

**SUPPLEMENTAL WORK AUTHORIZATION NO. 1
TO
WORK AUTHORIZATION NO. 1**

WILLIAMSON COUNTY PROJECT: Engineering Design Services for the repair of San Gabriel Ranch Road

This Supplemental Work Authorization No. 1 to Work Authorization No. 1 is made pursuant to the terms and conditions of the Williamson County Contract for Engineering Services, being dated April 07, 2016 ("Contract") and entered into by and between Williamson County, Texas, a political subdivision of the State of Texas, (the "County") and Freese and Nichols, Inc. (the "Engineer").

WHEREAS, the County and the Engineer executed Work Authorization No. 1 dated effective April 12, 2016 (the "Work Authorization");

WHEREAS, pursuant to the Contract, amendments, changes and modifications to a fully executed Work Authorization shall be made in the form of a Supplemental Work Authorization; and

WHEREAS, it has become necessary to amend, change and modify the Work Authorization.

AGREEMENT

NOW, THEREFORE, premises considered, the County and the Engineer agree that the Work Authorization shall be amended, changed and modified as follows:

- I. The Services to be Provided by the Engineer that were set out in the original Attachment "B" of the Work Authorization are hereby amended, changed and modified as shown in the attached revised Attachment "B" (must be attached).
- II. The Work Authorization shall terminate on October 30, 2017. The Services to be Provided by the Engineer shall be fully completed on or before said date unless extended by an additional Supplemental Work Authorization. The revised Work Schedule is attached hereto as Attachment "C" (must be attached).
- III. The maximum amount payable for services under the Work Authorization is hereby increased from \$265,143.00 to \$533,524.00. The revised Work Schedule is attached hereto as Attachment "D" (must be attached).

County believes it has sufficient funds currently available and authorized for expenditure to finance the costs of this Supplemental Work Authorization. Engineer understands and agrees that County's payment of amounts under this Supplemental Work Authorization is contingent on the County receiving appropriations or other expenditure authority sufficient to allow the County, in the exercise of reasonable administrative discretion, to continue to make payments under the Supplemental Work Authorization. It is further understood and agreed by Engineer that County

shall have the right to terminate this Supplemental Work Authorization at the end of any County fiscal year if the governing body of County does not appropriate sufficient funds as determined by County's budget for the fiscal year in question. County may effect such termination by giving written notice of termination to Engineer.

Except as otherwise amended by prior or future Supplemental Work Authorizations, all other terms of the Work Authorization are unchanged and will remain in full force and effect.

This Supplemental Work Authorization does not waive the parties' responsibilities and obligations provided under the Contract.

IN WITNESS WHEREOF, the County and the Engineer have executed this Supplemental Work Authorization, in duplicate, to be effective as of the date of the last party's execution below.

EXECUTED this ____ day of _____, 20__.

ENGINEER:

By: _____

Signature

LODI LICKROFT

Printed Name

VICE PRESIDENT

Title

11/1/2016

Date

COUNTY:

By: _____

Signature

Dan Gattis

Printed Name

County Judge

Title

11-10-2016

Date

LIST OF ATTACHMENTS

Attachment A - Services to be Provided by County

Attachment B - Services to be Provided by Engineer

Attachment C - Work Schedule

Attachment D - Fee Schedule

Attachment B - Services to be Provided by Engineer

Attached behind this page

Freese and Nichols, Inc.
San Gabriel Ranch Road
Final Design
Work Authorization 1 Supplemental No. 1

Project Description

This Supplemental is a result of an alternative evaluation study performed by Freese and Nichols to assist Williamson County in deciding how to address the concerns at San Gabriel River Ranch Road Dam, including hydraulic inadequacy, auxiliary spillway erosion, and undermining of the county road. Because of that study, Williamson County has decided to remove the dam and create a new channel along the original creek alignment and construct a two-lane bridge over the new channel. This Supplemental includes preparation of plans and specifications for the dam removal, channel restoration, and bridge construction. It also includes environmental permit coordination with U.S. Army Corps of Engineers. Informal conversations with USACE suggest that an Individual Permit (with mitigation) may be required.

