EXHIBIT "F"

Supplemental Agreement Form

WORK AUTHORIZATION NO. 1
SUPPLEMENTAL AGREEMENT NO. 4

Contract No. C – 10 – 062 – 02 - 16

THIS **SUPPLEMENTAL AGREEMENT** is made pursuant to the terms and conditions of Article 8 of the **Agreement** made by and between **HIDALGO COUNTY**, acting herein by and through the **Commissioner's Court**, hereinafter called the "**Owner**", and **TEDSI INFRASTRUCTURE GROUP**, professional engineers of Mission, Texas, hereinafter called the "**Engineer**".

PART 1.Scope of Work. The purpose of this Supplemental Agreement #4 to Work Authorization No. 1 is to provide Revisions to the Hydrologic & Hydraulics, Revisions to the PS&E, Revisions to the parcel surveys and M&B Descriptions, Right Of Way Negotiations &Acquisitions and construction Phase Services along with adding a sub-consultant (Valley Right Of Way Consulting Services , LLC) as indicated below:

The scope of services to be provided by the **Engineer** is identified in **Exhibit "B"** –***Scope of Services to be Provided by the Engineer*** attached hereto.

PART 2. Estimated Cost. The estimated lump sum cost for services under this Supplemental Agreement No. 4 to Work Authorization No. 1 is **$ 292,736.62**. This amount is based upon the costs outlined in the ***Estimated Cost Proposal*** attached hereto as **Exhibit "D"**.

PART 3. Payment. Lump Sum Compensation and payment to the **Engineer** for the services established under this Supplemental Agreement #4 to Work Authorization No. 1 shall be made in accordance with Articles 5, 6, and 7 of the **Agreement**.

PART 4. Period of Service. This Supplemental Agreement #4 to Work Authorization No. 1 shall become effective on the date of final acceptance of the parties hereto, and all work associated with this Supplemental Agreement #4 to Work Authorization No. 1 shall be performed within the time period identified in Work Authorization No. 1.

PART 5. Responsibilities and Obligations. This Supplemental Agreement #4 to Work Authorization No. 1 does not waive the parties' responsibilities and obligations provided under the **Agreement**.

PART 6. Acceptance and Acknowledgement. This Supplemental Agreement #4 to Work Authorization No. 1 is hereby accepted and acknowledged as indicated below and effective as of _____ day of _____, 2013.

THE ENGINEER:
TEDSI INFRASTRUCTURE GROUP

BY: _____
Jessse Salinas, (Principal)

COUNTY JUDGE:
HIDALGO COUNTY

BY: _____
Ramon Garcia

THE OWNER:
HIDALGO COUNTY

BY: _____
Joseph Palacios (County Commissioner)

APPROVED AS TO FORM:
ATLAS & HALL

BY: _____
Steve Crain

LIST OF EXHIBITS:

EXHIBIT "B" -	Services to be Provided by the Engineer
EXHIBIT "D" -	Estimated Cost Proposal

EXHIBIT "B"
Services to be Provided by the Engineer

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CLASSIFICATION OF SERVICES. In accordance with Article 2.2 of this Agreement, the services to be provided by the **Engineer** shall be classified as either ***Basic Services*** or ***Special Services.*** The expanded descriptions of the services identified later in this exhibit and to be provided by the **Engineer** are classified as follows:

Management:

I. ENGINEERING MANAGEMENT (*EM*)

(A) Preliminary Project Planning and Development

(1) Project Development Schedule	***Basic***
(2) Construction Estimate	***Basic***
(3) Quality Control / Quality Assurance Program	***Basic***
(4) Subcontract Administration	***Basic***
(5) Legislative Liaison & Funding Application Preparation	***Special***
(6) Capital Improvement Program (CIP)	***Basic***
(7) Management / Coordination of Engineering Activities	***Basic***
(8) Implementation of QC/QA Program	***Basic***

(B) Preliminary Engineering

(1) Preliminary Concept Conference	***Basic***
(2) Management / Coordination of Engineering Activities	***Basic***
(3) Implementation of QC/QA Program	***Basic***
(4) Preparation of ***"Preliminary Engineering Report"***	***Basic***
(5) Coordination with all reviewing agencies (FEMA, USACE, etc.)	***Basic***

(C) Final Design

(1) ***"Design Policy & Procedures Manual"***	***Basic***
(2) Design Concept Conference	***Basic***
(3) Management / Coordination of Engineering Activities	***Basic***
(4) Implementation of QC/QA Program	***Basic***

(D) Construction Management

(1) ***"Construction Management Policy & Procedures Manual"***	***Basic***
(2) Construction Bidding	***Basic***
(3) Owner's Representative	***Basic***
(4) Defects and Deficiencies	***Basic***
(5) Monthly Construction Progress Reports	***Basic***
(6) Recommendations for Payment to the Construction Contractor	***Basic***
(7) Project Site Management	***Special***
(8) Implementation of Qc/QA Program	***Basic***
(9) Change Orders	***Special***
(10) Final Acceptance, Performance Testing, Shop Drawing Review	***Basic***

Engineering:

II. PRELIMINARY PROJECT PLANNING & DEVELOPMENT

(1) Environmental Document Preparation & Public Involvement (if required By Federal agencies)	***Special***
(2) Field Surveying & Photogrammetry (if not provided by Owner)	***Special***
(3) Water Resource Management Planning	***Special***
(4) Water Rights Attorney	***Special***

Engineering:

III. PRELIMINARY ENGINEERING, FINAL DESIGN & CONSTRUCTION

(A) Preliminary Engineering:

(1) Preliminary Field Surveying (using Lidar/ provided by **Owner**)	***Provided by Owner***
(2) Data Collection	***Basic***
(3) Geographical Information System	***Basic***
(4) Hydrologic Analysis	***Basic***
(5) Hydraulic Analysis	***Basic***
(6) Flood Plain Mapping	***Basic***
(7) Water Treatment & Distribution	***Basic***
(8) Alternate Solutions /Recommendations for Final Design	***Basic.***
(9) Final Report – ***"Preliminary Engineering Report"***	***Basic***

(B) Final Design:

(1) Right-of-Way Data and ROW Map	***Special***
(2) Right of Way Acquisition Services	***Special***
(3) Design Field Surveying	***Special***
(4) Geotechnical Investigations and Reports	***Special***
(5) Permitting	***Basic***
(6) Channel / Drainage Design	***Basic***
(7) Roadway Design	***Basic***
(8) Bridge Design	***Basic***
(9) Plans, Specifications & Estimates	***Basic***

(C) Construction:

(1) Construction Bidding Documents	***Basic***
(2) Project Site Representation:	***Special***
a. Engineering Support Data for Defects & Deficiencies	***Special***
b. Daily and Weekly Construction Reports	***Special***
c. Measurement / Calculations for Contractor Payment	***Special***
d. Project Engineer / Resident Engineer Services	***Special***
(3) Miscellaneous Technical Activities:	
a. Construction Field Surveying	***Special***
b. Shop Drawing Review	***Basic***
c. Control of Materials & Equipment	***Special***
d. Change Orders	***Basic***
(4) Final Acceptance:	
a. Performance Testing	***Special***
b. As-Built Drawings	***Basic***

EXPANDED DESCRIPTIONS OF SERVICES. The expanded descriptions of the services to be provided by the Engineer are described on the following pages.

