PLATTE RIVER RECOVERY IMPLEMENTATION PROGRAM

Second Amendment to the Agreement between Nebraska Community Foundation, Inc., Platte River Recovery Implementation Program, and Olsson Associates, regarding the CNPPID Reregulating Reservoir Feasibility Study

This Second Amendment to the Agreement between the Nebraska Community Foundation, Inc. ("Foundation") of Lincoln, Nebraska, representing all signatories to the Platte River Recovery Implementation Program ("Program"), and Olsson Associates ("Consultant") is made and entered into effective on the date of signing below and the final date of this Amendment will be May 26, 2011.

The purpose of this Amendment is to:

1. Expand the Scope of Work to include the tasks as described in Attachment A.
2. Increase the contract amount by $31,951, effective as of the date of this Amendment, so that total payment under the Agreement shall not exceed $465,826 (which includes the original Agreement of $93,875 and First Amendment of $340,000).

All other terms of the original agreement remain in effect as originally written in the Agreement dated July 13, 2009 and under the First Amendment dated February 25, 2010.

The following parties agree to the terms of this Amendment and the original Contract.

For the Foundation:

_____ _____

Diane M. Wilson
Chief Financial and Administrative Officer
Nebraska Community Foundation, Inc.

Date

For the Consultant:

_____ _____

Michael J. Yost, P.E.
Vice President
Olsson Associates

Date

Attachment A

CNPPID Reregulating Reservoir Feasibility Study
2nd Amendment Scope of Work and Budget

DESCRIPTION OF BASIC PROFESSIONAL SERVICES

CNPPID seeks to maximize hydroelectric power production during peak value times of the day during the irrigation season by regulating flows for irrigation delivery using Area 2. The desire is to pulse the hydropower plant during the peak value times but meanwhile deliver a uniform flow rate down stream of Area 2. It is anticipated Area 2 will need to remain nearly full for the system to function correctly and hence Area 2 storage volume will not be available for Program use during the irrigation season. Area 2 will continue to be used for reduction to PRRIP target flow shortages outside of irrigation season. Areas 1 and 2 shall still be designed to release flows for the SDHF since this will occur outside of irrigation season. Any release to the Platte River will still need to occur at a steady rate as previously modeled.

Olsson shall perform for Client professional services in all phases of the Project to which this Agreement applies in accordance with the Agreement and as hereinafter provided. These services will include serving as Client's professional representative for the Project, providing professional consultation and advice and furnishing customary services incidental thereto.

An itemized scope discussion is presented below and continues the task number sequencing from the First Amendment to the Agreement.

1. Investigation of Reservoir Combined Operations

   1.5 The combined operations report, Section 3.3.2, identified four scenarios under which full hydrocycle mitigation was not achieved outside of the irrigation season. To gain an understanding of whether and how hydrocycle mitigation can be achieved for essentially 100% of the days outside the irrigation season, up to 10 of the instances during which mitigation was not achieved will be studied. It is anticipated that mitigation will be achieved through J-2 hydropower plant operational changes or changes in the releases from the storage areas. Mitigation for large fluctuations due to storm events will not be considered. The results will be presented graphically and estimates of the impacts on yield will be determined. The findings will be presented in a brief memorandum. It is anticipated the work under this task will be conducted concurrently with Task 1.6.

   1.6 To gain an initial estimate of the yield impact of removing Area 2 from Program use during the irrigation season, the existing Excel spreadsheet models that evaluated combined operations will be modified to remove the previously modeled Area 2 from the available volume during the irrigation season. Phelps Canal capacity will be 1,675 cfs. Area 2 will be considered to be unavailable for Program use April1-August 31. The yield for Program use will be compared for the scenarios of use of Area 2 for the entire year versus only outside the irrigation season. Hydrocycle mitigation will be considered a flat release rate for 24 hours. The results of the analysis will be documented in a brief one or two-page memorandum and compared to previous results. It is anticipated the findings will be discussed with a conference call. Any refinement to the scope of work to address yield impacts will be determined with input from the ED Office and CNPPID prior to proceeding with the remaining tasks described below.

   1.7 Olsson will prepare a conceptual design of Area 2 that would allow it to be used by CNPPID to maximize power production during peak value times of the day while supplying downstream uniform flow for irrigation delivery. This task will utilize the same

Area 1 and 2 footprints identified under Task 1 of the First Amendment to the Agreement. Consideration of an expanded Area 1 is anticipated be investigated under Tasks 2.1, 2.3, and 2.4.

1.7.1 The future operation of CNPPID's J-2 hydroelectric plant will change during the irrigation season to run at 1,675 cfs for as long as possible and then shut off. Previous modeling used historic hourly J-2 output during the irrigation season. Historically during irrigation season, the J-2 plant was preferably ran steady, equal to the irrigation demand. Using the historic daily volumes, new hourly synthetic data will be developed to simulate CNPPID's potential future operations during the irrigation season. It is assumed the irrigation demand will be unchanged from historic conditions and will be a uniform flow demand over the entire day. Any captured excess flow water remaining in Area 2 at the start of the irrigation season would be available for Program use at the end of the irrigation season. Olsson will summarize the new synthetic data and provided to the ED Office and CNPPID prior to use in subsequent tasks.

1.7.2 Olsson will investigate the physical layout and operation of Area 2 for use to maximize power production during peak value and regulate flows for irrigation delivery. The four most likely options would be to 1) completely remove the berm between Area 2 and the Phelps Canal, 2) remove a limited width of the berm, 3) remove the top certain number of feet of the berm, and 4) install inlet and outlet gate structures between the Phelps Canal and Area 2. Inlet capacity, whether gate or opening, must be 1,675 cfs, and outlet capacity back to Phelps County Canal must be no less than 1,000 cfs. All of these options would result in a lower water surface elevation and hence less storage than shown in previous studies. Olsson will investigate the four options with as-needed, informal communication with the ED Office and CNPPID.

