**DANNENBAUM ENGINEERING CORPORATION**
**LAREDO OFFICE:**
**8610 MCPHERSON, SUITE 130 LAREDO, TEXAS 78040 (956)712-9817 OFFICE (956)712-9857 FAX**

July 25, 2017

Webb County
1620 Santa Ursula, 2nd Floor
Laredo, Texas 78040

***Attn:*** ***Luis Perez Garcia, P.E.***
***Webb County Engineer***

***Ref:*** ***Supplemental Agreement No. 8 to Main Contract - (TxDOT CSJ 0086-14-058) is Adding Engineering Services/Fee for Siting of Detention Basins. (Rev 07-25-2017)***

***Subj:*** ***Supplemental Agreement No. 8 to Main Contract***

Dear Mr. Perez Garcia,

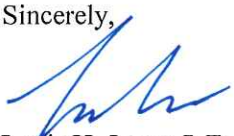
Please find attached herewith: three (3) partially executed copies of Supplemental Agreement No. 8 to Main Contract for Engineering Services for the above referenced project, each bearing an original signature. This Supplemental No. 8 is adding Supplemental Work Authorization No. 5 to Work Authorization No. 2 for Siting of Detention Basins for TxDOT CSJ: 0086-14-058. This Supplemental Agreement No. 8 to the Main Contract is being increased by Supplemental Work Authorization No. 5 to Work Authorization No. 2 for Detention Pond Siting (TxDOT CSJ: 0086-14-058) of **$253,660.11** increasing the total Main Contract to **$3,071,632.85**.

Please execute each of the three (3) copies of Supplemental Agreement No. 8 to Main Contract using blue ink. Thereafter, please retain one (1) original for your files, transmit one (1) original to TxDOT, and return one (1) original to our office for our records.

Provided below in Attachment E-2 in this Supplemental No. 8 to Main Contract are the justifications for the man-hours for the disciplines of the work required to provide services for the development of Proposed Supplemental Work Authorization No. 5 to Work Authorization No. 2 for Siting of Detention Basins for TxDOT CSJ: 0086-14-058.

Should you have any questions or require further information regarding this matter, please contact me at your earliest convenience by telephone at (956) 682-3677 or by email at louis.jones@dannenbaum.com or Anthony Garza (956) 639-2404 or by email at Anthony.garza@dannenbaum.com.

Sincerely,



Louis H. Jones, P.E.
Principal

cc: File No. 4688-01 — Dannenbaum Engineering Corporation
Richard D. Seitz, P.E. — Dannenbaum Engineering Corporation

G:\1540\4688-01 LOOP 20 EXTENSION\01 Proj Admin\01.03 Contracts\01.03.1 DEC & Owner\Sent to Owner\Supplemental No. 8 to Main Contract

**DANNENBAUM ENGINEERING CORPORATION**
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| | |
|---|---|
| Nathaniel Olivarez, P.E. | Dannenbaum Engineering Corporation |
| Cynthia M. Luera | Dannenbaum Engineering Corporation |

Letter Inclusions: 1. Three (3) partially executed copies of Supplemental Agreement No. 8 to the Main Contract for Engineering Services for the above referenced project, each bearing an original signature.

## CONTRACT FOR ENGINEERING SERVICES
## SUPPLEMENTAL AGREEMENT NO. 8 to the MAIN CONTRACT

**THIS SUPPLEMENTAL AGREEMENT** to The Main Contract for Engineering Services is made by and between the County of Webb, a subdivision of the State of Texas, hereinafter called "County" and Dannenbaum Engineering Corporation, having its principal business address at 8610 McPherson Road, Laredo, Texas 78045 hereinafter called "Engineer," for the purpose of contracting for engineering services.

### BACKGROUND

The County and the Engineer executed a Contract on August 2013 for engineering services generally described as preliminary engineering, including the preparation of schematics, environmental documents and right of way parcel maps, to support a possible future design/build project, and if design/build is not chosen as the preferred method of project delivery, then the County may amend the Contract to include the addition of Engineering Services/Fee for reduction of Frontage Road.

The Contract was amended by Supplemental Agreements 1, 2, 3, 4, 5, 6 and 7 to reflect revisions to the Scope of Services to be provided by the Engineer. (Last revision was on 11/1/2016) for the Phase I-Advanced Project Development Services (FC110).

