

**DANNENBAUM ENGINEERING CORPORATION**

**LAREDO OFFICE:**

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

July 18, 2017

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

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

*Ref: Loop 20 Extension  
Adding Engineering Services/Fee for Siting of Detention Basins*

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

Dear Mr. Perez Garcia,

The enclosed proposal is based on the June 16, 2017 Meeting held with Webb County and the TxDOT Laredo District requesting Dannenbaum Engineering Corp. provide a proposal for the scope and fee required to Site the nine (9) detention basins required for the construction of the Loop 20 Extension Project as required by TxDOT to continue with the project environmental and design process. Please find attached herewith: three (3) partially executed copies of Supplemental Work Authorization No. 5 to Work Authorization No. 2 for Engineering Services for the above referenced project, each bearing an original signature. The Contract is being increased by \$295,266.02.

Please execute each of the three (3) copies of Supplemental Work Authorization No. 5 to Work Authorization No. 2 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 are the justifications for the man-hours for the disciplines of the work required to modify the schematic and the administration requirements:

FC – 110 Detention Basins

- 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.
- Scour analysis for one bridge located in the proposed outfall is included.

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FC – 164 Contract and Work Authorization Management/Coordination

- For an additional six (6) months, the Engineer will manage and coordinate all the activities associated with this work authorization.
- The Engineer will perform quality control and quality assurance (QC/QA) review and approve any deliverables including those provided by sub providers before submission to the state.

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](mailto:louis.jones@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
	Nathaniel Olivarez, P.E.	Dannenbaum Engineering Corporation
	Anthony Garza	Dannenbaum Engineering Corporation
	Cynthia M. Luera	Dannenbaum Engineering Corporation

- Attachments:
1. Three (3) partially executed copies of Supplemental Work Authorization No. 5 to Work Authorization No. 2 for Engineering Services for the above referenced project, each bearing an original signature.
  2. Three copies of:
    - a. Attachment D Form D-2 Supplemental Work Authorization No. 5 to Work Authorization No. 2 (Dated 07-14-2017)
    - b. Exhibit B Revised "Services to be provided by the Engineer" (Revised 07-14-2017)
    - c. Exhibit C Maximum Amount Payable (Revised 07-14-2017)
    - d. Exhibit C-1 Maximum Amount Payable (Revised 07-14-2017)
    - e. Exhibit D Work Schedule

ATTACHMENT D  
D-2  
SUPPLEMENTAL WORK AUTHORIZATION NO. 5  
TO WORK AUTHORIZATION NO. 2  
CONTRACT FOR ENGINEERING SERVICES

**THIS SUPPLEMENTAL WORK AUTHORIZATION** is made pursuant to the terms and conditions of Article 5 of Contract No. Loop 20 hereinafter identified as the "Contract," entered into by and between the County of Webb (County), and Dannenbaum Engineering Corporation (the Engineer).

The following terms and conditions of Work Authorization No. 2 are hereby amended as follows:

**PART I.** The Engineer will perform engineering design and/or detailing services as set forth in Exhibit B –Services to be Provided by the Engineer, for Loop 20 main lanes and frontage roads from Sta. 554+00 to Just North of Loop 20 / US 59 Overpass (TxDOT CSJ 0086-14-058) situated in Webb County, Texas in accordance with the project description attached hereto and made a part of this Work Authorization, more specifically described as follows:

A. For services as detailed in Supplemental Work Authorization No. 5 to Work Authorization No. 2.


**PART II.** The maximum amount payable under this Work Authorization is increasing to **\$1,157,160.62** from **\$861,894.60** and the method of payment is lump sum as set forth in Attachment E of the Contract. This amount is based upon fees set forth in Attachment E, Fee Schedule, of the Main Contract and the Engineer's estimated Work Authorization costs included in Exhibit D, Summary of Fees of Work Authorization No. 2, previously executed.

