

MINUTES OF THE BOARD OF DIRECTORS MEETING  
OF THE PUEBLO CONSERVANCY DISTRICT  
NOVEMBER 30, 1983

The Board of Directors met for a regular meeting at 8:00 A.M. on the above date at the office of the District, 111 E. 5th Street.

DIRECTORS PRESENT: K. Farley, P. Kelly, G. Sandstrom  
ENGINEER PRESENT : R. Koester  
ATTORNEY PRESENT : L. Ward

The meeting was called to order by Chairman Kelly, and the minutes of November 8, 1983 was approved as published,

The Treasurer's report was given by Gus Sandstrom and the following vouchers were approved for payment:

|                                     |            |
|-------------------------------------|------------|
| 16925 Kathleen Farley               | \$ 80.00   |
| 16926 Patricia Kelly                | 80.00      |
| 16927 Gus Sandstrom                 | 80.00      |
| 16928 Predovich & Ward Attorneys    | 150.00     |
| 16929 K L H Engineering Consultants | 3820.00    |
| 16930 Pueblo Boulevard Bank         | 100,000.00 |
| 16931 United Bank of Pueblo         | 100,000.00 |

The purchase of Certificates of Deposit of \$100,000. each, one from Pueblo Blvd. Bank and one from United Bank per bid tabulation attached and above Vouchers #16930 and 16931 were approved by the Board.

It was moved and passed to amend the Treasurer's Report to transfer \$3150 from Account #105, Repair and Maintenance of Flood Protection Works Account to 110, Capital Improvements Account, of expenditures during November. The Treasurer's Report was then approved as changed.

The Board reviewed the proposal of McLaughlin Water Engineers, for study, planning and report on feasibility of the Santa Fe Avenue Dam.

Mrs. Farley moved the contract be awarded to McLaughlin Water Engineers, with a completion date of February 26, 1983. KLH will be engaged on a time and materials basis for surveys and soils tests, estimated to be about \$3000. for site surveys, and \$3000. for river degradation profiles. Motion carried.

G. Sandstrom will contact St. Charles Mesa Water Association to get them acquainted with the Santa Fe Dam Project and ask that they do planning along with this District.

P. Kelly will contact the City and Regional Planning Commission and acquaint them with the above Project.

The Board approved the expenditure of about \$83,000. to Mountainair Construction for November work.

The next regular meeting of the Board will be at 8:00 A.M. on December 27, 1983.

There being no further business, the meeting adjourned at 9:00 A.M.

  
Gus Sandstrom, Sec'y-Treas.

COMPLETE ENGINEERING SERVICES  
IN THE SPECIALTY FIELDS OF:

WATER RIGHTS AND RESOURCES  
WATER SUPPLY AND DISTRIBUTION  
WATER AND SEWAGE TREATMENT  
SEWAGE COLLECTION AND REUSE  
STORM DRAINAGE AND FLOOD CONTROL  
IRRIGATION - SUBSURFACE DRAINAGE  
ENERGY DEVELOPMENT  
INDUSTRIAL WASTES  
FIRE PROTECTION  
OTHER WATER-ORIENTED PROJECTS

**McLAUGHLIN WATER ENGINEERS  
ENGINEERING CONSULTANTS**

2420 ALCOTT STREET  
DENVER, COLORADO 80211  
(303) 458-3550

November 25, 1983

RONALD C. McLAUGHLIN  
HALFORD E. ERICKSON  
DOUGLAS T. SOVERN  
WILLIAM C. TAGGART  
ROBERT L. CARLEY  
WILLIAM R. KENDALL  
CHARLES L. HARDT  
RALPH L. TOREN

JOHN T. McLANE  
GENE A. BURRELL  
MICHAEL E. MERCER  
JOHN M. PFLAUM  
MICHAEL R. GALUZZI  
RONALD E. DVORAK  
JON H. SORENSEN

J. HAROLD ROBERTS  
JACK W. STEINMEYER  
LEANDER L. URMY  
DISON A. PALMER

Board of Directors  
Pueblo Conservancy District  
P. O. Box 234  
Pueblo, Colorado 81002

RE: Proposal for Predesign/Feasibility Investigation for the  
Santa Fe Avenue Dam on the Arkansas River in Pueblo, Colorado

Members of the Board:

We are pleased to submit this proposal for a predesign/feasibility report of the proposed Santa Fe Avenue Dam on the Arkansas River in Pueblo. The following is a description of the major work items which would be addressed in the predesign effort.

**Hydrologic Analysis**

The hydrologic analysis would entail research of existing flow data for the Arkansas River from sources such as the Army Corps of Engineers and the Bureau of Reclamation. Flow data would be obtained relative to the low flow, average flow and flood flow regimes.

**Channel Bed Stability Analysis**

The proposed dam structure will be a channel gradient control structure for the river reach upstream of the dam. An analysis must be made of the river channel downstream of the proposed dam to identify what structures, if any, act to control the grade of the channel bottom, and to evaluate any potential changes in the grade of the channel bottom (i.e. "head-cutting" or degradation) that may be expected. For example, we believe that the Booth Orchard Dam (presently breached), at the Highway 227 bridge near the confluence with Fountain Creek, was previously controlling the grade of the river channel upstream, and that degradation of the river channel upstream has occurred and may still be occurring as a result of the dam's being breached. The bed stability analysis would provide the best estimate of what the equilibrium channel bed slope is likely to be and also the depth to which the channel bed could degrade under severe circumstances.