I. ENGINEERING MANAGEMENT (*EM*)

The following outline provides a summary for the ***basic*** and ***special services*** to be provided by the **Engineer** under services of this Agreement. The contractual services will be outlined in each Work Authorization as outlined in Article 7.

For these services, the **Engineer** shall manage the **Project Team,** consisting of various sub-providers, in the development of the **Project** as defined and more particularly described in **EXHIBIT "B1"** attached to this Agreement. The services will include the following:

(A) Preliminary Project Planning and Development. In general, this will include the ***management*** of the preliminary planning process and advance project development (APD) that is required for the **Project.** (A summary of specific requirements for ***engineering*** activities are outlined later in this exhibit.) The **Engineer** will identify, coordinate, and implement the ***management*** requirements for preliminary planning and advance **Project** development for the **Project.** Specific work activities to be provided by the **Engineer** will include:

(1) **Project Development Schedule.** The **Engineer** will prepare a **Project Development Schedule.** This schedule will be developed from the notice to proceed with work through final record drawings. The schedule will be monitored, by the **Engineer,** throughout **Project** development. It will be provided, as well as any updates, to the **Owner** and each **Project Team** member as a part of the **Work Plan** identified in (1). The schedule will identify all major milestones and **Project** deliverables. The **Engineer** will inform the **Owner** (in reasonable advance of the delay) should the **Engineer** encounter delays that would prevent the performance of all work in accordance with the established schedule.

(2) **Construction Estimate**. The **Engineer** shall prepare a preliminary estimate for the construction of the **Project**. The preliminary construction estimate shall be monitored, verified and updated throughout the course of **Project** development.

(3) **Quality Control / Quality Assurance (QC/QA) Program**. The **Engineer** shall develop a quality control and quality assurance program for the **Project** to ensure the **Project Team** is producing quality work for the **Project**.

(4) **Subcontract Administration**. The **Engineer** shall initiate, execute and monitor all subcontracts for the duration of the **Project**. The **Engineer** shall advise and/or provide recommendations to the **Owner**, as the **Project** progresses, should additional sub-providers be required. All subcontracting and assignment will be in accordance with Article 14.

(5) **Funding Sources**. If approved by the **Owner** as ***Special Services***, as outlined in Article 5.2, the development and construction of the **Project** may be eligible for funding from outside sources. If approved by the **Owner** as ***Special Services***, the **Engineer**'s responsibilities regarding funding sources will include the following:

(a) **Liaison (Engineer)** will act as Corporate Sponsor for obtaining funding from potential

funding sources for the **Project**. The Corporate Sponsor will act as liaison for the **Owner** to applicable State and Federal resource agencies for possible funding assistance.

(b) The **Engineer** will identify and develop a list of possible funding sources for the **Project**.

(c) The **Engineer** will prepare all required applications to funding sources.

(6) **Capital Improvement Program (CIP)**. If approved by the **Owner** as ***Special Services***, as outlined in Article 5.2, the **Engineer** will prepare a CIP based on a conceptual sequence of construction for the **Project** as identified in the final recommendations shown in the ***"Preliminary Engineering Report"*** developed by the **Engineer** under the preliminary engineering activities identified later in this exhibit. The primary focus will be to address the overall needs of the system, the funding availability, the identification of operational issues, the acquisition of right of way, and the prioritization of those needs and issues in a cost effective and efficient manner (conducive of funding availability). The CIP will be continuously monitored and updated by the **Engineer** throughout **Project** development.

(7) **Management/Coordination of Engineering Activities**. The **Engineer** shall ***manage*** and coordinate the specific ***engineering*** work activities, tasks, special services for Environmental Document Preparation (if required by Federal agencies), Public Involvement, and Field/Reconn/Surveying and Photogrammetry (more particularly identified later in this exhibit under II - Preliminary Project Planning and Development).

(8) **Implement QC/QA Program**. The **Engineer** will monitor and perform the program developed to ensure the quality of the Environmental Document (if required by Federal agencies), public involvement procedures, and the products and data from field/recon/surveying and aerial photogrammetry, and their compliance with applicable standards and requirements.

(B) Preliminary Engineering. The **Engineer** will ultimately deliver the final recommendations for the design of the project in the ***"Preliminary Engineering Report"***. (Specific requirements for ***engineering*** activities are outlined later in this exhibit under II - Preliminary Engineering, Design and Construction.) The **Engineer** shall ***manage*** and coordinate the activities of the **Project Team** in the collection of geographical information and ***engineering*** data, the selection of computer software, and the distribution of **Project** information and status to the **Owner** and **Project Team** throughout the development of the "***Preliminary Engineering Report***". Specific ***management*** tasks to be provided by the **Engineer** will include:

(1) **Preliminary Concept Conference**. The **Engineer** will coordinate and conduct a preliminary concept conference (PCC) with the **Owner**, and any other stakeholders approved by the **Owner**. At the PCC, the **Engineer** will outline the issues and aspects involved in the development of the ***"Preliminary Engineering Report"***, identify existing conditions and design requirements, and present the approach to the development of the report for approval by the **Owner**.

(2) **Management/Coordination of Engineering Activities**. The **Engineer** shall ***manage*** and coordinate the **Project Team** in the preparation of specific ***engineering*** work activities, tasks, special services for the final development of the ***"Preliminary Engineering Report"***, including Field Surveying, Data Collection, the development of a Geographical Information

System, Hydrologic/Hydraulic Analysis, Flood Plain Mapping, Alternate Solutions, and Final Recommendations (more particularly defined with the ***engineering*** activities identified in this exhibit under II - Preliminary Engineering, Design and Construction (**Preliminary Engineering**)).

(3) **Implement QC/QA Program**. The **Engineer** will monitor and perform the QC/QA program developed to ensure the quality of the ***"Preliminary Engineering Report"***, and its compliance with standards of sound ***engineering*** principles and the agreed-upon design criteria established at the PCC.

(4) **Final Report:** ***"Preliminary Engineering Report"***. The **Engineer** will provide, to the **Owner**, five (5) bound, color copies of the ***"Preliminary Engineering Report"***, including all attachments, exhibits, preliminary layouts, sketches, profiles, and cost estimate.

(5) **Coordination with various agencies.** The development of the ***"Preliminary Engineering Report"*** may require documentation and/or coordination with various agencies. The **Engineer** will act as a liaison for the **Owner**, and will attend any meetings, and develop / prepare any required correspondence, documentation, and/or applications to satisfy the applicable Federal, State, and local regulations.

