



WORK AUTHORIZATION NO. 3

PROJECT: Hairy Man Road/Brushy Creek Road Traffic Study (Project # P284)

This Work Authorization is made pursuant to the terms and conditions of the Williamson County Contract for Engineering Services, being dated September 16, 2014 and entered into by and between Williamson County, Texas, a political subdivision of the State of Texas, (the "County") and Atkins North America, Inc. (the "Engineer").

Part 1. The Engineer will provide the following Engineering Services set forth in Attachment "B" of this Work Authorization.

Part 2. The maximum amount payable for services under this Work Authorization without modification is \$702,706.50.

Part 3. Payment to the Engineer for the services established under this Work Authorization shall be made in accordance with the Contract.

Part 4. This Work Authorization shall become effective on the date of final acceptance and full execution of the parties hereto and shall terminate on September 30, 2018. The Engineering Services set forth in Attachment "B" of this Work Authorization shall be fully completed on or before said date unless extended by a Supplemental Work Authorization.

Part 5. This Work Authorization does not waive the parties' responsibilities and obligations provided under the Contract.

Part 6. This Work Authorization is hereby accepted and acknowledged below.

EXECUTED this ____ day of _____, 20__.

ENGINEER:

Atkins North America, Inc.

By: _____

Signature

Brian D. Hall

Printed Name

Vice President

Title

COUNTY:

Williamson County, Texas

By: _____

Signature

Dan A. Gattis

Printed Name

County Judge

Title

OK
M 4/18/2017

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

Hairy Man Road/Brushy Creek Road Traffic Study Scope (Project # P284)
Work Authorization No. 3
Attachment A – Services to be Provided by County

The County will provide the following:

1. Name, address and phone number of the County's project manager.
2. All available mapping, geographic information system (GIS) files, local and regional transportation plans, environmentally sensitive features, utilities, aerial photography, as-built plans, proposed design plans, bridge inspection data, studies, reports, plans, drawings, and other documents which are applicable as background information to be used in the performance of this work.
3. Timely reviews and approvals of working documents, reports, drawings, PS&E and other project deliverables to maintain an agreed upon project schedule as developed in Attachment C
4. Right-of-way and utility relocation acquisition cost estimates
5. A project specific geologic assessment, threatened & endangered species assessment, and Karst Feature Survey
6. Provide the specifications requirements for all surveys.
7. Provide current signed right-of-entry documents if needed for Surveyor's use in entering on private property. *See Attachment C Work Schedule for further comments.
8. Provide aluminum caps for iron rods, if applicable.
9. Provide brass caps for flush mount ROW markers, if applicable.
10. Provide Commitments for Title Insurance for all parcels to be acquired.

The County will communicate with local, regional and other agencies as required.

The County will be responsible for the following:

1. Reviewing and approving invoices
2. Distributing all press releases, meeting notices and elected official letters.
3. Speaking to public officials and media representatives.
4. Reviewing and commenting on deliverables, and providing final approval of documents and other items as identified in Attachment B.
5. Utility coordination, conflict identification, relocation design and cost estimates.
6. Preparation of the Regional Habitat Conservation Plan (RHCP) application and RHCP participation fee

Objective

The objective of this Hairy Man Road/Brushy Creek Road work authorization is to prepare the Plans, Specifications and Estimates (PS&E) package and associated environmental and geotechnical studies for the Brushy Creek Road/Hairy Man Road Shoulder and Turn Lane Improvements.

Project Description

The project limits are Hairy Man Road/Brushy Creek Road from the Brushy Bend Drive low water crossing to Sam Bass Road. Hairy Man Road/Brushy Creek Road is currently a 2-lane undivided facility with narrow to no shoulders within the project limits. This project will provide 2' shoulders within the entire project limits and add left turn lanes for the parking lots at Olson Meadows Park and Creekside Park.

Service to be performed

The following scope of work identifies the major components of the study.

Task 1: Project Management

- A. Project management and administration.
- B. Develop and maintain a project execution plan.
- C. Develop and maintain a project specific QA/QC plan.
- D. Develop and maintain a project schedule in Microsoft Project.
- E. Prepare for and hold project kickoff meeting.
- F. Prepare and submit monthly project status reports and invoices.
- G. Prepare for and attend one meeting at each milestone submittal (30/60/90/100) as needed.
- H. Provide management, oversight and coordination of all subconsultant efforts.