### AGREEMENT

The County and the Engineer agree that the Contract is amended as follows:

**ARTICLE 1. SCOPE OF SERVICES.**

The original scope of services in the Main Contract is amended by this Supplemental Agreement No. 8 to include:

**ARTICLE 2. CONTRACT PERIOD.**

This Supplemental Agreement No. 8 to the Main Contract becomes effective when fully executed by all parties hereto and it shall terminate at the close of business on **August 1, 2020** unless the contract period is: (1) modified by written supplemental agreement prior to the date of termination as set forth in Attachment A, General Provisions, Article 6, Supplemental Agreements; (2) extended due to a work suspension as provided for in Attachment A, Article 3, Paragraph C; or (3) otherwise terminated in accordance with Attachment A, General Provisions, Article 15, Termination. Any work performed or cost incurred before or after the contract period shall be ineligible for reimbursement.

**ARTICLE 3. COMPENSATION.**

**Maximum Amount Payable.** The current Maximum Amount Payable under the Main Contract including Supplemental 1 thru 7 of Main Contract is $**2,817,972.74** is hereby modified by this Supplemental Agreement No. 8 to Main Contract to $**3,071,632.85** an increase of $**253,660.11** for Supplemental Work Authorization No. 5 to Work Authorization No. 2 as outlined in Attachment E-2. These attachments are made a part of this Supplemental No. 8 to the Main Contract.

**All other provisions of the Main Contract are unchanged and remain in full force and effect.**

**IN WITNESS WHEREOF**, this Supplemental Agreement is executed in duplicate counterparts and hereby accepted and acknowledged below.

| THE ENGINEER | THE COUNTY |
|---|---|
| (Signature) | (Signature) |
| Louis H. Jones Jr. PE (Printed Name) | (Printed Name) |
| Principal (Title) | (Title) |
| 2/25/17 (Date) | (Date) |

LIST OF ATTACHMENTS:

| | |
|---|---|
| Attachment B | Services To Be Provided By the County (Rev 07-14-2017) (Added by CSJ: 0086-14-058) |
| Attachment C | Services To Be Provided By the Engineer (Rev 07-14-2017) For Supplemental Work Authorization No. 5 to Work Authorization No. 2; (CSJ: 0086-14-058) |
| Attachment E | Summary of Fee Schedule for Phase I (Advanced Project Development Services) Supporting Lump Sum Calculations (Added by CSJ: 0086-14-058) (Rev 07-25-2017) |
| Attachment E-2 | Summary of Detailed Fee Schedule For Adding Engineering Services/Fee for reduction of Frontage Road (Added by CSJ: 0086-014-058) (Rev 07-25-2017) |
| Attachment F | Work Schedule |

# ATTACHMENT B

## SERVICES TO BE PROVIDED BY THE COUNTY

1. The County shall provide prompt review of all submittals; process monthly invoices and review monthly progress reports within ten (10) days of receiving such documents.

2. The County shall contact TxDOT Laredo with three (3) business days of receiving request from Engineer on any required information or documents from TxDOT.

3. The County Engineer will provide the Engineer with all available existing information on the Projects from TxDOT or other available sources.

4. The County, through TxDOT, will be responsible for preparing, holding and documenting the Value Engineering Study with Engineer's Staff only. Based on One Day attendance by Project Manager; Deputy Project Manager and Senior Engineer.

**DESIGN SCHEMATICS**

Provide hard copy of the approved schematic developed by Kellogg Brown & Root (KBR) – 1Large format roll.

Provide hard copy of 90% schematic developed by Parson Brinkerhoff of Americas (PB America) – 1 Large format roll.

VALUE ENGINEERING REPORT – hard copy dated November 2007, Electronic in pdf format contained in CD along with construction plans (as builts).

ENVIRONMENTAL DOCUMENT – None available.

HYDRAULIC STUDIES

PAVEMENT DESIGN REPORT – Provided by TxDOT

PRELIMINARY CONSTRUCTION ESTIMATE- Provided for information only.

DSR PRELIMINARY – Provided for information only.

TRAFFIC STUDY – Provided by TxDOT and/or TTI

TRAFFIC DATA – Provided by TxDOT and/or TTI

CROSS SECTION FILES

UTILITY DATA – The State does not up-date schematic utility data.