- A. Delete the stricken text in Work Authorization 1 Attachment B, and replace with the following:**

DESIGN

1. Public Involvement
 - a. Attend one (1) public meeting to inform area residents of concept
 - b. Prepare draft posters (total of 3 posters) for public meeting for County review.
 - c. Address County's comments and prepare final posters (total of 3 posters).
2. Perform additional survey
 - a. 1-ft topo of the dam embankment, and 400-feet of creek channel downstream from the dam.
 - b. Two channel cross sections downstream of the topo area.
 - c. Five channel cross sections upstream of the dam.
 - d. Tree survey
3. US Army Corps of Engineers (USACE) Permit
 - a. Coordinate and Attend a Pre-Application Meeting with USACE to identify and confirm permitting approach and requirements.
 - b. Perform additional fieldwork to supplement initial field visit to delineate regulated waters, identify wildlife habitat and potential cultural resources.
 - c. Prepare Waters of the U.S. Delineation Report.
 - d. Prepare Federally-listed Species Habitat Evaluation Report.
 - e. Prepare Cultural Resources Assessment.
 - f. Develop functional assessment/mitigation plan.
 - g. Develop and submit a pre-construction notification (PCN) to USACE.

4. Stormwater Pollution Prevention Plan
 - a. Develop a reference storm water pollution prevention plan (SWPPP) for construction to be executed by the project's Primary Operator (Contractor). The SWPPP is to help reduce the release of sediment and pollution from the construction site in accordance with the Texas Commission on Environmental Quality (TCEQ) Texas Pollutant Discharge Elimination System (TPDES) general permit for storm water runoff from construction activity (TXR150000).
5. Williamson County Floodplain Development Permit
 - a. Prepare and submit a development permit to Williamson County.
6. Sediment Evaluation (If requested by resource agencies during permitting)
 - a. Obtain eight sediment samples from the surface of the lake bottom. It is assumed that FNI will be able to utilize a boat on the lake for purposes of sediment sampling.
 - b. Perform laboratory analysis for identified potential chemicals of concerns (COCs) including:
 - i. heavy metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver) by EPA Method 6020.
 - ii. chlorinated herbicides by EPA Method 8151
 - iii. organochlorine pesticides by EPA Method 8081
 - iv. organophosphate pesticides by EPA Method 8141A
 - v. VOCs by SW-846 8260B
7. Utilities
 - a. Coordinate utility relocation with utility companies. It is assumed that the utilities will remain in similar horizontal alignment as they currently do and will be supported vertically by the bridge.
8. Channel Design
 - a. Perform gradation testing on up to eight sediment samples
 - b. Evaluate channel stability to erosion for normal and flood flows
 - c. Perform slope stability analysis of the proposed channel slopes
9. Letter of Map Revision
 - a. Study Area: The hydrologic study area will include the approximately 5.5 square mile drainage basin upstream from San Gabriel River Ranch Dam. The hydraulic model study area will begin at Lackey Creek Road and end at the confluence of Lackey Creek and North Fork San Gabriel River.
 - b. Obtain FEMA effective model and backup data for Clearwater Ranch.
 - c. Obtain FEMA backup data for the zone A mapping of Lackey Creek and the North Fork San Gabriel River, if available.
 - d. Incorporate Clearwater Ranch FEMA data into conceptual design phase hydrologic model.
 - e. Develop an existing condition hydraulic model and determine floodplain limits across the study area.

- f. Based upon the above data, complete existing conditions hydraulic model and include:
 - i. Cross Section Plots
 - ii. Floodplain Delineation
 - iii. HEC-RAS Computer Models
 - g. Modify existing condition hydrologic and hydraulic models as necessary to develop a proposed hydraulic model of the revised conditions through the site.
 - h. Determine proposed floodplain and identify project impacts.
 - i. Based on the above data complete:
 - i. Water Surface Profile Plots
 - ii. Cross Section Plots
 - iii. Floodplain Delineation
 - iv. Project impacts
 - v. Computer printouts of hydraulic models
 - j. Complete necessary FEMA MT-2 forms for inclusion in submittal.
 - k. Submit LOMR to FEMA and pay applicable review fees.
 - l. Prepare one digital copy of the report (FEMA, Community, and client) explaining the methodologies and results of the study and containing appropriate charts, graphs, plots, exhibits to describe the study.
 - m. Provide necessary coordination with FEMA and the Community to provide technical information in support of the report. FNI will revise/respond to two rounds of FEMA comments.
 - n. Prepare newspaper notification advertisement of map change
 - i. Identify adversely impacted properties from flood study.
 - ii. Research property ownership obtaining names and addresses of adversely impacted properties.
 - iii. Coordinate with the community to develop a newspaper notification ad to run in the local newspaper.
 - iv. Submit and pay for newspaper add two local papers
 - v. Supply FEMA with copies of the newspaper ad.
- 10. Prepare 30 percent review drawings of the design.
 - a. Provide proposed typical section and cross sections
 - b. Provide proposed plan and profile sketches
 - c. Provide proposed drainage feature sketches
 - d. Provide table of contents for technical specifications
 - e. Provide opinion of probable construction cost
 - f. Attend one meeting with Williamson County staff to discuss comments
- 11. Prepare 90% set of construction documents
 - a. Finalize
 - 1. Roadway grades and cross sections
 - 2. Grading plans
 - 3. Roadway details
 - 4. Detailing of all drainage structures

