, located in portions of Section 25 and 36, T 11N, R19E; and Sections 30 and 31, T11N, R20E. The fields will use CPS systems to apply fresh water or recycled water onto irrigated pastureland for grazing or alfalfa cultivation.

The CPS systems would receive fresh water from a mainline sourced by a irrigation pond located near the center of Section 36, T11N, R19E and/or Indian Creek Reservoir (ICR) through connection to the ICR outlet pipe in the SW ¼ of Section 31, T11N, R20E and would receive recycled water from feeder lines directly connected to the DVR Pipeline Loop. Low-pressure sprinkler packages (10- 15 psi operating pressure) would be used for uniform water applications for all CPS irrigation areas. The CPS systems would use 3-Wheel Drive systems to prevent rutting. Wetted components of the CPS would be compatible with recycled water application. The CPS systems would be operated using remote control systems and would include safety controls and switches. Moisture monitors may be employed to provide additional controls on application rates and to prevent tailwater run-off.

Engineering design for the CPS systems has not started. Hydraulic loading rates for CPS irrigated areas have been calculated and are provided in the District's Nutrient Management Plan (Wood Rodgers, 2009).

2.1.1.4 Subsurface Drip Irrigation Areas

Figure 3 shows the general layout for the Subsurface Drip Irrigation (SDI) Area located in portions of Section 36, T11N, R19E; and Section 5, T10N, R20E. The SDI would use drip irrigation systems to apply recycled water onto pastureland used for grazing.

The SDI system would receive recycled water from a feeder line directly connected to the DVR Pipeline Loop. The feeder line would connect to a sand filtration system and header which would feed laterals connected to subsurface emitters. A chemical feed system may be needed to clear emitters.

Engineering design for the SDI system has not started.

2.1.1.5 Recycled Water Distribution System

Figure 3 shows the general layout for the recycled water distribution system. The distribution system would be pressurized by direct connection to the DVR Pipeline Loop. The underground piping system would use submainlines, feeder lines and appurtenances to convey recycled water to the FI/EC, CPS and SDI areas. Portions of the distribution system would be used to convey either recycled or fresh water to the CPS areas.

Hydraulic evaluation and engineering design for the recycled water distribution system has not started.

2.1.1.6 Recycled Water Pump Back Staging Area

Figure 3 shows a proposed location for the recycled water pump back staging area, near the northeast corner of FI/EC #2, within the northeast corner of Section 36, T11N, R19E. The staging area would be used for temporary connection of trailer mounted pumps. The pumps operating in parallel would connect to a discharge header to pump water back into the recycled water distribution system. The District's existing trailer-mounted pumps (Godwin Diesel Model CD225M Dri-Prime) can deliver a total of 6,400 gallons per minute (9.2 MGD) at 165 feet of head, which is believed to exceed the head required to pump stored recycled water back to the distribution system.

Hydraulic evaluation and engineering design for the recycled water pump back staging area has not started.

2.1.2 Fresh Water Irrigation System Improvements

Freshwater irrigation system improvements generally include:

1. Fresh Water Irrigation Pond; and
2. Fresh Water Distribution System.

2.1.2.1 Fresh Water Irrigation Pond

Figure 3 shows a proposed location for the fresh water irrigation pond, near the center of Section 36, T11N, R19E. The pond would be lined and would serve as a storage reservoir for fresh water from the Millich Ditch and for the collection of seepage from an adjoining spring. Fresh water stored in the reservoir would be either gravity fed or pumped into the fresh water distribution system.

Hydraulic evaluation and engineering design for the fresh water irrigation pond has not started.

2.1.2.2 Fresh Water Distribution System

Figure 3 shows the general layout for the fresh water distribution system. The underground piping system would use submainlines, feeder lines and appurtenances to convey fresh water to the FI/EC and CPS areas and to through pass fresh water to pastures east of the CPS areas. One section of the system in the NW ¼ Section 36, T11N, R 19E would be used to reroute the Snowshoe Thompson Ditch #2 through a piped segment below the FI/EC areas to prevent contamination. Another section of the system in the SW ¼ Section 31, T11N, R20E would be used to connect the distribution system to an existing 24-inch steel pipeline (Heise Pipeline). The Heise Pipeline connects to the ICR outlet pipe at the HPR outlet structure. ICR is a 3,100 acre-foot fresh water reservoir situated immediately south of HPR at an elevation of approximately 5,600 ft msl. The piping system may be pressurized by a pumping station at the Fresh Water Irrigation Pond and near its connection to the Heise Pipeline, should hydraulic evaluation indicate that available heads are insufficient to serve their intended purpose.

Hydraulic evaluation and engineering design for the fresh water distribution system has not started.

2.1.3 Power Utility Improvements

Total power requirements for the CPS and possible fresh water pumping station are presently unknown. Nevada Energy supplies electric power to DVR through an existing overhead single phase 14.4 kilovolt (KV) distribution line. However, three-phase power will likely be required to power the CPS and pumping station(s), if needed. The nearest existing overhead three-phase distribution line (480 kV ?) crosses the DVR Pipeline Loop alignment approximately 5,000 feet west of DVR. Engineering plans for the initial 7,100 feet of the pipeline loop include accommodations (electrical conduit and pull-boxes) for 5,000 linear feet of twin 4-inch conduits for carrying three-phase power conductors to DVR.

