

**AGENDA**

**ENGINEERING COMMITTEE MEETING  
LEUCADIA WASTEWATER DISTRICT**  
Wednesday, September 7, 2016 – 8:30 a.m.  
1960 La Costa Avenue, Carlsbad, CA 92009

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- 1. Call to Order**
- 2. Roll Call**
- 3. Public Comment**
- 4. New Business**
  - A. Authorize the General Manager to execute Task Order Number 29 with Infrastructure Engineering Corporation (IEC) for engineering design services for the Leucadia Pump Station Rehabilitation Project in an amount not to exceed \$41,058. (Pages 2 - 8)
- 5. Information Items**
  - A. Using Recycled Water for Collection System Hydro-Cleaning. (verbal)
  - B. Scott's Valley Pipeline Rehabilitation Post Construction Review. (verbal)
- 6. Director's Comments**
- 7. General Manager's Comments**
- 8. Adjournment**

**MEMORANDUM**

**DATE:** September 1, 2016  
**TO:** Engineering Committee  
**FROM:** Paul J. Bushee, General Manager   
**SUBJECT:** **Leucadia Pump Station Rehabilitation Project – Engineering Design Services**

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**RECOMMENDATION:**

Staff requests that the Engineering Committee recommend that the Board of Directors:

1. Authorize the General Manager to execute Task Order Number 29 with Infrastructure Engineering Corporation (IEC) for engineering design services for the Leucadia Pump Station Rehabilitation Project in an amount not to exceed \$41,058.
2. Discuss and take other action as appropriate.

**DISCUSSION:****Tactical Goal: Infrastructure and Technology / Leucadia Pump Station Rehabilitation**

In April 2014, Infrastructure Engineering Corporation (IEC) completed the District's pump stations assessment. As a result of that assessment, IEC recommended the rehabilitation and structural assessment of the Leucadia Pump Station in Fiscal Years (FY) 2016 and 2019, respectively. However, for efficiency and cost effectiveness Staff determined that a prudent approach is to combine both recommended projects into a single rehabilitation project for FY 2017. The pump station assessment recommended that the following major items be accomplished during the rehabilitation:

- Mechanical:
  - ⊗ Install suction piping in the emergency overflow wet well for by-pass pumping
  - ⊗ Replace diaphragm seals and pressure gauges.
  - ⊗ Install 1" ports prior to 4" valves on force main drain lines.
  - ⊗ Repair drain at surge tank.
  - ⊗ Replace broken valve on surge valve air piping and install unions for disconnection.
  - ⊗ Replace check valves.
- Pump station and site improvements:
  - ⊗ Replace scrubber fan housing and fan.
  - ⊗ Install weatherproofing on door to pump station building and around rain gutter area above door.
  - ⊗ Replace fresh air fan and duct with new Fiberglass Reinforced Plastic (FRP) fan and ductwork.
  - ⊗ Seal manhole cover at Vapex (odor control) injection point.
  - ⊗ Field painting.
  - ⊗ Shop coat pipe stands.
  - ⊗ Spot repair wet well lining.

The recommendation for the structural assessment was based upon comments by District Staff during the site visit that parts of the pump station dry well floor sounded hollow. This may indicate a degree of concrete deterioration under the floor paint. Therefore, IEC recommended an assessment of the Leucadia Pump Station floor and walls to evaluate the existence and extent of potential concrete deterioration.

The structural assessment will consist of non-destructive observation methods, primarily involving visual observation with the use of tools such as a hammer, wire brush, or chisel for inspection of concrete surfaces and joints to evaluate the extent of possible deterioration. Non-destructive observations rely on visual observations and sounding techniques, and do not involve drilling, or chipping of concrete to determine extent of damage, location of reinforcement, or actual concrete thickness. This initial survey was recommended for FY 2019 with a subsequent repair project, if required, to be considered during the next 5 year pump station assessment window. If a more extensive evaluation is required as a result of the initial survey, the evaluation would consist of destructive testing (core samples) and is not included in this scope.

To commence project design, staff requested a proposal from IEC. Their proposal, attached, is to develop a Preliminary Design Report (PDR) and complete subsequent project design. The Scope of Work includes:

- Task 1 – Project Management and Administration  
IEC will attend three coordination meetings; project kick-off/site visit, PDR / 75% Design review and Final Design review meetings. Additional coordination will be addressed via e-mail and telephone.
- Task 2 – PDR and Structural Assessment  
IEC will attend a project kick-off site visit. IEC will compile mechanical and structural input to prepare a draft PDR / 75% drawings.
- Task 3 – Final Design  
IEC will prepare one bid package. Plans, specifications, calculations and an engineer's opinion of probable construction cost will be submitted at the Final Design level.