Deliverables: ATKINS will deliver monthly project status reports and invoices.

Task 2 – Data Collection

- A. Working with the Williamson County, ATKINS will obtain available existing information including corridor characteristics, regional development plans, environmentally sensitive features, aerial photography, current unit prices, contours, and mapping.
- B. ATKINS will conduct a field review to gather information on existing physical features, environmentally sensitive features, drainage improvements, parks and trails.

Task 3 – Environmental Studies

ATKINS will conduct and prepare environmental due diligence documentation in accordance with the Williamson County Environmental Protocol (Revised January 2009). These efforts will include:

- A. Conduct a field visit and prepare an environmental constraints map using secondary source data that will be verified and supplemented by the field visit.

Hairy Man Road/Brushy Creek Road Traffic Study Scope (Project # P284)
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Attachment B – Services to be Provided by Engineer

- B. Conduct archeological and historic resources survey and background review documenting avoidance or mitigation of sites within areas to be disturbed. Atkins will prepare an Archeological Survey Report and a Historic Resources Survey Report and coordinate with the Texas Historical Commission to obtain any necessary antiquities permits.
- C. Atkins will collect data on surface water streams and other existing water resources and potential for impacts to any jurisdictional wetlands or waters of the U.S.
- D. Perform a wetland delineation of the project right of way and prepare a Preliminary Jurisdictional Determination Report for submittal to USACE. Atkins will participate in the jurisdictional determination site visit with USACE and prepare a Section 404 Nationwide Permit Preconstruction Notification (NWP PCN) for any unavoidable wetland or water body impacts.
- E. Conduct a Phase 1 Environmental Site Assessment to identify any potential contamination that may be present on the proposed right of way.

Deliverables: Environmental Constraints Map, Archeological Survey Report, Historic Resources Survey Report, Antiquities Permit, Jurisdictional Determination Report, NWP PCN, and Phase 1 ESA.

Task 4 – Survey

- A. Perform an additional topographic and tree survey for five (5) separate areas as specified by Atkins along Hairy Man Road.
 - Coordinates for this project shall be per existing Hairy Man Road project as performed under Diamond Surveying, Inc. Williamson County Work Authorization #2 (2015).
 - Perform field and office work necessary to provide a topographic and tree survey (located trees 8" and larger) drawing for five (5) separate areas as specified by Client. Survey data will be provided in Microstation/Geopak compatible format. Surveyor will insert additional survey data and combine additional survey data with current survey data of the project and will provide Client with a combined Microstation/Geopak compatible format for all gathered information.
 - Surveyor to provide X, Y, Z coordinates for the 30 boring locations.
 - Surveyor shall enhance existing horizontal and vertical survey control for the project by setting permanent monuments in areas deemed to be in areas anticipated to be disturbed by construction activities. These permanent monuments are for use by future contractors and engineers for quality control during and after the construction phase of the project. Surveyor shall provide Client with a horizontal and vertical survey control exhibit with northing, easting, elevation, and point description, bearing basis with applicable combined surface adjustment factor and vertical datum.
- B. Prepare Land Title Surveys for twenty-one (21) separate parcels of land for right-of-way and easement acquisition by Williamson County.
 - Obtain final right-of-way alignment determined by Client and relate to existing boundary lines for parcels to be acquired.
 - Perform office and field work necessary to determine the right-of-way lines of Hairy Man Road along Lot 61, Parkland (Drainage Easement), Creek Bend Section II, as recorded in

Cabinet F, Slide 144, Plat Records of Williamson County, Texas, (Plat shows boundary to be center of Hairy Man Road, and no easement information could be located by Diamond Surveying, Inc.), right-of-way to be determined by prescriptive easement based on maintenance performed by Williamson County and Public usage, and along the Clarence Lorenza Sauls tract, being a portion of the 197 acre (Third Tract), recorded in Volume 608, Page 936, Deed Records of Williamson County, Texas (no easement information could be located by Diamond Surveying, Inc.), right-of-way to be determined by prescriptive easement based on maintenance performed by Williamson County and Public usage.