- 5. Environmental Controls
 - 6. Attend one meeting with Williamson County staff to discuss comments
- b. Provide complete set of draft specifications
- c. Update opinion of probable construction cost
- d. Submit plans and specifications to TCEQ Dam Safety
- 12. Develop final plans and specifications for bidding that incorporate County's latest comments
- 13. Submit Issued for Bid plans and specifications to County and TCEQ Dam Safety
- 14. Update OPCC to accompany Issued for Bid set

Deliverables

- a. 30% Plans, specification outline, Opinion of Probable Construction Cost
- b. 90% Plans, Specifications, SWPPP, and Opinion of Probable Construction Cost
- c. Issued-For-Bid Plans, Specifications, SWPPP, and Opinion of Probable Construction Cost
- d. Design memorandum
- e. FEMA Letter of Map Revision Submittal
- f. USACE 404 Pre-Construction Notification

B. The Compensation and Expenses under the PSA shall be adjusted as follows:

Original Work Authorization Compensation Cap	\$265,143
<u>Proposed Additional Effort</u>	<u>+\$268,381</u>
Revised Compensation Cap	\$533,524

Attachment B - Services to be Provided by Engineer

A. DESIGN PHASE

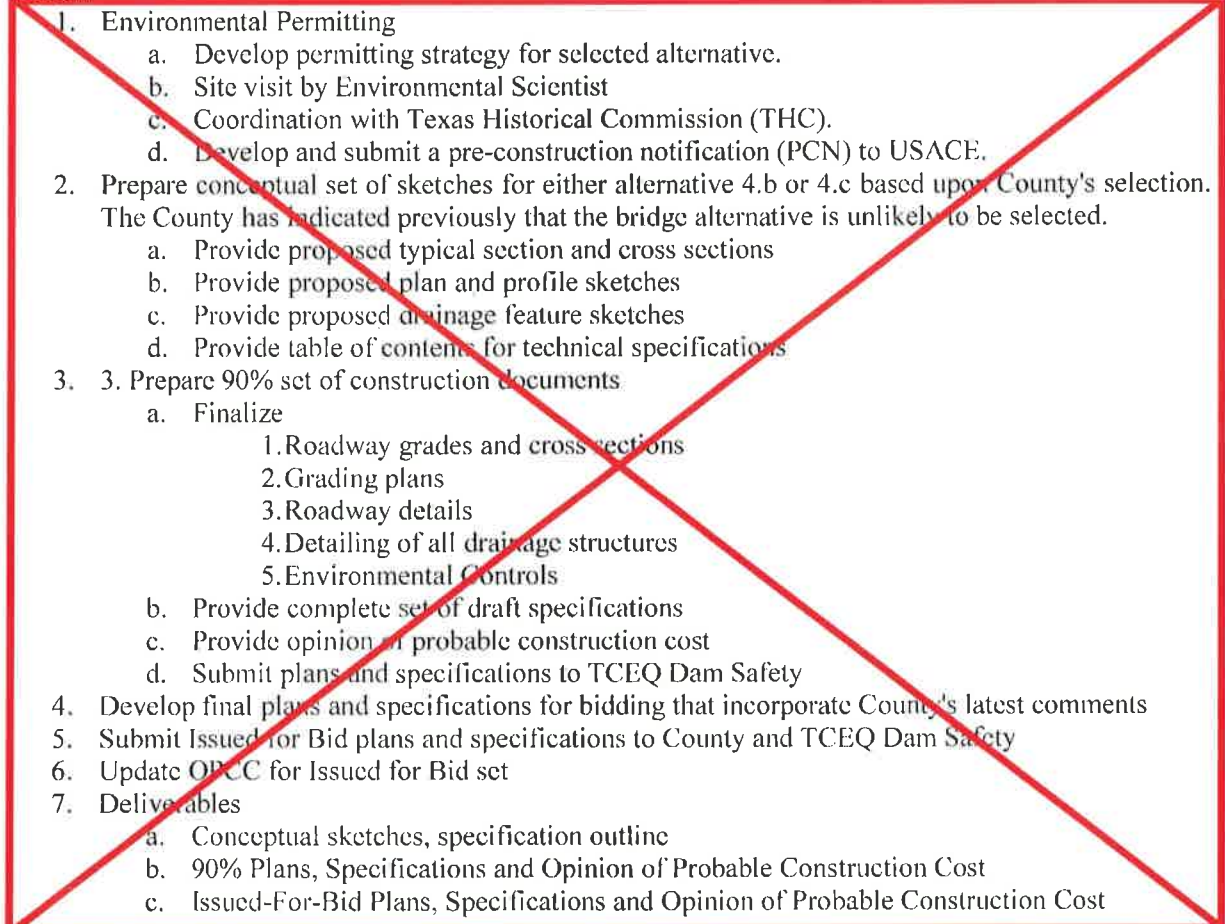
Evaluation and Schematic Design

1. Perform survey
 - a. Roadway profile and select cross sections of embankment
 - b. Flow line elevations for existing pipes and channel
 - c. Pond cross sections to determine storage capacity
 - d. 1-ft topo of the spillway approach channel
 - e. 1-ft topo of the river channel from the roadway to 100-feet downstream
2. Perform geotechnical Investigation
 - a. Perform four borings
 - b. Provide geotechnical witness logging of soil strata and characterizations
 - c. Perform geological reconnaissance of soil and bedrock exposures in the Lackey Creek channel between the spillway and its confluence with the North Fork San Gabriel River
 - d. Perform basic soil tests (Atterberg limits, minus 200, moisture contents) and penetrometer tests as appropriate
 - e. Perform preliminary evaluation of dam embankment stability of existing dam in accordance with TCEQ Dam Safety Guidelines for steady-state and rapid drawdown loading conditions.
