

AGREEMENT
FOR
ENGINEERING SERVICES
(LOCAL VERSION – COST PLUS FEE)

JOB NO. 100790
FEDERAL AID PROJECT ("FAP") NO. SD-AR51(4)
Hwy. 351/Aggie Rd. Inters. Impvts. (Jonesboro) (S)

PREAMBLE

THIS AGREEMENT, entered into this 14th day of Oct, 2013, by and between the City of Jonesboro, in Craighead County, Arkansas ("Owner"), and Garver, LLC, ("Consultant"), a corporation existing under the laws of the State of Arkansas, with principal offices at 4701 Northshore Drive, North Little Rock, Arkansas.

WITNESSETH:

WHEREAS, the Owner is planning to study and construct intersection improvements at Hwy. 351 (Airport Road) and Aggie Road; and,

WHEREAS, the Owner's forces are fully employed on other urgent work that prevents their early assignment to the aforementioned work; and,

WHEREAS, the Consultant's staff is adequate and well qualified, and it has been determined that its current workload will permit completion of the project on schedule.

NOW THEREFORE, it is considered to be in the best public interest for the Owner to obtain the assistance of the Consultant's organization in connection with engineering services. In consideration of the faithful performance of each party of the mutual covenants and agreements set forth hereinafter, it is mutually agreed as follows:

1. PRELIMINARY MATTERS

- 1.1. "Consultant's Representative" shall be Todd Mueller, PE, until written notice is provided to the Owner designating a new representative.
- 1.2. "Contract Ceiling Price." The Contract Ceiling Price for this Agreement is \$94,437. The Contract Ceiling Price is the maximum aggregate amount of all payments that the Owner may become obligated to make under this Agreement. In no event, unless modified in writing, shall total payments by the Owner under this Agreement exceed the Contract Ceiling Price. The Consultant shall not be entitled to receive adjustment, reimbursement, or payment, nor shall the Owner, its officers, agents, employees, or representatives, incur any liability for, any fee or cost, exceeding the Contract Ceiling Price.
- 1.3. "Contract Price" is aggregate amount of allowable costs and fees to be paid by the Owner under this Agreement.
- 1.4. "Default" means the failure of the Consultant to perform any of the provisions of this Agreement. *Default includes, but is not limited to, failure to complete phases of the work according to schedule or failure to make progress in the work so as to endanger timely performance of this Agreement, failure to pay subcontractors in a timely manner, failure to comply with federal and state laws, and failure to comply with certifications made in or pursuant to this Agreement.*

- 1.5. "Department" or "AHTD" means the Arkansas State Highway and Transportation Department.
- 1.6. "DOT" means the United States Department of Transportation.
- 1.7. "FAR" means the Federal Acquisition Regulations, codified in 48 C.F.R.
- 1.8. "Fee" whether fixed or otherwise is a dollar amount that includes the Consultant's profit on the job.
- 1.9. "FHWA" means the Federal Highway Administration.
- 1.10. "Indirect Cost Rate." The Indirect Cost Rate is defined in the provisions of 48 C.F.R. Part 31, and is also subject to any limitations contained herein. The Indirect Cost Rate for the Consultant under this Agreement shall be 187.57 percent. If applicable, the Indirect Cost Rate for each subcontractor shall be listed in Appendix B.
- 1.11. "Title I Services" are those services provided by the Consultant before the award of the contract for the construction of the Project, consisting primarily of engineering services for the planning or design of the Project.
- 1.12. "Title I Services Ceiling Price." The Title I Services Ceiling Price for this Agreement is \$94,437. The Title I Services Ceiling price is the maximum aggregate amount of all payments that the Owner may become obligated to make under this Agreement for fees and costs related to Title I Services. In no event, unless modified in writing, shall total payments by the Owner related to Title I Services exceed the Title I Services Ceiling Price. The Consultant shall not be entitled to receive adjustment, reimbursement, or payment for, nor shall the Owner, its officers, agents, employees, or representatives, incur any liability for, any fee or cost related to, Title I Services exceeding the Title I Services Ceiling Price.
- 1.13. "Title II Multiplier" (if applicable) is the mark-up by which the fee and indirect costs associated with Title II services are calculated. The Title II Multiplier, which accounts for the fee and indirect costs, is multiplied by the salary rate, as shown on the Schedule of Salary Ranges, of the particular individual(s) performing the Title II services. The Title II Multiplier for the term of this Agreement is 3.22.
- 1.14. "Title II Services" are those services provided by the Consultant after the award of the contract for the construction of the Project, consisting primarily of engineering services during the construction of the Project.
- 1.15. "Title II Services Ceiling Price". The Title II Services Ceiling Price for this Agreement is \$ 0.00. The Title II Services Ceiling price is the maximum aggregate amount of all payments that the Owner may become obligated to make under this Agreement for fees and costs related to Title II Services. In no event, unless modified in writing, shall total payments by the Owner related to Title II Services exceed the Title II Services Ceiling Price. The Consultant shall not be entitled to receive adjustment, reimbursement, or payment for, nor shall the Owner, its officers, agents, employees, or representatives, incur any liability for, any fee or cost related to, Title II Services exceeding the Title II Services Ceiling Price.

2. TYPE OF AGREEMENT

- 2.1. This Agreement is a cost-plus-fixed-fee contract. The Consultant is being hired to perform professional engineering services in connection with the Project as set forth herein. In consideration for Title I services performed, the Owner will reimburse the Consultant for allowable direct and indirect costs, as defined herein, and pay the Consultant a fixed fee. If Title II services are to be performed, the Owner will reimburse the Consultant for allowable direct costs and also pay the Consultant an amount determined by multiplying the salary rate of the individual(s) performing the Title II services, as shown on the Schedule of Salary Ranges, by the Title II Multiplier.
- 2.2. The Project to be performed under this Agreement is a federally-assisted project and federal funds will be used, in part, to pay the Consultant. Therefore, notwithstanding any provision of this Agreement, all payments, costs, and expenditures are subject to the requirements and limitations of 48 C.F.R. Part 31, and the Consultant shall certify the accuracy of all invoices and requests for payment, along with supporting documentation and any information provided in determining the Indirect Cost Rates.

3. COSTS, FEES, AND PAYMENT

3.1. Allowable costs.

3.1.1. Allowable costs are subject to the limitations, regulations, and cost principles and procedures in 48 C.F.R. Part 31, which are expressly incorporated into this Agreement by reference. For the purpose of reimbursing allowable costs (except as provided in subparagraph 2 below, with respect to pension, deferred profit sharing, and employee stock ownership plan contributions), the term *costs* includes only—

3.1.1..1. Those recorded costs that, at the time of the request for reimbursement, the Consultant has paid by cash, check, or other form of actual payment for items or services purchased directly for the Agreement;

3.1.1..2. When the Consultant is not delinquent in paying costs of contract performance in the ordinary course of business, costs incurred, but not necessarily paid, for—

- Materials issued from the Consultant's inventory and placed in the production process for use in its performance under this Agreement;
- Direct labor;
- Direct travel;
- Other direct in-house costs; and
- Properly allocable and allowable indirect costs, as shown in the records maintained by the Consultant for purposes of obtaining reimbursement under government contracts; and
- The amount of progress payments that have been paid to the Consultant's subcontractors under similar cost standards.

3.1.2. Consultant's contributions to any pension or other post-retirement benefit, profit-sharing or employee stock ownership plan funds that are paid quarterly or more

often may be included in indirect costs for payment purposes; *provided*, that the Consultant pays the contribution to the fund within 30 days after the close of the period covered. Payments made 30 days or more after the close of a period shall not be included until the Consultant actually makes the payment. Accrued costs for such contributions that are paid less often than quarterly shall be excluded from indirect costs for payment purposes until the Consultant actually makes the payment.

3.1.3. Notwithstanding the audit and adjustment of invoices or vouchers, allowable indirect costs under this Agreement shall be obtained by applying Indirect Cost Rates established in accordance with Subsection 3.3 below.

3.1.4. Any statements in specifications or other documents incorporated in this Agreement by reference designating performance of services or furnishing of materials at the Consultant's expense or at no cost to the Owner shall be disregarded for purposes of cost-reimbursement.

3.2. *Salaries.* The following schedule covers the classification of personnel and the salary ranges for all personnel anticipated to be assigned to this project by the Consultant:

3.2.1. SCHEDULE OF SALARY RANGES

Description	Billing Class	Min. Hourly	Max. Hourly
Construction Observer	C-1	\$16.00	\$35.00
Sr. Construction Observer	C-2	\$24.00	\$47.00
Designer	D-1	\$18.00	\$36.00
Sr. Designer	D-2	\$26.00	\$48.00
Design Engineer	E-1	\$20.00	\$39.00
Sr. Design Engineer	E-2	\$25.00	\$44.00
Project Eng. / Resident Eng.	E-3	\$30.00	\$53.00
Sr. Proj. Eng. / Sr. Rsdnt. Eng.	E-4	\$38.00	\$60.00
Proj. Mngr. / Sr. Proj. Mngr.	E-5	\$40.00	\$74.00
Sr. Proj. Mngr.	E-6	\$45.00	\$110.00
Environmental Scientist or Specialist	P-1	\$18.00	\$36.00
Environmental Project Manager	P-2	\$36.00	\$53.00
Rodman	S-1	\$10.00	\$20.00
Instrument Man	S-2	\$12.00	\$25.00
Party Chief	S-3	\$15.00	\$30.00
Project Surveyor	S-4	\$22.00	\$44.00
Sr. Project Surveyor	S-5	\$30.00	\$55.00
Technician or Intern	T-1	\$9.00	\$32.00
Sr. Technician	T-2	\$20.00	\$41.00
Administrative Assistant	X-1	\$9.00	\$30.00
Sr. Administrative Asst.	X-2	\$15.00	\$39.00
Executive Assistant	X-3	\$20.00	\$55.00

3.2.2. The Owner shall reimburse the Consultant for overtime costs only when the overtime has been authorized in writing by the Owner. When authorized, overtime shall be reimbursed at the rate of time and one-half for all nonexempt employees. Notwithstanding this provision, the Consultant must comply with all federal and state wage and hour laws and regulations, regardless whether the overtime is considered reimbursable under this Agreement.

3.3. *Indirect Cost Rates.*

- 3.3.1. Allowable indirect costs incurred by the Consultant shall also be reimbursed by the Owner at the Indirect Cost Rate. The Indirect Cost Rate of the Consultant for this Agreement shall be the rate as set forth in subsection 1.10. If applicable, the Indirect Cost Rate for subcontractors shall be determined in the same manner and subject to the same limitations as the Consultant, and shall be listed for each subcontractor identified in Appendix B. The Indirect Cost Rate, or any adjustment thereto, shall not change any monetary ceiling, contract obligation, or specific cost allowance, or disallowance provided for in this Agreement except as provided for in sections 3.3.4. and 3.3.5. The Indirect Cost Rate must reflect the allowable indirect costs pursuant to 48 C.F.R. Part 31 ("FAR").
- 3.3.2. In establishing the Indirect Cost Rate or proposing any adjustment thereto, the Consultant shall, upon request, submit to the Owner, FHWA, or their representatives an audited indirect cost rate and supporting cost data in accordance with the requirements set forth in the current *Arkansas Highway & Transportation Department Indirect Cost Rate Audit Requirements*.
- 3.3.3. During the term of this Agreement, if an audit of a subsequent accounting period of the Consultant demonstrates that the Consultant has incurred allowable indirect costs at a different rate than the Indirect Cost Rate, the Indirect Cost Rate shall be adjusted. Any adjustment is subject to the audit and documentation requirements of the FAR and the current *Arkansas Highway & Transportation Department Indirect Cost Rate Audit Requirements*. Except in the case of a provisional Indirect Cost Rate, as provided in the following subparagraphs, or the disallowance of cost following a subsequent audit, any adjustment to the Indirect Cost Rate shall be effective only prospectively from the date that the adjustment is accepted.
- 3.3.4. In order to expedite some projects, when an audited indirect cost rate has not yet been submitted and approved, the Owner may extend a temporary waiver and accept a provisional indirect cost rate. This provisional rate must be reviewed by, and receive a positive recommendation from the Arkansas Highway and Transportation Department's Chief Auditor. The provisional cost proposal must be accompanied by written assurance from an independent CPA that he/she has been engaged to audit the costs in accordance with the above requirements. The anticipated audit must be based on costs incurred in the most recently completed fiscal year for which the cost data is available, with the audit scheduled to begin within a reasonable time frame. If the date of the initial cost proposal is within the last quarter of the current fiscal year, the audit may be delayed until the current fiscal year is closed and the final cost data is available. The written assurance from the CPA that he or she has been engaged to perform the audit at an appropriate time is still required.
- 3.3.5. Once an audited indirect cost rate is approved, the ceiling prices provided for in the initial agreement using the provisional indirect cost rate will be adjusted with a supplemental agreement to implement the resulting increase or decrease from revising the indirect cost rate, and all amounts paid the consultant prior to receipt and acceptance of an audited indirect cost rate will be retroactively adjusted for changes in the indirect cost rate. However, no changes in hours, fixed fees, or other costs will be allowed as a result of applying the audited indirect cost rate.
- 3.4. **Fees.** The justification for the fees and costs is contained in Appendix A. In addition to reimbursement of the allowable costs as set forth above, the Owner shall pay to the Consultant a fixed fee of \$8,548 for Title I Services. For Title II Services, if applicable, the Owner shall reimburse the Consultant for allowable direct costs and also pay to the Consultant an amount determined by multiplying the salary rate of the individual(s)

performing the Title II Services, as shown on the Schedule of Salary Ranges, by the Title II Multiplier. The Title II Multiplier shall account for all fees and indirect costs associated with Title II services.

3.5. *Invoices, Reimbursement, and Partial Payments.* Submission of invoices and payment of the fees shall be made as follows, unless modified by the written agreement of both parties:

3.5.1. Not more often than once per month, the Consultant shall submit to the Owner, in such form and detail as the Owner may require, an invoice or voucher supported by a statement of the claimed allowable costs for performing this Agreement, and estimates of the amount and value of the work accomplished under this Agreement. The invoices for costs and estimates for fees shall be supported by any data requested by the Owner.

3.5.2. In making estimates for fee purposes, such estimates shall include only the amount and value of the work accomplished and performed by the Consultant under this Agreement which meets the standards of quality established under this Agreement. The Consultant shall submit with the estimates any supporting data required by the Owner. At a minimum, the supporting data shall include a progress report in the form and number required by the Owner.

3.5.3. Upon approval of the estimate by the Owner, payment upon properly executed vouchers shall be made to the Consultant, as soon as practicable, of 100 percent of the allowed costs, and of 90 percent of the approved amount of the estimated fee, less all previous payments. Notwithstanding any other provision of this Agreement, only costs and fees determined to be allowable by the Owner in accordance with subpart 31.2 of the Federal Acquisition Regulations (FAR) in effect on the date of this Agreement and under the terms of this Agreement shall be reimbursed or paid.

3.5.4. Before final payment under the Agreement, and as a condition precedent thereto, the Consultant shall execute and deliver to the Owner a release of all claims which are known or reasonably could have been known to exist against the Owner arising under or by virtue of this Agreement, other than any claims that are specifically excepted by the Consultant from the operation of the release in amounts stated in the release.

3.6. *Title I Services, Title II Services, and Contract Ceiling Prices.* The parties agree that aggregate payments under this Agreement, including all costs and fees, shall not exceed the Contract Ceiling Price. The parties further agree that aggregate payments for Title I services under this Agreement, including all costs and fees, shall not exceed the Title I Services Ceiling Price; and that aggregate payments for Title II services under this Agreement, including all costs and fees, shall not exceed the Title II Services Ceiling Price. No adjustment of the Indirect Cost Rate or the Title II Multiplier, claim, or dispute shall affect the limits imposed by these ceiling prices. No payment of costs or fees shall be made above these ceiling prices unless the Agreement is modified in writing.

3.7. *Final payment.*

3.7.1. The Consultant shall submit a completion invoice or voucher, designated as such, promptly upon completion of the work, but no later than forty-five (45) days (or longer, as the Owner may approve in writing) after the completion date. Upon approval of the completion invoice or voucher, and upon the Consultant's compliance with all terms of this Agreement, the Owner shall promptly pay any balance of allowable costs and any retainage owed to the Consultant. After the release of said retainage Consultant agrees that it will continue to provide

consultation services to the Owner as needed through supplemental agreement(s) with respect to the contracted services under this Agreement until all work is completed under both Title I and Title II.

3.7.2. The Consultant shall pay to the Owner any refunds, rebates, credits, or other amounts (including interest, if any) accruing to or received by the Consultant or any assignee under this Agreement, to the extent that those amounts are properly allocable to costs for which the Consultant has been reimbursed by the Owner. Reasonable expenses incurred by the Consultant for securing refunds, rebates, credits, or other amounts shall be allowable costs if approved by the Owner. Before final payment under this Agreement, the Consultant and each assignee whose assignment is in effect at the time of final payment shall execute and deliver—

- An assignment to the Owner, in form and substance satisfactory to the Owner, of refunds, rebates, credits, or other amounts (including interest, if any) properly allocable to costs for which the Consultant has been reimbursed by the Owner under this Agreement; and,
- A release discharging the Owner, its officers, agents, and employees from all liabilities, obligations, and claims which were known or could reasonably have been known to exist arising out of or under this Agreement.