- Obtain additional survey field data to determine correct positioning of side boundary lines to include the recovery of rear boundary corners.
- Surveyor shall coordinate with appropriate agency responsible for obtaining right of entries and prepare a list (excel spreadsheet) of the parcels (owner information) in which right of entry is required for performing the survey work. Surveyor shall notify right of entry agency when termination dates are approaching and when additional right-of-entries are required to complete the work. Appropriate agency responsible for right of entries will provide Surveyor with returned right of entry responses (letters) to properly maintain an up to date (current) list to be distributed accordingly.
- Provide list of owners to client to allow client to order title commitments for parcels to be acquired in order to show any existing easements or legal matters that may affect the right-of-way or easement parcels to be acquired.
- Prepare and furnish drawings with metes and bounds descriptions on 8 1/2" X 11" sheets of each parcel necessary for right-of-way and easement acquisition.
- Perform field and office work necessary to set appropriate survey monumentation for each parcel.
- Perform supervisory tasks such as attending meetings, telephone calls with engineers and Client, scheduling and quality control.

Deliverables: Diamond Surveying will prepare a horizontal and vertical control layout exhibit which will include the benchmark system callouts. A database of property owner information and land title surveys for twenty-one (21) right-of-way and easement parcels will also be provided. Diamond Surveying will insert additional topographic survey data and combine additional survey data with current survey data of the project and will provide Client with a combined Microstation/Geopak compatible format for all gathered information.

Task 5 – PS&E Development

A. Roadway

- Prepare up to 3 existing and up to 3 proposed project typical sections
- Prepare project layout and horizontal data sheets
- Prepare plan and profile (P&P) sheets for the roadway improvements
- Prepare cross-sections at 50' intervals

- Prepare roadway quantity summaries
- B. Traffic Control Plan (TCP)/Construction Sequence
- A detailed TCP shall be developed for Hairy Man Road utilizing the MUTCD and the current TxDOT Barricade and Construction Standards. The TCP will identify the existing and proposed traffic control devices that will be used to handle traffic during construction, including regulatory signs, warning signs, construction warning signs, detour signs, construction pavement markings, channelizing devices, portable changeable message signs, flashing arrow boards, barricades, barriers, etc.
 - Prepare a narrative of the construction sequencing including acceptable construction work hours
 - Prepare roadway detour details as required for Hairy Man Road.
 - Prepare TCP quantity summaries
- C. Signing and Pavement Markings
- Prepare signing and pavement marking sheets showing existing signs, existing signs to be removed, proposed signs, proposed pavement markings, existing markings to be removed, and proposed object markers.
 - Prepare signing and pavement marking quantity summaries
- D. Drainage
- Review Drainage Report (KFA Report) and supporting analyses prepared by K Friese and Associates, Inc.
 - Site visits
 - Revise hydrologic analyses as needed
 - Revise hydraulic analyses for Brushy Creek as needed
 - Perform hydraulic analyses for existing and proposed cross-culverts
 - Perform hydraulic analyses for the proposed ditches
 - Prepare Drainage Area Map sheets
 - Prepare culvert layouts with plan and profile views. The plan information shall include the location of culvert, roadway alignment, traffic flow direction, culvert skew (if applicable), utilities and details for outlet protection as applicable. Profile information shall include roadway elements, culvert size, slope, existing and proposed ground lines and hydraulic data.
 - Prepare ditch design plans and details. Prepare a tabular ditch layout schedule that depicts pertinent information about the roadside ditch geometry and design. This table will also include station, offset, design flow, design flow line elevation, flow capacity and ditch lining material.
 - Prepare miscellaneous drainage details to support the construction of the proposed drainage structures.
 - Select standard details from TxDOT or the County list of standards for items such as culvert end treatments, junction boxes, etc. If necessary, provide drainage design details for "non-standard" drainage structures for cases where TxDOT standard details cannot be utilized.