3. Perform hydrologic and hydraulic (H&H) analyses in accordance with TCEQ Dam Safety Guidelines and City of Austin Drainage Criteria Manual.
 - a. Evaluate drainage area and runoff characteristics for existing and ultimate development
 - b. Develop stage-storage-discharge rating curves to represent existing dam conditions
 - c. Develop peak reservoir stage, storage and discharge for 2 to 100-year recurrence intervals
 - d. Develop peak reservoir stage, storage and discharge for 75% PMF
4. Develop schematic design for three alternative repair concepts as follows:
 - a. Removing embankment at approximate location of original Lackey Creek stream channel and installation of bridge crossing Lackey Creek while keeping same roadway alignment.
 - b. Leaving dam hydraulics and roadway alignment unchanged, replace the principal spillway corrugated metal pipe, re-laying the existing concrete pipe, and providing channel and slope armoring at outfall of the present emergency spillway concrete pipes.
 - c. Removing the existing emergency spillway concrete pipes and installation of an emergency spillway structure to pass flows under the roadway and into a drop structure at the outfall, including armoring the outfall area as needed, replacing the principal spillway corrugated metal pipe. Evaluate and address seepage control and erosion along the embankment interface. Keep roadway elevations unchanged.
5. Evaluate the following for each alternative:
 - a. Peak reservoir stage, storage and discharge for 2-100-year recurrence intervals
 - b. Peak reservoir stage, storage and discharge for 75% PMF
 - c. Increased water levels in Lackey Creek from San Gabriel Ranch Road to confluence with San Gabriel River.
 - d. Opinion of probable construction costs
 - e. Permit requirements
6. Provide documentation of proposed alternatives
 - a. Document geotechnical results in Technical Memorandum
 - b. Document H&H results in Technical Memorandum
 - c. Summarize results of alternative analysis in Summary Report
 - d. Attend up to two (2) meetings with Williamson County staff to present results
 - e. Attend one (1) public meeting to inform area residents of concepts