IEC proposed fee for design services is \$41,058 which includes subcontracted services to support project design, such as structural and electrical engineering. Staff believes the proposal is fair and reasonable. Therefore, staff recommends that the Board authorize the General Manager to execute Task Order Number 29 with IEC for engineering design services for the Leucadia Pump Station Rehabilitation Project.

**FISCAL IMPACT:**

Staff appropriated funds in the FY17 Budget for this project. The budget contains sufficient funds to cover the design services to be provided under this agreement.

rjm:PJB

Attachment



August 31, 2016

Mr. Robin Morishita  
Leucadia Wastewater District  
1960 La Costa Avenue  
Carlsbad, California 92009

**RE: Proposal for Engineering Services for Preliminary Design of Leucadia Pump Station Rehabilitation Project**

Dear Mr. Morishita:

Infrastructure Engineering Corporation (IEC) is pleased to provide the Leucadia Wastewater District (LWD) with this proposal for Engineering Services for the preliminary and final design of the Leucadia Pump Station Rehabilitation Project. The proposed scope of services and fee is based on discussions with District staff and a review of the District's 2014 Pump Station Assessment Report.

**PROJECT BACKGROUND AND APPROACH**

As documented in the District's 2014 Pump Station Assessment Report, the Leucadia Pump Station was recommended for rehabilitation in the Fiscal Year 15/16. Recommended improvements include the following:

- Mechanical work including:
  - Install suction piping in the emergency overflow wet well for by-pass pumping
  - Replace diaphragm seals and pressure gauges
  - Install 1" ports prior to 4" valves on force main drain lines
  - Repair drain at surge tank.
  - Replace broken valve on surge tank air piping and install unions for future maintenance
  - Replace pump check valves
- Pump station and site improvements including:
  - Replace scrubber fan housing and fan
  - Install weatherproofing on door to pump station building and around rain gutter area above door
  - Replace fresh air fan and duct with new FRP fan and ductwork.
  - Seal manhole cover at Vapex injection point.
  - Field painting
  - Shop coat pipe stands
  - Spot repair wet well lining

At the preliminary design level, IEC proposes performing a site visit with District field services staff to confirm recommended improvements and identify any additional improvement requests. Following the site visit, IEC will produce meeting minutes from the site visit confirming the list of improvements. After LWD review of the meeting minutes and incorporation of any comments, IEC proposes the preparation of a preliminary design report (PDR) with 75% design level plans and a



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revised opinion of probable construction cost incorporating updated quotes from manufacturers based on the proposed design.

Following a review of the PDR with 75% Drawings by the LWD, IEC will bring the design to Final Design, incorporating comments from the LWD. The Engineer's Opinion of Probable Cost will also be updated.

### **SCOPE OF SERVICES**

The following detailed scope of services describes the specific tasks and deliverables that will be performed.

#### ***Task 1 – Project Management and Administration***

In order to expedite the project, we anticipate three coordination meetings will be required during the project, a site visit/kick-off meeting, a PDR review meeting and a Final Design Submittal review meeting. Additional coordination, project status reports and schedule updates will be addressed via e-mail and telephone.

#### ***Task 2 – Preliminary Design Report (PDR) and Structural Assessment***

IEC will attend a project kick-off/site visit. IEC will compile mechanical and structural input to prepare a draft PDR for the District's review. The preliminary design is expected to include the following:

- Mechanical work including:
  - Install suction piping in the emergency overflow wet well for by-pass pumping
  - Replace diaphragm seals and pressure gauges
  - Install 1" ports prior to 4" valves on force main drain lines
  - Repair drain at surge tank.
  - Replace broken valve on surge tank air piping and install unions for future maintenance
  - Replace pump check valves
  
- Pump station and site improvements including:
  - Replace scrubber fan housing and fan
  - Install weatherproofing on door to pump station building and around rain gutter area above door
  - Replace fresh air fan and duct with new FRP fan and ductwork.
  - Seal manhole cover at Vapex injection point.
  - Field painting
  - Shop coat pipe stands
  - Spot repair wet well lining
  
- Structural Condition Assessment Findings



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### **Discussion of Structural Evaluation**

The structural condition assessment will consist of non-destructive observation methods, primarily involving visual observation with the use of tools such as a hammer, wire brush, or chisel for inspection of concrete surfaces and joints. Typically, structural defects are indicated by evidence of cracking, spalling, rust and corrosion, delamination of concrete surface due to expansion of rebar where corrosion has occurred, efflorescence, water seepage, leaking, voids, or any other sign of damage or deterioration. Any indication of a structural defect will be documented for its approximate location and condition. All structural elements will be described as in either good, fair, or poor condition.