The District believes that potential opportunities exist for the development of renewable energy at DVR. The District is researching the possibility of using

power generating pressure reduction devices that convert differential pressure drops in fluids to produce continuous electrical power along the DVR Pipeline Loop. Renewable energy generated through the DVR pipeline would potentially be used to power the irrigation improvements and/or sold back to the power grid.

Estimates of total power requirements and engineering design for power utility improvements have not started.

3 SCOPE OF WORK

The scope of work will generally consist of the preparation of engineering Pre-Design and final engineering construction documents for the DVR Irrigation Improvement Project (DVR IIP). An abbreviated scope of work for this project is provided below. The consultant team is encouraged to expand on this scope, as it deems necessary, to provide a complete work product. As currently envisioned, the project will entail the following tasks:

1. Data Review: Conduct a site visit and review field data (surveys, geotechnical investigations) engineering plans, and technical reports to gather sufficient information for completion of the pre-design;
2. Pre-Design: Complete a 50% engineering design for all proposed fresh water and recycled water irrigation improvements, including consideration of grading and embankments, pipe sizes, flows, pressures, recycled water characteristics, recycled water application rates, fresh water storage reservoir requirements, total power requirements, utility improvements and proposed agricultural uses. Using the 50% design, provide an engineers estimate of probable cost for all proposed facilities.
3. Plans, Specifications and Estimates of Probable Costs (PS&E): Prepare 90% and 100% final engineering plans, technical specifications, and engineer's opinion of probable cost for construction of:
    1) One Flood Irrigation/Emergency Containment Area (FI/EC #1);
    2) Two CPS systems; and
    3) Recycled water and fresh water distribution systems.
4. Permitting Support: At the 50% design stages of development provide project descriptions, site plans, grading plans, BMP plans, traffic control plans and detail drawings, as needed, to satisfy:
    1) State Water Board construction permit;
    2) CALTRANS encroachment permit; and
    3) CEQA and state funding environmental compliance requirements.
5. Construction Bid Support: Assist the District with responses to Bidder's questions and prepare construction contract addendums, if required, during the Bid Period. Prepare a conformed set of engineering plans and specifications incorporating all changes made during the bid period for Construction; and

6. Construction Support: Assist the District with the review of Shop Drawing submittals and preparing responses to Contractor's Requests for Information (RFI) during Construction. Complete record drawings from District Inspector and Contractor mark-ups.

4 DELIVERABLES

At a minimum, the Consultant shall be required to provide the following deliverables for the DVR IIP:

1. Pre-Design Technical Memorandum including preliminary layout, grading, design calculations and construction cost estimate;
2. 90-percent Construction Contract Documents including plans, specifications, and estimate of probable construction costs; and
3. Final Construction Contract Documents for bid including plans, specifications, and final estimate of probable construction costs. The consultant shall provide the District with;
    i. One full-size (22 x 34) set of engineering plans and specifications – paper copy plus electronic format (.doc, .xls, .pdf and AutoCAD version 2007 .dwg);
4. Conformed engineering plans and specifications for construction. The consultant shall provide the District with;
    i. One full-size (22 x 34) set of conformed engineering drawings– paper copy plus electronic format (.doc, .xls, .pdf and AutoCAD version 2007 .dwg); and
    ii. One half-size (11 x 17) set of conformed engineering drawings – paper copy plus electronic format (AutoCAD version 2007.dwg); and
5. As-built record drawings prepared from Contractor and District Inspector mark-ups: full-size (22 x 34) paper copy plus electronic format (AutoCAD version 2007 .dwg).

5 DISTRICT PROJECT TEAM

Funding for this project is anticipated to be provided through a loan from the Clean Water State Revolving Fund Program (CWSRF) administered through the State Water Resources Control Board. Mr. Paul Sciuto, P.E., Assistant General Manager, will be the District's Project Director for the loan. Mr. Sciuto will have overall responsibility and accountability for the project. Mr. Ivo Bergsohn, C.Hg. Hydro-Geologist, will be the District's Project Manager and will be the principal point of contact for the selected consultant. Mr. Bergsohn will be responsible for directing the project through its various phases, including, coordinating technical efforts to insure that the project is completed in a timely and cost effective manner. District staff assisting Mr. Bergsohn will include: Mr. Jim Hoggatt,

Engineering Department Manager; and Mr. Hal Bird, Alpine County Land Applications Manager.