(C) Final Design. After the **Owner** has approved the **Engineer**'s final recommendations as shown in the ***"Preliminary Engineering Report"*** and the recommendations meet all Federal, State, and County permitting requirements, the **Engineer**, will coordinate the activities of the **Project Team** during the final design of the **Project** by developing and preparing all policies and procedures, managing the sub-providers activities and performance, and performing quality control and quality assurance for all design documents associated with the **Project**. One of the primary deliverables for the **Engineer** to provide the **Owner** is a complete and approved set of plans, specifications, and estimate (PS&E) for each phase of construction of the **Project**. Specific ***management*** work activities to be provided by the **Engineer** will include:

(1) ***"Design Policy & Procedures Manual"***. The **Owner** will provide a policy and procedures manual for final design to be used by the **Project Team** in the development of the **Project**. The purpose of this will be to set policy with regards to the approved design criteria, and to provide consistency in the development of the documents for design, plans, specifications and estimates. Once the manual has been provided by the **Owner** it will be distributed by the **Engineer** to each member of the **Project Team**. The **Owner** will be responsible for updating and maintaining the manual and distributing any revisions throughout **Project** development. Items to be identified in the ***"Design Policy & Procedures Manual"*** provided by the **Owner** will include, but not be limited to, the following:

(a) Project Description and Final Recommendations of the ***"Preliminary Engineering Report"***
(b) Environmental
(c) Correlation and Agreement with Other Agencies
(d) Application of Design Standards (City, County, State, AASHTO)
(e) Requirements for Preliminary Submittals
(f) Basic Design Criteria
(g) Preparation for Plans, Specifications, and Estimate (PS&E) Submittals
(h) Formats for Supporting Documents

(i) CADD Standards
(j) Specifications

(2) **Design Concept Conference (DCC).** The **Engineer** shall coordinate and conduct a design concept conference with the **Owner** and **Project Team**. At the DCC, the **Engineer** will distribute the ***"Design Policy & Procedures Manual"*** provided by **Owner** and discuss the **Project** Development Schedule with the **Project Team**.

(3) **Management/Coordination of Engineering Activities.** The **Engineer** shall ***manage*** and coordinate the **Project Team** in the development of the documents for final design, including: Right of Way Data, Design Field Surveying, Geotechnical Investigations, Permitting, Channel/Drainage Design, Roadway Design, Bridge Design, PS&E, and other miscellaneous design and plan preparation items (more particularly defined with the engineering activities identified in this exhibit under II – Preliminary Engineering, Design and Construction (**Final Design**)).

(4) **Implement QC/QA Program.** The **Engineer** shall monitor and perform the QC/QA program developed to ensure the quality of the documents associated with Right of Way Data (Mapping), Design Field Surveying, Geotechnical Investigations, Permitting, Channel/Drainage Design, Roadway Design, Bridge Design, PS&E, and other miscellaneous design and plan preparation items (more particularly defined with the ***engineering*** activities identified in this exhibit under II – Preliminary Engineering, Design and Construction (**Final Design Engineering**)). These designs shall in all respects combine the application of sound ***engineering*** principles with a high degree of economy and shall be submitted to the applicable City, County, State, and/or Federal agencies for approval.

(D) Construction Management. The **Engineer** shall provide construction ***management*** services for each authorized construction contract of the **Project.** The **Engineer** shall also assist the **Owner** in the advertisement for construction bids, the opening and tabulation of the bids, provide a recommendation as to the proper action on all bid proposals received, and assist in the preparation of formal contract documents for the award of contracts. Specific ***management*** work activities to be provided by the **Engineer** will include:

(1) ***"Construction Management Policy & Procedures Manual"***. The **Owner** shall will provide a manual that outlines the policy and procedures for the ***management*** and administration of construction of the **Project.** The manual's information will include, but not be limited to, construction contract recordkeeping (daily reports, weekly reports, monthly progress reports, etc.), contractor payment, change order format and procedures, site inspection, scheduling, and final inspection.

(2) **Construction Bidding Documents.** The **Engineer** shall perform the following in preparation of the construction bidding documents:

(a) Upon completion of QC/QA, the **Engineer** shall furnish to the **Owner** all necessary copies of approved plans, specifications, **Engineer's** estimate, notices to bidders, and proposals for each authorized construction contract.

(b) The **Engineer** shall assist the **Owner** in advertising for each authorized construction contract for the **Project.**

(c) The **Engineer** shall assist the **Owner** in the opening and tabulation of bids for each authorized construction for the **Project,** and recommend to the **Owner** as to the proper action on all bid proposals received.

(d) The **Engineer** shall assist the **Owner** in the preparation of formal contract documents for the award of construction contracts.

(3) **Owner's Representative.** In general, the **Engineer** shall provide the ***management*** activities required for consultation and advisement to the **Owner** during construction, and act as the **Owner's** representative as provided in the General Conditions of the Construction Contract. The extent and limitations of the duties, responsibilities and the authority of the **Engineer** as assigned in the General Conditions of the Contract shall not be modified, except as the **Engineer** may otherwise agree in writing.

(4) **Defects and Deficiencies.** In providing the ***management and administration*** of the authorized construction contract, the **Engineer** shall use the **Engineer**'s best efforts to protect the **Owner** against defects and deficiencies in the work of the construction contractor, hereinafter called the **"Contractor"**. The **Engineer** does not guarantee the performance of the **Contractor;** however, the **Engineer** will promptly notify the **Owner** of any such defect or deficiency, and take all steps possible to require the **Contractor** to correct the defect or deficiency.

(5) **Progress Reports.** The **Engineer** will obtain the daily and weekly reports provided from the ***engineering*** activities identified under II – Preliminary Engineering, Design, and Construction **(Construction)** in this exhibit and prepare a monthly progress report, which outlines the construction progress in a form and manner satisfactory to the Owner.

(6) **Contractor Payment**. The **Engineer** shall obtain the measurements and calculated quantities prepared under the ***engineering*** activities identified under II – Preliminary Engineering, Design, and Construction **(Construction)** in this exhibit, and review and approve the monthly and final estimates for payments to the **Contractor** for those items of work accepted and conforming to the construction contract specifications. The **Engineer** will furnish to the **Owner** any necessary certifications as to payments to the **Contractor** and suppliers. *Note: The **Engineer** is not responsible for actual payments to the **Contractor.***

(7) **Project Site Management**. The **Engineer** will coordinate and monitor the **Project** site representation of the authorized construction contract by providing the following special services, if authorized by **Owner**:

Project Manager. The **Engineer** will provide visits by the ***Project Manager*** or a competent representative of the **Engineer** to the site of construction at least twice a month for the purpose of monitoring the **Contractor**'s progress and conformance to the construction contract plans and specifications. In the capacity of site inspection, the **Engineer** will issue instructions from the **Owner** to the **Contractor** and the ***Resident Engineering Representative***, issuing necessary interpretations and clarifications of construction contract documents, and make recommendations to the **Owner** as to the acceptability of the **Contractor**'s progress and work.