CONSTRUCTION PLANS (All Microstation working files for original plans and As-Builts contained on CD)

- Existing Loop 20 from Sta. 257+85.56 to just North of Loop 20/US 59 Overpass Sta. 115+85.40
- Existing plans on any modification to Loop 20 or crossing roadways from Sta. 115+85.40 to just North of Loop 20/US 59 Overpass (Sta. 115+85.40)

SURVEYING DATA:

ALL EXISTING TOPOGRAPHIC SURVEY
Geopak DTM files
Geopak TIN files
Geopak DAT files
Microstation 2d CADD files
Microstation 3d CADD files
Existing ROW in 2d Microstation CADD files
XYZ text files of survey data
Existing Survey Control Monumentation in PDF Format
2007 Webb CADD Aerial Mosicac in ECW format @ 1 ft. pixel resolution

Note:
The survey data began provided by the State, DOES NOT reflect current site conditions. Topographic survey will required to be updated prior to final schematic development. See section IV. FIELD SURVEYING AND PHOTOGRAMMETRY for other information needed.

ALL SURVEY CONTROL
The survey control for this project was set back in 2003
Please check control points before use
Note that some of these points may have been disturbed and/or destroyed, therefore the coordinates and elevations shown might not be valid

ALL HYDRAULIC DATA
County will provide (obtained from TxDOT) all working files of drainage area maps and Windstorm runs for all existing storm sewer lines within project right-of-way in a condition and format that the Engineer can readily verify and for adequacy and accuracy of existing storm sewer systems

ALL HIGH MAST LIGHTING
County will provide (obtained from TxDOT) all microstation working files associated with the existing high mast lighting within project limits

ALL GEOTECHNICAL
County will provide (obtained from TxDOT) all existing geotechnical reports associated information within the project limits

**SCOPE AND FEE SCHEDULE ASSUMPTIONS**

1. Public meeting/public hearing court reporter to be provided by the County
2. The TxDOT Laredo District has a VRS network
3. The project surveyors can utilize VRS in a two rover configuration
4. Highway Capacity Analysis and preparation of design report will be done by TTI
5. Preparation of Interstate Access Justification Report will be done by TTI
6. TxDOT/County will provide all design working files in Microstation format for all plans of existing roadways. TxDOT/County will provide all electronic files of computer runs (actual working data) of Winstorm for existing drainage
7. Pavement design is to be done by TxDOT

**ATTACHMENT C**
(Revised 07-14-2017)
**Additional Services to be Provided by the Engineer**

| | |
|---|---|
| CSJ: | 0086-14-058 |
| Highway: | SL 20 |
| County: | Webb County |
| Project No.: | CBI 2013 (881) |
| Limits: | Loop 20 from Sta. 554+00 to Just North of Loop 20 / US 59 Overpass |
| Project Length: | 7.0 Miles |
| Area Office: | Laredo Area Office |

**Proposed Improvements**

The proposed Loop 20 from Sta. 554+00 to Just North of Loop 20 / US 59 Overpass will consist of ~~six mainlanes with shoulders and two lane frontage roads on each side~~ eight (8) lane main lanes and no frontage roads from US 59 Hwy to Airport Drive and six (6) lane main lanes and three (3) lane frontage roads from Airport Drive to International Road for the advanced project planning Phase I and Phase II (Schematic / Environmental / Right of Way), and the Phase III – PS&E phase, may be performed at a later date, with Amendment to the Contract, which will consist of ~~designing four mainlanes with shoulders and two lane frontage road each side~~ eight (8) lane main lanes and no frontage roads from US 59 Hwy to Airport Drive and six (6) lane main lanes and three (3) lane frontage roads from Airport Drive to International Road with overpasses over Shiloh Road; Del Mar Road; University Drive; Jacaman Road and Laredo International Airport Road, including corresponding underground storm sewers; cross culverts; signage and traffic signals at frontage roads.

Sidewalks on both sides of the proposed Loop 20 Freeway from the Loop 20 / US 59 overpass to the Loop 20/ International Boulevard overpass.

Hike and Bike Trail along one side of the proposed Loop 20 Freeway from the Loop 20 / US 59 overpass to the Loop 20/ International Boulevard overpass.

# PHASE I- ADVANCED PROJECT DEVELOPMENT SERVICES

**Supplemental Work Authorization No. 5 to Work Authorization No. 2**

Task: Contract and Work Authorization Management/Coordination (FC: 145/164)
The Engineer will manage and coordinate all the activities associated with this work authorization.