6 TECHNICAL PROPOSAL

To be considered for Engineering Services, a **Technical Proposal and Cost Proposal** must be submitted in two separate envelopes. The Technical Proposal shall be limited in format and length. Format will be 8-1/2" x 11" with foldout sheets allowed up to 11" x 17" in size. All foldout sheets up to a maximum of 11" x 17" sheets will be counted as two pages and shall be labeled as such. Length of the proposal shall be limited to a maximum of ten (10) numbered pages of text no smaller than 11 point, and/or graphics. Material excluded from the ten (10) pages maximum count is limited to:

- Front cover
- Divider pages
- Back cover
- Submittal letter (one page maximum)
- Table of Contents page (one page maximum, number as page i)
- Project Organization Chart (one page maximum)
- Projected Work Hours Estimate(one page maximum)
- Project Schedule (two page maximum)
- Appendix Materials

A typical Technical Proposal should follow the format provided below.

- Submittal Letter: Each proposal must be accompanied by a submittal letter. The submittal letter shall identify the name and title of the person authorized to contractually obligate the engineering firm for the purpose of this RFP and the person(s) to be contacted for clarification questions regarding the proposal. The submittal letter shall also include any exceptions taken to the District's Standard Consulting Agreement (see attached).

- Firm Experience (no more than 3 pages): Include a general overview of your firm and the firm's experience by providing examples of highly successful aspects of projects similar to this project completed by the office submitting the proposal. Describe specific relevant experience of project team members and how that expertise will be utilized in this project. List at least three relevant design projects successfully completed by project team members over the past five years.

- Firm's Approach (no more than 5 pages): Include a description of: the key project elements/goals and how the proposed approach will manage the project expertly and in an efficient manner. Identify challenges that might be

expected and possible solutions to resolving those challenges within the time allotted in the project schedule.

- Project Team (no more than 2 pages): Describe your project team, including title, office location and contact information. Include the key individuals and sub-consultants that will actually be responsible for conducting the project's technical activities and for management of the project. An organization chart should be provided showing the inter-relation of all the project team members, both District and Consultant.

- Provide a table showing an initial estimate of the work-hour requirements anticipated for the project. The initial projection should be an itemized staffing breakdown in spreadsheet form, indicating personnel, title and estimated hours for each project team member on a per task and total project basis. Do not include any estimates of labor costs.

- Provide a project schedule listing major tasks, deadlines, duration and projected start and finish dates for the project.

- Appendix materials may be provided, but is not required other than specifically identified, in addition to the ten-page proposal limit. Appendix material may not be read and if submitted should be limited to resumes of proposed key staff relevant to the scope of work.

7 COST PROPOSAL

The **Technical Proposal and Cost Proposal** must be submitted in two separate envelopes. The Cost Proposal shall include the following items for each of the major tasks and activities described in the accompanying Technical Proposal:

- Personnel, estimated labor hours and hourly rates for each member of the project team;
- Project expenses;
- Sub-consultant costs; and
- Total costs.

Cost Proposals will not be opened until after each firm's Technical Proposal has been carefully reviewed and the firm deemed most qualified has been selected. Only the Cost Proposal for the selected firm will be opened and will form the basis of negotiations for the contract.

8 SCHEDULE

A baseline schedule developed for this project is provided for planning purposes (DVR IIP Schedule_v0). The Consultant will be required to complete and submit project deliverables in accordance with the following project deadlines:

- Pre-Design Technical Memorandum Submittal 11/15/2010
- 90% PS & E Submittal 02/09/2011
- 100% PS & E Submittal 03/11/2011
- Conforming PS Submittal 05/10/2011

The schedule for the proposal solicitation, review and consultant selection portion of this project is as follows:

- Solicitation 07/22/2010 – 08/25/2010
- Submittal Evaluation 08/26/2010 – 09/01/2010
- Present to Board for Approval 09/02/2010

9 EVALUATION CRITERIA

All proposals will be evaluated on the following criteria:

1. Completeness – demonstrate by providing all items requested in the RFP (5 points).

2. Specialized design and technical competence of the engineering firm – (25 Points).

3. Evidence of understanding of scope of work, site area and existing conditions (20 Points).

4. Past record of performance on contracts with government agencies with respect to control of costs, quality of work and ability to meet schedules (15 Points).

5. Capacity and capability of the firm, including subconsultants, their representatives, qualifications and locations to perform the work, including any specialized services within the time limitations (10 Points).

6. Proximity to or familiarity with the area in which the project is located (10 Points).

7. Proven expertise in designing facilities that reflect modest design, simple operational requirements and economical cost of operation appropriate for agricultural uses (15 Points).

10 SUBMITTALS

Interested parties shall submit five (5) copies of their Technical Proposal and one(1) copy of their Cost Proposal to the District by no later than 5:00 p.m., Wednesday, August 25th, 2010. Both the Technical Proposal and Cost Proposal shall be enclosed in a single sealed Submittal Envelope labeled "DVR Irrigation Improvements Proposal" and addressed as follows:

South Tahoe Public Utility District
Attention: Ivo Bergsohn
1275 Meadow Crest Drive,
South Lake Tahoe, CA 96150
(530) 544-6474

Questions regarding this RFP shall be directed to Mr. Bergsohn by email (ibergsohn@stpud.dst.ca.us).

ATTACHMENT A

MASTER AGREEMENT
FOR
CONSULTING SERVICES