(8) **Implement QC/QA Program**. The **Engineer** will monitor and perform the QC/QA program

developed to ensure the quality of the ***engineering*** services and documents associated with Field Surveying, Shop Drawings, Control of Materials & Equipment, Change Orders, Performance Testing, and As-Built Drawings, more particularly identified under II – Preliminary Engineering, Design, and Construction (**Construction**) in this exhibit. These services shall in all respects combine the application of sound ***engineering*** principles with a high degree of economy and shall be submitted to the applicable City, County, State, Federal agencies for approval.

(9) **Change Orders**. When applicable, the **Engineer** will review and provide recommendations for all change orders developed under II – Preliminary Engineering, Design, and Construction (**Construction**) in this exhibit for purpose of preparing construction contract change orders. These change orders may be required due to actual field conditions encountered or new requirements directed by the **Owner**. The **Engineer** will prepare, explain, and submit proposed change orders, when applicable.

(10) **Final Acceptance.** Following the completion of construction by the **Contractor**, the **Engineer** will provide the services required for the final inspection and recommendation for **Project** acceptance. This will include coordinating the activities required for the inspection for conformance and recordkeeping of the necessary performance tests required by the construction contract specifications. The **Engineer** will also review and approve all as-built drawings (to show the work as actually constructed), and furnish to the **Owner** one set of prints of the as-built drawings. *Note: Services to be provided by the **Engineer** for Items II and III primarily involve the **engineering** work tasks for the **Project.***

II. PRELIMINARY PROJECT PLANNING & DEVELOPMENT

In general, this will include all ***engineering*** activities required for the **Advance Project Development**. Primarily, this will involve the research and coordination for the social, economic and environmental impacts, public involvement and preliminary field/reconn/surveying / aerial photography of the **Project.** A summary of the ***engineering*** activities to be provided by the **Engineer** are listed below. The actual contractual services will be identified in each work authorization as outlined in Article 7.

(1) **Environmental Document Preparation and Public Involvement** ***(if required by Federal/State agencies)***

(a) The **Engineer** shall prepare an environmental document in accordance with the National Environmental Policy Act (NEPA) and the applicable Code(s) of Federal Regulations. The **Engineer** will prepare an environmental document in anticipation of a ***Finding of No Significant Impact (FONSI)***, as identified by the NEPA process. This document will include, at a minimum, the following:

(i) **project** description
(ii) need for **project**
(iii) alternatives considered
(iv) impacts (socioeconomic, cultural resource, water resource, air quality, noise quality, biological, prime/unique farmland, construction impacts, hazardous materials)
(v) conclusion
(vi) **project** location map
(vii) preliminary structure and channel locations/layouts
(viii)scanned photographs

(b) The **Engineer** shall conduct and coordinate all public involvement in accordance with the National Environmental Policy Act (NEPA) and the applicable Code(s) of Federal Regulations.

(c) The **Engineer** shall coordinate with all resource agencies, government entities, and private landowners involved or impacted in the development of the **Project.** This will include individual meetings, newsletters and notices, as required.

(d) The **Engineer** shall coordinate and conduct the following public meetings/hearings:

(i) Public Meetings – These meetings will be scheduled to present the **Project** concept, including preliminary layouts and requirements for the **Project,** for the purpose of obtaining preliminary public comment.

(ii) Public Hearing – After completion / preliminary approval of the environmental document and applicable approval to move the **Project** forward for further processing, a public hearing will be afforded and/or conducted to present the approved draft environmental document and the **Project** layout (schematic) for the purpose of obtaining final public comment.

(e) The **Engineer** shall develop a **Project** coordination and mailing list.

(f) The **Engineer** shall prepare required presentation materials (including handouts, agenda, and sign-in roster) and exhibits for public meetings and a public hearing.

(g) The **Engineer** shall prepare and submit a written document summarizing each proceeding: Public Meeting Reports and Public Hearing Report.

(2) **Field Surveying and Photogrammetry** *(if not provided by Owner)*

(a) ***Right of Entry:*** It will be the responsibility of the **Engineer** to secure written permission to enter private property for purposes of reconn/survey, environmental and engineering investigations. The **Engineer** will, at times, contact the owner prior to any entry onto the owner's property. The property owner will be informed, by the **Engineer,** the name of the primary person of contact during each entry.

(b) For the purpose of schematic development, including a geographical information system of the **Project**, a base map background will be provided to the **Engineer** through the **Owner**.

(c) The **Owner** shall provide primary **Project** control for field surveying by establishing horizontal and vertical control points, and the **Engineer** shall establish secondary **Project** control to tie ground control to the State Plane Coordinate System.

(d) The Engineer shall obtain the following photogrammetric products:
(i) Contact Prints and Mosaics
(ii) Planimetric maps
(iii) Contour maps
(iv) Cross Sections
(v) Digital Terrain Model (DTM)

(3) **Water Resource Management Planning**

The Engineer shall provide water resources management planning to include identification of development opportunities, formulating alternative plans, evaluation and optimization of plans. Multiple users, multiple purposes, and multiple objectives must be considered in defining the development plans.

The Engineer shall provide Public Involvement that will be a critical role in the planning process. Economic, ecological, environmental, and social impacts of each alternative plan will be considered. An important and quantifiable criterion for plan evaluation is the economic benefits and costs a plan would entail were it implemented. The overall planning process will be based on a systematic planning approach.

(4) **Water Rights Attorney**

The Engineer shall provide and retain the services of an attorney registered with the State Bar or Texas with professional experience in Texas Law of Water Rights. The attorney retained will provide consultation on applicable State Law regarding water rights and other services as required by Hidalgo County Drainage District No. 1.

III. PRELIMINARY ENGINEERING, DESIGN & CONSTRUCTION

The services listed below to be provided by the **Engineer** are a summary of the services; the actual contractual services will be identified in each work authorization as outlined in Article 7 of the Agreement. The services shall be divided into three phases with ***engineering*** work activities, as follows:

(A) Preliminary Engineering. For this phase, the **Engineer** will ultimately deliver the ***"Preliminary Engineering Report".*** The ***"Preliminary Engineering Report"*** shall be based on the **Engineer**'s review and comments on the ***"Raymondville Drain Outfall Study"*** (to be provided by the **Owner**). Should the review and comments by the **Engineer** indicate deficiencies in the ***"Raymondville Drain Outfall Study",*** or in the **Turner, Collie and Braden, Inc. Engineer Report – "Flood Protection Plan"**, dated September 1997, corrections of such deficiencies shall be the responsibility of the **Owner**, or deemed by the **Owner** as additional work to be performed by the **Engineer** and compensated in accordance with Articles 8 and 9 of this Agreement. Subsequently, the **Engineer** will prepare the ***"Preliminary Engineering Report"*** in sufficient detail to indicate clearly the problems involved and the alternate solutions available to the **Owner**; to include preliminary layouts, sketches, and cost estimates for the **Project**, and to set forth clearly the **Engineer**'s recommendations. Specific ***engineering*** work activities, tasks, and/or special services to be provided by the **Engineer** will include:

(1) **Preliminary Field Surveying**

(a) The **Engineer** shall establish benchmark identifications, if not already provided by the **Owner**.