## I. FEASIBILITY STUDIES

## II. ROUTE AND DESIGN STUDIES

**Task: Roadway Design Criteria (FC: 110)**

The Engineer shall revise the roadway design criteria to include sidewalks on both sides of Loop 20.

The Engineer shall revise the roadway design criteria to include small signs. The signs are to be designed in accordance with TxDOT "Sign Crew Field Book" and AASHTO "Guide for the Development of Bicycle Facilities (2012)

The Engineer shall revise the roadway design criteria to include a hike and bike trail on one side of Loop 20. Hike and bike trails is to be designed in accordance with AASHTO "Guide for the Development of Bicycle Facilities (2012). Details are to be added illustrating sidewalk and hike and bike crossings of driveways.

**Task: Design Schematic (FC: 110)**

b. Prepare a schematic plan and profile drawing (1"=50'H, 1" = 10'V) on a continuous color plot paper roll. The Schematic will include hike and bike trail, small signs, the ultimate edge of pavement, proposed hike and bike trail profile, existing utility crossings, proposed culvert crossings, proposed bridges, proposed R.O.W., existing cross streets, proposed driveways, proposed outfall channels, proposed channelized intersections, ultimate interchange configurations, signing, and pavement markings.

Task: Value Engineering Studies (FC 110)

a. TxDOT will be responsible for preparing; holding and documenting Value Engineering Study with Engineer's Staff attending one(1) day.

**Task: Soil Core Hole Drilling (FC: 110)**

(1) For: a.) Pavement, b.) Retaining Walls, c.) Miscellaneous Structures, or d.)Bridges, (1) No core drilling is to be accomplished until the state has given the engineer written approval.

Provide Soil Core Hole Drilling.
The Engineer shall perform the following items under this task:

- Perform the geotechnical drilling and engineering services for the bridge structures located at intersections shown below:

  Shiloh Drive
  Del Mar Blvd
  University Blvd
  Jacaman Rd
  Laredo International Airport Entrance

- Establish in consultation with Webb County and the State, the locations of the test holes utilizing tape and right angle measurements from existing benchmarks (does not include surveying of boring locations).
- Drill two bridge borings utilizing auger drilling techniques to a maximum depth of 70 ft below existing grades or until five consecutive TCP test results of 100 blows for less than 4 in. are recorded, whichever is shallower; perform Texas Cone Penetrometer (TCP) tests at 2.5 ft. intervals for the first 10 ft. and at 5 ft. intervals.
- Collect one grab sample in the stream bank/bottom for scour analysis gradation testing.
- Visually classify the soil samples during drilling operations.
- Perform gradation testing on the scour sample.

- Provide a written engineering report to include the results of our classification and TCP testing in WinCore format boring logs, as well as pier capacity curve and the results of the gradation tests.
- Provide field sampling and laboratory analysis, according to the State's Standards, to produce Pier Capacity Charts to be used in the bridge foundation design. Provide boring logs to be shown on bridge layouts and in conformance with the State's criteria.
- Provide field sampling and laboratory analysis to produce recommendations on retaining wall design. Provide global stability analysis for the retaining walls.
- Provide slope stability analysis at fill locations

The Engineer shall provide all traffic control, labor and equipment for the Traffic Control Plan (TCP) while performing services under this work authorization. The Engineer shall comply with the regulations of the most recent edition of the "Texas Manual on Uniform Traffic Control Devices". The Engineer must submit the TCP to the respective Area Office to obtain approval from the Traffic Control Safety Review Committee concerning the proposed method of handling traffic prior to the commencement of geotechnical work.

**Supplemental Work Authorization No. 1 to Work Authorization No. 2**

- Ramp reconfiguration – 3 ramp - Reverse order of ramps (off-on instead of on-off).
- Frontage road turning lane – Make a dual left (shared right lane left and straight) at various intersection. Also, add deceleration right turn lanes.
- Extend multiuse bike path into park – Will not be included, it is to be included in a future work authorization if required.
- Realign park entrance – 3 alternatives will be provided on the project.
- New Bridge over Chacon Creek – Minimal work will be required to update the schematic to include the frontage road bridge over Chacon Creek.
- Wetland for detention/treatment facility – Will not be included, it is to be included in a future work authorization if required.
- Storm water detention between main lane and frontage road – Will not be included, it is to be included in a future work authorization if required.
- Concrete pavement for Main lanes – Estimate Only
- Concrete pavement for Frontage roads – Estimate Only.
- Reduce/Eliminate small strip acquisitions – Will modify with no charge..