7. Deliverables

- a. Geotechnical Results Technical Memorandum
- b. Hydrology and Hydraulics Technical Memorandum
- c. Alternative Summary Report
- d. Posters for public meeting

Design

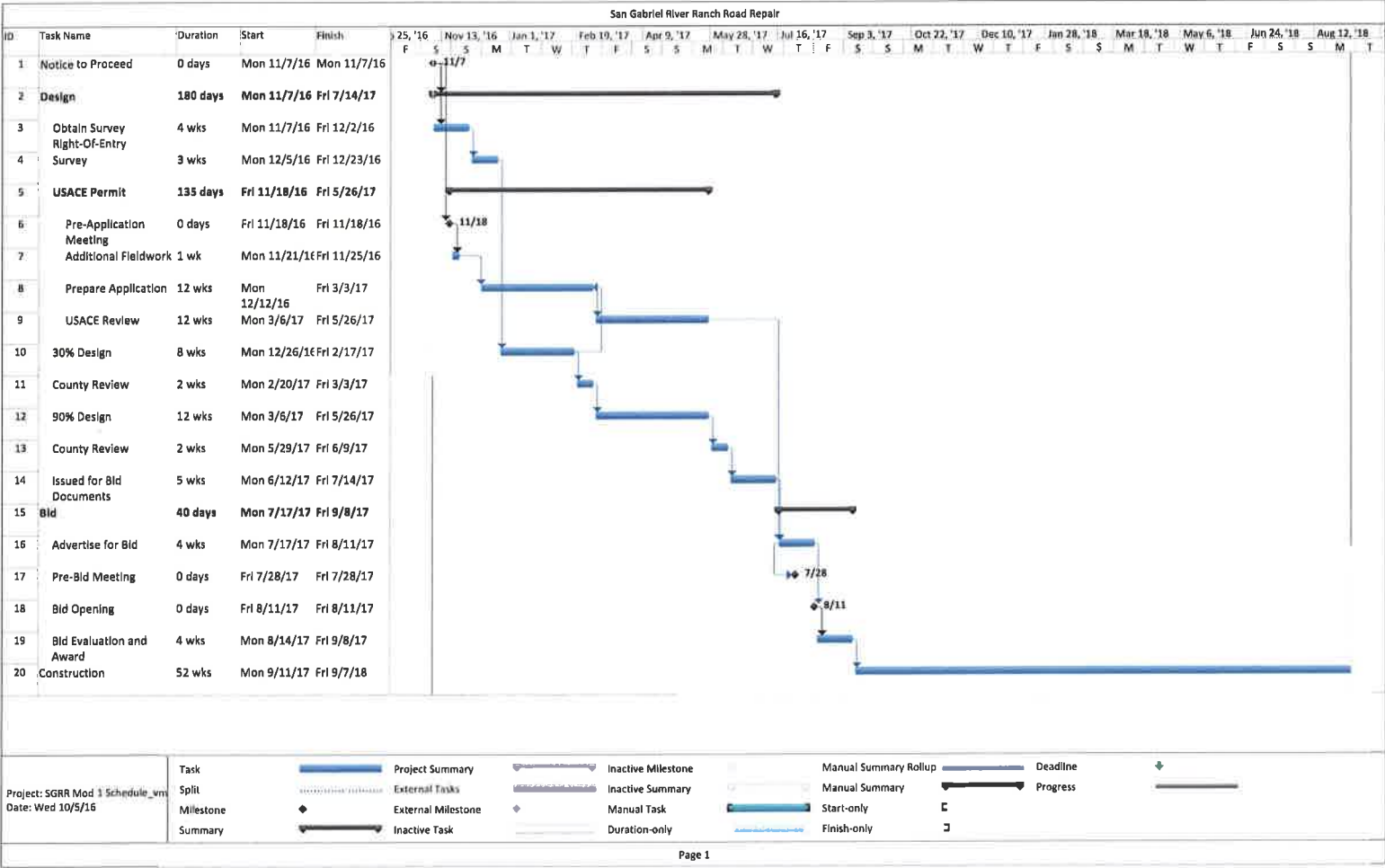
- 
- 1. Environmental Permitting
 - a. Develop permitting strategy for selected alternative.
 - b. Site visit by Environmental Scientist
 - c. Coordination with Texas Historical Commission (THC).
 - d. Develop and submit a pre-construction notification (PCN) to USACE.
 - 2. Prepare conceptual set of sketches for either alternative 4.b or 4.c based upon County's selection. The County has indicated previously that the bridge alternative is unlikely to be selected.
 - a. Provide proposed typical section and cross sections
 - b. Provide proposed plan and profile sketches
 - c. Provide proposed drainage feature sketches
 - d. Provide table of contents for technical specifications
 - 3. Prepare 90% set of construction documents
 - a. Finalize
 - 1. Roadway grades and cross sections
 - 2. Grading plans
 - 3. Roadway details
 - 4. Detailing of all drainage structures
 - 5. Environmental Controls
 - b. Provide complete set of draft specifications
 - c. Provide opinion of probable construction cost
 - d. Submit plans and specifications to TCEQ Dam Safety
 - 4. Develop final plans and specifications for bidding that incorporate County's latest comments
 - 5. Submit Issued for Bid plans and specifications to County and TCEQ Dam Safety
 - 6. Update OPCC for Issued for Bid set
 - 7. Deliverables
 - a. Conceptual sketches, specification outline
 - b. 90% Plans, Specifications and Opinion of Probable Construction Cost
 - c. Issued-For-Bid Plans, Specifications and Opinion of Probable Construction Cost