3.8. *Owner's Right to Withhold Payment.* The Owner may withhold payment to such extent as it deems necessary as a result of: (1) third party claims arising out of the services of the Consultant and made against the Owner; (2) evidence of fraud, over-billing, or overpayment; (3) inclusion of non-allowable costs; (4) failure to make prompt payments to subcontractors in the time provided by this Agreement; (5) payment requests received including fees for unapproved subcontractors; and/or (6) the Consultant's default or unsatisfactory performance of services. The withholding of payment under this provision shall in no way relieve the Consultant of its obligation to continue to perform its services under this Agreement.

4. DISALLOWANCE OF COSTS

- 4.1. Notwithstanding any other clause of this Agreement, the Owner may at any time issue to the Consultant a written notice of intent to disallow specified costs incurred or planned for incurrence under this Agreement that have been determined not to be allowable under the contract terms.
- 4.2. Failure to issue a notice under this Section shall not affect the Owner's rights to take exception to incurred costs.
- 4.3. If a subsequent audit reveals that: (1) items not properly reimbursable have, in fact, been reimbursed as direct costs; or (2) that the Indirect Cost Rate contains items not properly reimbursable under the FAR; then, in the case of indirect costs, the Indirect Cost Rate shall be amended retroactively to reflect the actual allowable indirect costs incurred, and, in the case of both direct and indirect costs, the Owner may offset, or the Consultant shall repay to Owner, any overpayment.

5. RECORDS & AUDITS

- 5.1. *Records* includes books, documents, accounting procedures and practices, and other data, regardless of type and regardless of whether such items are in written form, in the form of computer data, or in any other form.

- 5.2. *Examination.* The Consultant shall maintain, and the Owner, AHTD, FHWA, and their authorized representatives shall have the right to examine and audit all records and other evidence sufficient to reflect properly all costs (direct and indirect) claimed to have been incurred or anticipated to be incurred in performance of this Agreement. This right of examination shall also include examination and audit of any records considered, relied upon, or relating to the determination of the Indirect Cost Rate or any certification thereof, including any CPA audit relied upon to establish the rate. This right of examination shall also include inspection at all reasonable times of the Consultant's offices and facilities, or parts of them, engaged in performing the Agreement.
- 5.3. *Supporting Data.* If the Consultant has been required to submit data in connection with any action relating to this Agreement, including the negotiation of or pre-negotiation audit of the Indirect Cost Rate, the negotiation of the Fee, request for cost reimbursement, request for payment, request for an adjustment, or assertion of a claim, the Owner, AHTD, FHWA, or their authorized representatives, in order to evaluate the accuracy, completeness, and accuracy of the data, shall have the right to examine and audit all of the Consultant's records, including computations and projections, related to—
- The determination or certification of the Indirect Cost Rate, including any independent CPA audit or certification thereof;
 - Any proposal for the Agreement, subcontract, or modification;
 - Discussions conducted on the proposal(s), including those related to negotiating;
 - Fees or allowable costs under the Agreement, subcontract, or modification;
 - Performance of the Agreement, subcontract or modification; or,
 - The amount and basis of any claim or dispute.
- 5.4. *Audit.* The Owner, AHTD, FHWA, or their authorized representatives, shall have access to and the right to examine any of the Consultant's records involving transactions related to this Agreement or a subcontract hereunder.
- 5.5. *Reports.* If the Consultant is required to furnish cost, funding, or performance reports, the Owner, AHTD, FHWA, or their authorized representatives shall have the right to examine and audit the supporting records and materials, for the purpose of evaluating (1) the effectiveness of the Consultant's policies and procedures to produce data compatible with the objectives of these reports and (2) the data reported.
- 5.6. *Availability.* The Consultant shall retain and make available at its office at all reasonable times the records, materials, and other evidence described in this Section and Section 28, Disputes and Claims, for examination, audit, or reproduction, until five years after final payment under this Agreement, or for any longer period required by statute or by other clauses of this Agreement. In addition—
- 5.6.1. If this Agreement is completely or partially terminated, the records relating to the work terminated shall be retained and made available for five years after the termination; and,
- 5.6.2. Records relating to any claim or dispute, or to litigation or the settlement of claims arising under or relating to this Agreement shall be retained and made available until after any such claims or litigation, including appeals, are finally resolved.

- 5.7. The Consultant shall insert a clause containing all the terms of this Section in all subcontracts under this Agreement.

6. DESCRIPTION OF THE PROJECT

- 6.1. The City of Jonesboro has programmed a project to make improvements to the intersection of Highway 351 and Aggie Road in Jonesboro, Craighead County, Arkansas.
- 6.2. The project generally consists of determining the feasibility and engineering services for the improvements at the intersection. The scope of work will generally consist of traffic studies and reports, NEPA environmental documentation, construction plans, specifications, cost estimate, and right-of-way plans.
- 6.3. The existing condition is a four-way stop at the intersection Airport Road and Aggie. Airport Road is two-lane state highway 351 and Aggie is a two-lane city street. There are no shoulders on the roadways with the exception of the shoulder on the north side of the west approach to the intersection. The speed limit of Airport Road is posted at 45 mph and Aggie Road is posted at 25 mph to the south and 30 mph to the north.

7. INFORMATION AND TITLE I SERVICES TO BE PROVIDED BY THE CONSULTANT

7.1. Identification and Analysis of Traffic Demands

7.1.1. Identification of the Current Transportation Demands: In order to identify the current transportation demands within the study area, the following information will be collected.

- All prior studies conducted within the study area
- New traffic counts (peak hour turning movement and 24-hour machine counts) are expected at the intersection of Highway 351 (Airport Road) and Aggie Road (The City of Jonesboro will provide one person to assist Garver in this effort)
- Previous traffic data compiled by AHTD or the City of Jonesboro in the study area
- Site visit to assess local peaking characteristics and observe the extent and duration of vehicle delay and queuing within the study area, especially during the school peak
- Crash data
- Information on the new school

7.1.2. Analysis of the Current Transportation Demands: The Consultant will use the collected data and the information compiled from previous studies, and the Owner input to produce a traffic model of the intersection for 2013. The Consultant will analyze the intersection using the Highway Capacity Software (HCS 2010) and Synchro/SimTraffic. Historic crash data provided by the Owner and AHTD will be analyzed to determine if there are any crash clusters or prevailing trends in the study area.

7.1.3. Forecast and Analysis of Future Transportation Demands: The Consultant will project the 2013 traffic volumes to a 20-year horizon to determine the future “no

build” traffic conditions. The same analysis procedures performed for the 2013 “no build” will be used for the future “no build” analysis.

7.2. Analysis of Proposed Improvement

7.2.1.*Geometric Analysis:* The Consultant will evaluate the proposed improvement to ensure that the number of lanes provided and length of turn bays is adequate for the future needs.

7.2.2.*Operational Analysis:* The Consultant will evaluate the proposed improvement to ensure that the future capacity needs at the intersection are met.

7.3. Determination of Feasibility of Proposed Improvement

7.3.1.*Benefits and Costs of an Improvement:* The benefits of the intersection improvements can be approximated by determining the savings incurred by the roadway users. AASHTO’s User and Non-User Benefit Analysis for Highways, provides guidance on calculating the “user costs.” The manual groups the costs into three categories or modules: value of time, operating costs, and accident costs. Factors that influence the “user costs” include travel speed or delay, vehicle miles travelled, and crash rates. The cost estimate for the intersection improvements will be compared to the benefits that the improvements will provide.

7.3.2.*Non-Monetary Improvements:* The improvements to the intersection of Highway 351 (Airport Road) at Aggie Road could provide several non-monetary benefits, including the following:

- Safety – Fewer crashes can be expected with improvements.
- Development – Less congestion at this intersection may promote some development on the west side.
- Traffic capacity – Shorter queues and less delay will occur.

7.4. Preparation of Final Report

7.4.1.*Final Report:* The Consultant will prepare a final summary report containing the results and conclusions of the study, planning level cost estimates, and all necessary support documentation. A draft summary report will be submitted to the city and AHTD for review. Once all comments have been addressed, the final summary report will be submitted to the city.

7.5. Surveys

7.5.1. Surveys will consist of performing design surveys and/or land surveys on an as needed basis. All survey tasks shall be performed according to AHTD requirements specified in the most current version of the General and Detailed Scope of Work for Control Surveys, Design Surveys, and Land Surveys or as specified by the Surveys Division. The surveys shall extend a minimum of 600 feet along Hwy. 351 and 500 feet along Aggie Rd. from the center of the intersection. Minimum surveys to be performed may consist of one or more of the tasks that follow. Additional survey tasks required will be as shown in the attached Proposed Cost.

7.5.2. Design Surveys

7.5.3.Horizontal Control - Primary project horizontal control traverses based on control as specified by the AHTD. In most cases, a decision will be made whether assumed horizontal coordinates may be used on a project before a contract is in place. But, even when assumed coordinates were originally specified, the project shall be moved to the Arkansas State Plane Coordinate System (AR SPCS) when any of items that follow are involved.

- Additional Right of Way required
- Improvements to the roadway
- As directed by the AHTD

7.5.4.Elevation Control - Three Wire Level based on control as specified by the Department. In most cases, a decision will be made whether assumed elevations may be used on a project before a contract is in place. But, even when assumed elevations were originally specified, the project shall be moved to the NGS NAVD 88 Vertical Datum (or a more current datum as specified) when any of items that follow are involved.

7.5.5.Topography

- All Design Survey (DSUR) data shall be submitted to AHTD Surveys Division for review. Standard requirements for all submittals as specified in Appendix E shall apply.
- Establish the existing centerline based on Court Orders, Subdivision plats, existing pavement, etc., as directed by the AHTD
- Utility and Drainage Surveys
- Low Wires of Overhead Utilities

7.5.6.Land (Parcel) Surveys

- Title Search
- Parcel Surveys and work sheets
- Establish the existing centerline and existing rights of way based on Court Orders, Subdivision plats, existing pavement, etc., or as directed by the AHTD shall be done on all projects.
- Final Plat
- All Land Survey (PSUR) data shall be submitted to the Owner to submit to the Surveys Division for review. Standard requirements for all submittals as specified in Appendix E shall apply. Garver anticipated that this task will include right-of-way for one parcel.

7.6. Environmental Documentation

7.6.1.Garver anticipates that a Tier III Categorical Exclusion will be sufficient for the environmental clearance.

7.6.2.*Environmental Data Collection* – Mapping data associated with the proposed project area will be collected and assessed for the social, economic, and environmental impacts area, including:

- Air Quality
- Noise Quality

- Hazardous Materials
- Wetlands and Stream Impacts
- Water Quality, including Public Drinking Supplies
- Farmland
- Land Use and Land Cover
- Terrestrial and Aquatic Communities
- Endangered Species
- Economic
- Community
- Relocations of Homes and Businesses
- Environmental Justice and Title VI
- Recreational Areas
- Archeological and Historic Sites
- Visual
- Section 4(f)
- Secondary and Cumulative Impacts

7.6.3.Environmental Constraints Map – All environmental data collected will be transferred to appropriately scaled aerial photographs to produce a map that indicates all known environmental sensitive areas.

7.6.4.Field Studies - No field studies of environmental impacts are included in the fee. Field studies to complete the environmental documentation will be negotiated following the initial data collection if required. Field studies include wetland determinations, biological field investigations, etc.

7.6.5.Section 4(f) – No Section 4(f) Evaluation is included in this scope of work.

7.6.6.Tribal Letters – Tribal letters will be corresponded with FHWA for submittal

7.6.7.Phase I Cultural Resources Survey

7.6.8.Environmental Document

- Prepare environmental document.
- Submit draft environmental document in electronic format for review by Jonesboro and AHTD
- Perform alterations necessary to respond to comments made in Jonesboro and AHTD review
- Submit final draft to Jonesboro for AHTD and FHWA Approval
- Prepare designated number of copies of environmental document after FHWA approval and distribute as directed. An electronic copy of the approved environmental document in pdf form will be provided to Jonesboro and AHTD.

7.7. Traffic and Signalization Design (If required)

7.7.1.Traffic Analysis

- To accommodate pedestrians on the approach, new crosswalks, wheelchair ramps, and pedestrian signals will be included in the design. Typically, supplemental nearside signal heads and flashing signal ahead signs are used on roadways with higher speeds. However, the sight restrictions may require supplemental signal heads and signage.

- The project shall be designed in accordance with the latest edition of the AHTD's "Standard Specifications for Highway Construction" with supplemental specifications; the latest edition of the "Manual on Uniform Traffic Control Devices"; with AASHTO's "A Policy on Geometric Design of Highways and Streets, 2004", the 2006 Interim to AASHTO's "Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals", 4th Edition and other appropriate publications.

7.7.2.Preliminary Design - Signalization Plans (if required)

- Once the design analysis is complete, Garver will construction plans for the installation of a traffic signal at the intersection of Airport and Aggie Road. The preliminary plans will include a 30% submittal and a 60% submittal. The preliminary plan sheets will incorporate the findings from the design phase to produce a product which can be constructed. Preliminary engineering drawings will be developed using current AHTD design standards as well as the City of Jonesboro's preferences. Garver anticipates two preliminary submittals for each assignment. The 30% submittal will typically include the following:
 - Title sheet
 - Index of sheets
 - Summary of quantities
 - Control detail sheet
 - Maintenance of traffic
 - Wheelchair ramp details
 - Signalization plans
 - Special details as needed
 - Signalization details
- The signalization plan sheets will include the basic geometry of the intersection, the existing and/or proposed right-of-way, and pole locations identified by stations and offsets. Also, the details will include design parameters, wiring diagram, phasing diagram, interval chart, detector chart, and turning movement diagrams.
- The 60% plans will incorporate comments from the 30% plan submittal. In most cases a field review will occur after the 30% submittal. However, there are occasions when this will occur after the 60% submittal. Garver will attend a field review meeting. Any comments generated during the field review will be incorporated into the final plans.

7.7.3.Final Design - Signalization Plans (if required)

- During the final design stage, there will be a 90% submittal and a final submittal. Both of these submittals will include the following:
 - All information included in the previous submittals
 - Quantities
 - Special provisions written for the project
 - Construction specifications shall be the current edition of the AHTD's Standard Specifications for Highway Construction
 - Construction cost estimate
 - Signal timing plan

- If required, Garver will attend the final field inspection. The final plans will be stamped and sealed by a registered professional engineer.
- 7.8. *Geotechnical Investigation:* The geotechnical investigation will be performed by Grubbs, Hoskyn, Barton & Wyatt, Inc. and is expected to include the following tasks:
- 7.8.1. Grubbs, Hoskyn, Barton & Wyatt will visit the project alignment to observe site conditions. Published information on site geology and available information from prior geotechnical studies in the area will be reviewed.
- 7.8.2. Grubbs, Hoskyn, Barton & Wyatt will contact landowners to secure right of access in the project alignment prior to accessing boring locations. Underground utility locations will be cleared prior to beginning drilling. It is expected that Garver or the Department will provide property owner contact information, if needed. It is assumed that Garver will provide all right of access information and available maps and aerial photographs. This information will be required prior to contacting property owners and beginning work.
- 7.8.3. Access to boring locations will be provided by Grubbs, Hoskyn, Barton & Wyatt as dictated by site conditions and permitted by property owners. Applicable permits will be obtained and traffic control will be provided by Grubbs, Hoskyn, Barton & Wyatt. Truck-mounted drilling equipment will be utilized.
- 7.8.4. Sample borings will be advanced using dry-auger drilling techniques. The existing pavement section components will be measured. Undisturbed soil samples or Standard Penetration Values will typically be obtained in borings at 2-ft intervals. Groundwater measurements will be obtained during and at the completion of drilling operations. Boreholes will be backfilled after obtaining final groundwater measurements. Boreholes in existing pavement areas will be patched with asphalt concrete cold patch or a concrete mix.
- 7.8.5. The subsurface exploration program will consist of two (2) sample borings drilled approximately 10-ft depth. We have assumed one (1) day for the field
- 7.8.6. An adequate laboratory testing program will be planned and performed after the borings are completed. The purpose of the laboratory testing program will be to evaluate pertinent physical properties and engineering characteristics of the subgrade soils. These data will be used in developing geotechnical recommendations for subgrade support design parameters, subgrade preparation, and site grading. The testing program is expected to consist of classification tests.
- 7.8.7. An engineering report will be developed which will include the results of the field and laboratory studies, information on site conditions and geology, and recommendations for subgrade preparation, site grading, and pavement subgrade support parameters.
- 7.9. *Right-of-Way Plans*
- 7.9.1. This scope includes ROW Plans for four parcels in the vicinity of the intersection improvements. Garver anticipates ROW Plans for one parcel in each quadrant of the intersection. Right-Of-Way plans will be provided according to "Arkansas *State Highway & Transportation Department Stage Submittal of Right of Way Plans.*"

7.10. Roadway Design (Roundabout Alternative)

7.10.1. Garver will provide roadway design services for both signalized alternatives and roundabout alternatives at the intersection of Hwy. 351 (Airport Road) and Aggie Road. The roadway man-hour estimate is based upon a 13 point review by AHTD.