- Prepare hydraulic data sheets for culverts
- Prepare drainage structures quantity summaries (including SW3P and Water Quality)
- E. Prepare Storm Water Pollution Prevention Plan (SW3P) – Prepare SW3P plan sheets for minimizing potential impacts to receiving waterways. The SW3P shall include text describing the plan, quantities, phase and locations of erosion control features and any required permanent erosion control. The SW3P shall include Site/Plan Summary sheets showing the devices to be installed at culverts and side road intersections. The SW3P shall also include the SW3P Notes Sheet.
- F. Prepare Water Pollution Abatement Plan (WPAP) – The project is located within the Edwards Aquifer “contributing zone” and “recharge zone” and therefore a WPAP is required. Coordination with Williamson County will be undertaken in order to develop Total Suspended Solids (TSS) load calculations and location of Best Management Practices (BMPs) required under the applicable rules. It is desirable that vegetative filter strips or grassy swales would be used as permanent BMPs to provide water quality for two proposed turn lanes, but the feasibility of these BMPs need to be confirmed by analyses. Prepare the WPAP application on behalf of the County and submit to Texas Commission on Environmental Quality (TCEQ).
- G. Miscellaneous Items
 - Prepare cover sheet, index, and general notes sheets
 - Up to 8 retaining wall layouts including plan, profile, typical sections, geometry data and detail sheets
 - Prepare up to 13 driveway reconstruction layouts
 - Prepare opinion of probable construction costs and estimated construction time determination
 - Prepare project construction manual
 - Prepare design summary form
 - Compile standard drawings and standard details

Deliverables: Milestone submittals will be made at 30%, 60%, 90% and 100%. Unless otherwise excluded or modified in this scope of services, PS&E submittals will be developed in accordance with Williamson County Road Bond Program 30%/60%/90%/100% Plan Submittal Checklists (dated October 2016). Each milestone submittal will contain the items shown in the checklist for that milestone.

Task 6 – Geotechnical/Pavement Design

A. Geotechnical

- HVJ proposes to drill a total of twenty (20) 20-foot soil borings spaced along the proposed walls at an approximate spacing of 200 feet. Also included are ten (10) 10-foot borings spaced at approximate 1000 foot spacings for roadway borings and proposed parking lots. Total drilling footage is 500 feet.
- The soil borings will be properly backfilled with bentonite chips and a single lift of cold patch asphalt where applicable. The soil samples will be obtained using shelly tubes and/or split-

spoon samplers. Field-testing of soil samples will include pocket penetrometer in the cohesive soils and Standard Penetration Test (SPT) in the cohesionless soils.

- All the field sampling and laboratory tests will be performed according to typical geotechnical standards, where applicable, or with other well established procedures. HVJ will perform appropriate laboratory tests on soil samples recovered from the borings. Laboratory testing will include moisture content, liquid limit, plastic limit, unconfined compression, Texas Triaxial Classification, and percent passing No. 200 Sieve tests. In addition, HVJ will test for sulfate content of the subgrade samples.
- HVJ geotechnical staff will use the borings to prepare an estimate of the potential vertical rise (PVR) and Effective Plasticity Index (PI) for use in the subgrade stabilization design recommendations. HVJ will provide geotechnical analysis needed for pavement design per the Williamson County guidelines. Additional detail regarding pavement design scope follows.

B. Pavement Design

- HVJ will conduct nondestructive deflection testing (NDT) with the Falling Weight Deflectometer (FWD) along the existing roadway to calculate existing subgrade design parameters, as per TxDOT requirements. This data will also be used to finalize boring locations so that geotechnical data is collected based on changes in subgrade conditions identified in deflection profile plots of the NDT data.
- The pavement design will include consideration of traffic loads to be estimated by HVJ as well as geotechnical borings and lab testing results. The traffic data required includes current and projected traffic counts and truck percentages. HVJ proposes to collect current traffic counts to verify existing traffic.
- HVJ will prepare two Asphalt Concrete Pavement designs to include those outlined in the Williamson County Pavement Guidelines considering Flexible Base and the worst case subgrade conditions. HVJ will provide special attention to the high plasticity soils within the project limits. A recommendation on which of the two pavement designs to use on the project will be made based on cost and pavement durability.

Deliverables: A geotechnical and pavement design report will be prepared. In general, the following items will be included in the geotechnical report:

- Site vicinity map,
- Geology map,
- Plan of borings,
- Boring logs,
- Laboratory test results summary,
- Groundwater conditions,
- Generalized subsurface conditions,
- Slope Stability Analysis for walls and where fills exceed 10 feet

- External stability analysis for all retaining walls including bearing capacity, overturning and sliding,
- Pavement thickness design alternatives for the 30% submittal,
- Subgrade stabilization, if determined necessary, and
- General earthwork recommendations including backfill to be used behind walls.