(b) The **Engineer** shall obtain data for existing drainage facilities and/or structures, including size, type, and flowline (upstream & downstream) elevations of structures.

(c) The **Engineer** shall obtain profiles of intersecting roadways that cross existing and proposed channels.

(d) The **Engineer** shall obtain flood plain and cross-sections (along with appropriate overbank data), and establish reach lengths, as required.

(2) **Data Collection**

(a) The **Engineer** shall perform site visits for field reconnaissance.

(b) The **Engineer** shall identify and obtain data to include, but not be limited to:

Previous Studies:

(i) Available previous hydraulic and/or engineering studies

(ii) Previous documentation and/or studies for Federal Emergency Management Agency (FEMA) floodway requirements.

Land Records:

(iii) Parcel mapping

(iv) Property assessment

(v) USGS topographic mapping

Property and Facility Management

(vi) Land acquisition and disposition
(vii) Building and property inventory
Land Use Planning and Zoning
(viii) General plan mapping
(vix) Zoning mapping
(x) Demographic mapping
(xi) Economic development
(xii) Linking to permitting systems
(xiii) Existing aerial photographs and/or mapping
Engineering
(xiv) Storm drain mapping
(xv) Subdivision mapping
(xvi) Street mapping
Public Safety
(xvii) Emergency preparedness plans
Environmental Assessment (if required by Federal/State agencies)
(xviii) Wetland mapping
(xix) National Pollution Discharge Elimination System (NPDES) permitting
(xx) Facility mapping
(xxi) Vegetation mapping
(xxii) Coastal zone management
Elections
(xxiii) District Boundary definition

(3) **Geographical Information System**

The **Engineer** shall develop a Geographical Information System (GIS) utilizing Environmental Systems Research Institute, Inc. (ESRI) ArcView with 3-D Analyst and GIS StreamPro, where appropriate to be compatible with the existing GIS being developed in the ***"Raymondville Drain Project"***. Import the collected data into ArcView for mapping purposes and presentations to facilitate the decision-making and analytical process for the development of the ***"Preliminary Engineering Report"***. ArcView will also be used to export data to the USACE Hydrologic Center's computer program HEC-River Analysis System (HEC-RAS), which will be used to develop the ***engineering*** models required for the hydraulic analysis of each lateral channel (and associated tributaries) and the plotting of the resultant floodplains. Specifically, ArcView will be used to export this data to HEC-RAS where it will be combined with the field surveyed channel data in order to construct full flood plain cross sections that reflect accurate channel and overbank data for the HEC-RAS models.

Note: During the performance of the following hydrologic / hydraulic analysis and the development of the alternate solutions and final recommendation, the **Engineer** will address and incorporate any findings of the environmental documentation process.

(4) **Hydrologic Analysis**

(a) The **Engineer** shall review and comment on the hydrologic analyses of portions of the Raymondville drainage watershed(s) that are located in Precinct No. 1 and No. 4.

(b) The **Engineer** shall review and comment on the comparison of peak flow rates, identified in the Raymondville drainage watershed(s) that are located in Precinct No. 1 and No. 4,

with any available data from the National Flood Insurance Program (NFIP) or other studies to determine consistency of results.

(5) **Hydraulic Analysis**

(a) The **Engineer** shall review and comment on the hydraulic analysis for each existing and proposed structure location utilizing the HEC-RAS computer program; utilizing Manning's Equation to compute water surface profiles with the inputs of cross-section data, roughness coefficients, and flow rates. Specific steps for the hydraulic analysis are outlined in tasks (b) through (g) below.

(b) The **Engineer** shall create the terrain Triangulated Irregular Network (TIN), if not provided by the **Owner**. This will be developed from a combination of field survey, aerial photogrammetry, and topographic mapping data in the development of a point table. With this point table, an event theme will be created in ArcView, which will create the terrain TIN with 3-D Analyst.

(c) The **Engineer** shall create 2-dimensional lines representing the channel centerline, high bank locations, flow path lines, and cross-section locations by locating the various and required poly lines over the terrain TIN develop the watershed layout over the base map

(d) The **Engineer** shall create the HEC-RAS GIS import file (ASCII text file); this will involve the correlation of the alignment of the cross-sections with the terrain TIN by extracting the elevations from the terrain TIN and creating a 3-dimensional cross-section theme.

(e) For verification of measured elevations, the **Engineer** shall edit the HEC-RAS GIS import file by selectively replacing the points taken from the terrain TIN at the channel with actual channel points obtained by the field survey.

(f) The **Engineer** will review and comment on the accuracy of the HEC-RAS modeling of the existing and proposed structures within Precinct No. 1 and No. 4 facilities authorized in work authorizations as outlined in Article 7 of the Agreement, and compare the hydraulic results to the effective FIS and existing 100-year flood levels.

(g) After the HEC-RAS model is satisfactory and the output deemed acceptable, the **Engineer** shall apply the GIS export function to create the HEC-RAS export file in preparation for the flood plain mapping.

(6) **Flood Plain Mapping**

(a) Utilizing the HEC-RAS GIS export file, and ArcView GIS StreamPro, the **Engineer** shall map the floodplain over the terrain TIN.

(b) The **Engineer** shall compare the results by placing the resulting floodplain mapping over the existing Flood Insurance Rate Map (FIRM): scan the FIRM and bring into ArcView an image for this comparison.

(7) **Water Treatment & Distribution System**

The Engineer shall provide Preliminary Planning Design Phase Services for a Water Treatment Plant and Water Distribution System as per the items below:

Preliminary Planning Phase:

(a) Water Distribution System: Engineering Feasibility Report
- (i) Determination of possible distribution routes and analysis of alternatives.
- (ii) Analysis of booster station(s), elevated storage, interconnects, outfalls, conveyance and analysis of alternatives for these items if needed.
- (iii) Recommendation of distribution routes and conveyance methods and facilities.
- (iv) Engineer's Onion of Estimated Costs

(b) Water Treatment Plant - Engineering Feasibility Report
- (i) Raw water analysis of analytical lab analysis of water available for treatment.
- (ii) Determination of treatment alternatives
- (iii) Analysis of treatment alternatives
- (iv) Recommendation of treatment methods
- (v) Engineer's Opinion of Estimated Costs
- (vi) TCEQ Assistance with application for treatment plant and authorization
- (vii) The Engineer shall provide TCEQ coordination and application for authorization of the Drainage District to supply treated water.
- (viii) Plant Pilot Study.
- (vix) The Engineer shall provide Raw water analytical samples to a TCEQ approved laboratory.
- (x) The Engineer shall provide and prepare an Environmental Information Document (EID) as per the Texas Water Development Board criteria. It's our understanding that some component of TWDB funding may be utilized for this project.