7.10.2. *Design Criteria:* The design criteria to be used in the design of the project will be prepared and submitted to the City of Jonesboro and AHTD. Garver will develop design criteria that include AHTD Plan Development Guidelines, AHTD Interoffice Memorandums, AASHTO requirements, and the City of Jonesboro Master Street Plan components. Specific criteria for horizontal curvature will be tailored to the requirements of the design speed. After submittal and approval by the city and AHTD, the design criteria will be distributed to all team members for inclusion in the project quality control plan to ensure that all project requirements are met.

7.10.3. *Pavement Design:* The pavement design alternatives for the proposed pavement will be prepared according to the requirements of the AHTD Roadway Design Plan Development Guidelines using AASHTO design procedures. The recommended pavement design will be submitted to the city and AHTD for approval. It is anticipated that overlays will be utilized where the existing pavement structure is in good condition.

7.10.4. *Conceptual Design:* Conceptual alternatives will be developed for both signalized and roundabout options for inclusion in the environmental documentation. Basic plan view graphics with approximate impacts will be developed for each alternative.

7.10.5. *30% Plans:* Preliminary plans shall be submitted at the 30% level for city approval of the geometric design, title sheet, and typical sections as defined in Appendix I of the AHTD Roadway Design Plan Development Guidelines. The plans will incorporate the city standards and guidelines where appropriate.

7.10.6. *60% Plans:* Garver will provide roadway plan sheets for 60% review to the city and AHTD and attend the preliminary field inspection. The roadway plans shall include the following:

- Title sheet
- Typical sections of improvement
- Special details as needed
- Roadway plan sheets showing:
 - Roadway grades for main lanes, crossing roads, and driveways
 - Alignment data for main lanes and crossing roads
 - Tentative construction limits
 - Right of way, permanent and temporary construction easements
 - All roadway/roadside features within the right of way
 - Drainage structures
- Maintenance of traffic conceptual plans
- Control detail sheets of the survey baseline and design centerline with control point data in accordance with the standards used by the Roadway Design Division of AHTD
- Permanent Pavement Marking Details
- Culvert Diagrams
- Erosion Control Plans
- Location of any retaining walls as required
- Attend preliminary field inspection

- Perform alterations necessary to respond to comments from the preliminary field inspection

7.10.7. *90% Plans*: Garver will provide 90% roadway plan sheets for review and final field inspection. All roadway design shall be complete, and all drawings shall be thoroughly checked by Garver prior to submittal. Garver will provide the construction plans for the project for one construction contract. Additional phasing of the project and breakouts of plans for additional construction plans will be additional work. The 90% plans shall include everything included in the 60% submittal, along with the following items of work:

- Provide quantities
- Provide special provisions
- Provide a construction cost estimate
- Attend final field inspection
- Make plan changes resulting from the 90% review and final field inspection

7.10.8. *100% Plans*: Garver will provide final signed and sealed plans after all revisions have been incorporated into the 90% plans.

7.11. Bidding Phase Services

7.11.1. Bidding Services are not included in this fee and can be negotiated following approval of final plans.

- Issue plans and specifications to publishing organization
- Answer questions from contractors during bid phase
- Issue addenda
- Attend Bid Opening
- Review and certify bids for construction
- Prepare Construction Contract
- Issue letter of recommendation for acceptance of bid

8. INFORMATION TO BE PROVIDED BY THE OWNER

- 8.1. Coordinate review of construction plans and specifications, award of construction contract, and construction contract change orders with AHTD.
- 8.2. Right-of-way
- 8.3. Provide right-of-way appraisal and acquisition
- 8.4. Abstract information for Parcels
- 8.5. Handle utility adjustments
- 8.6. Environmental Permitting
- 8.7. Review plans and specifications prepared by Consultant
- 8.8. Advertise and receive bids and award the construction contract through AHTD
- 8.9. Available aerial and mapping data
- 8.10. Advertisements for public meetings and construction bidding

9. TITLE II SERVICES TO BE PROVIDED BY THE CONSULTANT

- 9.1. Title II services may be added to the contract at a later date. Title II services and fee to be negotiated after approval of final plans.

10. COORDINATION WITH OWNER

- 10.1. Throughout the Project, the Consultant shall hold bi-monthly teleconferences in Jonesboro, Arkansas, or such other location as designated by the Owner, with representatives of the Owner, the AHTD, and the FHWA so that as the Project progresses, the Consultant shall have full benefit of the Owner's knowledge of existing needs and facilities and be consistent with the Owner's current policies and practices. The extent and character of the work to be done by the Consultant shall be subject to the general oversight and approval of the Owner.

11. OFFICE LOCATION FOR REVIEW OF WORK

- 11.1. Review of the work as it progresses and all files and documents produced under this Agreement may be made by representatives of the Owner, the AHTD, and the FHWA at the project office of the Consultant located at 4701 Northshore Drive, North Little Rock, Arkansas.

12. ACCESS TO PROPERTY

- 12.1. The Consultant's services to the Owner may require entry upon private property. The Owner will present or mail to private landowners a letter of introduction and explanation, describing the work, which shall be drafted by the Consultant. The Consultant will make reasonable attempts to notify resident landowners who are obvious and present when the Consultant is in the field. The Consultant is not expected to provide detailed contact with individual landowners. The Consultant is not expected to obtain entry by means other than the consent of the landowner. If the Consultant is denied entry to private property by the landowner, the Consultant will not enter the property. If denied entry to the property, the Consultant shall notify the Owner and advise the Owner of an alternate evaluation method if one is feasible. The Owner shall decide on the course of action to obtain access to the property.

13. DELIVERABLES

- 13.1. Traffic Study Final Report
- 13.2. SHPO Approved Cultural Resources Report
- 13.3. Tier III Categorical Exclusion
- 13.4. Pavement Design
- 13.5. 30,60 & 90% Submittals
- 13.6. Final plans and specifications
- 13.7. Right-of-way plans
- 13.8. Construction cost estimate
- 13.9. Documentation of meetings with the City and AHTD concerning the project.
- 13.10. Electronic files as requested in Bentley Microstation format.

14. SUBCONTRACTING

- 14.1. Unless expressly disclosed in Appendix B, the Consultant may not subcontract any of the services to be provided herein without the express written approval of the Owner. All subcontractors, including those listed in Appendix B, shall be bound by the terms of this Agreement. All subcontractors shall be subject to all contractual and legal restrictions concerning payment and determination of allowable costs, and subject to all disclosure and audit provisions contained herein and in any applicable federal or state law.
- 14.2. Unless the consent or approval specifically provides otherwise, neither consent by the Owner to any subcontract nor approval of the Consultant's purchasing system shall

constitute a determination (1) of the acceptability of any subcontract terms or conditions, (2) of the acceptability of any subcontract price or of any amount paid under any subcontract, or (3) to relieve the Consultant of any responsibility, obligation, or duty under this Agreement.

14.3. No subcontract placed under this Agreement shall provide for payment on a cost-plus-a-percentage-of-cost basis, and any fee payable under cost-reimbursement subcontracts shall not exceed the fee limitations of the FAR.

14.4. Furthermore, notwithstanding any other provision within this Agreement, no reimbursement or payment for any markup of the cost of any subcontract shall be considered by the Owner without the express written agreement of the Owner.

14.5. *Prompt Payment.* The Consultant shall pay subcontractors for satisfactory performance of their subcontracts within 30 days of receipt of each payment by the Owner to the Consultant. Any retainage payments held by the Consultant must be returned to the subcontractor within 30 days after the subcontractor's work is completed. Failure to comply with this provision shall be considered a Default by the Consultant. If the Consultant fails to comply with this provision, in addition to any other rights or remedies provided under this Agreement, the Owner, at its sole option and discretion, may:

- make payments directly to the subcontractor and offset such payments, along with any administrative costs incurred by the Owner, against reimbursements or payments otherwise due the Consultant;
- notify any sureties; and/or,
- withhold any or all reimbursements or payments otherwise due to the Consultant until the Consultant ensures that the subcontractors have been and will be promptly paid for work performed.

14.6. The Consultant shall insert a clause containing all the terms of this Section in all subcontracts under this Agreement.

15. RESPONSIBILITY OF THE CONSULTANT

15.1. Notwithstanding any review, approval, acceptance, or payment by the Owner, the Consultant shall be responsible for the professional quality, technical accuracy, and the coordination of all designs, drawings, specifications, and other services furnished by the Consultant under this Agreement. The Consultant shall, without additional compensation, correct or revise any errors or deficiencies in its designs, drawings, specifications, and other services.

15.2. The Consultant shall demonstrate to the Owner the presence and implementation of quality assurance in the performance of the Consultant's work. The Consultant shall identify individual(s) responsible, as well as methods used to determine the completeness and accuracy of drawings, specifications, and cost estimates.

15.3. The Consultant further agrees that in its performance of work under this Agreement, it shall adhere to the requirements in the Design Standards of the AHTD and FHWA, which shall be incorporated herein by reference.

- 15.4. The Owner shall have the right at any time and in its sole discretion to submit for review all or any portion of the Consultant's work to consulting engineers engaged by the Owner for that purpose. The Consultant shall fully cooperate with any such review.
- 15.5. The Consultant and any subcontractor shall employ qualified and competent personnel to perform the work under this Agreement.
- 15.6. Neither the Owner's review, approval, or acceptance of, nor payment for, the services required under this Agreement shall be construed to operate as a waiver of any rights under this Agreement, or of any cause of action arising out of the performance of this Agreement. The Consultant shall be and remain liable to the Owner for all damages to the Owner caused by the Consultant's negligent performance of any of the services furnished under this Agreement.
- 15.7. The rights and remedies of the Owner provided under this Agreement are in addition to any other rights and remedies provided by law.
- 15.8. If the Consultant is comprised of more than one legal entity, each such entity shall be jointly and severally liable hereunder.

16. WARRANTY OF SERVICES

- 16.1. *Definitions. Acceptance*, as used in this Agreement, means the act of an authorized representative of the Owner by which the Owner approves specific services, as partial or complete performance of the Agreement. *Correction*, as used in this Agreement, means the elimination of a defect.
- 16.2. Notwithstanding inspection and acceptance by the Owner or any provision concerning the conclusiveness thereof, the Consultant warrants that all services performed and work product under this Agreement will, at the time of acceptance, be free from defects in workmanship and conform to the requirements of this Agreement.
- 16.3. If the Consultant is required to correct or re-perform, it shall be at no cost to the Owner, and any services corrected or re-performed by the Consultant shall be subject to this Section to the same extent as work initially performed. If the Consultant fails or refuses to correct or re-perform, the Owner may, by contract or otherwise, correct or replace with similar services and charge to the Consultant the cost occasioned to the Owner thereby, or make an equitable adjustment in the Contract Price.
- 16.4. If the Owner does not require correction or re-performance, the Owner shall make an equitable adjustment in the Contract Price.
- 16.5. Nothing within this Section shall constitute a waiver or exclusion of any other right or remedy that the Owner may possess at law or under this Agreement.

17. TERM, COMMENCEMENT, AND COMPLETION

- 17.1. This Agreement shall commence on the effective date set forth above and remain in effect until the completion of the Consultant's Scope of Services, as defined herein, to be completed ***within a period of 10 months***, unless extended or terminated by the Owner in accordance with this Agreement.
- 17.2. The Consultant shall begin work under the terms of this Agreement within ten (10) days of receiving written notice to proceed. [If services are to be performed in subsequent phases, then each phase shall be commenced upon the Owner's approval

of the previous phase. The Consultant shall not be entitled to any compensation or reimbursement for services performed in a phase unless and until it has received approval from the Owner to proceed with such services.]

- 17.3. It is further agreed that time is of the essence in performance of this Agreement. The Consultant shall complete the work, or each phase, as scheduled, and the Owner shall provide any required approval of the work or phase meeting the requirements contained herein in a reasonable and timely manner. The project schedule for this project has been included in Appendix D.

18. TERMINATION

- 18.1. The Owner may terminate this Agreement in whole or, from time to time, in part, for the Owner's convenience or because of the Default of the Consultant.
- 18.2. The Owner shall terminate this Agreement by delivering to the Consultant written notice of the termination.
- 18.3. Upon receipt of the notice, the Consultant shall:
- Immediately discontinue all services affected (unless the notice directs otherwise).
 - Deliver to the Owner all data, drawings, specifications, reports, estimates, summaries, and other information and materials accumulated in performing this Agreement, whether completed or in process.
 - Terminate all subcontracts to the extent they relate to the work terminated.
 - In the sole discretion and option of the Owner, and if and only if requested to do so, assign to the Owner all right, title, and interest of the Consultant under the subcontracts terminated, in which case the Owner shall have the right to settle any claim or dispute arising out of those subcontracts without waiver of any right or claim the Owner may possess against the Consultant.
 - With approval or ratification by the Owner, settle all outstanding liabilities arising from the termination of subcontracts, the cost of which would be allowable in whole or in part, under this Agreement.
 - Complete performance of any work not terminated.
 - Take any action that may be necessary, or that the Owner may direct, for the protection and preservation of the property related to this Agreement which is in the possession of the Consultant and in which the Owner has or may acquire an interest.
- 18.4. If the termination is for the convenience of the Owner, the Owner shall make an equitable adjustment in the Contract Price, subject to the Ceiling Prices and Funding Limitations provisions, *but shall allow no anticipated fee or profit on unperformed services.*
- 18.5. If the termination is for the Consultant's Default, the Owner may complete the work by contract or otherwise and the Consultant shall be liable for any reasonable and necessary additional cost incurred by the Owner to the extent caused by Consultant's default.

- 18.6. Disputes and claims arising from termination of this Agreement shall be governed by Section 28, Disputes and Claims (48 CFR 31.205-42(e)(2)).
- 18.7. The rights and remedies of the Owner provided in this Section are in addition to any other rights and remedies provided by law or under this Agreement, and shall not constitute a waiver of any other such right or remedy.

19. STOP WORK ORDERS

- 19.1. The Owner may, at any time, by written order to the Consultant, require the Consultant to stop all, or any part, of the work called for by this Agreement for a period of up to 90 days after the order is delivered to the Consultant, and for any further period to which the parties may agree. Upon receipt of the order, the Consultant shall immediately comply with its terms and take all reasonable steps to minimize the incurrence of costs allocable to the work covered by the order during the period of work stoppage. Within a period of 90 days after a stop work order is delivered to the Consultant, or within any extension of that period to which the parties shall have agreed, the Owner shall either—
- 19.1.1. Cancel the stop work order; or
- 19.1.2. Terminate the work pursuant to Section 18, Termination.
- 19.2. If a stop work order issued under this Section is canceled or the period of the order or any extension thereof expires, the Consultant shall resume work. The Owner shall make an equitable adjustment in the delivery schedule or Contract Price, or both, and the Agreement shall be modified in writing accordingly, if—
- The stop work order was not issued because of Consultant's Default in its performance of its obligations under any part of this Agreement; and,
 - The stop work order results in an increase in the time required for, or in the Consultant's cost properly allocable to, the performance of any part of this Agreement; and,
 - The Consultant provides Notice of Potential Claim pursuant to Section 28, Disputes and Claims.

20. CHANGES

- 20.1. The Owner may at any time, by written order, and without notice to the sureties, if any, make changes within the general scope of this Agreement, including but not limited to: (1) drawings, designs, or specifications; (2) time of performance (i.e., hours of the day, days of the week, etc.); and (3) places of inspection, delivery, or acceptance.
- 20.2. If any such change causes an increase *or decrease* in the cost of, or the time required for, performance of any part of the work under this Agreement, whether or not changed by the order, the Owner shall make an equitable adjustment in the (1) estimated cost, delivery or completion schedule, or both; (2) amount of any fee; and (3) other affected terms.
- 20.3. All claims and disputes shall be governed by the Section 28, Claims and Disputes. As provided in Section 28, the Consultant must provide written notice of its intention to make a claim for additional compensation before beginning the work on which the claim

is based. If such notice is not given, the Consultant hereby agrees to waive any claim for such additional compensation.

- 20.4. Failure to agree to any adjustment shall be a dispute under Section 28, Disputes and Claims. *However, nothing in this Section or any other provision of this Agreement shall excuse the Consultant from proceeding with the Agreement as changed.*

21. OWNERSHIP OF DOCUMENTS & DATA

- 21.1. All project documents and data, regardless of form and including but not limited to original drawings, disks of CADD drawings, cross-sections, estimates, files, field notes, and data, shall be the property of the Owner. The Consultant shall further provide all documents and data to the Owner upon the Owner's request. The Consultant may retain reproduced copies of drawings and other documents. In the event that any patent rights or copyrights are created in any of the documents, data compilations, or any other work product, the Owner shall have an irrevocable license to use such documents, or data compilations, or work product.