Assumptions and Exclusions

- No utility coordination, conflict identification, relocation design or cost estimates are included. Williamson County's utility coordinator will be responsible for these tasks.
- Obtaining Right of Entry is not included
- Property appraisals, negotiations and acquisition services are not included
- A state/federal environmental document is not included
- Preparation of a USACE Section 404 Individual Permit is not included
- Williamson County will provide a Geologic Assessment, Threatened & Endangered Species Assessment, Karst Feature Survey, Regional Habitat Conservation Plan (RHCP) application and RHCP participation fee
- No public involvement is included
- No bridge design, traffic signal design, or illumination design is included
- No intersection layouts are included
- It is assumed that for this scope a new drainage study report will not be needed
- FEMA Coordination and LOMR/CLOMR are not included
- Water Quality BMP design/analysis and WPAP are only included for the two proposed turn lanes. If Water Quality is determined to be needed for areas outside the turn lanes a supplemental will be required. Vegetative filter strips or grassy swales are assumed to be the method for providing water quality. If other water quality treatment measures are proposed a supplemental will be necessary for the design.
- This scope assumes that there would be 12 non bridge-class culvert crossings
- TCEQ WPAP application fee is assumed to be no more than \$5000. If it is more a supplemental will be required.

Hairy Man Road/Brushy Creek Road Traffic Study Scope (Project # P284)
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 Attachment C – Work Schedule

<u>Milestone</u>	<u>Task Description</u>	<u>Begin Date</u>	<u>End Date</u>
NTP :		4/24/2017 (assumed)	
Task 1:	Project Management	4/24/2017	9/21/2018
Task 2:	Data Collection	4/24/2017	6/21/2017
Task 3:	Environmental Studies*	4/24/2017	4/20/2018
Task 4:	Survey	4/24/2017	3/5/2018
	Williamson County Acquire ROE	4/24/2017	6/21/2017
	Topographic and Tree Survey*	6/22/2017	10/19/2017
	Land Title Surveys*	6/22/2017	3/5/2018
Task 5:	PS&E Development	4/24/2017	6/4/2018
	30% PS&E	4/24/2017	9/3/2017
	60% PS&E*	9/4/2017	1/25/2018
	90% PS&E	1/26/2018	4/4/2018
	100% PS&E	4/5/2018	6/4/2018
Task 6:	Geotechnical/Pavement Design*	9/4/2017	1/5/2018

*Completion date is subject to right of entry being provided prior to commencement of work. If right of entry is provided on an "As Acquired" basis, preventing work from being performed on a linear basis, additional time and cost may need to be required.

HAIRY MAN RD/BRUSHY CREEK RD TRAFFIC STUDY (Project # P284)

**Work Authorization No. 3
Attachment D - Fee Schedule**

TASK	Atkins	KFA	Diamond Surveying	HVJ	Total Labor Cost	Total Labor Cost
Atkins North America, Inc., Inc.						
1. Project Management						\$ 42,112.00
A. Project Management	\$ 31,144.00	\$ 10,008.00	\$ -	\$ 960.00	\$ 42,112.00	
2. Data Collection						\$ 17,720.00
A. Data Collection	\$ 15,160.00	\$ 2,560.00	\$ -	\$ -	\$ 17,720.00	
3. Environmental Studies						\$ 71,988.00
A. Environmental Studies	\$ 71,988.00	\$ -	\$ -	\$ -	\$ 71,988.00	
4. Survey						\$ 88,540.00
A. Topographic Survey	\$ -	\$ -	\$ 19,760.00	\$ -	\$ 19,760.00	
B. Land Title Survey	\$ -	\$ -	\$ 68,780.00	\$ -	\$ 68,780.00	
5. PS&E Development						\$ 378,120.00
A. Roadway	\$ 113,488.00	\$ -	\$ -	\$ -	\$ 113,488.00	
B. Traffic Control Plan (TCP)/Construction Sequence	\$ 69,092.00	\$ -	\$ -	\$ -	\$ 69,092.00	
C. Signing and Pavement Marking	\$ 32,134.00	\$ -	\$ -	\$ -	\$ 32,134.00	
D. Drainage	\$ 6,848.00	\$ 68,630.00	\$ -	\$ -	\$ 75,478.00	
E. SW3P	\$ 2,816.00	\$ 6,160.00	\$ -	\$ -	\$ 8,976.00	
F. WPAP	\$ 12,008.00	\$ 8,160.00	\$ -	\$ -	\$ 20,168.00	
G. Miscellaneous	\$ 57,714.00	\$ 1,070.00	\$ -	\$ -	\$ 58,784.00	
6. Geotechnical/Pavement Design						\$ 36,232.50
A. Geotechnical	\$ -	\$ -	\$ -	\$ 28,100.00	\$ 28,100.00	
B. Pavement Design	\$ -	\$ -	\$ -	\$ 8,132.50	\$ 8,132.50	
LABOR COST:	\$ 412,392.00	\$ 96,588.00	\$ 88,540.00	\$ 37,192.50	\$ 634,712.50	\$ 634,712.50
TOTAL DIRECT EXPENSES COST:	\$ 5,233.00	\$ 5,081.00	\$ -	\$ 57,680.00	\$ 67,994.00	
TOTAL PROJECT COST:	\$ 417,625.00	\$ 101,669.00	\$ 88,540.00	\$ 94,872.50	\$ 702,706.50	