**Supplemental Work Authorization No. 2 to Work Authorization No. 2**

- Modify the bridge length to accommodate revised lane configuration – 4 intersections will be modified to include two turn lane and 2 through lanes. Frontage roads to include turnaround 2 turn lanes and 2 through lanes.
- Modify the retaining walls out 12 feet to allow for future widening – plan view location of retaining walls will be updated. Ramps will be evaluated to determine minimal construction in the future. Typical sections will be revised to reflect updated configuration. Cross section will be modified to reflect new typical sections.

- Reconfigure entrance and exit ramp south of Airport – ramps will be redesigned to reflect an exit ramp and entrance ramp south of Airport.
- Increase the Radius of the Mainlane and Frontage Road alignments – Mainlane alignment and South Bound Frontage Road alignment will be modified to include a larger radius
- Change loop 20 to US 59 – All text will be updated to reflect US59.
- Evaluate if exiting braided ramp can be switched to an entrance ramp – The Braided ramp configuration will be analyzed to improve weaving distance. Entrance ramp will braid over the exiting ramp.
- Perform Level of Service Analysis for Loop 20 Corridor – Traffic analysis will be performed for the Loop 20 corridor to determine the Level of Service Analysis for the roadway configurations.

**Supplemental Work Authorization No. 4 to Work Authorization No. 2**

- Attend Coordination meeting (2 Meetings)
- Attend Hydrology meeting (2 Meetings)
- Modify the south bound frontage road design from US 59 to Airport Boulevard.
- Revise Hydraulic Report due to South Bound Frontage Road Modifications
- Revise Level of Service analysis study due to the south bound frontage road modifications from US 59 to Airport Boulevard.

**Supplemental Work Authorization No. 5 to Work Authorization No. 2**

**Task: Detention Basins (FC: 110)**

The Engineer shall research property, determine owners, meet w/stakeholders & evaluate 9 detention storage locations of detention basins, service area, inflow and outflow structures. Separate detention basin sheets shall be provided including plans and cross-sections, weir structure, and structural details.

The Engineer shall determine the property boundary and right-of-way required for off-site detention areas. Hydraulic data such as detention storage, water surface elevation, peak flows in and out of basin, and pipe velocities. For each outfall, a minimum of one detention basin will be assumed, however, a total of 9, are included for man-hour projection. This includes the scour analysis for one bridge located in the proposed outfall.

## III. SOCIAL, ECONOMICAL, AND PUBLIC INVOLVEMENT

**Task: Environmental - (Section 6(f) Coordination) (FC: 120)**
**Supplemental Work Authorization No. 2 to Work Authorization No. 2**

- Completion of the environmental documentation proposing the conversion of Section 6(f) property to non 6(f) use.
- Identification of the proposed replacement property and the needed environmental documentation to propose a conversion request to TPWS and the NPS via the LWCF State Liaison Officer.
- Prepare a separate NEPA document for the proposed Section 6(f) conversion property.
- Coordinate with local officials and TxDOT to complete the 6(f) process.

- The Engineer shall obtain ownership data for all impacted property owners and County shall obtain right of entry from all property owners prior to commencing any work for 6(f) related environmental services.

**Supplemental Work Authorization No. 4 to Work Authorization No. 2**

- Coordinate with Webb County
- Revised Exhibits/ Site Plan/ Boundary Map
- Update 6 (f) Environmental Assessment

**Task: Detention Pond Analysis (FC: 161)**

**Supplemental Work Authorization No. 2 to Work Authorization No. 2**

- Will not be included, it is to be included in a future work authorization if required

**Supplemental Work Authorization No. 3 to Work Authorization No. 2**

- Perform an additional eight (8) additional geotechnical soil borings as part of the geotechnical soil exploration along the project.
    - Two (2) Bridge
    - Two (2) Retaining Wall
    - Four (4) Bridge
- The engineer has established, in consultation with Webb County and the State, the locations of the test holes utilizing tape and right angle measurements from existing benchmarks as per the layout submitted by the engineer. Written approval via email was provided by the County and State on September 14, 2016.
- This increases the total number of borings from sixty-three (64) to seventy-one (72).