The Engineer shall provide Final Design Phase Services for a Water Treatment Plant and Water Distribution System as per the items below:

(8) Design

(a) Design of recommended water treatment plant for raw water use and potable water production. This includes:

- (i) raw water pump station and intake structure,
- (ii) raw water piping,
- (iii) raw water pumps and electrical components of raw water pump station,
- (iv) hydraulic profile of water treatment plant,
- (v) plant piping,
- (vi) Pretreatment
- (vii) controls and monitoring equipment, SCADA, and auxiliary controls,
- (viii) filtration and treatment vessels,
- (ix) sludge pumps,
- (x) clarifiers,
- (xi) disinfection equipment and monitoring equipment,
- (xii) clearwells,
- (xiii) treated water pumps (high service pumps),
- (xiv) sludge treatment and dewatering equipment, belt filters/sludge drying beds

(b) Design of Water Distribution System for treated Raw Water and Potable Water

This includes:
(i) Design of treated water pipe, sizes, and material types,
(ii) Air release valves,

(iii) Booster station, pumps and storage vessels if needed, elevated storage tanks (if needed),

(9) **Alternate Solutions and Recommendations**

(a) The **Engineer** shall prepare preliminary cost estimates for each alternate solution and final recommendation.

(b) The **Engineer** shall summarize each alternate solution in sufficient detail to indicate clearly the problems involved in order for the **Owner** to make the appropriate comparisons to the **Engineer**'s final recommendations and provide the approval for the final design of the **Project**.

(c) The **Engineer** shall provide a formal and clearly outlined recommendation regarding the final design of the **Project**.

(10) **Final Report**

The **Engineer** shall prepare five (5) bound, color copies of the final ***"Preliminary Engineering Report"***, including all attachments, exhibits, preliminary layouts, sketches, profiles, and cost estimates.

(B) Final Design. After the **Owner** has approved the **Engineer**'s final recommendations as shown in the ***"Preliminary Engineering Report"*** and the recommendations meet all Federal, State, and County regulations and requirements (including permitting), the **Engineer** will perform all required ***engineering*** activities to provide the **Owner** with a complete and approved set of plans, specifications, and estimate (PS&E) for each phase of construction of the **Project**. Specific ***engineering*** activities, tasks, and/or special services to be provided by the **Engineer** will include:

(1) **Right-of-Way Data (Special Services)**

The **Engineer** shall provide a right-of-way (ROW) map to the **Owner** that properly describes the ROW the **Owner** is to acquire. All procedures and tasks involved in the development of the ROW map will be in accordance with the **Owner**'s local operating procedures and the Texas Board of Professional Land Surveying Practices Act. Individual activities and/or requirements include:

(a) Abstracting – The **Engineer** shall perform a preliminary title search and determine ownership information.

(b) Surveying – The **Engineer** shall obtain the required survey data needed to establish existing and proposed right-of-way lines, channel centerline alignment, private property lines, county and/or city limits, and any topographic information not clearly indicated by the aerial photogrammetry.

(c) The **Engineer** shall prepare the ROW map.

(d) The **Engineer** shall prepare field note descriptions on 8-1/2 x 14" sheets, signed and sealed by a Registered Professional Land Surveyor, for each parcel of land to be acquired as shown on the ROW map.

(e) The **Engineer** shall prepare parcel plats for each parcel of land to be acquired as shown on the ROW map. All parcel plats will be prepared on 8-1/2" x 14" sheets and signed and sealed by a Registered Professional Land Surveyor.

(f) Any revisions required to the ROW map, and associated documents, shall be made by the **Engineer** promptly, and at no additional cost or expense to the **Owner**. The **Engineer** shall immediately furnish such revised right-of-way map, and associated documents, to the **Owner** at no additional cost or expense to the **Owner**.

(2) **Right Of Way Acquisitions**. - Project Administration

(a) Negotiation of Scope of Services for Work Authorization

i Acquisition Provider will visit project site with City personnel if necessary.

(b) Project Presence at Consultant Office Headquarters

(i) Full Project Office.

1. No Joint Use of City or TxDOT facilities
2. Open during normal City and State work hours
3. Personnel available to answer questions
4. Availability of Project Files
5. At least one office staff member is required to be a current commissioned notary public

(c) Overhead Cost

(i) Administrative costs.

(d) Communication

(i) Provide monthly progress reports with invoice.
(ii) Participate in project review meetings as determined by the City.
(iii) Prepare initial property owner contact list for use by the City in distribution of Acquisition Provider introduction letters.

(e) File Management

(i) Project and parcel files will be kept in the City's Office, if necessary. Working files will be kept in the Acquisition Provider's project administrative office, but documents generated or received by the Acquisition Provider will be forwarded to the City office as they are generated or received by the Acquisition Provider, if necessary.
(ii) Prepare payment transmittal request utilizing standard payment submissions forms with supporting documentation.
(iii) Maintain records of all payments including check number, amount and date paid, etc.
(iv) Provide copies of all incoming and outgoing correspondence as generated if requested by City at provider conference.
(v) Maintain copies of all correspondence and contacts with property owners.

(f) Negotiations, Tasks, and Fees

(i) Analyze appraisal and appraisal review reports and confirm the City's approval value prior to making offer for each parcel.

III. Preliminary Engineering, Final Design & Construction (continued)

(ii) Analyze preliminary title report to determine potential title problems, propose methods to cure title deficiencies.

(iii) Prepare the initial offer letter, instruments of conveyance, and any other documents required or requested by City/TxDOT on applicable City/TxDOT forms.

(iv) Contact each property owner or owner's designated representative, to present the written offer in person where practical, and deliver appraisal report and required brochures. Maintain follow-up contacts and secure the necessary instruments upon acceptance of the offer for the closing.

(v) Provide a copy of the appraisal report for the subject property exclusively to the property owner or authorized representative at the time of the offer. Maintain original signed Receipt of Appraisal, (unless property owner refuses to sign it, it will be so noted) for billing purposes.

(vi) Respond to property owner inquires verbally and in writing within two business days.

(vii) Prepare a separate negotiator contact report for each parcel per contact.

(viii) Maintain parcel files of original documentation related to the purchase of the real property or property interests.

(vix) Advise property owner on the Administrative Settlement process. Transmit to City any written counter offer from property owners including supporting documentation, and provider recommendation with regard to Administrative Settlements in accordance with City/TxDOT policy and procedures.

(x) Prepare final offer letter, documents of conveyance as necessary.

(xi) Appear and provide Expert Witness testimony as an Acquisition Provider when requested.

(xii) Meet at the Consultants ROW office in Mission once per week as agreed-upon with the Right of Way Acquisition Manager/Administrator.

(xiii) Provide a monthly progress report per parcel by the 25th of the month with invoice.

(xiiii) The consultant shall, as part of this proposal, estimate 10% of the 55 parcels may end up in condemnation. The consultant shall be available for any meeting/hearings as requested by the City Attorney.

III. Preliminary Engineering, Final Design & Construction (continued)

(g) After the hearing is set, the City Attorney shall serve Notices of Hearing to the indicated parties at least 11 days prior to the Commissioner's hearing. If It is necessary to join the Federal Government, be advised that they have an additional 60 days to prepare for the Hearing.