Bid Phase

- 1. Attend Pre-Bid Meeting
- 2. Prepare any necessary addenda
- 3. Attend Bid Opening
- 4. Assist County with bid evaluations

Attachment C - Work Schedule

Attached behind this page



Attachment D - Fee Schedule

Attached behind this page

Williamson County
San Gabriel Ranch Road Amendment
13-Oct-16
Detailed Cost Breakdown

Project Fee Summary		
Basic	\$	268,381
Special	\$	-
Total Project	\$	268,381

Project Role	Basic Services										Total Hours	Total Labor Effort	Total Expense Effort	Total Sub Effort	Total Effort
	Professional 6	Professional 5	Professional 4	Professional 3	Professional 2	Professional 1	Support Project Support	CAD Technician/Designer 2	CAD Technician/Designer 1						
Hourly Bill Rate	\$240.00	\$209.00	\$178.00	\$156.00	\$137.00	\$113.00	\$148.00	\$153.00	\$95.00	\$0.00	\$0.00	\$0.00			
1 Public Involvement	4										14	\$ 2,552	\$ 119	\$ -	\$ 2,771
2 Survey			4		4		1	4			13	\$ 2,020	\$ 111	\$ 18,500	\$ 18,631
											0	\$ -	\$ -	\$ -	\$ -
3 USACE Permit							1				1	\$ 148	\$ 9	\$ -	\$ 157
Pre-Application Meeting at USACE			12	4		12					28	\$ 4,116	\$ 238	\$ -	\$ 4,354
Additional Fieldwork			8			26					36	\$ 4,588	\$ 308	\$ -	\$ 4,896
Waters of the U.S. Delineation Report			8	12		80					80	\$ 10,076	\$ 560	\$ -	\$ 10,756
Federally-listed Species Habitat Evaluation Report			4	4		24					32	\$ 4,048	\$ 272	\$ -	\$ 4,320
Cultural Resource Assessment				8							8	\$ 1,248	\$ 68	\$ -	\$ 1,316
Functional Assessment/Mitigation Plan			30	12		85					127	\$ 16,817	\$ 1,080	\$ -	\$ 17,897
Permit Submittal			8			16					24	\$ 3,232	\$ 204	\$ -	\$ 3,436
4 SWPPP	4			24	4			8			36	\$ 6,170	\$ 323	\$ -	\$ 6,493
6 Williamson County Floodplain Development Permit			2		1		1	1			0	\$ -	\$ -	\$ -	\$ -
6 Sediment Evaluation											0	\$ -	\$ -	\$ -	\$ -
Obtain Samples						24					24	\$ 2,712	\$ 204	\$ -	\$ 2,916
Laboratory Testing and Analysis	12		30								42	\$ 8,220	\$ 357	\$ 5,840	\$ 14,417
7 Utility Coordination			4		24						28	\$ 4,000	\$ 238	\$ -	\$ 4,238