# DELIVERABLES

## *D. DELIVERABLES*

1. 9 Detention Ponds – Location, Boundaries, Property Ownership Information, Coordination Meeting Documentation, Scour Analysis, and Detention Basin Schematic designs.
2. Electronic files shall be furnished to the State on a CD or DVD Recordable media

# SCOPE AND FEE SCHEDULE ASSUMPTIONS

## F. *ASSUMPTIONS:*

1. Assumes Right of Entry to be handled by the Client.
2. The number of Drainage Outfalls is assumed to be 16, if number of outfalls increase; then the increase will be handled as a separate work authorization, increasing fee
3. Detention pond design is not included, if required, it will be handled as a separate work authorization, increasing fee

4. No Drainage or Construction Easements are included in this scope & fee
   - No Survey of Offsite Detention Ponds and/or Easements, etc. are included in this scope and fee

# ATTACHMENT E
## For Supplemental Work Authorization No. 5 to Work Authorization No. 2 (Revised 07/25/2017)

**Summary of Detailed Fee Schedule for Phase I (Advanced Project Development Services) Supporting Lump Sum Calculations (Added by CSJ: 0086-14-058)**

ATTACHMENT E
SUMMARY OF DETAILED FEE SCHEDULE - PHASE I SUPPORTING LUMP SUM CALCULATIONS
SWA NO. 5 to WA NO.2
(Rev 07-25-2017)

**MAXIMUM AMOUNT PAYABLE**
**LOOP 20 STIMULUS PROJECT (CSJ: 0086-14-058)**
**PHASE I- POND SITING STUDY/PRELIMINARY ENGINEERING ADD'L SERVICES**

***US 59 TO INTERNATIONAL BLVD (STA 115+85.40 TO STA 484+65.18)***

**DANNENBAUM ENGINEERING CO.**
**PHASE I SUMMARY**

**PHASE I- POND SIGHTING STUDY/PRELIMINARY ENGINEERING ADD'L SERVICES SUMMARY BY FUNCTION CODES**

**Total Phase I Add'l Services = $253,660.11**

| | PRIME | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Function Codes** | **Dannenbaum Engineering Corporation** | | | | | | **Grand Total PHASE I SUMMARY** | |
| | **Hrs** | **Fee** | | | | | **Hrs** | **Total** |
| FC 110 Route and Design Studies | 1346 | $ 190,536.98 | | | | | | $ 190,536.98 |
| FC 164 Managing FC 110 Det Pond Sizing | 296 | $ 57,195.28 | | | | | | $ 57,195.28 |
| DIRECT EXPENSES | | $ 5,927.85 | | | | | | $ 5,927.85 |
| **Total** | **1642** | **$ 253,660.11** | **0** | **$ -** | **0** | **$ -** | 1642 | $ 253,660.11 |
| **Percent Participation** | **100%** | | **0%** | | **0%** | | | **100.00%** |

# ATTACHMENT E-2
# For Supplemental Work Authorization No. 5 to Work Authorization No. 2 (Revised 07/25/2017)

## Summary of Detailed Fee Schedule For Adding Engineering Services/Fee for Siting of Detention Basins (Added by CSJ: 0086-014-058)

ATTACHMENT E-2
SUMMARY OF DETAILED FEE SCHEDULE - PHASE I SUPPORTING LUMP SUM CALCULATIONS
SWA NO. 5 to WA NO.2
(Rev 07-25-2017)

**MAXIMUM AMOUNT PAYABLE**
**LOOP 20 STIMULUS PROJECT (CSJ: 0086-14-058)**
**PHASE I- POND SITING STUDY/PRELIMINARY ENGINEERING ADD'L SERVICES**