Sounding techniques will be utilized to assess the quality of the concrete, and locate voids, deterioration or delamination in the concrete surface. Sounding is performed by striking the concrete surface and noting the response or pitch of the impact along with the rebounding reaction. Sound concrete will typically make a high pitched pinging staccato noise and rebound instantaneously. Deteriorated concrete will typically make a dull low pitched noise with minimal rebound indicating deterioration of the concrete surface hardness, or a hollow medium pitched clanking noise that dampens the rebound and indicates delamination of concrete or voids below concrete surface.

Where issues are found during the sounding process, a chisel/screwdriver will be driven into the damaged area to attempt to determine the extent of damage. The color of concrete will be observed and noted as part of the overall concrete condition assessment. Non-destructive observations rely on visual observations and sounding techniques, and do not involve drilling, or chipping of concrete to determine extent of damage, location of reinforcement, or actual concrete thickness. A more extensive evaluation would consist of destructive testing (core samples) and is not included with this scope of work.

Following delivery of the PDR, a meeting will be held after LWD review (2 weeks). After attendance at the draft preliminary review meeting, IEC will incorporate District comments and produce a final PDR.

### ***Task 3 – Final Design***

IEC will prepare one bid package. Plans, specifications, calculations and an engineer's opinion of probable construction cost will be submitted at the Final Design level. It is anticipated that this bid package will consist of D-sized sheets, CSI format specifications, a calculations binder and an engineer's opinion of probable construction cost. The engineer's opinion of probable construction cost will be based on available bid results for similar construction projects and does not include a detailed cost estimate. The proposed drawings include the following:

#### **General**

- Title sheet
- General Notes
- Abbreviations and Legend

#### **Civil**

- Existing Site Conditions and Demolition



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- Proposed Site Layout and Piping Plan
- Conceptual Bypass/Phasing Plan
- Civil Details (1)
- Mechanical Plan
- Mechanical Section
- Mechanical Details (2)

#### SCHEDULE

It is anticipated IEC will attend a site visit at the Leucadia Pump Station site within two weeks following the notice to proceed. Following the site visit, IEC will prepare a draft PDR within six weeks. Following a two week review period by the District IEC will prepare a final PDR with 75% drawings incorporating District comments within eight weeks. The final design submittal will be completed within three months following the final PDR. Additional drafts or a change in scope from the scope proposed herein will require additional time and budget.

#### FEE

The proposed level of effort and fee is indicated on the attached table. Billing will be in accordance with our current agreement for as-needed engineering services. We sincerely appreciate the opportunity to provide this proposal and assist the District with this project. Please contact me at (858) 842-4425 should you have any questions or need further information.

Sincerely,

Jane Costello, PE  
Project Manager

cc: Jamie Fagnant, PE, IEC, Rob Weber, PE, IEC

**FEE ESTIMATE**  
**LEUCADIA WASTEWATER DISTRICT**  
**Leucadia Pump Station Rehabilitation Project - Design Services**

Task/ Subtask	Task/Subtask Description	<i>Sr. Project Manager (Rob Weber)</i>	<i>Project Manager (Jane Costello)</i>	<i>Project Engineer/ Designer (Bodhan Czarnocki)</i>	<i>Word Processor (Annette Moore)</i>	Subtask Labor-Hours	Subtask Labor Cost	Direct Cost	Subcontract	Total Cost
		\$180.00	\$170.00	\$130.00	\$65.00					
<b>TASK 1</b>	<b>Project Management and Administration</b>									<b>\$2,290</b>
	Site Visit/Kick Off, PDR w/ 75% & Final Review Meetings (3 Total)	1.5	7			8.5	\$1,460	\$150		\$1,610
	Project Status Reports/Coordination		4			4	\$680	\$0		\$680
<b>TASK 2</b>	<b>Preliminary Design Report &amp; Structural Assessment</b>									<b>\$21,848</b>
	Preliminary Design Report with 75% Drawings	1	72	34	8	115	\$17,360	\$0		\$17,360
	Structural Assessment		2			2	\$340	\$0	\$4,148	\$4,488
<b>TASK 3</b>	<b>Final Design</b>									<b>\$16,920</b>
	Final Submittal	1	56	36	16	109	\$15,420	\$0		\$15,420
	Electrical Design								\$1,500	\$1,500
		3.5	141	70	24	238.5				
		\$630	\$23,970	\$9,100	\$1,560		\$35,260	\$150	\$5,648	<b>\$41,058</b>
<b>TOTAL NOT-TO-EXCEED FEE:</b>										<b>\$41,058</b>