22. PATENT AND COPYRIGHT INFRINGEMENT

- 22.1. The Consultant shall report to the Owner, promptly and in reasonable written detail, each notice or claim of patent or copyright infringement based on the performance of this Agreement of which the Consultant has knowledge.
- 22.2. In the event of any claim or suit against the Owner on account of any alleged patent or copyright infringement arising out of the performance of this Agreement or out of the use of any supplies furnished or work or services performed under this Agreement, the Consultant shall furnish to the Owner, when requested by the Owner, all evidence and information in possession of the Consultant pertaining to such suit or claim. Such evidence and information shall be furnished at the expense of the Consultant.
- 22.3. The Consultant agrees to include, and require inclusion of, the provisions of this Section in all subcontracts at any tier for supplies or services.
- 22.4. The Consultant shall indemnify the Owner and its officers, agents, and employees against liability, including costs and attorneys' fees, for infringement of any United States patent or copyright arising from the manufacture or delivery of supplies, the performance of services, or the construction, alteration, modification, or repair of real property under this Agreement, or out of the use or disposal by or for the account of the Owner of such supplies or construction work.
- 22.5. This indemnity shall not apply unless the Consultant shall have been informed within ten (10) business days following the Owner's receipt of legal notice of any suit alleging such infringement and shall have been given such opportunity as is afforded by applicable laws, rules, or regulations to participate in its defense. Further, this indemnity shall not apply to (1) an infringement resulting from compliance with specific written instructions of the Owner directing a change in the supplies to be delivered or in the materials or equipment to be used, or directing a manner of performance of the Agreement not normally used by the Consultant, (2) an infringement resulting from addition to or change in supplies or components furnished or construction work performed that was made subsequent to delivery or performance, or (3) a claimed infringement that is unreasonably settled without the consent of the Consultant, unless required by final decree of a court of competent jurisdiction.

23. BANKRUPTCY

- 23.1. In the event the Consultant enters into proceedings relating to bankruptcy, whether voluntary or involuntary, the Consultant agrees to furnish, by certified mail, written notice of the bankruptcy to the Owner. This notice shall be furnished within five days of the initiation of the proceedings relating to bankruptcy filing. This notice shall include the date on which the bankruptcy petition was filed, the identity of the court in which the bankruptcy petition was filed, and a listing of AHTD job numbers and FAP numbers for all contracts with Owner against which final payment has not been made. This obligation remains in effect until final payment under this Agreement.

24. FUNDING LIMITATIONS

- 24.1. The Owner's obligations under this Agreement are contingent upon the availability of appropriated funds from which payments under the terms of this Agreement can be made in this and each subsequent fiscal year for the duration of the Agreement. No legal liability on the part of the Owner of any kind whatsoever under this Agreement shall arise until funds are made available to the Owner for performance of this Agreement, including those to be appropriated and provided by the State of Arkansas and those to be provided by the United States.

25. SUCCESSORS AND ASSIGNS

- 25.1. This Agreement shall be binding upon the parties and their successors and assigns, and except as expressly set forth herein, neither the Owner nor the Consultant may assign, delegate, or transfer any benefit or obligation under this Agreement without the express written consent of the other party. Nothing herein shall be construed as a waiver of any immunity or as creating any personal liability on the part of any officer or agent of the Owner or any other governmental entity either made a party to, or having any interest in, this Agreement.

26. INDEMNITY AND RESPONSIBILITY FOR CLAIMS AND LIABILITY

- 26.1. *Indemnity.* The Consultant shall hold harmless and indemnify the Owner and the AHTD, their officers, employees, and agents, from and for all claims and liabilities stemming from any wrongful (whether negligent, reckless, or intentional) acts or omissions on the part of the Consultant and its subcontractors, and their agents and employees.
- 26.2. *No Personal Liability.* No director, officer, manager, employee, agent, assign, or representative of the Owner or the AHTD shall be liable to the Consultant in a personal or individual capacity under any term of this Agreement, because of any breach thereof, or for any act or omission in its execution or performance.
- 26.3. *Independent Contractor Relationship.* The parties intend that the Consultant shall be an independent contractor of the Owner and that the Consultant shall be liable for any act or omission of the Consultant or its agents, employees, or subcontractors arising under or occurring during the performance of this Agreement. No act or direction of the Owner shall be deemed to be an exercise of supervision or control of the Consultant's performance.

27. INSURANCE

- 27.1. *Professional Liability Insurance Coverage.* The Consultant shall maintain at all times during the performance of services under this Agreement professional liability insurance coverage for errors, omissions, and negligent acts arising out of the performance of this Agreement in an amount per claim of not less than five (5) times the original Contract Ceiling Price or \$1,000,000, whichever is less. Such insurance shall extend to the Consultant and to its legal representatives in the event of death, dissolution, or bankruptcy, and shall cover the errors, omissions, or negligent acts of the Consultant's subcontractors, agents, and employees. Such insurance shall extend to any errors, omissions, and negligent acts in the performance of services under this Agreement committed by the Consultant or alleged to have been committed by the Consultant or any person for whom the Consultant is legally responsible.
- 27.2. *Deductible.* The Consultant may maintain a professional liability insurance policy with a deductible clause in an amount approved by the Owner if, in the judgment and opinion of the Owner, the Consultant's financial resources are sufficient to adequately cover possible liability in the amount of the deductible. The Consultant shall submit promptly to the Owner, upon request as often as quarterly, detailed financial statements and any other information requested by the Owner to reasonably determine whether or not the Consultant's financial resources are sufficient to adequately cover possible liability in the amount of the deductible.
- 27.3. *Worker's Compensation Insurance.* The Consultant shall at all times during the Term of this Agreement maintain Worker's Compensation and Employers Liability Insurance as required under Arkansas law.
- 27.4. *General Liability Insurance.* The Consultant shall at all times during the term of this Agreement maintain comprehensive general liability insurance coverage for bodily injury and property damage in the combined single limit of \$1,000,000, and comprehensive automobile liability insurance coverage for bodily injury and property damage in the combined single limit of \$1,000,000, which shall cover all owned, hired, and non-owned vehicles. The Consultant's insurance coverage shall also cover restoration of plans, drawings, field notes, and other documents in the event of their loss or destruction while in the custody of the Consultant.
- 27.5. *Insurance Policies and Certificates.* The Consultant shall provide the Owner upon request copies of its insurance policies and evidence satisfactory to the Owner concerning the effectiveness and the specific terms of the insurance. Prior to the execution of this Agreement, the Consultant shall furnish to the Owner certificates of insurance reflecting policies in force, and it shall also provide certificates evidencing all renewals of any expiring insurance policy required hereunder within thirty (30) days of the expiration thereof. The Consultant's failure to provide and continue in force and effect any insurance required under this Article shall be deemed a Default for which Owner, in its sole discretion, may terminate this Agreement immediately or on such other terms as it sees fit.
- 27.6. *Additional Insurance Requirements.* All insurance maintained by the Consultant pursuant to this Section shall be written by insurance companies licensed to do business in Arkansas, in form and substance satisfactory to the Owner, and shall provide that the insurance will not be subject to cancellation, termination, or change during its term except upon thirty (30) days prior written notice to the Owner.
- 27.7. *Duration of Insurance Obligations.* The Consultant shall maintain its professional insurance coverage required under this Agreement in force and effect for a period not less than five years after the final acceptance of the project or the completion of the

Consultant's services under this Agreement, whichever comes later. Comprehensive General Liability Insurance Coverage required under this Agreement shall be in full force and effect until the final acceptance or the completion of the Consultant's services, whichever comes later. All other insurance shall be maintained in full force and effect until final acceptance of the project or completion of the Consultant's services, whichever comes first.

27.8. *Consultant's Insurance Primary.* All insurance policies maintained by the Consultant pursuant to this Agreement shall provide that the consultant's insurance shall be primary and the Owner's own insurance shall be non-contributing.

27.9. *Additional Insured.* All liability insurance policies, except the professional liability policy, maintained by the Consultant pursuant to this Agreement shall be endorsed to include the Owner, its officers, directors, managers, employees, agents, assigns and representatives, individually and collectively, as additional insured, and all property damage insurance shall be endorsed with a waiver of subrogation by the insurer as to the Owner.

28. DISPUTES AND CLAIMS

28.1. *Notice of Potential Claim.* Whenever a Consultant deems that any additional compensation is due, the Consultant shall notify the Owner in writing of its intention to make a claim for additional compensation ("Notice of Potential Claim") ***before beginning the work that gives rise to the claim.***

28.2. *Time & Manner for Submitting Claim.* All disputes and claims shall first be submitted in writing to the Owner within 45 calendar days after the completion or termination date. ***The Consultant hereby agrees that the failure to submit the dispute or claim to the Owner prior to 45 calendar days after the completion or termination date shall constitute a waiver of the dispute or claim.***

28.3. *Form.* All disputes and claims must be submitted in writing and in sufficient detail to permit the Owner to determine the basis for entitlement and the actual allowable costs incurred. Each claim must contain:

- A detailed factual statement of the claim providing all necessary dates, locations, and items of work affected by the claim;
- The date the actions resulting in the claim occurred or conditions resulting in the claim became evident;
- A copy of the "Notice of Potential Claim";
- The name, title, and activity of each Owner's employee knowledgeable about facts that gave rise to such claim;
- The name, title, and activity of each Consultant, Subcontractor, or employee knowledgeable about the facts that gave rise to the claim;
- The specific provisions of the Agreement that support the claim and a statement why such provisions support the claim;
- The identification and substance of any relevant documents, things, or oral communications related to the claim;

- A statement whether the claim is based on provisions of the Agreement or an alleged breach of the Agreement;
- If an extension of time is sought, the specific number of days sought and the basis for the extension;
- The amount of additional compensation sought and a specific cost breakdown of the amount claimed; and,
- Any other information or documents that are relevant to the claim.

28.4. *Decision and Appeal.* The decision of the Owner shall be final and conclusive.

28.5. *Continued Performance.* Pending final resolution of a dispute or claim, unless the Owner has terminated this Agreement pursuant to Section 18 or issued a stop work order pursuant to Section 19, the Consultant shall proceed diligently with the performance of this Agreement in accordance with the Owner's decisions.

28.6. The rights and remedies of the Owner provided in this Section are in addition to any other rights and remedies provided by law or under this Agreement, and shall not constitute a waiver of any other such right or remedy. If the Owner decides the facts justify the action, the Owner may, at its sole option and discretion, receive and act upon a proposal, dispute, or claim submitted at any time before final payment under this Agreement.

29. **COVENANT AGAINST CONTINGENCY FEES**

29.1. The Consultant warrants that no person or agency has been employed or retained to solicit or obtain this Agreement upon an agreement or understanding for a contingent fee, except a bona fide employee or agency. For breach or violation of this warranty, the Owner shall have the right to annul this Agreement without liability or, in its discretion, to deduct from the Contract Price or consideration, or otherwise recover, the full amount of the contingent fee.

29.2. *Bona fide agency*, as used in this Section, means an established commercial or selling agency, maintained by the Consultant for the purpose of securing business, that neither exerts nor proposes to exert improper influence to solicit or obtain government contracts nor holds itself out as being able to obtain any government contract or contracts through improper influence.

29.3. *Bona fide employee*, as used in this Section, means a person, employed by the Consultant and subject to the Consultant's supervision and control as to time, place, and manner of performance, who neither exerts nor proposes to exert improper influence to solicit or obtain government contracts nor holds out as being able to obtain any government contract or contracts through improper influence.

29.4. *Contingent fee*, as used in this Section, means any commission, percentage, brokerage, or other fee that is contingent upon the success that a person or concern has in securing a government contract.

29.5. *Improper influence*, as used in this Section, means any influence that induces or tends to induce a government employee or officer to give consideration or to act regarding a government contract on any basis other than the merits of the matter.

30. TITLE VI ASSURANCES (NONDISCRIMINATION)

During the performance of this Agreement, the Consultant, for itself, its successors, and its assigns, certifies and agrees as follows:

- 30.1. *Compliance with Regulations.* The Consultant shall comply with the Regulations relative to Title VI (Nondiscrimination in Federally-assisted programs of the Department of Transportation and its operating elements, especially Title 49, Code of Federal Regulations, Part 21 and 23 Code of Federal Regulations, as amended, and hereinafter referred to as the Regulations). These regulations are herein incorporated by reference and made a part of this Agreement. Title VI provides that the recipients of Federal financial assistance will maintain and implement a policy of nondiscrimination in which no person shall, on the basis of race, color, national origin, sex, age, or disability, be excluded from participation in, denied the benefits of, or subject to discrimination under any program or activity by recipients of Federal financial assistance or their assignees and successors in interest.
- 30.2. *Nondiscrimination.* The Consultant, with regard to the work performed by it during the term of this Agreement, shall not discriminate on the basis of race, color, national origin, sex, age, or disability in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The Consultant shall not participate either directly or indirectly in the discrimination prohibited by Section 21.5 of the Regulations, including employment practices when the agreement covers a program set forth in Appendix B of the USDOT Regulations.
- 30.3. *Solicitations for Subcontracts, Including Procurements of Material & Equipment.* In all solicitations, either by competitive bidding or negotiation, made by the Consultant or for work to be performed under a subcontract, including procurements of materials or leases of equipment, each potential subcontractor or supplier shall be notified by the Consultant of the Consultant's obligations under this Agreement and the Regulations relative to nondiscrimination on the grounds of race, color, national origin, sex, age, or disability.
- 30.4. *Information and Reports.* The Consultant shall provide all information and reports required by the Regulations, or directives issued pursuant thereto, and shall permit access to its books, records, accounts, other sources of information, and its facilities by the Owner, the AHTD, or the USDOT and its Affiliated Modes to be pertinent to ascertain compliance with such regulations or directives. Where any information required of the Consultant is in the exclusive possession of another who fails or refuses to furnish this information, the Consultant shall so certify to the Owner, the AHTD or the USDOT and its Affiliated Modes, as appropriate, and shall set forth what efforts it has made to obtain the information.
- 30.5. *Sanctions for Noncompliance.* In the event of the Consultant's noncompliance with the nondiscrimination provisions of this Agreement, the Owner shall impose such contract sanctions as it, the AHTD, or the USDOT and its Affiliated Modes may determine to be appropriate, including but not limited to, withholding of payments to the Consultant under the Agreement until the Consultant complies with the provisions and/or cancellation, termination, or suspension of the Agreement, in whole or in part.
- 30.6. *Incorporation of Provisions.* The Consultant shall include the terms and conditions of this section in every subcontract including procurements of materials and leases of equipment, unless exempt by the Regulations, or directives issued pursuant thereto. The Consultant shall take such action with respect to any subcontract or procurement as the Owner, the AHTD, or USDOT and its Affiliated Modes may direct as a means of

enforcing these terms and conditions, including sanctions for noncompliance; *provided*, however that, in the event the Consultant becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of any direction, the Consultant may request the Owner or the AHTD to enter into such litigation to protect the interests of the State, and, litigation to protect the interest of the United States.

31. DBE CLAUSE

- 31.1. The Consultant or subcontractor shall not discriminate on the basis of race, color, national origin, sex, age, religion, or disability in the performance of this Agreement. The Consultant shall comply with the applicable requirements of 49 C.F.R. Part 26 and perform any actions necessary to maintain compliance in the award and administration of DOT-assisted contracts. Failure by the Consultant to comply with or perform these requirements is a material breach of this Agreement, which may result in the cancellation, termination, or suspension of this Agreement in whole or in part, or such other remedy that the Owner may determine appropriate.
- 31.2. The Consultant shall insert a clause containing all the terms of this Section in all subcontracts under this Agreement.

32. TITLE II OF THE AMERICANS WITH DISABILITIES ACT (NONDISCRIMINATION)

- 32.1 The Consultant will comply with the provisions of the Americans with Disabilities Act (ADA), Section 504 of the Rehabilitation Act, Title VI of the Civil Rights Act of 1964, FHWA Federal Aid Project Guidance, and any other Federal, State, and/or local laws, rules and/or regulations.
- 32.2 The Consultant, during the term of this Agreement, shall not discriminate on the basis of race, color, sex, national origin, age, religion or disability, in admission or access to and treatment in programs and activities associated with this Agreement, or in the selection and retention of subcontractors, including procurement of material and leases of equipment. The Consultant shall not participate either directly or indirectly in any discrimination prohibited by the Regulations, including employment practices.
- 32.3 In accordance with Section 504 regulations 49 C.F.R. Part 27.15, the Owner's Notice of Nondiscrimination is required in any bulletins, announcements, handbooks, pamphlets, brochures, and any other publications associated with this Agreement that are made available to the public, program participants, applicants or employees.

33. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, PROPOSED DEBARMENT, AND OTHER RESPONSIBILITY MATTERS

- 33.1. The Consultant certifies, to the best of its knowledge and belief, that—
- 33.1.1. The Consultant and any of its Principals—
- 33.1.1.1. Are not presently debarred, suspended, proposed for debarment, or declared ineligible for the award of contracts by any federal or state agency;
- 33.1.1.2. Have not, within a 3-year period preceding this offer, been convicted of or had a civil judgment rendered against them for: commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (federal, state, or local) contract or subcontract; violation

of federal or state antitrust statutes relating to the submission of offers; or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

33.1.1.3. Are not presently indicted for, or otherwise criminally or civilly charged by a governmental entity with, commission of any of the offenses enumerated in Subsection 33.1.1.2; and,

33.1.1.4. The Consultant has not within a 3-year period preceding this offer, had one or more contracts terminated for default by any federal or state agency.

33.2. *Principals*, for the purposes of this certification, means officers; directors; owners; partners; and, persons having primary management or supervisory responsibilities within a business entity (e.g., general manager; plant manager; head of a subsidiary, division, or business segment, and similar positions). This certification concerns a matter within the jurisdiction of an agency of the United States and the making of a false, fictitious, or fraudulent certification may render the maker subject to prosecution under Section 1001, Title 18, United States Code, as well as any other applicable federal and state laws.

33.3. The Consultant shall provide immediate written notice to the Owner if, at any time prior to contract award, the Consultant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

33.4. The certification in Subsection 33.1 is a material representation of fact upon which reliance was placed when making award. If it is later determined that the Consultant knowingly rendered an erroneous certification, the Owner may terminate the contract resulting from this solicitation for default in addition to any other remedies available to the Owner.

34. MISCELLANEOUS

34.1. *General Compliance with Laws.* The Consultant shall comply with all Federal, State, and local laws, regulations, and ordinances applicable to the work, including but not limited to, the Americans with Disabilities Act and Occupational Safety and Health Act as amended.

34.2. *Registered Professional Engineer's Endorsement.* All plans, specifications, estimates, and engineering data provided by the Consultant shall be endorsed and recommended by an authorized representative of the Consultant, who shall be a registered Professional Engineer licensed in the State of Arkansas.

34.3. *Choice of Law.* This Agreement shall be governed by the laws of the State of Arkansas without consideration of its choice of law provisions.

34.4. *Choice of Forum.* The Consultant agrees that any cause of action stemming from or related to this Agreement, including but not limited to disputes or claims arising under this Agreement, for acts or omissions in the performance, suspension, or termination of this Agreement, whether sounding in contract or tort, equity or law, may only be brought in the appropriate forum within State of Arkansas.

34.5. *No Waiver of Immunity.* The Owner expressly does not waive any defense of immunity that it may possess under either federal or state law, and no provision in this Agreement shall be construed to constitute such a waiver in whole or in part.

- 34.6. *Conflicts Between Laws, Regulations, and Provisions.* In the event of conflicting provisions of law, the interpretation shall be governed by the following in this order, from most controlling to least: Federal law and regulations, State law and regulations, Department and FHWA Design Standards, and this Agreement.
- 34.7. *Severability.* If any term or condition of this Agreement shall be held invalid, illegal, or unenforceable by a court of competent jurisdiction, all remaining terms of this Agreement shall remain valid and enforceable unless one or both of the parties would be materially prejudiced.
- 34.8. *No-Waiver.* The failure of the Owner to strictly enforce any term of this Agreement shall not be construed as a waiver of the Owner's right to require the Consultant's subsequent performance of the same or similar obligation or duty.
- 34.9. *Modification and Merger.* This written Agreement and any provisions incorporated by reference reflect the entire agreement of the parties and may be modified only by the express written agreement of both parties.

35. CERTIFICATION OF AUTHORIZED REPRESENTATIVES

- 35.1. This Agreement and the certifications contained herein or attached hereto constitute the whole Agreement of the parties, and each party certifies that this Agreement and any attached certification have been executed by their duly authorized representatives.

36. NOTICE

36.1. All notices, approvals, requests, consents, or other communications required or permitted under this Agreement shall be addressed to either the Owner's Representative or the Consultant's Representative, and mailed or hand-delivered to:

36.1.1. To the Owner's Representative:

Craig Light, PE
City of Jonesboro
307 Vine Street
Jonesboro, AR 72403

36.1.2. To the Consultant:

Todd Mueller, PE
Garver, LLC
4701 Northshore Drive
North Little Rock, AR 72118

IN WITNESS WHEREOF, the parties execute this Agreement, to be effective upon the date set out above.

Garver, LLC

BY: 


Jerry Holder
for Vice President

APPENDICES

APPENDIX A	JUSTIFICATION OF FEES AND COSTS
APPENDIX B	SUBCONTRACTS
APPENDIX C	STANDARD CERTIFICATIONS/ TITLE VI ASSURANCES
APPENDIX D	PROJECT SCHEDULE
APPENDIX E	GENERAL AND DETAILED SCOPE OF WORK FOR CONTROL SURVEYS, DESIGN SURVEYS, AND LAND SURVEYS

Appendix A - Justification of Costs and Fees
September 13, 2013
Hwy. 351/Aggie Rd. Inters. Impvts. (Jonesboro) (S)
Job 100790
SUMMARY

PROJECT ADMINISTRATION	HOURS	SALARY	FEE	EXPENSES	TOTAL
Garver	18	\$1,863	\$224	\$193	\$2,280
SURVEYS	HOURS	SALARY	FEE	EXPENSES	TOTAL
Garver	171	\$9,323	\$1,119	\$7,780	\$18,222
TRAFFIC STUDY	HOURS	SALARY	FEE	EXPENSES	TOTAL
Garver	76	\$7,577	\$909	\$279	\$8,765
ENVIRONMENTAL	HOURS	SALARY	FEE	EXPENSES	TOTAL
Garver	98	\$9,099	\$1,092	\$2,216	\$12,407
GEOTECHNICAL INVESTIGATION	HOURS	SALARY	FEE	EXPENSES	TOTAL
GHBW	37	\$2,387	\$239	\$1,201	\$3,827
DESIGN, PLANS, AND SPECS	HOURS	SALARY	FEE	EXPENSES	TOTAL
Garver	401	\$39,003	\$4,680	\$248	\$43,931
ROW	HOURS	SALARY	FEE	EXPENSES	TOTAL
Garver	41	\$4,365	\$524	\$116	\$5,005
PROJECT TOTALS	HOURS	SALARY	FEE	EXPENSES	TOTAL
Garver	805	\$71,230	\$8,548	\$10,832	\$90,610
GHBW	37	\$2,387	\$239	\$1,201	\$3,827
Totals	842	\$73,617	\$8,787	\$12,033	\$94,437

Appendix A - Justification of Costs and Fees
September 13, 2013
Hwy. 351/Aggie Rd. Inters. Impvts. (Jonesboro) (S)
Job 100790

PROJECT ADMINISTRATION

MANHOURS							
TASK	PM	DSR	ADMIN4	ADMIN3	ADMIN2	ADMIN1	TOTAL
Project Management	2						2
Meetings	4						4
Invoice Processor					6		6
Administrative Support					6		6
Total MH - Project Administration	6	0	0	0	12	0	18
LABOR COSTS							
Description (Billing Class)	Rate	MH	Amount				
PM - Project Manager (E-5)	\$55.00	6	\$330				
ADMIN2 - Sr. Admin. Assistant (X-2)	\$26.50	12	\$318				
ADMIN1 - Admin. Assistant (X-1)	\$25.00	0	\$0				
		Subtotal	\$648				
		Overhead	187.57%		\$1,215		
		Subtotal	\$1,863				
		Fee	\$224				
		Subtotal Labor Costs	\$2,087				
EXPENSES							
ITEM	Quantity	Unit	Rate	Amount			
Printing (8 1/2 x 11 B&W)	130	each	\$0.10	\$13			
Printing (11 x 17 Color)	20	each	\$1.30	\$26			
Mileage (1 trips at 275)	275	mile	\$0.56	\$154			
		Subtotal Direct Costs	\$193				
TOTAL COSTS - PROJECT ADMINISTRATION							\$2,280
BASIS OF ESTIMATE - PROJECT ADMINISTRATION							
Description							
Seven Month Contract with one meeting and six monthly progress updates.							

Appendix A - Justification of Costs and Fees
September 13, 2013
Hwy. 351/Aggie Rd. Inters. Impvts. (Jonesboro) (S)
Job 100790

SURVEYS

MANHOURS							
TASK	SPS	ST	PC	IM	RM	TOTAL	
Parcel Surveys							
Travel Time			4	4	4	12	
Section Breakdown - 1 section (15) NE 1/4			14	14	14	42	
Recon Parcels & parcel ties (7 (+/-) parcels)			26	26	26	78	
Process Raw Data				18		18	
Calculations and final Drawings	3	18				21	
Total MH - Surveys	3	18	44	62	44	171	
LABOR COSTS							
Description (Billing Class)				Rate	MH	Amount	
SPS - Senior Project Surveyor (S-5)				\$48.00	3	\$144	
ST - Senior Technician (T-2)				\$29.00	18	\$522	
PC - Survey Party Chief (S-3)				\$23.00	44	\$1,012	
IM - Instrument Man (T-1)				\$16.00	62	\$992	
RM - Rodman (S-1)				\$13.00	44	\$572	
					Subtotal	\$3,242	
					Overhead	187.57%	\$6,081
					Subtotal	\$9,323	
					Fee	\$1,119	
					Subtotal Labor Costs	\$10,442	
EXPENSES							
ITEM			Quantity	Unit	Rate	Amount	
Printing (8 1/2 x 11 B&W)			100	copy	\$0.10	\$10	
Mileage (1 trips at 275)			275	mile	\$0.56	\$154	
Hotel Lodging (3 men for 4 nights)			12	night	\$84.70	\$1,016	
Arkups Utility Markings			1	LS	\$400.00	\$400	
Title Work			4	Cert.	\$100.00	\$400	
Topography, Drainage and Utility Survey Support (HKB)			1	LS	\$5,800.00	\$5,800	
Meals			0	day	\$46.00	\$0	
					Subtotal Direct Costs	\$7,780	
					TOTAL COSTS - SURVEYS	\$18,222	
BASIS OF ESTIMATE - SURVEYS							
Project							
Number of Anticipated Parcels						7	

Appendix A - Justification of Costs and Fees
September 13, 2013
Hwy. 351/Aggie Rd. Inters. Impvts. (Jonesboro) (S)
Job 100790

TRAFFIC STUDY

MANHOURS						
TASK	PM	PE	DE	DSR	ADMIN	TOTAL
Meetings						
Attend 1 Meeting	2	0	0	0	0	2
Travel	5	0	0	0	0	5
Identification and Analysis of Traffic Demands						
Identification of the Current Trans Demands						
Reivew Prior Studies, previous data, and school info	1	0	4	0	0	5
Traffic Counts (1 Intersection - 1 Person w/ City Asst.)	1	0	8	0	0	9
Site Visit	0	0	1	0	0	1
Crash Data	1	0	2	0	0	3
Travel	0	0	5	0	0	5
Analysis of the Current Trans Demands						
HCS/Synchro/SimTraffic Analysis	1	0	8	0	0	9
Forecast & Analysis of the Future Trans Demands						
Develop future "no build" traffic	1	3	0	0	0	4
HCS/Synchro/SimTraffic Analysis	1	0	3	0	0	4
Analysis of Proposed Improvement						
Geometric Analysis						
Roundabout	1	4	0	0	0	5
Operational Analysis						
Roundabout	1	0	4	0	0	5
Preparation of Final Report						
Documentation of Findings	1	8	10	0	0	19
Total MH - Traffic	16	15	45	0	0	76
LABOR COSTS						
Description (Billing Class)	Rate	MH	Amount			
PM - Project Manager (E-5/E-6)	\$55.00	16	\$880			
PE - Project Engineer (E-3)	\$39.00	15	\$585			
DE - Design Engineer (E-1)	\$26.00	45	\$1,170			
DSR - Sr. Designer (D-2)	\$38.00	0	\$0			
ADMIN - Administrative Assistant (X-1)	\$19.00	0	\$0			
		Subtotal	\$2,635			
		Overhead 187.57%	\$4,942			
		Subtotal	\$7,577			
		Fee	\$909			
		Subtotal Labor Costs	\$8,486			

Appendix A - Justification of Costs and Fees
September 13, 2013
Hwy. 351/Aggie Rd. Inters. Impvts. (Jonesboro) (S)
Job 100790

TRAFFIC STUDY

MANHOURS						
TASK	PM	PE	DE	DSR	ADMIN	TOTAL
EXPENSES						
ITEM	Quantity	Unit	Rate	Amount		
Printing (11x17 B&W)	200	each	\$0.20	\$40		
Mileage (1 trip at 275 miles)	275	miles	\$0.56	\$154		
Miscellaneous (Courier)	0	each	\$0.00	\$0		
Lodging (1 night / 2 persons)	1	each	\$84.70	\$85		
Subtotal Direct Costs						\$279
TOTAL COSTS - TRAFFIC STUDY						\$8,765

Appendix A - Justification of Costs and Fees
September 13, 2013
Hwy. 351/Aggie Rd. Inters. Impvts. (Jonesboro) (S)
Job 100790

ENVIRONMENTAL

MANHOURS								
TASK	SPM	PM	PE	ES	DSR	ADMIN	TOTAL	
ENVIRONMENTAL								
Agency and Public Coordination		1	4			4	9	
Letters of Technical Assistance			4	2	2	4	12	
Wetland Mapping		1	4		4		9	
404 Permit Preparation		2	0	8		2	12	
Prepare CE Document		2	8	10	2	4	26	
Review Document		2	4	4		2	12	
Revisions to CE Document		1	3	3		2	9	
Final Submittal		1	3	3		2	9	
Total MH - Environmental	0	10	30	30	8	20	98	
LABOR COSTS								
Description (Billing Class)					Rate	MH	Amount	
SPM - Project Manager (E-5/E-6)					\$55.00	0	\$0	
PM - Project Manager (E-3/E-4)					\$41.00	10	\$410	
PE - Project Engineer (E-3)					\$36.00	30	\$1,080	
ES - Environmental Scientist (P-1)					\$33.00	30	\$990	
DSR - Sr. Designer (D-2)					\$38.00	8	\$304	
ADMIN - Administrative Assistant (X-1)					\$19.00	20	\$380	
						Subtotal	\$3,164	
						Overhead	187.57%	\$5,935
						Subtotal	\$9,099	
						Fee	\$1,092	
						Subtotal Labor Costs	\$10,191	
EXPENSES								
ITEM	Quantity	Unit	Rate	Amount				
Printing (11x17 B&W)	250	each	\$0.20	\$50				
Mileage (1 trips at 275 miles)	275	miles	\$0.56	\$154				
Miscellaneous (Courier)	1	each	\$12.00	\$12				
Phase I Cultural Resource Survey (Flat Earth)	1	each	\$2,000.00	\$2,000				
						Subtotal Direct Costs	\$2,216	
						TOTAL COSTS - ENVIRONMENTAL	\$12,407	
BASIS OF ESTIMATE - ENVIRONMENTAL								
The estimate is based on a Categorical Exclusion (Tier III)								

Appendix A - Justification of Costs and Fees
September 13, 2013
Hwy. 351/Aggie Rd. Inters. Impvts. (Jonesboro) (S)
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DESIGN, PLANS, AND SPECIFICATIONS

TASK	MANHOURS						TOTAL
	SPM	PM	PE	DE	DSR	ADMIN	
Roadway Front End Tasks							
Design Criteria	0	1	2	0	0	0	3
Conceptual Design							
Typical Sections	1	0	4	4	0	0	9
Conceptual Geometric Design	1	0	4	4	0	0	9
Prepare Graphics for Environmental Documentation	1	0	4	4	0	0	9
Revisions	0	0	2	2	0	0	4
Preliminary Design							
30% Plan Submittal							
Title Sheet	1	0	0	0	6	0	7
Typical Sections	1	0	2	2	0	0	5
Airport Road (Hwy. 351) Plan and Profile	0	1	4	8	0	0	13
Aggie Road Plan and Profile	0	1	4	8	0	0	13
Roundabout Special Detail	0	1	6	0	6	0	13
Plan Check	1	2	0	0	0	0	3
Plan Submittal and Corrections	0	1	4	4	0	0	9
60% Plan Submittal							
Hydraulics and Hydrology	0	4	16	20	0	0	40
Special Details	0	1	4	4	0	0	9
Maintenance of Traffic Details	0	1	8	8	0	0	17
Pavement Design	0	1	6	4	0	0	11
Striping and Signing Plans	0	0	6	6	2	0	14
Soil Boring Logs	0	1	0	0	2	0	3
Airport Road (Hwy. 351) Plan and Profile	0	0	4	4	0	0	8
Aggie Road Plan and Profile	0	0	4	4	0	0	8
Driveways (Up to 4 Anticipated)	0	1	2	2	0	0	5
No Cross Sections - Only Form Grades	0	0	0	0	0	0	0
Set ROW	0	0	1	1	0	0	2
Survey Control Details	0	1	0	0	6	0	7
Roundabout Details	0	1	4	4	0	0	9
Culvert Design	0	1	4	4	0	0	9
Erosion Control Details	0	1	4	4	0	0	9
Plan Check	1	2	4	0	0	0	7
Plan Submittal & Corrections	1	2	2	4	0	0	9