8 Channel Design											0	\$ -	\$ -	\$ -	\$ -
Erosion Analysis	3		8	32	44		1				88	\$ 13,312	\$ 748	\$ -	\$ 14,060
Slope Stability	5	8	4	24	2						43	\$ 7,002	\$ 366	\$ -	\$ 7,968
9 Letter of Map Revision											0	\$ -	\$ -	\$ -	\$ -
Obtain FEMA Backup Data				2							2	\$ 312	\$ 17	\$ -	\$ 329
Incorporate FEMA data into hydrologic model			1	2							3	\$ 400	\$ 26	\$ -	\$ 516
Develop hydraulic model and determine floodplain				4							4	\$ 624	\$ 34	\$ -	\$ 658
Complete existing conditions hydraulic model				4							4	\$ 624	\$ 34	\$ -	\$ 658
Update models to incorporate dam removal			1	4							5	\$ 802	\$ 43	\$ -	\$ 845
Complete proposed conditions hydraulic model				16							16	\$ 2,496	\$ 138	\$ -	\$ 2,632
Complete FEMA MT-2 Forms	1		2	24							27	\$ 4,340	\$ 230	\$ -	\$ 4,570
Submit LOMR to FEMA				4							4	\$ 624	\$ 9,284	\$ -	\$ 9,908
LOMR Report	4		8	24							36	\$ 6,128	\$ 306	\$ -	\$ 6,434
Address FEMA Comments	1		2	12							15	\$ 2,468	\$ 128	\$ -	\$ 2,596
Newspaper Notification				3							3	\$ 468	\$ 376	\$ -	\$ 844
10 30% Plans and Specifications	20	14	12	24	40		1	20	60		180	\$ 27,906	\$ 1,515	\$ -	\$ 28,521
11 90% Construction Documents	30	22	30	40	80		1	60	100		0	\$ -	\$ -	\$ -	\$ -
12 Issued for Bid Documents	25	2	16	12	40		1	30	24		150	\$ 23,660	\$ 1,275	\$ -	\$ 24,935
13 Bid Phase											0	\$ -	\$ -	\$ -	\$ -
1 Pre-Bid Meeting											0	\$ -	\$ -	\$ -	\$ -
2 Addenda	8		8		6		1	6			29	\$ 5,232	\$ 247	\$ -	\$ 5,479
3 Bid Opening	2		4								6	\$ 1,192	\$ 51	\$ -	\$ 1,243
4 Bid Evaluation											6	\$ 1,192	\$ 51	\$ -	\$ 1,243
											0	\$ -	\$ -	\$ -	\$ -
Total Basic Services Hours	121	46	216	299	245	249	8	127	184	0	1,495	\$ 223,727	\$ 22,314	\$ 22,340	\$ 268,381
Total Basic Services Labor Effort	\$ 29,040	\$ 9,614	\$ 38,448	\$ 46,844	\$ 33,565	\$ 28,137	\$ 1,184	\$ 19,431	\$ 17,664	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Williamson County
San Gabriel Ranch Road Amendment
13-Oct-16
Detailed Cost Breakdown