***US 59 TO INTERNATIONAL BLVD (STA 115+85.40 TO STA 484+65.18)***

**DANNENBAUM ENGINEERING CO.**
**PHASE I SUMMARY**

| SPECIAL SERVICES<br>STUDY SERVICES<br>TASK DESCRIPTION | Principal/PM | DEPUTY PM | Senior Engineer-Civil | Senior Engineer-Bridge | Engineer | Senior Designer | CADD Operator/Tech | Clerical | Total Labor Hrs. | Task Cost |
|---|---|---|---|---|---|---|---|---|---|---|
| FC 164 - PROJECT MANAGEMENT (FC 110) (DET POND SIZING) (6 MONTHS) | | | | | | | | | | |
| PREPARATION OF INVOICES AND PROGRESS REPORTS (TOTAL = 6 EA) | 12 | 24 | 12 | | | | | 12 | 60 | $ 13,085.52 |
| SCHEDULE & ATTEND PRE-DESIGN MEETING (TOTAL= 1 ) | 8 | 8 | | | 8 | | | 4 | 28 | $ 5,828.28 |
| SCHEDULE, ATTEND AND PREPARE MINUTES FOR 6 PROGRESS MEETINGS | 26 | 26 | 26 | | 26 | | | 14 | 118 | $ 24,869.80 |
| PREPARE PROJECT SCHEDULE (UPDATE TWICE) | 2 | 4 | 4 | | | 8 | 4 | 4 | 26 | $ 3,948.58 |
| PREPARE & ASSEMBLE PRELIMINARY COST ESTIMATE | 1 | 2 | 4 | | 12 | 20 | 2 | 2 | 43 | $ 5,716.61 |
| CONDUCT SITE VISIT OF PROJECT AREA | | 10 | | | 10 | | | 1 | 21 | $ 3,746.49 |
| SUB-TOTAL - FC 164 - PROJECT MANAGEMENT (FC 110) (DET POND SIZING) (6 MONTHS) | 49 | 74 | 46 | 0 | 56 | 28 | 6 | 37 | 296 | $ 57,195.28 |
| FC 110 - DETENTION POND ANALYSIS SIZING/PRELIM ENGR W/ALTERNATES - US 59 TO INTERNATIONAL | | | | | | | | | | |
| RESEARCH PROPERTY, DETERMINE OWNERS, MEET W/STAKEHOLDERS & EVALUATE9 DETENTION STORAGE LOCATIONS | 16 | | 94 | | 180 | 100 | 100 | | 490 | $ 69,228.08 |
| SIZE 9 DETENTION POND SURFACE AREA AND OUTFALL LOCATIONS: | | | | | | | | | | |
| DETERMINE EXACT LOCATIONS | 6 | | 64 | | 58 | 48 | 96 | | | $ 37,189.76 |
| PREPARE PRELIM PROPERTY BOUNDARY OF SITE | 6 | | 64 | | 58 | 48 | 96 | | | $ 37,189.76 |
| SUBMIT FOR REVIEW AND COMMENTS | 4 | | 32 | | 18 | 18 | | | 72 | $ 12,824.86 |
| ADDRESS COMMENTS AND SUBMIT REVISED REPORT | 4 | | 34 | | 24 | 28 | 36 | 6 | 132 | $ 18,527.98 |
| SCOUR ANALYSIS FOR BRIDGE | 4 | | 16 | | 50 | 38 | | | 108 | $ 15,576.54 |
| SUB-TOTAL - FC 110 - DETENTION POND ANALYSIS SIZING/PRELIM ENGR W/ALTERNATES - US 59 TO INTERNATIONAL | 40 | 0 | 304 | 0 | 388 | 280 | 328 | 6 | 1346 | $ 190,536.98 |
| TOTAL DIRECT EXPENSES (FROM BELOW) | | | | | | | | | | $ 5,927.85 |
| GRAND TOTAL - DETENTION POND SIZING | 89 | 74 | 350 | 0 | 444 | 308 | 334 | 43 | 1370 | $ 253,660.11 |
| | | | | | | | | | | |
| HOURS SUB-TOTALS | 89 | 74 | 350 | 0 | 444 | 308 | 334 | 43 | 1,642 | |
| LABOR RATE PER HOUR | $ 327.93 | $ 236.07 | $ 225.50 | $ 225.50 | $ 132.09 | $ 106.64 | $ 83.44 | $ 64.89 | | |
| DIRECT LABOR COSTS | $ 29,185.77 | $ 17,469.18 | $ 78,925.00 | $ - | $ 58,647.96 | $ 32,845.12 | $ 27,868.96 | $ 2,790.27 | $ 247,732.26 | |
| TOTAL | $ 29,185.77 | $ 17,469.18 | $ 78,925.00 | $ - | $ 58,647.96 | $ 32,845.12 | $ 27,868.96 | $ 2,790.27 | $ 247,732.26 | |
| PERCENT LABOR UTILIZATION FOR TOTAL PROJECT (BASED ON FEE) | 11.78% | 7.05% | 31.86% | 0.00% | 23.67% | 13.26% | 11.25% | 1.13% | 100.00% | CHECK |
| PERCENT LABOR UTILIZATION FOR TOTAL PROJECT (BASED ON MANHOURS) | 5.42% | 4.51% | 21.32% | 0.00% | 27.04% | 18.76% | 20.34% | 2.62% | 100.00% | $ 247,732.26 |
| | | | | | | | | | | |
| DIRECT EXPENSES | | | | | | | | | | |
| PER DIEM - $121 /NIGHT STAY X 2 PERSON X 12 NIGHT ($85 hotel/$36 meals) | | | | | | | | | | $ 2,904.00 |