Appendix A - Justification of Costs and Fees
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Hwy. 351/Aggie Rd. Inters. Impvts. (Jonesboro) (S)
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DESIGN, PLANS, AND SPECIFICATIONS

MANHOURS							
TASK	SPM	PM	PE	DE	DSR	ADMIN	TOTAL
Final Design							
90% Plan Submittal							
Quantity Calculations	0	1	0	18	18	0	37
Quantity Calculations Check	1	2	0	10	10	0	23
Quantity Sheets	1	1	0	0	6	0	8
Update Plan and Profile Sheets	0	1	0	8	6	0	15
Update Cross Sections	0	1	0	0	6	0	7
Index of Sheets	0	1	0	4	4	0	9
Special Provisions	0	2	0	4	0	0	6
Plan Check	0	2	4	0	0	0	6
Plan Submittal & Corrections	1	2	4	0	0	0	7
100% Plan Submittal							
Plan Check	1	3	4	0	4	0	12
Final Plans Submittal (Signed and Sealed)	1	2	0	0	4	0	7
Total MH - Design, Plans, and Specs	13	42	117	149	80	0	401

LABOR COSTS			
Description (Billing Class)	Rate	MH	Amount
SPM - Project Manager (E-5/E-6)	\$55.00	13	\$715
PM - Project Manager (E-3/E-4)	\$41.00	42	\$1,722
PE - Project Engineer (E-2)	\$36.00	117	\$4,212
DE - Design Engineer (E-1)	\$26.00	149	\$3,874
DSR - Sr. Designer (D-2)	\$38.00	80	\$3,040
ADMIN - Administrative Assistant (X-1)	\$19.00	0	\$0
		Subtotal	\$13,563
	Overhead	187.57%	\$25,440
		Subtotal	\$39,003
		Fee	\$4,680
		Subtotal Labor Costs	\$43,683

EXPENSES				
ITEM	Quantity	Unit	Rate	Amount
Printing (11x17 B&W)	1,000	each	\$0.20	\$200
Miscellaneous (Courier)	4	each	\$12.00	\$48
			Subtotal Direct Costs	\$248
TOTAL COSTS - DESIGN, PLANS, AND SPECIFICATIONS				\$43,931

BASIS OF ESTIMATE - DESIGN, PLANS, AND SPECIFICATIONS	
Roadway	Quantity
Roadway Improvements (Miles)	0.5
Intersections to be Improved (Including Roundabout)	1
Box Culvert Crossings	2
Number of Anticipated Residential Driveways Impacted	4
Note: Design efforts are based upon a roundabout at the intersection. All hydraulic crossings are assumed to be either pipe culverts or box culverts. The manhour estimate is based on a 13 point review by AHTD and the City bidding the project for construction.	

Appendix A - Justification of Costs and Fees
September 13, 2013
Hwy. 351/Aggie Rd. Inters. Impvts. (Jonesboro) (S)
Job 100790

RIGHT OF WAY

MANHOURS					
TASK	PM	PE	DSR	ADMIN	TOTAL
ROW					
Stage 1					
Plot and verify Certificates against Parcel Surveys					0
Create R01 and set ROW points from Construction Plans and PSUR			8		8
Submit Strip Map (Omit due to intersection size)			0		0
Stage 2					
Field Inspection					
Revise ROW based on AHTD comments			1		1
Prepare title sheet			3		3
Prepare layout sheets (estimated 1 sheet)			3		3
Prepare Right-of-Way plan sheets (estimated 4 sheets)			4		4
Calculate tract areas (total, to acquire & residuals)			2		2
Draw total parcel insets (if necessary)			1		1
Prepare Legal Descriptions			3	2	5
Stage 3					
In-House Plan Check			2		2
Stage 4					0
Submit 90% plans to AHTD			2	1	3
(Electronics - Plans.dgn, Legals.doc, Certificates & Deeds.pdf)					0
Corrections from Review Comments (Non Chargeable Expense)					0
Revisions from Review Comments			4		4
Final Review with Construction Plans					0
Stage 5					
Submit Final Plans to AHTD (Electronic Files only)	1		2		3
Revisions requested during ROW Acquisition	0		2		2
UTILITY COORDINATION					
Utility Coordination (City to Perform Utility Coordination)	0	0	0	0	0
Total MH -Right of Way	1	0	37	3	41
LABOR COSTS					
Description (Billing Class)	Rate	MH	Amount		
PM - Project Manager (E-5/E-6)	\$55.00	1	\$55		
PE - Project Engineer (E-3)	\$36.00	0	\$0		
DSR - Sr. Designer (D-2)	\$38.00	37	\$1,406		
ADMIN - Administrative Assistant (X-1)	\$19.00	3	\$57		
		Subtotal	\$1,518		
		Overhead 187.57%	\$2,847		
		Subtotal	\$4,365		
		Fee	\$524		
		Subtotal Labor Costs	\$4,889		

Appendix A - Justification of Costs and Fees
September 13, 2013
Hwy. 351/Aggie Rd. Inters. Impvts. (Jonesboro) (S)
Job 100790

RIGHT OF WAY

MANHOURS					
TASK	PM	PE	DSR	ADMIN	TOTAL
EXPENSES					
ITEM	Quantity	Unit	Rate	Amount	
Printing (11x17 B&W)	100	each	\$0.20	\$20	
Miscellaneous (Courier)	8	each	\$12.00	\$96	
Subtotal Direct Costs				\$116	
TOTAL COSTS - RIGHT OF WAY				\$5,005	
BASIS OF ESTIMATE - RIGHT OF WAY					
Right of Way	Quantity				
Estimated Number of Parcels and Legals	4*				
*The manhour estimate includes one parcel in each quadrant of the intersection					
Estimated Number of Sheets	4				

APPENDIX B

SUBCONSULTANT AGREEMENT
JOB NO. 100790
FEDERAL AID PROJECT ("FAP") NO. SD-AR51(4)
Hwy. 351/Aggie Rd. Inters. Impvts. (Jonesboro) (S)

1. SUBCONSULTANT AGREEMENT

- 1.1. The services to be performed under this Subconsultant Agreement will be performed in connection with the Agreement for Engineering Services ("Prime Agreement") between the Consultant and the City of Jonesboro ("Owner") for Job No. 100790, dated October 14, 2013. Garver, LLC ("Consultant") and Grubbs, Hoskyn, Barton & Wyatt, Inc. ("Subconsultant") hereby agree that the Subconsultant shall perform the professional and related services as described herein. In consideration for the performance of the professional services the Consultant agrees to compensate (and reimburse, if applicable) the Subconsultant in the manner and at the rate(s) provided herein.
- 1.2. The definitions of the Prime Agreement, and its provisions relating to the obligations, duties, and rights of subcontractors, *or which are otherwise required to be inserted into any subcontracting agreements*, are deemed to be part of, and are hereby incorporated by reference into, this Subconsultant Agreement and made binding upon the Subconsultant.

2. DESCRIPTION OF PROJECT AND SERVICES TO BE PROVIDED

- 2.1. The City of Jonesboro has programmed a project to make improvements to the intersection of Highway 351 and Aggie Road in Jonesboro, Craighead County, Arkansas.
- 2.2. The project generally consists of determining the feasibility and engineering services for the improvements at the intersection. The scope of work will generally consist of traffic studies and reports, NEPA environmental documentation, construction plans, specifications, cost estimate, and right-of-way plans.
- 2.3. The existing condition is a four-way stop at the intersection Airport Road and Aggie. Airport Road is two-lane state highway 351 and Aggie is a two-lane city street. There are no shoulders on the roadways with the exception of the shoulder on the north side of the west approach to the intersection. The speed limit of Airport Road is posted at 45 mph and Aggie Road is posted at 25 mph to the south and 30 mph to the north.
- 2.4. "Services to be Provided by Subconsultant." Grubbs, Hoskyn, Barton and Wyatt, Inc. will perform the following tasks to prepare the geotechnical investigation for the project:
 - 2.4.1. Grubbs, Hoskyn, Barton & Wyatt will visit the project alignment to observe site conditions. Published information on site geology and available information from prior geotechnical studies in the area will be reviewed.
 - 2.4.2. Grubbs, Hoskyn, Barton & Wyatt will contact landowners to secure right of access in the project alignment prior to accessing boring locations. Underground utility locations will be cleared prior to beginning drilling. It is expected that Garver or the Department will provide property owner contact information, if needed. It is assumed that Garver will provide all right of access information and available maps

and aerial photographs. This information will be required prior to contacting property owners and beginning work.

2.4.3. Access to boring locations will be provided by Grubbs, Hoskyn, Barton & Wyatt as dictated by site conditions and permitted by property owners. Applicable permits will be obtained and traffic control will be provided by Grubbs, Hoskyn, Barton & Wyatt. Truck-mounted drilling equipment will be utilized.

2.4.4. Sample borings will be advanced using dry-auger drilling techniques. The existing pavement section components will be measured. Undisturbed soil samples or Standard Penetration Values will typically be obtained in borings at 2-ft intervals. Groundwater measurements will be obtained during and at the completion of drilling operations. Boreholes will be backfilled after obtaining final groundwater measurements. Boreholes in existing pavement areas will be patched with asphalt concrete cold patch or a concrete mix.

2.4.5. The subsurface exploration program will consist of two (2) sample borings drilled approximately 10-ft depth. We have assumed one (1) day for the field

2.4.6. An adequate laboratory testing program will be planned and performed after the borings are completed. The purpose of the laboratory testing program will be to evaluate pertinent physical properties and engineering characteristics of the subgrade soils. These data will be used in developing geotechnical recommendations for subgrade support design parameters, subgrade preparation, and site grading. The testing program is expected to consist of classification tests.

2.4.7. An engineering report will be developed which will include the results of the field and laboratory studies, information on site conditions and geology, and recommendations for subgrade preparation, site grading, and pavement subgrade support parameters.

3. COSTS, FEES, PAYMENTS AND RATE SCHEDULES

3.1. For the work described herein, except as otherwise agreed to in writing by the Engineer and the Subconsultant, the Engineer will pay the Subconsultant in accordance with the terms in Appendix B-1. The Subconsultant will submit monthly invoice indicating the amount complete. Engineer will not be required to pay Subconsultant for work represented by invoices received more than 60 days after the billing period when the work occurred.

3.2. The Engineer will bill the Owner monthly. All Subconsultant bills must be received 10 calendar days prior to the last Friday of the month in order to be included in the Engineer's invoice to the Owner for that month. Payment to the Subconsultant will be made within 10 days of the Engineer receiving payment from the Owner for the Subconsultant work included in each invoice.

4. COMPENSATION SUBJECT TO LIMITATIONS OF FEDERAL AND STATE LAW

4.1. The Project (as defined in the Prime Agreement), part of which is to be performed under this Subconsultant Agreement, is a federally-assisted project and federal funds will be used, in part, to pay the Consultant and Subconsultant. Therefore, notwithstanding any provision of this Subconsultant Agreement or the Prime Agreement, all payments, costs, and expenditures are subject to the requirements and limitations of 48 C.F.R. Part 31, including those relating to determination of indirect cost rates, if applicable. The Subconsultant shall certify the accuracy of all invoices, requests for

payment, and cost rates (if applicable), along with supporting documentation and any supporting information or records provided prior to, during, or after the term of this Subconsultant Agreement.

5. COMMISSION, AHTD, AND FHWA AS THIRD PARTY BENEFICIARIES

- 5.1. This Subconsultant Agreement is between and binding upon only the Consultant and Subconsultant. The Commission, AHTD, and FHWA are not parties to this Subconsultant Agreement, but are expressly made third-party beneficiaries of this Subconsultant Agreement and shall be entitled to enforce any obligation of the Subconsultant owed to the Consultant. No provision of this Subconsultant Agreement or the Prime Agreement, nor the exercise of any right thereunder, shall be construed as creating any obligation or any liability on the part of, or operating as a waiver of any immunity of, the Commission, the AHTD, the FHWA, or any of their employees, officers, or agents.
- 5.2. The Subconsultant's sole recourse, if any, for any injury arising under or related to this Subconsultant Agreement, the performance of services hereunder, or compensation or claims hereunder, shall be against the Consultant.
- 5.3. The Disputes and Claims provisions of the Prime Agreement shall not apply to this Subconsultant Agreement.

6. COVENANT AGAINST CONTINGENCY FEES

- 6.1. The Subconsultant warrants that no person or agency has been employed or retained to solicit or obtain this Subconsultant Agreement upon an agreement or understanding for a contingent fee, except a bona fide employee or agency. For breach or violation of this warranty, the AHTD and Consultant shall have the right to annul this Subconsultant Agreement without liability or, in its discretion, to deduct from the Contract Price or consideration, or otherwise recover, the full amount of the contingent fee.
- 6.2. *Bona fide agency*, as used in this section, means an established commercial or selling agency, maintained by the Subconsultant for the purpose of securing business, that neither exerts nor proposes to exert improper influence to solicit or obtain government contracts nor holds itself out as being able to obtain any government contract or contracts through improper influence.
- 6.3. *Bona fide employee*, as used in this section, means a person, employed by the Subconsultant and subject to the Subconsultant's supervision and control as to time, place, and manner of performance, who neither exerts nor proposes to exert improper influence to solicit or obtain government contracts nor holds out as being able to obtain any government contract or contracts through improper influence.
- 6.4. *Contingent fee*, as used in this section, means any commission, percentage, brokerage, or other fee that is contingent upon the success that a person or concern has in securing a government contract.
- 6.5. *Improper influence*, as used in this section, means any influence that induces or tends to induce a government employee or officer to give consideration or to act regarding a government contract on any basis other than the merits of the matter.

7. TITLE VI ASSURANCES (NONDISCRIMINATION)

During the performance of this Subconsultant Agreement, the Subconsultant, for itself, successors, and assigns, certifies and agrees as follows:

- 7.1. *Compliance with Regulations.* The Subconsultant shall comply with all regulations relative to nondiscrimination in federally-assisted programs of the United States Department of Transportation, 49 C.F.R. Part 21 and 23 C.F.R. Part 172, and as they may be amended from time to time ("Regulations"), which are hereby incorporated by reference and made a part of this Subconsultant Agreement.
- 7.2. *Nondiscrimination.* The Subconsultant, during the term of this Subconsultant Agreement, shall not discriminate on the basis of race, color, sex, age, disability, religion, or national origin in the selection and retention of subcontractors, including procurement of material and leases of equipment. The Subconsultant shall not participate either directly or indirectly in any discrimination prohibited by the Regulations, including employment practices.
- 7.3. *Solicitations for Subcontracts, Including Procurements of Material & Equipment.* In all solicitations, either by competitive bidding or negotiation, made by the Subconsultant for work to be performed under a subcontract, including procurement of materials and leases of equipment, each potential subcontractor or supplier shall be notified by the Subconsultant of the Subconsultant's obligations under this Subconsultant Agreement and the Regulations.
- 7.4. *Information and Reports.* The Subconsultant shall provide all information and reports required by the Regulations, or directives issued pursuant thereto, and shall permit access to its books, records, and accounts, other sources of information, and its facilities by the AHTD or the FHWA for the purposes of investigation to ascertain compliance with such regulations and directives. Where any information required of the Subconsultant is in the exclusive possession of another who fails or refuses to furnish this information, the Subconsultant shall so certify to the AHTD or the FHWA, as appropriate, and shall set forth the efforts made by the Subconsultant to obtain the records or information.
- 7.5. *Sanctions for Noncompliance.* In the event of the Subconsultant's noncompliance with the nondiscrimination provisions of this Subconsultant Agreement, the AHTD may impose such contract sanctions as it or the FHWA may determine to be appropriate, including but not limited to, withholding of payments to the Consultant or Subconsultant until the Subconsultant complies with the provisions and cancellation, termination, or suspension of this Subconsultant Agreement, in whole or in part.
- 7.6. *Incorporation of Provisions.* The Subconsultant shall include the terms and conditions of this section in every subcontract or purchase order so that these terms and conditions will be binding upon each subcontractor or vendor. The Subconsultant shall take such action with respect to any subcontract or purchase order as the AHTD or FHWA may direct as a means of enforcing these terms and conditions, including sanctions for noncompliance; *provided*, that if the Subconsultant becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of any direction, the Subconsultant may request the AHTD or the United States to enter into the litigation to protect the interests of the State and the United States, respectively.

8. DBE CLAUSE

- 8.1. The Subconsultant shall not discriminate on the basis of race, color, national origin, sex, age, religion, or disability in the performance of this Subconsultant Agreement. The Subconsultant shall comply with the applicable requirements of 49 C.F.R. Part 26 and

perform any actions necessary to maintain compliance in the award and administration of DOT-assisted contracts. Failure by the Subconsultant to comply with or perform these requirements is a material breach of this Subconsultant Agreement, which may result in the cancellation, termination, or suspension of this Subconsultant Agreement in whole or in part, or such other remedy that the AHTD may determine appropriate.