Original Work Authorization No. 2 Amount	=	\$	567,911.98	
Supplemental Work Authorization No. 1 Amount	=	\$	54,356.86	
Supplemental Work Authorization No. 2 Amount	=	\$	127,803.64	
Supplemental Work Authorization No. 3 Amount	=	\$	29,317.39	
Supplemental Work Authorization No. 4 Amount	=	\$	82,504.73	
Supplemental Work Authorization No. 5 Amount	=	\$	295,266.02	<b>\$ 1,157,160.62</b>

The attached Exhibit D, Detailed Fee Schedule from October 2, 2013 through August 1, 2020, shall replace original Exhibit D in WA No. 2.

This Supplemental Work Authorization shall become effective on the date of final execution of the parties hereto. All other terms and conditions of Work Authorization No. 2 are to remain in full force and effect.

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

**THE ENGINEER**  
  
\_\_\_\_\_  
(Signature)  
Louis H. Jones, P.E.  
\_\_\_\_\_  
(Printed Name)  
Principal  
\_\_\_\_\_  
(Title)  
7/18/17  
\_\_\_\_\_  
(Date)

**THE COUNTY**  
\_\_\_\_\_  
(Signature)  
\_\_\_\_\_  
(Printed Name)  
\_\_\_\_\_  
(Title)  
\_\_\_\_\_  
(Date)

**LIST OF EXHIBITS**

- Exhibit B Services to be Provided by the Engineer
- Exhibit C Fee Schedule Summary
- Exhibit C-1 Detailed Fee Schedule
- Exhibit D Work Schedule

**SUPPLEMENTAL WORK AUTHORIZATION NO. 5  
TO  
WORK AUTHORIZATION NO. 2**

**EXHIBIT B**

**SERVICES TO BE PROVIDED BY THE ENGINEER**

**(REVISED 07/14/2017)**

**EXHIBIT B**  
**(Revised 07-14-2017)**  
**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.

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

- 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.



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

- 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**

**Supplemental Work Authorization No. 5 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
5. No Survey of Offsite Detention Ponds and/or Easements, etc. are included in this scope and fee

**EXHIBIT C**

**MAXIMUM AMOUNT PAYABLE**

**SUMMARY OF DETAILED FEE SCHEDULE - PHASE I SUPPORTING LUMP SUM  
CALCULATIONS FOR SUPPLEMENTAL WORK AUTHORIZATION NO. 5 TO WORK**

**AUTHORIZATION NO. 2**

**(DANNENBAUM ENGINEERING CORPORATION)**

EXHIBIT C  
 SUMMARY OF DETAILED FEE SCHEDULE - PHASE I SUPPORTING LUMP SUM CALCULATIONS  
 SWA NO. 5 to WA NO.2

**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**

Function Codes		PRIME		Total Phase I Add'l Services = \$295,266.02	
		Dannenbaum Engineering Corporation			
	Hrs	Fee		Hrs	Total
FC 110 Route and Design Studies	1577	\$ 224,640.59			\$ 224,640.59
FC 164 Managing FC 110 Det Pond Sizing	332	\$ 64,697.58			\$ 64,697.58
DIRECT EXPENSES		\$ 5,927.85			\$ 5,927.85
<b>Total</b>	<b>1909</b>	<b>\$ 295,266.02</b>	<b>0</b>	<b>\$ 0</b>	<b>\$ 295,266.02</b>
<b>Percent Participation</b>		<b>100%</b>	<b>0%</b>	<b>0%</b>	<b>100.00%</b>
				<b>Grand Total PHASE I SUMMARY</b>	

**EXHIBIT C-1**

**DETAILED FEE SCHEDULE  
FOR  
SUPPLEMENTAL WORK AUTHORIZATION NO. 5 TO WORK AUTHORIZATION NO. 2  
(DANNENBAUM ENGINEERING CORPORATION)**