Project Fee Summary		
Basic	\$	258,381
Special	\$	-
Total Project	\$	258,381

Phase	Task	Expenses	Tech Charge	Miles	B&W (sheet)	Color (sheet)	Binding (each)	Lg Format - Bond - B&W (sq. ft.)	Lg Format - Glossy/Myr - B&W (sq. ft.)	Lg Format - Vinyl/Adhes - B&W (sq. ft.)	Lg Format - Bond - Color (sq. ft.)	Lg Format - Glossy/Myr - Color (sq. ft.)	Lg Format - Vinyl/Adhes - Color (sq. ft.)	Other	Total Exp Effort
1	Public Involvement		14												\$ 119
2	Survey		13												\$ 111
3	USACE Permit		1												\$ 9
	Pre-Application Meeting at USACE		28												\$ 238
	Additional Fieldwork		36												\$ 306
	Waters of the U.S. Delineation Report		80												\$ 680
	Federally-listed Species Habitat Evaluation Report		32												\$ 272
	Cultural Resource Assessment		8												\$ 68
	Functional Assessment/Mitigation Plan		127												\$ 1,080
	Permit Submittal		24												\$ 204
4	SWPPP		0												\$ -
			38												\$ 323
5	Williamson County Floodplain Development Permit		0												\$ -
			5												\$ 43
6	Sediment Evaluation		0												\$ -
	Obtain Samples		24												\$ 204
	Laboratory Testing and Analysis		42												\$ 357
			0												\$ -
7	Utility Coordination		28												\$ 238
			0												\$ -
8	Channel Design		0												\$ -
	Erosion Analysis		68												\$ 748
	Slope Stability		43												\$ 366
			0												\$ -
9	Letter of Map Revision		0												\$ -
	Obtain FEMA Back-up Data		2												\$ 17
	Incorporate FEMA data into hydrologic model		3												\$ 26
	Develop hydraulic model and determine floodplain		4												\$ 34
	Complete existing conditions hydraulic model		4												\$ 34
			0												\$ -
	Update models to incorporate dam removal		5												\$ 43
	Complete proposed conditions hydraulic model		16												\$ 136
	Complete FEMA MT-2 Forms		27												\$ 230
	Submit LOMR to FEMA		4											9250	\$ 9,284
	LOMR Report		36												\$ 306
	Address FEMA Comments		15												\$ 128
	Newspaper Notification		3											350	\$ 376
			1												\$ 9
10	30% Plans and Specifications		190												\$ 1,615
			0												\$ -
			0												\$ -
11	90% Construction Documents		363												\$ 3,086
			0												\$ -
12	Issued for Bid Documents		150												\$ 1,275
			0												\$ -
13	Bid Phase		0												\$ -
Bid	1 Pre-Bid Meeting		0												\$ -
Bid	2 Addenda		29												\$ 247
Bid	3 Bid Opening		6												\$ 51
Bid	4 Bid Evaluation		6												\$ 51
Total Basic Services Items			1,495												9,600
Total Basic Services Expenses Effort			\$ 12,708	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 9,600
															\$ 22,314

Freese and Nichols, Inc.

Williamson County
San Gabriel Ranch Road Amendment
13-Oct-16
Detailed Cost Breakdown

Project Fee Summary	
Basic	\$ 258,351
Special	\$ -
Total Project	\$ 258,351

Phase	Task	Subconsultants	Gortondona	Xento	TRI	0	0	0	0	0	0	0	0	0	0	Total Sub Effort
1	Public Involvement															\$ -
2	Survey		18,500													\$ 18,500
3	USACE Permit															\$ -
	Pre-Application Meeting at USACE															\$ -
	Additional Fieldwork															\$ -
	Waters of the U.S. Delineation Report															\$ -
	Federally-listed Species Habitat Evaluation Report															\$ -
	Cultural Resource Assessment															\$ -
	Functional Assessment/Mitigation Plan															\$ -
	Permit Submittal															\$ -
4	SWPPP															\$ -
5	Williamson County Floodplain Development Permit															\$ -
6	Sediment Evaluation															\$ -
	Obtain Samples															\$ -
	Laboratory Testing and Analysis			4,500	1,040											\$ 5,540
7	Utility Coordination															\$ -
8	Channel Design															\$ -
	Erosion Analysis															\$ -
	Slope Stability															\$ -
9	Letter of Map Revision															\$ -
	Obtain FEMA Backup Data															\$ -
	Incorporate FEMA data into hydrologic model															\$ -
	Develop hydraulic model and determine floodplain															\$ -
	Complete existing conditions hydraulic model															\$ -
	Update models to incorporate dam removal															\$ -
	Complete proposed conditions hydraulic model															\$ -
	Complete FEMA MT-2 Forms															\$ -
	Submit LOMR to FEMA															\$ -
	LOMR Report															\$ -
	Address FEMA Comments															\$ -
	Newspaper Notification															\$ -
10	30% Plans and Specifications															\$ -
11	90% Construction Documents															\$ -
12	Issued for Bid Documents															\$ -
13	Bid Phase															\$ -
Bid	1 Pre-Bid Meeting															\$ -
Bid	2 Addenda															\$ -
Bid	3 Bid Opening															\$ -
Bid	4 Bid Evaluation															\$ -
Total Basic Services Subconsultants Cost			\$ 16,500	\$ 4,500	\$ 1,040	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Basic Services Subconsultants Effort			\$ 16,500	\$ 4,500	\$ 1,040	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 22,340