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HAIRY MAN RD/BRUSHY CREEK RD TRAFFIC STUDY (Project # P284)
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Attachment D - Fee Schedule

TASK	Hourly Rate:	SHEETS/ UNITS	PRINCIPAL \$	PROJECT MANAGER \$	SR ENGINEER \$	ENGINEER \$	EIT \$	SE ENGINEER TECH \$	ADMIN \$	Sub Total Hours	Hr/Unit	Labor Cost
K Frisee & Associates, Inc.												
L. Project Management												
A. Project Management												
2. Data Collection		12	2		56					90	7.5	\$ 10,008.00
A. Data Collection		1			8		8			24	24.0	\$ 2,560.00
5. PS&E Development												
D. Drainage:												
Review previous materials and site visits		1			18	22				40	40.0	\$ 4,530.00
Hydrologic & Hydraulic Analysis		1			24	60	20			104	104.0	\$ 10,940.00
Drainage Area Map		4			8	16				24	6.0	\$ 2,680.00
Culvert Layouts		12			40	160	40	80		320	26.7	\$ 31,560.00
Ditch Design		2			16	48	16			80	40.0	\$ 8,320.00
Miscellaneous Drainage Details		1			12	32				44	44.0	\$ 4,820.00
Hydraulic Data Sheets		2			4	16				20	10.0	\$ 2,140.00
Quantities		1			4	32				36	36.0	\$ 3,740.00
E. SW/3P		10			16	40				56	5.6	\$ 6,160.00
F. WPAP		1			16	60				76	76.0	\$ 8,160.00
G. Miscellaneous												
Standard Drawings and Details		1			2	8				10	10.0	\$ 1,070.00
TOTAL NUMBER OF SHEETS:												
HOURS:												
LABOR COST:												
		2	\$ 400	\$ -	\$ 30,240	\$ 50,200	\$ 7,140	\$ 6,560	\$ 2,048			\$ 94,588.00
			0.2%		24.2%	54.3%	9.1%	8.7%	3.5%			\$ 94,588.00

DIRECT EXPENSES:	Travel: Mileage Tolls	Rate	150 miles each	\$0.54 \$5.00	\$81.00
	Copies: B&W Color (8.5x11) Color (11x17) Specialty Printing (Newsletter)	each each each each		\$0.10 \$2.00 \$3.00 \$0.75	
	Misc Expenses: TCEQ WPAP Application Fee Postage Meeting exhibits Tube counts Tube counts (freeway) Vehicle Classification Count 4-hr TMCs	each each each each each each each	1	\$5,000.00 \$0.46 \$100.00 \$165.00 \$200.00 \$200.00 \$200.00	\$5,000.00
TOTAL DIRECT COST:					\$ 5,081.00
TOTAL PROJECT COST:					\$ 101,669.00

HAIRY MAN RD/BRUSHY CREEK RD TRAFFIC STUDY (Project # P284)
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Attachment D - Fee Schedule