1.7.3 The stage-discharge relationship for the flows entering into Area 2 from Phelps County Canal and then back draining out of Area 2 and into Phelps County Canal will be developed utilizing the lateral weir option in HEC-RAS. The analysis will focus on determining the narrowest and shallowest opening in the Phelps Canal that would be meet the design goals. The unsteady HEC-RAS model will be used to evaluate the four potential layouts in Task 1.6.2. Conceptual-level costs will be developed for feasible alternatives. Conceptual layouts and costs will be distributed to the ED Office. Olsson will coordinate with the ED Office on which of these options is most feasible. It is anticipated a conference call will be held with the ED Office and CNPPID to discuss the alternatives so that one can be selected for further investigation. The stage-discharge results will be utilized to update the Excel continuous simulation model developed previously with the most feasible scenario. The Excel model will be run to compare yield and standard deviations to the results from the modeling completed in March 2011.

1.7.4 Based on the physical layout of Area 2, a new volume and stage-storage relationship will be developed using LIDAR data. Area 1 volume will need to be increased in order to offset the reduction of Area 2 storage. The SDHF required volume is the minimum volume to be used in the analysis.

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1.7.5 The analysis will assume a new gate is installed in Phelps County Canal between Area 1 and Area 2. The gate will be used to regulate the flow to downstream areas and control the stage in Phelps County Canal and Area 2. Conceptual cost estimates will be updated to include the construction of this canal.

1.7.6 Area 1 could potentially be filled through Area 2 instead of filling from Phelps County Canal. Area 2 fills from a higher elevation off of Phelps Canal. Potentially, this increase in elevation might be utilized to increase the peak elevation and storage volume of Area 1. The connection between Areas 1 and 2 will require addressing the existing drainageway located between the areas. A conceptual layout and appropriate exhibits showing Areas 1 and 2, the Phelps Canal, and the drainage, will be developed to demonstrate how the connection would physically work. A short narrative will be developed, discussing the advantages, disadvantages and costs associated with this option.

1.7.7 A brief memorandum of findings will be prepared that summarizes the findings of Task 1.6. The intent is for the Program and CNPPID to use this memorandum to determine if this option becomes a required part of the options to be evaluated in Task 2. It is anticipated two meetings will be held in Denver to discuss the findings. The first meeting will be to discuss the draft findings, review preliminary summary tables and graphics. The second meeting will be to discuss the draft memorandum. A small amount of time to cover the scoping discussion requested by the ED Office has been included.

Work to be completed under scope of work and budget authorized under the First Amendment to the Agreement.

- The existing Tasks 2.1 and 2.4 include investigating expansion of Area 1 through an incremental cost analysis. If use of Area 2 for irrigation delivery regulation reduces the Program yield as compared to not using Area 2 for irrigation delivery regulation, as modeled in previous tasks of the project, expansion of Area 1 to mitigate the reduction will be investigated. Area 1 can be expanded west or south of the county road. Specific consideration will be given for addressing the drain/unnamed tributary on the east side of Area 2. Up to two additional expansion scenarios can be investigated under existing Task 2.1. An incremental cost analysis to determine the optimal storage volume will be conducted under existing Task 2.3. The study will be documented under Task 2.4.

- The existing Task 3, Geotechnical Feasibility Evaluation will remain unchanged. Depending on which alternative is selected, additional borings may be required but this work will be performed during the preliminary design under a future contract. The recommendation of keeping water in storage to protect the liner was documented in the February 25, 2011 geotechnical investigation memorandum. Starting after Task 1.6, the project moving forward will include this recommendation.

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Task	Denver WR Hours				Springfield WR Hours							
	Project Engineer	Assistant Engineer	Clerical Support	Expenses	Senior Engineer	Associate Engineer	Drafting Tech	Clerical Support	Expenses	Subtotal Labor	Subtotal Expenses	Total
→ Rate	$ 129	$ 88	$ 60		$ 136	$ 90	$ 70	$ 60				
1.0 Investigation of Reservoir Combined Operations												
1.1 Update Reservoir Volumes												
1.2 Coordinate Modeling with ED Office												
1.3 Perform Hydrocycle + Target Flow Modeling												
1.4 Combined operations memorandum												
1.5 Investigate full mitigation for select scenarios	14	2			1					$ 2,118	$ -	
1.6 Initial estimate of revised Area 2 impact on yield	8	14			2					$ 2,536	$ -	
1.7 Detailed investigation of revised Area 2										$ -	$ -	
1.7.1 Develop synthetic hourly flow data for irrigation season	4	10			2					$ 1,668	$ -	
1.7.2 Evaluate most feasible physical layout of Area 2	8	24			8					$ 4,232	$ -	
1.7.3 HEC-RAS modeling and Excel modeling	24	64			10					$ 10,088	$ -	
1.7.4 Volume and stage-storage relationship	2	10			2					$ 1,410	$ -	
1.7.5 Construction estimate for canal and gate	4	14			2					$ 2,020	$ -	
1.7.6 Evaluate ability to fill Area 1 from Area 2	4	12			2					$ 1,844	$ -	
1.7.7 Memorandum, project coordination	24	14		$ 75	12					$ 5,960	$ 75	$ 31,951
Total	92	164	0	$ 75.00	41	0	0	0	$ -	$ -	$ -	$ 31,951