(h) Once the notices have been served, the City Attorney shall file the original notices with the court and send copies stamped "copy" to Consultant's ROW Office.

(i) The City's Attorney shall send a reminder letter 2-3 weeks in advance to the City Administration offices, Acquisition Provider, the three special commissioners and court reporter concerning Hearing dates.

(j) Post Hearing Support (by City Attorney)

(k) For the hearing, prepare the necessary forms and Special Commissioners time sheets and submit forms to the Hidalgo County clerk's office.

(l) Obtain the signatures of Special Commissioners on the Award of Commissioners and file with the court for the judge's signatures within 48 hours of the Hearing.

(m) Give timesheets to Judge. The amount paid to the Special Commissioners is determined by the Judge.

(n) Obtain and distribute 3 certified copies of the award as follows: 1 certified copy to the title company with a request for a commitment, 1 certified copy to the City, 1 certified copy to Consultant with the Commitment to request the warrant in the amount of the Special Commissioners Award.

(o) Send the Commitment and the Award to City, along with individual special commissioner's billing requesting the payment for their fees.

(p) File City warrant in the registry of the court. File a Notice of Deposit with the court and send certified copies to each defendant notifying them of the date fo the deposit. The Date of Deposit is the Date of Take.

(q) Take photograph of the interest to be acquired (if necessary) on the day of deposit for relocation verification.

(r) Send written notices of the date of deposit to the City Administration office and al interested parties.

(s) Appear as Expert Witness as requested. Sub-contractors must also appear as Expert Witness as requested.

(t) All acquisition negotiations file indicating all "due diligence" provided by the Acquisition Provider will be directed to the City Attorney's office for his further handling in accordance to the Eminent Domain process by the City.

(3) **Design Field Surveying (Special Services)**
The **Engineer** shall perform field surveys and provide field layouts and/or information necessary to collect information required in the final design of the **Project**. This may include, but not be limited to, additional channel sections for the determination of final earthwork, roadway cross sections and profiles for intersecting roadways, soil bore staking, and right-of-way staking.

(4) **Geotechnical Investigations (Special Services)**
The **Engineer** shall perform geotechnical investigations and testing for the purpose of foundation studies and design for any pavement, retaining walls, bridges, and/or miscellaneous structures that may be required for final design.

(5) **Permitting**
The **Engineer** shall furnish the necessary ***engineering*** data required to apply for regulatory permits from local, State, or Federal authorities.

(6) **Channel/Drainage Design**
The **Engineer** shall perform channel / drainage design for the proposed improvements to existing channels and/or facilities, as well as the proposed channels of the **Project**. The design of drainage improvements shall conform to the **Project** design criteria, and when possible, the standard designs required by the **Owner** (City, County, or State) of any associated roadways. These designs shall in all respects combine the application of sound ***engineering*** principles with a high degree of economy, and shall be submitted to the applicable City, County, State, and/or Federal agencies for approval.

(7) **Roadway Design**
The **Engineer** shall perform roadway design for any intersecting roadway approaches to the proposed improvements to the existing channels and/or proposed channels of the **Project**. The design of these roadways shall conform to the **Project** design criteria, and when possible, the standard designs required by the **Owner** (City, County, or State) of the associated roadway. These designs shall in all respects combine the application of sound ***engineering*** principles with a high degree of economy, and shall be submitted to the applicable City, County, State, and/or Federal agencies for approval.

(8) **Bridge Design**

(a) The **Engineer** shall perform bridge design required for any roadway crossings to the proposed improvements to the existing channels and/or proposed channels of the **Project**. The design of these bridges shall conform to the **Project** design criteria required by the **Owner** (City, County, or State), of the associated bridge structure and/or roadway, and the

requirements set forth by the American Association of State Highway and Transportation Officials (AASHTO), "Standard Specifications for Highway Bridges". These designs shall in all respects combine the application of sound ***engineering*** principles with a high degree of economy, and shall be submitted to the applicable City, County, State, and/or Federal agencies for approval.

(b) Prior to performing structural detailing, the **Engineer** shall provide a bridge layout to the governing entity of the associated bridge structure and/or roadway for approval. Each bridge layout will include the required information set forth by the governing entity.

(9) **Plans, Specifications & Estimates (PS&E)**

(a) The **Engineer** shall prepare contract drawings, specifications and estimates for construction of the **Project** or portions of the **Project** as authorized by the **Owner**. These documents shall in all respects combine the application of sound ***engineering*** principles with a high degree of economy, and shall be submitted to the applicable City, County, State, and/or Federal agencies for approval.

(b) All final plan sheets shall be developed, by the **Engineer**, on 11" x 17" reproducible, 4 mil, double-matte, white, opaque film.

(c) Graphics files shall be developed by the **Engineer** in Microstation design file format, and must plot consistent with the reproducible plots submitted.

(d) **Plan Sheets.** Plan sheets developed by the **Engineer** shall include, but not be limited to, title sheet, typical sections, sequence of construction, traffic control (as applicable), specification data (including schedules for minimum sampling and testing), estimate and quantity, plan-profile, channel details, roadway details (as applicable), bridge and culvert details, hydraulic details, and standards. (Standards may be used from governing entities, but must be signed and dated by the **Project Engineer** of responsible supervision as being applicable to the **Project**.)

(e) **Specifications.** Whenever possible, the **Engineer** shall use the Texas Department of Transportation's 1993 Standard Specifications for Construction and Maintenance of Highways, Streets and Bridges. Other specifications may be developed by the **Engineer**, but must incorporate, to the extent possible, references to standard requirements of AASHTO design and AASHTO testing procedures.

(f) **Estimates.** The **Engineer** shall prepare detailed cost estimates and proposals of authorized construction, which shall include summaries of bid items and quantities based, insofar as practicable, on the unit price system of bidding. The **Engineer** shall not be required to guarantee the accuracy of those estimates.

(C) Construction Phase Services. The **Engineer** shall provide ***engineering*** services for each authorized construction contract of the **Project**. Specific ***engineering*** work activities, tasks, and/or special services to be provided by the **Engineer** will include:

(1) **Construction Bidding**

The **Engineer** shall prepare the documents for all necessary copies of approved plans,

specifications, notices to bidders, and proposals.

Note: Services for assistance in advertising for each authorized construction contract for the **Project**, opening and tabulation of bids, recommendations to the **Owner** as to the proper action on all bid proposals received, and the preparation of formal contract documents for the award of each construction contract will be performed by the **Engineer**.

(2) **Project Site Representation**

(a) In general, the **Engineer** shall provide the ***engineering support and data*** required for consultation and advisement to the **Owner**, and to protect the **Owner** against defects and deficiencies in the work of the **Contractor**.