To accomplish this analysis we would first research any previous analyses or data available from the Bureau of Reclamation or other agencies. Survey data of the existing Booth Orchard Dam downstream and channel cross sections at least at 1,000' intervals

BRANCH OFFICES

ASPEN  
0139 VENTNOR AVENUE  
ASPEN, COLORADO 81611

LAKE DILLON  
P. O. BOX 2098  
DILLON, COLORADO 80435

TULSA  
9726 E. 42ND STREET, SUITE 112  
TULSA, OKLAHOMA 74145

and including riverbottom data would be provided by KLH Engineering Consultants, Inc. Arrangements would also be made for soil tests and recommendations/review regarding proposed foundation systems for the dam with Lincoln DeVore Testing Labs.

#### **Existing Conditions Documentation**

To document the existing site conditions, the following would be furnished by KLH Engineering Consultants, Inc.

1. A topographic survey of the proposed dam site.
2. An as-built survey of the existing sewer lines.
3. An as-built survey of the existing water diversion intake.
4. An as-built survey of the lower end of the concrete river bank transition.
5. Research of any other utilities/structures which would be impacted by the proposed dam.
6. River cross sections as mentioned previously.

#### **Hydraulic Analysis**

Utilizing survey cross sections provided by KLH Engineering Consultants, backwater calculations would be conducted to determine flow profiles for existing, possible future stream bed conditions, and proposed conditions. The Army Corps of Engineers HEC-2 computer program would be utilized to facilitate the evaluation of alternative dam structures and various flow conditions.

#### **Preliminary Dam Design**

McLaughlin Water Engineers, in conjunction with the structural engineering firm of Jorgensen, Hendrickson and Close (under subcontract), would complete the preliminary design of the proposed Santa Fe Dam and present the results of the above described analyses and the preliminary design in a report to the Pueblo Conservancy District. alternative dam structures (if any) will be evaluated and a recommendation will be made to the District for the facility which best satisfies the following design requirements:

1. Dam structure type and height.
2. Riverflow profile for the various flow regimes (i.e., low flow to flood flow conditions).
3. Maintenance of the integrity of the existing water diversion works.
4. Protection of the existing utilities which cross the river.
5. Control of the river channel bed gradient.
6. Provision for recreational boating access.
7. Provision of a pedestrian bridge.

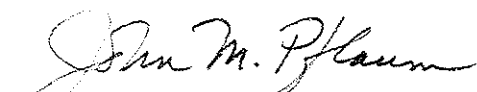
A predesign/feasibility report would be prepared to document all research and investigative efforts, describe the analyses conducted and alternatives (if any) explored, and present the recommended dam facility including anticipated final design and construction cost estimates. The predesign report would provide the basis and direction for the final design effort and would also be a valuable document for local government or agency review and for construction permit applications such as the Corps of Engineers 404 Permit.

The attached cost summary presents an estimate of our anticipated design fees for this phase of the project, which excludes those services previously described that would be furnished by KLH Engineering Consultants, Inc. All work would be accomplished on an hourly time and expense basis according to the attached rate schedule. If this proposal is acceptable, please execute both copies and return one to our office.

Very truly yours,

McLAUGHLIN WATER ENGINEERS

  
William C. Taggart, P. E.

  
John M. Pflaum, P. E.

COST SUMMARY  
ENGINEERING SERVICES FOR  
PREDESIGN/FEASIBILITY REPORT FOR  
SANTA FE AVENUE DAM  
PUEBLO, COLORADO

|                                         |                       |
|-----------------------------------------|-----------------------|
| HYDROLOGIC ANALYSIS                     | \$ 500.00             |
| CHANNEL BED STABILITY ANALYSIS          | \$ 3,550.00           |
| Survey Data                             | Furnished By KLH      |
| Soil Testing/Review and Recommendations | Furnished Through KLH |
| EXISTING CONDITIONS DOCUMENTATION       | \$ 450.00             |
| Survey Data                             | Furnished By KLH      |
| HYDRAULIC ANALYSIS                      | \$ 1,260.00           |
| PRELIMINARY DESIGN (including report)   | \$ 8,600.00           |
| TOTAL                                   | \$ 14,260.00          |

To BE Completed By: FEBRUARY 26, 1984

Accepted:

11-30-83

Date

Patricia Kelly  
Pueblo Conservancy District

PRESIDENT  
Title

WCT/JMP:jw  
MWE GO  
#6

McLAUGHLIN WATER ENGINEERS  
SCHEDULE OF HOURLY RATES - B  
PROJECT WORK EFFECTIVE JANUARY 1, 1983 THROUGH DECEMBER 31, 1983

| <u>Personnel</u>                                | <u>Rate per Hour</u> |
|-------------------------------------------------|----------------------|
| Senior Principal Engineer                       | \$ 60.00             |
| Principal Engineer                              | \$ 55.00             |
| Senior Project Engineer                         | \$ 48.00             |
| Senior Engineer (Civil, Sanitary, Water Rights) | \$ 42.00             |
| Engineer (Civil, Sanitary, Water Rights)        | \$ 38.00             |
| Hydrologist                                     | \$ 35.00             |
| Senior Engineering Designer                     | \$ 34.00             |
| Resident Engineer                               | \$ 31.00             |
| Senior Draftsman                                | \$ 38.00             |
| Senior Resident Inspector                       | \$ 30.00             |
| Engineering Draftsman                           | \$ 27.00             |
| Engineering Technician                          | \$ 25.00             |
| Resident Inspector                              | \$ 24.00             |
| Administrative Assistant, Technician            | \$ 22.00             |
| Secretarial                                     | \$ 20.00             |

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Note: When Principal Engineers act in project capacity for substantial periods, then rates charged will be in accordance with work assignment.

Automobile Expenses at 25¢ per mile

Four-Wheel Drive Vehicle at 35¢ per mile

Expenses at Direct Costs including Subcontractors