8.2. *Prompt Payment.* The Subconsultant shall pay its subcontractors, if any, for satisfactory performance of their subcontracts within 30 days of receipt of each payment by the AHTD to the Subconsultant. Any retainage payments held by the Subconsultant must be returned to the subcontractor within 30 days after the subcontractor's work is completed. Failure to comply with this provision shall be considered a Default by the Subconsultant. If the Subconsultant fails to comply with this provision, in addition to any other rights or remedies provided under this Subconsultant Agreement, the AHTD, at its sole option and discretion, may:

- make payments directly to the subcontractor and offset such payments, along with any administrative costs incurred by the AHTD, against reimbursements or payments otherwise due the Subconsultant;
- notify any sureties; and/or,
- withhold any or all reimbursements or payments otherwise due to the Subconsultant until the Subconsultant ensures that the subcontractors have been and will be promptly paid for work performed.

8.3. The Subconsultant shall insert a clause containing all the terms of this section in all subcontracts under this Subconsultant Agreement.

9. TITLE II OF THE AMERICANS WITH DISABILITIES ACT (NONDISCRIMINATION)

9.1 The Subconsultant will comply with the provisions of the Americans with Disabilities Act (ADA), Section 504 of the Rehabilitation Act, Title VI of the Civil Rights Act of 1964, FHWA Federal Aid Project Guidance, and any other Federal, State, and/or local laws, rules and/or regulations.

9.2 The Subconsultant, during the term of this Agreement, shall not discriminate on the basis of race, color, sex, national origin, age, religion or disability, in admission or access to and treatment in programs and activities associated with this Agreement, or in the selection and retention of subcontractors, including procurement of material and leases of equipment. The Consultant shall not participate either directly or indirectly in any discrimination prohibited by the Regulations, including employment practices.

9.3 In accordance with Section 504 regulations 49 C.F.R. Part 27.15, the Owner's Notice of Nondiscrimination is required in any bulletins, announcements, handbooks, pamphlets, brochures, and any other publications associated with this Agreement that are made available to the public, program participants, applicants or employees.

10. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, PROPOSED DEBARMENT, AND OTHER RESPONSIBILITY MATTERS

10.1. The Subconsultant certifies, to the best of its knowledge and belief, that—

10.1.1. The Subconsultant and any of its Principals—

- 10.1.1.1. Are not presently debarred, suspended, proposed for debarment, or declared ineligible for the award of contracts by any federal or state agency;
 - 10.1.1.2. Have not, within a 3-year period preceding this offer, been convicted of or had a civil judgment rendered against them for: commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (federal, state, or local) contract or subcontract; violation of federal or state antitrust statutes relating to the submission of offers; or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
 - 10.1.1.3. Are not presently indicted for, or otherwise criminally or civilly charged by a governmental entity with, commission of any of the offenses enumerated in subsection 10.1.1.2; and,
 - 10.1.1.4. The Subconsultant has not within a 3-year period preceding this offer, had one or more contracts terminated for default by any federal or state agency.
- 10.2. *Principals*, for the purposes of this certification, means officers; directors; owners; partners; and, persons having primary management or supervisory responsibilities within a business entity (e.g., general manager; plant manager; head of a subsidiary, division, or business segment, and similar positions). This certification concerns a matter within the jurisdiction of an agency of the United States and the making of a false, fictitious, or fraudulent certification may render the maker subject to prosecution under section 1001, title 18, United States Code, as well as any other applicable federal and state laws.
- 10.3. The Subconsultant shall provide immediate written notice to the AHTD if, at any time prior to contract award, the Subconsultant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.
- 10.4. The certification in subsection 10.1 is a material representation of fact upon which reliance was placed when making award. If it is later determined that the Subconsultant knowingly rendered an erroneous certification, the AHTD may terminate the contract resulting from this solicitation for default in addition to any other remedies available to the AHTD.

11. NOTICE

11.1. All notices, approvals, requests, consents, or other communications required or permitted under this Agreement shall be mailed or hand-delivered to:

11.1.1. To the Subconsultant:

Mark Wyatt
Grubbs, Hoskyn, Barton & Wyatt, Inc.
No. 1 Trigon Plaza, P.O. Box 55105
Little Rock, AR 72215

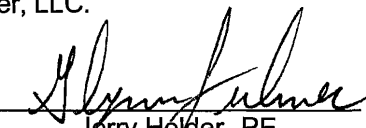
11.1.2. To the Consultant:

Todd Mueller, PE
Garver, LLC
4701 Northshore Drive
North Little Rock, 72118

IN WITNESS WHEREOF, the parties execute this Subconsultant Agreement, to be effective _____.

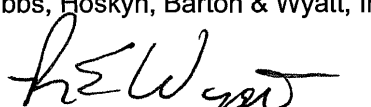
Garver, LLC.

BY: _____


For Jerry Holder, PE
Vice President

Grubbs, Hoskyn, Barton & Wyatt, Inc.

BY: _____


Mark Wyatt, PE
President

Appendix B - 1 - Justification of Costs and Fees
September 13, 2013
Hwy. 351/Aggie Rd. Inters. Impvts. (Jonesboro) (S)
Job 100790

GEOTECHNICAL

MANHOURS									
TASK	PR	PE	SE/G	D/LS	DT	HT	EA/C	TOTAL	
Drilling Program									
Coordination	1						1	2	
Drilling and sampling roadway				2	2	2		6	
Access						1		1	
Travel				4	4			8	
Laboratory Testing and Analysis									
Laboratory Testing - Roadway				3		2		5	
Engineering Analyses		3						3	
Report Draft		1				2	1	4	
Report Preparation and Administration									
Final Report	1	1				2	1	5	
Report Preparation						2	1	3	
								0	
TOTAL MH - GEOTECHNICAL	2	5	0	9	6	11	4	37	
LABOR COSTS									
Category - Description						Rate	MH	Amount	
PR - Principal						\$59.48	2	\$119	
PE - Project Engineer						\$32.45	5	\$162	
SE/G - Staff Engineer or Geologist						\$31.25	0	\$0	
D/LS - Drilling or Lab Supervisor						\$25.20	9	\$227	
DT - Driller or Sr. Technician						\$18.50	6	\$111	
HT - Helper or Technician						\$14.00	11	\$154	
EA/C - Engineering Aide or Clerical						\$18.00	4	\$72	
							Subtotal	\$845	
							Overhead	182.56%	\$1,543
							Subtotal	\$2,388	
							Fee	\$239	
							FCCM	0.00%	\$0
							Subtotal Labor Costs	\$2,627	
EXPENSES									
ITEM	Quantity	Unit	Rate	Amount					
Mob/demob (truck)	75	mile	\$3.30	\$248					
In yard mobilization (truck)	1	each	\$140.00	\$140					
Drilling equipment (truck)	4	hour	\$31.75	\$127					
Water truck	0	hour	\$22.00	\$0					
Crew truck	8	hour	\$5.65	\$45					
Vehicle mileage	73	mile	\$0.55	\$40					
Travel expenses	0	day	\$95.00	\$0					
Dozer rental	0	day	\$1,250.00	\$0					
Backhole rental	0	day	\$850.00	\$0					
Coring - third party equipment	0	core	\$225.00	\$0					
Traffic control - lane closures (4-hr maximum)	6	hour	\$100.00	\$600					
Traffic control - signage and escort	0	hour	\$135.00	\$0					
							Subtotal Expenses	\$1,200	
TOTAL COSTS - GEOTECHNICAL								\$3,827	

CERTIFICATION OF CONSULTANT

I hereby certify that I, Glynn Fulmer, am Vice President and duly authorized representative of the firm of Garver, LLC whose headquarters address is 4701 Northshore Drive, North Little Rock, AR, and that neither I nor the above firm I here represent has:

(a) employed or retained for a commission, brokerage, contingent fee, or other considerations, any firm or person (other than a bona fide employee working solely for me) to solicit or secure this contract,

(b) agreed, as an express or implied condition for obtaining this contract, to employ or retain the services of any firm or person in connection with carrying out the contract, or

(c) paid or agreed to pay, to any firm, organization or person (other than a bona fide employee working solely for me) any fee contribution, donation or consideration of any kind for, or in connection with, procuring or carrying out the contract;

(d) included any costs which are not expressly allowable under the cost principles of the FAR of 48 CFR 31, whether direct or indirect. All known material transactions or events that have occurred affecting the firm's ownership, organization and indirect cost rates have been disclosed.


except as here expressly stated (if any):

I acknowledge that this certificate is to be furnished to the Arkansas State Highway and Transportation Department and the Federal Highway Administration, U.S. Department of Transportation, in connection with this contract involving participation of Federal Aid Highway Funds, and is subject to applicable State and Federal laws, both criminal and civil.

Furthermore, as a recipient of Federal Aid Highway Funds, I certify and hereby agree to the conditions of Title VI Assurances as outlined in Section 31 of this Agreement and shall insert the Notice of Nondiscrimination Statement as shown below in all solicitation of work or procurement of materials or equipment.

NOTICE OF NONDISCRIMINATION STATEMENT

Garver, LLC ("Consultant") complies with all civil rights provisions of federal statutes and related authorities that prohibited discrimination in programs and activities receiving federal financial assistance. Therefore, the Consultant does not discriminate on the basis of race, sex, color, age, national origin, or disability, in the admission, access to and treatment in Consultant's programs and activities, as well as the Consultant's hiring or employment practices. Complaints of alleged discrimination and inquiries regarding the Consultant's nondiscrimination policies may be directed to Tatiana Herrington (ADA/504/Title VI Coordinator), 4701 Northshore Dr., North Little Rock, AR, (501-376-3633), or , the following email address: tbherrington@GarverUSA.com. This notice is available from the ADA/504/Title VI Coordinator in large print, on audiotape and in Braille.


Authorized Firm Representative

10-10-13
Date

CERTIFICATION OF CONSULTANT

I hereby certify that I, Mark Wyatt, am the President and duly authorized representative of the firm of Grubbs, Hoskyn, Barton, and Wyatt, Inc. whose headquarters address is No. 1 Trigon Plaza, Little Rock, AR, and that neither I nor the above firm I here represent has:

- (a) employed or retained for a commission, brokerage, contingent fee, or other considerations, any firm or person (other than a bona fide employee working solely for me) to solicit or secure this contract,
- (b) agreed, as an express or implied condition for obtaining this contract, to employ or retain the services of any firm or person in connection with carrying out the contract, or
- (c) paid or agreed to pay, to any firm, organization or person (other than a bona fide employee working solely for me) any fee contribution, donation or consideration of any kind for, or in connection with, procuring or carrying out the contract;
- (d) included any costs which are not expressly allowable under the cost principles of the FAR of 48 CFR 31, whether direct or indirect. All known material transactions or events that have occurred affecting the firm's ownership, organization and indirect cost rates have been disclosed.

except as here expressly stated (if any):

I acknowledge that this certificate is to be furnished to the Arkansas State Highway and Transportation Department and the Federal Highway Administration, U.S. Department of Transportation, in connection with this contract involving participation of Federal Aid Highway Funds, and is subject to applicable State and Federal laws, both criminal and civil.

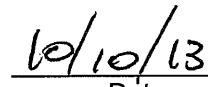
Furthermore, as a recipient of Federal Aid Highway Funds, I certify and hereby agree to the conditions of Title VI Assurances as outlined in Section 31 of this Agreement and shall insert the Notice of Nondiscrimination Statement as shown below in all solicitation of work or procurement of materials or equipment.

NOTICE OF NONDISCRIMINATION STATEMENT

Grubbs, Hoskyn, Barton & Wyatt ("Consultant"), complies with all civil rights provisions of federal statutes and related authorities that prohibited discrimination in programs and activities receiving federal financial assistance. Therefore, the Consultant does not discriminate on the basis of race, sex, color, age, national origin, or disability, in the admission, access to and treatment in Consultant's programs and activities, as well as the Consultant's hiring or employment practices. Complaints of alleged discrimination and inquiries regarding the Consultant's nondiscrimination policies may be directed to Kay Keller (ADA/504/Title VI Coordinator), 8114 Cantrell Road, Suite 350, Little Rock, AR 72227, (501.663.8800), or the following email address: kkeller@grubbsengineers.com.

This notice is available from the ADA/504/Title VI Coordinator in large print, on audiotape and in Braille.


Authorized Firm Representative


Date

CERTIFICATION OF CITY OF JONESBORO

I hereby certify that I am the Mayor of Jonesboro and that the aforementioned consulting firm or its representative has not been required, directly or indirectly as an express or implied condition in connection with obtaining or carrying out this contract to:

- (a) employ or retain, or agree to employ or retain, any firm or person, or
- (b) pay, or agree to pay, to any firm, person, or organization, any fee contributions donation, or consideration of any kind:

except as here expressly stated (if any):

I acknowledge that this certificate is to be furnished to the Arkansas Highway and Transportation Department and the Federal Highway Administration, U.S. Department of Transportation, in connection with this contract involving participation of Federal-Aid Highway Funds, and is subject to applicable State and Federal laws, both criminal and civil.

10-14-13
Date

HWY. 351 (AIRPORT RD.) AND AGGIE RD.
APPENDIX D
INTERSECTION IMPROVEMENTS - DETAILED WORK SCHEDULE

Description	Month	1	2	3	4	5	6	7	8	9
Kickoff Meeting										
Design and Parcel Surveys										
Identification and Analysis of Transportation Demands										
Identification of Alternates										
Determination of the Feasibility of Alternates										
Preparation of a Final Report										
Jonesboro and AHTD Review										
Categorical Exclusion										
Jonesboro, AHTD, and FHWA Review										
30% Plans										
Jonesboro Review										
60% Plans										
Jonesboro and AHTD Review										
Right-of-Way Plans										
Jonesboro and AHTD										
90% Plans										
Jonesboro and AHTD										
Final Plans, Cost Estimate, and Specs										
Final Approval										

NOTE: (1) This schedule includes a total agency review time of 13 weeks (as shown above) for all submittals and additional review time may extend the schedule beyond 9 months. (2) The schedule anticipates receiving responses for the letters of technical assistance for the Categorical Exclusion within 2 weeks after submittal to environmental agencies.

**Arkansas Highway and Transportation
Department
APPENDIX E
General and Detailed Scope of Work
For
CONTROL SURVEYS, DESIGN SURVEYS, AND LAND SURVEYS,**

The sections that follow will apply to a specific project based on the type of services specified in the project overview.

The required procedures for all surveying tasks are documented in ***Requirements and Procedures for Control Surveys, Design Surveys and Land Surveys***, prepared by the Surveys Division, will be called the Surveys Manual throughout the remainder of this general scope of work. The most current Surveys Manual is to be used regardless of the start date of a survey project.

A copy of the most current version of the Surveys Manual is available on the AHTD's internet file transfer (ftp) site at:

<ftp://www.arkansashighways.com/outgoing/surveys/contents.htm>.

PART I A

Control Surveys

The project consists of performing Control Surveys for the Arkansas State Highway Commission acting by and through its Director of Highways and Transportation, hereinafter called the Owner, for the tasks (individual job numbers) listed in Table I, *Control Surveys (Task Projects) for GPS Collection*; Table II, *Control Surveys (Task Projects) for Photogrammetry Mapping Control*; Table III, *Control Surveys (Task Projects) for Vertical Control*; and Table IV, *Control Surveys (Task Projects) for Horizontal Control*.

Work on these tasks is intended to commence on (Date), and is to be completed and submitted no later than the dates listed for each task project.

Ample time shall be scheduled and adequate resources dedicated to the project to complete the Control Surveys by the submittal date. Completion includes submittal of 100% of Control Surveys.

1. General Information

The following information shall apply to all phases of Control Surveys.

- 1.1 For all parts of the project and all sections that follow, more details and requirements can be found in the Surveys Manual.
- 1.2 All surveys shall be U. S. Foot unless specified otherwise.

- 1.3 Survey controls used and established shall comply with AHTD requirements for the type of work performed.

Note: Hubs and tacks shall not be used for any purpose on this project.

- 1.4 Accuracy of measurements –All measurement data shall be consistent with minimum standards. Distances are to be measured and displayed on drawings to two (2) decimal places for projects in U.S. Foot. Bearings shall be displayed to the second. Horizontal and vertical angles shall be measured with an instrument capable of reading angles with a minimum accuracy of five seconds (5") and recorded to one second (1"). Coordinates shall be displayed and copied to disk to the fourth decimal place as a minimum to avoid bearing and distance round off when inverting between data points.

- 1.5 The work shall be done in a professional and workmanlike manner satisfactory to the Owner, and except in the matter of advising the Consultant/Surveyor what work is to be done and the results that are expected to be obtained, the Owner shall have no supervision over the Consultant/Surveyor or any of his employees. The Consultant/Surveyor shall direct the work himself, using the methods prescribed by the Owner to accomplish it and shall represent the will of the Owner as to the results of his work.

- 1.6 The Consultant/Surveyor's surveyor shall be a Professional Surveyor (PS) in the State of Arkansas. All services performed by the surveyor shall be in compliance with Arkansas laws and regulations governing the practice of Professional Surveyors and with all Federal, State and Local laws, regulations and ordinances applicable to the work.

- 1.7 Survey operations shall be conducted with due regard to the safety of personnel and equipment. Contact with the airport traffic control tower is mandatory during surveys at any controlled airports.