TASK	SHEETS/ UNITS	Hourly Rate:	RTLS	REPRESENT WITNESS	PROJECT SURVEYOR	GPS PROCESSOR	SURVEY TECHNICIAN	SECRETARY	1-MAN FIELD PARTY	2-MAN FIELD PARTY	3-MAN FIELD PARTY	4-MAN FIELD PARTY	Sub Total Hours	Hourly Rate	Sub Total Hours	Sub Total Cost
Professional Services																
A. Trafficable Survey	1															
Locate and Tree Survey	30															
Stake Setting Location	16															
Horizontal and Vertical Control	21															
B. Land Title Survey																
Boundary Survey	24															
Determine Mining Existing ROW	24															
Determine Side Boundaries	24															
Establish Right of Way	24															
Pinel Lim with Owner Information	30															
Survey Land Title Survey	168															
Measurements	21															
Quality Control	40															
TOTAL NUMBER OF SHEETS:																
HOURS:																
LABOR COST:																
DIRECT EXPENSES:																
Travel:																
Mileage																
Tolls																
Conduct:																
R/W																
Color (11x11)																
Color (11x17)																
Specialty Printing (Newsletter)																
Miscellaneous:																
GPS Field Base Unit with Rover																
Additional Rover																
GPS Field Base Unit for Static Session																
Robotic Total Station with Rover																
TOTAL DIRECT COST:																
TOTAL PROJECT COST:																

HAIRY MAN RD/BRUSHY CREEK RD TRAFFIC STUDY (Project # P284)
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Attachment D - Fee Schedule

TASK	Hourly Rate	SHEET/ UNITS	SR PROJECT MANAGER	PROJECT ENGINEER	STAFF ENGINEER	SENIOR TECHNICIAN	TECHNICIAN	Hours	Sub Total Hours	Hourly Rate	Labor Cost
HAJ Associates, Inc.											
A. Project Management											
A. Geotechnical											
Boring		1	8	16	96	8					
Field Testing		1	8	12	4						
Lab Testing		1	8	12	4						
Geotechnical Analysis		1	16	20	12						
B. Pavement Design											
Nondestructive Deflection Testing		1	2	8.5	14	20					
Collect Traffic Data		1	1	2	4						
Asphalt Concrete Pavement Design		1	4	8	14						
TOTAL NUMBER OF SHEETS:			53	78.5	148	28					
LABOR COST:			\$ 8,489	\$ 9,413	\$ 16,590	\$ 2,180					
			16.2%	24.0%	51.3%	8.1%					

UNDIRECT EXPENSES	Rate	Unit	Cost
Field Investigation:			
Mobilization/Demobilization	\$400.00	1 each	\$400.00
Mobilized sample boring w/1" Shelby tube	\$22.50	500 lf	\$11,250.00
Add for casing in rock (Rock Casing Cost - Soft & Hard Rock) 0'-25' Depth	\$22.50	300 lf	\$6,750.00
Texas Cone Penetration Test	\$22.50	60 each	\$1,350.00
Standard Penetration Test	\$5.00	500 lf	\$2,500.00
Grout Backfill	\$1,200.00	1 day	\$1,200.00
Traffic Control	\$50.00	1 each	\$50.00
Vehicle Trips			
Laboratory Testing:			
Moisture Content	\$18.00	60 each	\$1,080.00
Hydrometer Analysis	\$200.00	1 each	\$200.00
Atterberg Limit	\$75.00	60 each	\$4,500.00
Unconfined Compressive Strength Test	\$50.00	60 each	\$3,000.00
Texas Triaxial	\$1,750.00	1 each	\$1,750.00
Percent Passing No. 200 Sieve	\$35.00	60 each	\$2,100.00
Soilface Testing	\$75.00	10 each	\$750.00
Soil PH Testing	\$200.00	1 each	\$200.00
PWD Testing and Traffic Counts:			
Mobilization/Demobilization	\$400.00	1 each	\$400.00
PWD Equipment	\$2,600.00	2 day	\$5,200.00
Traffic Control	\$1,200.00	2 day	\$2,400.00
Traffic Counts	\$800.00	2 each	\$1,600.00
TOTAL DIRECT COST:			\$ 57,680.00
TOTAL PROJECT COST:			\$ 94,872.50