ATTACHMENT E-2
SUMMARY OF DETAILED FEE SCHEDULE - PHASE I SUPPORTING LUMP SUM CALCULATIONS
SWA NO. 5 to WA NO.2
(Rev 07-25-2017)

**MAXIMUM AMOUNT PAYABLE**
**LOOP 20 STIMULUS PROJECT (CSJ: 0086-14-058)**
**PHASE I- POND SITING STUDY/PRELIMINARY ENGINEERING ADD'L SERVICES**

***US 59 TO INTERNATIONAL BLVD (STA 115+85.40 TO STA 484+65.18)***

**DANNENBAUM ENGINEERING CO.**
**PHASE I SUMMARY**

| SPECIAL SERVICES<br>STUDY SERVICES<br>TASK DESCRIPTION | Principal/PM | DEPUTY PM | Senior Engineer-Civil | Senior Engineer-Bridge | Engineer | Senior Designer | CADD Operator/Tech | Clerical | Total Labor Hrs. | Task Cost |
|---|---|---|---|---|---|---|---|---|---|---|
| REPRO - SHEETS X $0.20 / SHEET (BOND) - CHECK PLOTS & REVIEW SETS) X 1000 | | | | | | | | | | $ 200.00 |
| DELIVERY SERVICES - $50 / PACKAGE X 8 PACKAGES | | | | | | | | | | $ 400.00 |
| MILEAGE 15 TRIP x 286 MI / TRIP @ $0.565/mile | | | | | | | | | | $ 2,423.85 |
| TOTAL DIRECT EXPENSES | | | | | | | | | | $ 5,927.85 |
| GRAND TOTAL - PHASE I- POND SIGHTING STUDY/PRELIMINARY ENGINEERING ADD'L SERVICES | | | | | | | | | | $ 253,660.11 |

Attachment F - Work Schedule

(Revised 07/14/2017)

SWA No. 5 to WA No. 2 for CSJ 0086-0104-058

LOOP 20 STIMULUS PROJECT PHASES I,II,III

PHASE I POND SITING STUDY/PRELIMINARY ENGINEERING ADD'L SERVICES

US 59 TO INTERNATIONAL BLVD (STA 115+85.40 TO STA 484+65.18)

**DANNENBAUM**

| ID | Task Name | Duration | Start | Finish |
|---|---|---|---|---|
| 1 | **LOOP 20 STIMULUS** | **180 days** | **Tue 8/1/17** | **Sat 1/27/18** |
| 2 | PROJECT START | 0 days | Tue 8/1/17 | Tue 8/1/17 |
| 3 | RESEARCH PROPERTY, STAKEHOLDERS, EVALUATION DETENTION LOCATIONS | 60 days | Tue 8/1/17 | Fri 9/29/17 |
| 4 | DETERMINE DETENTION POND SURFACE AREAS AND OUTFALL LOCATIONS | 90 days | Thu 8/31/17 | Tue 11/28/17 |
| 5 | SUBMIT FOR REVIEW AND COMMENTS | 60 days | Mon 10/30/17 | Thu 12/28/17 |
| 6 | ADDRESS COMMENTS AND SUBMIT REVISED REPORT | 60 days | Wed 11/29/17 | Sat 1/27/18 |
| 7 | SCOUR ANALYSIS FOR BRIDGE | 120 days | Sat 9/30/17 | Sat 1/27/18 |
| 8 | PROJECT COMPLETE | 0 days | Sat 1/27/18 | Sat 1/27/18 |