(b) **Daily and Weekly Reports.** The **Engineer** shall provide the ***engineering support and data*** required to monitor the **Contractor**'s progress with daily and weekly reports as outlined in the ***"Construction Management Policy & Procedures Manual"*** developed and more particularly identified under I – Engineering Management in this exhibit. This information will be utilized for the development of the ***monthly progress report*** to be provided to the **Owner** as identified under I – Engineering Management in this exhibit.

(c) **Contractor Payment.** The **Engineer** shall take measurements and calculate quantities, in accordance with the construction contract specifications, of those items of work accepted and conforming to the construction contract specifications, for the preparation of the monthly and final estimates for payment to the **Contractor** as identified and performed under I – Engineering Management in this Exhibit. *Note:* The **Engineer** is not responsible for actual payments to the **Contractor**.

(d) The **Engineer** will provide **Project** site representation of the authorized construction contract as follows:

(i) **Project Engineer.** The **Engineer** will provide visits by the ***Project Engineer*** or a competent representative of the **Engineer** to the site of construction at least three times each week for the purpose of monitoring the **Contractor**'s progress and conformance to the construction contract plans and specifications.

(ii) **Resident Engineer.** If authorized by the **Owner**, the **Engineer** will furnish the services of a ***Resident Engineer*** and/or construction representative(s) for continuous on-the-site representation.

(3) **Miscellaneous Technical Activities**

(a) **Construction Field Surveying.** The **Engineer** shall perform all field surveys and field layouts, including construction staking and right-of-way staking.

(b) **Shop Drawings.** The **Engineer** shall review and check all shop or working drawings furnished by the **Contractor**.

(c) **Control of Materials & Equipment.** The **Engineer** shall provide inspection of all materials and equipment furnished/used by the **Contractor** as follows:

(i) Review and record all laboratory, shop and mill tests of materials and equipment for compliance with the construction contract specifications.

(ii) Observe and/or perform **Project** record testing and/or independent assurance testing as outlined in the construction contract specifications.

(d) **Change Orders.** When applicable, the **Engineer** will prepare the ***engineering*** data, including plan sheet drawings, specifications, and estimates, for the preparation of construction contract change orders, which may be required due to actual field conditions encountered or new requirements directed by the **Owner**.

(4) **Final Acceptance**

(a) **Performance Testing.** Following the completion of construction by the **Contractor**, the **Engineer** shall provide the ***engineering*** support and data required for the initial operation of the **Project**. This will include inspection for conformance and recordkeeping for the necessary performance tests required by the construction contract specifications. The **Engineer** will provide this inspection with either the ***Project Engineer*** or ***Resident Engineer***, as directed by the **Owner**.

(b) **As-Built Drawings.** The **Engineer** shall develop as-built drawings to show the work as actually constructed.

EXHIBIT D

Supplemental Agreement
No. 4 to Work Authorization
No. 1
Contract No. C-10-062-02-16

J - 09 - 00 (8 Miles)

Estimated Construction Cost	$9,400,000
Basic Services:	
Item #1 - Revisions to H&H	*$33,552.36*
Item #2 - Revisions to PS&E	*$32,856.48*
Item #3 – Irrigation Line Relocation Design	*$27,836.68*
Total Basic Services this SA#4 to WA#1	**$ 94,245.52**
Additional Special Services:	
Item #4 – Construction Staking	*$31,447.50*
Item #5 – Construction Management & Inspection	*$43,843.60*
Item #6 – Revisions ROW Parcels Donated 4 Parcels @ $3,500/ea.	*$14,000.00*
Item #7 – ROW Acquisition & Negotiations	$109,200.00
Total Additional Special Services SA#4 to WA#1	**$198,491.10**
Total SA #4 to WA#1 Lump Sum Amount	**$292,736.62**

EXHIBIT "D" (Backup)

Supplemental Agreement #4 to Work Authorization #1

Contract No. C-10-062-02-16

ITEM #1 - Revisions to Hydrologic & Hydraulics

Job Description	Hours	Rate	Total
Senior Project Manager	36	$243.43	$8,763.48
Project Engineer	48	$148.76	$7,140.48
Designer	60	$112.06	$6,723.60
CADD Technician	120	$91.04	$10,924.80
		Labor Subtotal	**$33,552.36**
		Total Lump Sum Cost Item #1	**$33,552.36**

ITEM #2 - Revisions to PS&E

Job Description	Hours	Rate	Total
Senior Project Manager	24	$243.43	$5,842.32
Project Engineer	36	$148.76	$5,355.36
Designer	40	$112.06	$4,482.40
CADD Technician	160	$91.04	$14,566.40
		Labor Subtotal	**$30,246.48**
DIRECT COSTS	**Qty.**	**Rate**	**Total**
Mylar Plot	180	$2.50	$450.00
Bond Plot	2160	$1.00	$2,160.00
		Reproduction Total	**$2,610.00**
		Total Lump Sum Cost Item #2	**$32,856.48**

ITEM #3 - Irrigation Line Relocation Design

Job Description	Hours	Rate	Total
Senior Project Manager	20	$243.43	$4,868.60
Project Engineer	48	$148.76	$7,140.48
Engineering Designer	60	$112.06	$6,723.60
CADD Technician	100	$91.04	$9,104.00
		Total Lump Sum Cost Item #3	**$27,836.68**

Item #4 - Construction Staking ***(Special Services)***

Job Description	Hours	Rate	Total
3-Man Survey Crew	120	$157.50	$18,900.00
RPLS	30	$152.25	$4,567.50
Survey Technician	80	$99.75	$7,980.00

Field Staking Subtotal	**$31,447.50**

Iem #5 - Construction Management & Inspection ***(Special Services)***

Job Description	Hours	Rate	Total
Project Engineer/Resident Engineer	60	$148.76	$8,925.60
Engineering Designer/Inspector	300	$112.06	$33,618.00
Construction Management/ Inspection Subtotal			**$42,543.60**

DIRECT COSTS	Qty.	Rate	Total
Mileage	2000	$0.55	$800.00
Reproduction			$500.00
Subtotal Direct Cost			**$1,300.00**
Total Lump Sum Cost Item #5			**$43,843.60**

Item # 6 - Revisions to Parcel Maps and Metes & Bounds ***(Special Services)***

Job Description	Parcels	Rate/ Parcel	Total
Revisions to Parcel Maps and M&B	4	$1,750.00	$7,000.00
Revisions to Parcels Subtotal			**$7,000.00**

DIRECT COSTS	Qty.	Rate	Total
Mileage	2000	$0.55	$800.00
GPS	11.5	$500.00	$5,700.00
Reproduction			$500.00
Subtotal Direct Cost			**$7,000.00**
Total Lump Sum Cost Item #6			**$14,000.00**

Item # 7 - ROW Acquisition & Negotiations ***(Special Services)***

Job Description	Parcels	Rate	Total
Acquisition & Negotiations	21	$5,200.00	$109,200.00
ROW Acquisition & Negotiations Subtotal			**$109,200.00**

Total Basic Services Cost	=	**$94,245.52**
Total Special Services Cost	=	**$198,491.10**
Total Lump Sum Costs for SA #4 to WA #1		**$292,736.62**