EXHIBIT C-1  
SUMMARY OF DETAILED FEE SCHEDULE - PHASE I SUPPORTING LUMP SUM CALCULATIONS  
SWA NO. 5 to WA NO.2

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 STUDY SERVICES 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	30	12					12	66	\$ 14,501.94
SCHEDULE & ATTEND PRE-DESIGN MEETING (TOTAL= 1)	8	8			8			4	28	\$ 5,828.28
SCHEDULE, ATTEND AND PREPARE MINUTES FOR 6 PROGRESS MEETINGS	32	32	32		32			16	144	\$ 30,529.12
PREPARE PROJECT SCHEDULE (UPDATE TWICE)	2		4			4		4	26	\$ 3,948.58
PREPARE & ASSEMBLE PRELIMINARY COST ESTIMATE	1	2	4		12	24		2	47	\$ 6,143.17
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)	55	86	52	0	62	32	6	39	332	\$ 64,697.58
FC 110 - DETENTION POND ANALYSIS SIZING/PRELIM ENGR W/ALTERNATES - US TO INTERNATIONAL										
RESEARCH PROPERTY, DETERMINE OWNERS, MEET W/STAKEHOLDERS & EVALUATE 9 DETENTION STORAGE LOCATIONS	16		118		204	120			578	\$ 81,611.84
SIZE 9 DETENTION POND SURFACE AREA AND OUTFALL LOCATIONS:										
DETERMINE EXACT LOCATIONS	6		80		72	60	102			\$ 44,427.34
PREPARE PRELIM PROPERTY BOUNDARY OF SITE	6		80		72	60	102			\$ 44,427.34
SUBMIT FOR REVIEW AND COMMENTS	4		40		18	18			80	\$ 14,628.86
ADDRESS COMMENTS AND SUBMIT REVISED REPORT	4		42		24	36	36	6	148	\$ 21,185.10
SCOUR ANALYSIS FOR BRIDGE	4		16		63	48			131	\$ 18,360.11
SUB-TOTAL - FC 110 - DETENTION POND ANALYSIS SIZING/PRELIM ENGR W/ALTERNATES - US 59 TO INTERNATIONAL	40	0	376	0	453	342	360	6	1577	\$ 224,640.59
TOTAL DIRECT EXPENSES (FROM BELOW)										\$ 5,927.85
GRAND TOTAL - DETENTION POND SIZING	95	86	428	0	515	374	366	45	1589	\$ 295,266.02
HOURS SUB-TOTALS	95	86	428	0	515	374	366	45	1,909	
LABOR RATE PER HOUR	\$ 327.93	\$ 236.07	\$ 225.50	\$ 225.50	\$ 132.09	\$ 106.64	\$ 83.44	\$ 64.69		
DIRECT LABOR COSTS	\$ 31,153.35	\$ 20,302.02	\$ 96,514.00	\$ -	\$ 68,026.35	\$ 39,883.36	\$ 30,539.04	\$ 2,920.05	\$ 289,338.17	
TOTAL	\$ 31,153.35	\$ 20,302.02	\$ 96,514.00	\$ -	\$ 68,026.35	\$ 39,883.36	\$ 30,539.04	\$ 2,920.05	\$ 289,338.17	
PERCENT LABOR UTILIZATION FOR TOTAL PROJECT (BASED ON FEE)	10.77%	7.02%	33.36%	0.00%	23.51%	13.78%	10.55%	1.01%	100.00%	CHECK
PERCENT LABOR UTILIZATION FOR TOTAL PROJECT (BASED ON MANHOURS)	4.98%	4.50%	22.42%	0.00%	26.98%	19.59%	19.17%	2.36%	100.00%	\$ 289,338.17

EXHIBIT C-1  
 SUMMARY OF DETAILED FEE SCHEDULE - PHASE I SUPPORTING LUMP SUM CALCULATIONS  
 SWA NO. 5 to WA NO.2

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 STUDY SERVICES TASK DESCRIPTION	Principal/PM	DEPUTY PM	Senior Engineer Civil	Senior Engineer Bridge	Engineer	Senior Designer	CADD Operator/ Tech	Clerical	Total Labor Hrs.	Task Cost
<b>DIRECT EXPENSES</b>										
PER DIEM - \$121/NIGHT STAY X 2 PERSON X 12 NIGHT (\$85 hotel/\$36 meals)										\$ 2,904.00
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
<b>TOTAL DIRECT EXPENSES</b>										\$ 5,927.85
<b>GRAND TOTAL - PHASE I- POND SITING STUDY/PRELIMINARY ENGINEERING ADD'L SERVICES</b>										\$ 295,266.02



## **EXHIBIT D**

**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)**

Exhibit D - 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	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb
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		8/1						
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								1/27