- 1.8 All surveys are to be performed using Grid Coordinates based on the Arkansas State Plane Coordinate System Zone in which the project is located.

Note: Current procedure requires all grid coordinates be projected to ground coordinates, based on the combination adjustment factor assigned by or approved by the AHTD, for project design. This shall be a specific task if it is part of a contract for work to be performed.

- 1.9 When entering or crossing private property, which is the case on many of the surveys, the Consultant/Surveyor shall contact the property owner. If personal contact cannot be made, a copy of the notification form shall be left at the in an "easy to be seen" location on the property. This form is found in the Surveys Manual.

- 1.10 The following information shall be placed on a control flag, supplied by the Owner, to be set near all control points:

Job Number
Point Number

AHTD Surveys Division (501) 569-2341

- 1.11 The Consultant/Surveyor shall inform the Owner when fieldwork has started on the project. During the course of the project a progress report shall be sent to the Owner each Thursday, indicating the percentage of the work completed. The report can be faxed to the Surveys Division at (501) 569-2344 or e-mailed to the Surveys Division Staff member who is responsible for this task as specified in the current Surveys Manual.
- 1.12 All field AASHTOWare® SDMS® data files (PRJ & EDI) for the field work completed each day shall be submitted to the Surveys Division Office via email on a daily basis. These files are to be sent to surveysupport@arkansashighways.com.
- 1.13 All raw and calculated data shall be submitted electronically on compact disk (CD) in the required formats.
- 1.14 The Surveys Manual includes the following:
- File Naming Procedures
 - Software Requirements
 - Point Numbering
 - Feature Codes
 - Survey Procedures for Control Surveys
 - AASHTOWare® SDMS® Configuration
 - AASHTOWare® SDMS® Sequences
 - Checklist
- 1.15 A hard copy of the checklists and inventory sheets in Appendix F of the Surveys Manual shall be submitted.
- 1.16 The following information is attached:
- One (1) copy of a location sketch, showing task project location;
 - One (1) copy of an aerial photo covering the task project location;
 - One (1) copy of NGS Vertical Sheets for area around each task project location;
 - One (1) copy of GPS Control Data Forms for each task project location; and,
 - One (1) copy of the "Format For Estimating Costs" form.
- 1.17 Any horizontal or vertical control work that requires using techniques other than GPS, shall be collected and processed using AASHTOWare® SDMS® Collector and AASHTOWare® SDMS® Processor, respectively, and using procedures required by the AHTD. Current procedures required can be reviewed in the Surveys Manual
- 1.18 All data collection and processing shall be done using the AASHTOWare® SDMS® Collector and AASHTOWare® SDMS® Processor, respectively. The software shall be furnished to Consultants/Surveyors currently certified to perform surveys for the AHTD under the site license held by the AHTD from

Appendix E - 1

Accounting Procedures

Travel Expense Procedures – State Travel Regulations issued by the AHTD:

- 1.1 Travel Day – For the Purpose of these regulations, the “calendar day” for travel shall commence at 6:00 A.M., and shall include (1) breakfast, (2) lunch, (3) dinner, and (4) one night’s lodging; and the travel “day” shall end at 6:00 A.M. the following morning. It should be remembered that the travel “day” as defined here applies to the traveler who is already in the field, in full travel status. Normally, at the beginning of the travel period, the traveler will commence his field trip “after” breakfast, and at the end of the trip he will normally return “before” dinner.
- 1.2 Maximum Daily Limits on Meals and Lodging (Not Per Diem): The maximum daily allowance for meals and lodging are those rates which are established and set forth in the General Services Administration’s Federal Travel Directory, except for the reduced rate for Arkansas which was determined by the Department of Finance and Administration.

For each calendar day in full travel status, when all four items of breakfast, lunch, dinner, and lodging are included, the maximum daily allowance will be the actual expenses incurred, limited to the standard rate set by the Fiscal Services Division of the AHTD.

Partial days shall be charged based on the statewide rates (plus state and local taxes) or specified rates set by the Fiscal Services Division of the AHTD. A copy will be furnished upon request.

Note: Travel reimbursement IS NOT a per diem, and is to be claimed for actual expenses for meals and lodging not to exceed the maximum allowable rates. The maximum must not be claimed unless the actual expenditures for such purposes equal or exceed the maximum allowable rate. Reimbursement for meals without overnight travel is not allowed.

- 1.3 Vehicle Allowance: Effective March 27, 2000, the rate of reimbursement for vehicles used on State projects will be as specified by the Fiscal Services Division of the AHTD.

Each invoice shall be for the services rendered within this agreement since the last invoice submitted. A ten percent (10%) retainage shall be shown on each invoice. Each invoice shall be accompanied by a spreadsheet showing the charges and retainage for each billing period in addition to the total charges and retainage to date. The retainage will be held for approximately one month after completed data is submitted. A final invoice can then be submitted for the retainage. Pending further review that requires revisions and corrections, the final invoice will be approved for payment.

Invoices for work completed on this project shall include:

- Job name and number
- Designated as design survey
- Federal Tax ID Number

electronic files for those plat(s), shall be furnished to the Surveys Division of the AHTD.

Copies of the recorded plat(s) shall be furnished to the Right of Way Division of the AHTD, and, the Circuit Clerk's Office of the county or counties involved if the Circuit Clerk requests the plats.

Note: All land surveys are to be performed using Grid Coordinates from the Arkansas State Plane Coordinate System Zone in which the project is located projected to ground coordinates. The ground coordinates shall be based on the combination adjustment factor assigned by or approved by the AHTD.

inches, unless grouted in solid rock or set in concrete. The length used shall be approved by the AHTD.

- Monument cap – 2” aluminum flat cap, stamped as directed by the AHTD.
- Witness post and sign.

Exceptions will be approved on a case-by-case basis and in locations specified by the Surveys Division of AHTD.

Standard monument materials will be furnished by the AHTD. This includes rebar, 2” caps, witness post, and sign. Monument caps with specific stampings will be used. Most of the information is pre-stamped on the cap.

The Consultant/Surveyor shall notify the Surveys Division of the number of monument caps for each required designation necessary for this project. The PLS Number of the Consultant/Surveyor may be added if the number of caps required justifies.

Materials may have to be special ordered for this project. Therefore, the Surveys Division shall be notified a minimum of 45 days prior to the date field monumenting is expected to commence with the quantities of material and cap designations needed to allow adequate time to acquire the materials to complete this task.

a. 1.2 Coordination with Resident Engineer

The Consultant/Surveyor shall maintain correspondence with the Resident Engineer that is responsible for this project. The Consultant/Surveyor shall send a representative to the pre-construction meeting held with the Resident Engineer. This meeting may be used to coordinate scheduling for final right of way monumentation.

b. 1.3 Final Plat

A final plat shall be prepared using the requirements that apply described in the section for parcel work sheets. The plat shall show all monuments set and markings placed on each cap. The Surveyor performing the work shall be on the current list of those certified to perform land surveys for the AHTD. The plat shall meet the current Arkansas Minimum Standards for Property Boundary Surveys and Plats as well as AHTD requirements. Therefore, it may be necessary to incorporate information contained on the parcel worksheets and the right of way plans to complete the final plat.

The boundary lines shown on this plat shall not have the word “Proposed” as used on the plans for right of way acquisition. The plat shall be sealed (stamped) by the PLS who has oversight over the project as well as the PLS responsible for establishing the monuments if not the same.

The final plat shall be recorded in the State Land Surveyor’s Office. Each plat sheet shall have an instrument number assigned by the State Land Surveyors Office and the date affixed by an official in the State Land Surveyor’s Office. Original versions of the recorded plat(s), as well as the

each Thursday by 12:00 P.M., stating the approximate percentages of fieldwork and office work that has been completed. The Progress Reports are to be sent by e-mail to the Surveys Division Senior Staff Land Surveyor as specified in the current Surveys Manual.

8. Accounting Procedures – See Appendix A-1.
9. The following information is attached or has been previously submitted:
 - One (1) copy of existing Roadway or Right of Way plans showing existing right-of-way.
 - Sample copy of parcel survey drawings and/or right of way maps. *
 - One (1) copy of property descriptions located along and adjacent to the highway and within the job limits.
 - One (1) copy of preliminary highway construction plans and/or mapping if available.
 - One (1) copy of General Land Office (GLO) plats of the area.
 - One (1) copy of aerial photographs, at a ratio of 1:9600, to cover the project area.
 - Sample copy of weekly progress report.
 - Sample invoice.
 - Sample Microsoft® Excel spreadsheet.

PART IIC

Right of Way Staking

The Right of Way shall be staked for acquisition on each tract requested by Right of Way Division. AHTD vinyl flags with the proper designations shall be used for this task.

PART IID

Right of Way Monumentation, and Final Plats Right of Way Monumenting and Final Plat

- 1.1 The Right of Way shall be monumented after property is acquired and with the approval of the AHTD to proceed. Monuments shall be set at all Right of Way breaks, and at all property lines and "40 Acre" lines crossed by the Right of Way line. Land corners, such as Section Corners, Quarter Corners, and 1/16th Corners used as the basis of legal descriptions shall also be set, if required by the AHTD. Each point shall set using the monument assembly and stampings prescribed and according to AHTD procedures described in Surveys Manual.

A monument assembly consists of:

- Monument Shaft - 5/8" diameter rebar of sufficient length for the monument to be set firmly in the ground. Minimum length shall be 24

P.O. Box 2261
Little Rock, AR 72203
Shipped – (UPS, Federal Express, etc.)
Michael Kelly, Engineer of Surveys Division
Arkansas Highway and Transportation Department
10324 Interstate 30
Little Rock, AR 72209

Discussions necessary to resolve issues may be handled via teleconference. Complex issues may require "face to face" conferences to resolve.

3. Accuracy of Measurement – All measurement data shall be consistent with minimum standards. Distances are to be measured and displayed on drawings to two (2) decimal places for projects in U.S. Foot. Bearings shall be displayed to the second. Horizontal and vertical angles shall be measured with an instrument capable of reading angles with a minimum accuracy of 5" (seconds) and recorded to the second. Coordinates shall be displayed and copied to disk to the fourth decimal place as a minimum to avoid bearing and distance round off when inverting between data points.
4. Static, Rapid Static, or RTK GPS may be approved for establishing control on a case-by-case basis. All GPS procedures and techniques shall be submitted to the AHTD for review and approval prior to performing any of this type work. The AHTD will not pay for any time or materials for any GPS type work done without prior approval.

Minimum requirements for GPS require that all receivers used be capable of collecting data from the L1 and L2 carrier signals. GPS data shall be furnished to the AHTD as follows:

- GPS collection data for control applications shall be in Trimble DAT (raw observations) and Trimble DC (point name and attributes) file formats.
- GPS Computed data shall be in SDMS points and chain (PAC) format.

Current requirements prohibit using RTK for land monument positioning. The Surveyor shall be certified for GPS control surveys to be considered for Land Survey applications.

5. The work to be performed by Surveyor shall be done in a professional and workmanlike manner satisfactory to the Owner, and except in the matter of advising the Surveyor what work is to be done and the results expected to be obtained, the Owner shall have no supervision over the Surveyor or any of his employees, but the Surveyor will prosecute and direct the work himself, using his own methods to accomplish it and will represent the will of the Owner only as to the result of his work.
6. The Surveyor shall be a Professional Surveyor (PS) in the State of Arkansas. All services performed by the Surveyor shall be in compliance with Arkansas laws and regulations governing the practice of Professional Surveyors and with all Federal, State and Local laws, regulations and ordinances applicable to the work.
7. During the course of the project a progress report shall be sent to the Owner

geometry chain (figure) delineating the existing right of way, as established, shall use the line feature code of RE.

2.5.14 Basis of bearings and coordinates, based on the designation described in the Surveys Manual.

2.5.15 Surveyor's Report (Sample copies of the format required is available).

2.6 Sheet Scales – The CADD graphics and hard copy sheets shall be set up and submitted as 11" x 17" size sheets. The text shall be of a sufficient font (size) that it is legible on an 8.5" x 11" sheet when reduced on a copier. All sheets scales shall be standard Engineering scales. All sheets shall have the required information as follows:

2.6.1 Section subdivision (section breakdown) sheets shall be submitted separate from the parcel sheets. Section subdivision shall be by 1/16 Section. Each sheet shall contain all information specified earlier in this section, and shall also include the location of the proposed construction centerline, if applicable. The scale used is determined by the amount of information required to justify and explain the methods and results being submitted.

2.6.2 Parcel sheets - Complete data is to be submitted to the Owner, consisting of a closed polygon for each parcel of property from which the Owner can prepare plans and property descriptions for the purchase of highway right of way. Each sheet may display as many ownership certificates as practical based on the scale used. The scale used is determined by the amount of information required to justify and explain the methods and results being submitted. Enlarged detailed sketches should be included on sheets with congested areas.

2.7 Parcel work sheets and preliminary parcel sheets shall be submitted for review and approval at the following phases of development:

- Phase I Preliminary Subdivision of Sections (Sectional Breakdown), including pertinent surveyor's notes.
- Phase II Determination of any existing Rights of Way, including pertinent surveyor's notes.
- Phase III Any conflicts in ownership encountered (Gaps, overlaps, etc.).
- Phase IV Preliminary parcel sheets.

2.8 The data shall be submitted in the formats specified to the Engineer of Surveys Division. The raw field data files (PRJ) and edited files (EDI) shall be emailed daily to the Surveys Division Office. CADD files shall be archived and emailed weekly to the Surveys Division Office. This data shall be sent as specified in Section 2.1.

Hard copies of plats for review, as well as the final submittal of all data in the formats specified for the project shall be sent for delivery as follows:

Standard Mail

Michael Kelly , Engineer of Surveys Division
Arkansas Highway and Transportation Department

for the first additional file and continue through the alphabet as necessary. The format is:

Job Number(SPACE)*Note Number*(same as sheet number)*A.txt*
Job Number(SPACE)*Note Number*(same as sheet number)*B.txt*
Etc..

If a sheet should exceed 26 files, use the same procedure but add a second letter (AA, BB, etc.).

- 2.6 Reproducible sheets in 11"x17" size shall be provided as a hard copy and electronic form on compact disk in the Microstation DGN format prescribed above. The CADD and hard copy drawings shall include the following:
 - 2.5.1 Section lines, quarter and quarter-quarter section land lines and established land corners found and computed. Corners shall be described as shown in Chapter IV of the Manual of Surveying Instructions 1973, U.S. Department of Interior BLM; the Handbook for Arkansas Land Surveys, 2nd Edition, 1981; and as described in the Surveys Manual.
 - 2.5.2 Ties to corners, monuments, corner accessories and other relevant witness information which control the location of said 1/16 section lines and corners; the surveyor's basis of acceptance and/or computations thereof, and the originating source of found monument.
 - 2.5.3 Complete descriptions for said 1/16 corners, whether found or computed, using PLSS designations, as shown in the Surveys Manual.
 - 2.5.4 1/16 Sections named and bearing and distance shown on all sides.
 - 2.5.5 The existing right of way centerline and right of way lines.
 - 2.5.6 The construction centerline if furnished by the Owner.
 - 2.5.7 Property lines, with bearings and distances, and platted additions or subdivisions with lot and block numbers.
 - 2.5.8 All pertinent topography located during Design Surveys and Land Surveys.
 - 2.5.9 Description of land corners and property corners tied and other physical evidence of land lines; the basis of acceptance and/or computations thereof; and, the originating source of any found monument.
 - 2.5.10 Easements of record shall be shown on the plat.
 - 2.5.11 All gaps and overlaps found shall be clearly identified. An explanation for the gaps and overlaps shall be included in the surveyor's notes
 - 2.5.12 Point number assigned to each point tied or computed. Computed points shall use the LC feature code for graphics and the point number range as described in the Surveys Manual.
 - 2.5.13 Existing Right of Way for a roadway, if applicable, that has been established using existing monumentation and/or by computation. The

- Coordinate geometry shall be done using coordinate geometry (cogo) commands. Graphic intersection commands shall not be used to create geometry points.
- All alignment points shall be stored as cogo points.
- All parcel tracts shall be stored as closed polygon alignment chains.
- All computed points not used are to be deleted from the data base.
- Surveyor's notes, text notes, and any legal descriptions displayed on the worksheet and/or plat shall be also stored in a text file. Specific requirements are defined elsewhere in this document.
- All pertinent graphical data shall be within the particular DGN file being submitted, to include project data, text, and sheet borders. Topographic survey data may be in a referenced DGN file.
- The Design History shall be turned-on for all Microstation design (.DGN) files.

Data Files to be furnished

- Complete database of points, survey chains, alignment chains, and text elements in ALG format (*See Note 1 above*).
- Finished graphics of points, survey chains, alignment chains, and text elements actually used saved as a DGN and the text files as specified in the Surveys Manual. *See Appendix J of the Surveys Manual for details.*
- Points with all pertinent and required attributes – SDMS PAC format and Inroads ALG format. *See Appendix J of the Surveys Manual for details.*
- Survey Chains
 - o SDMS PAC format
 - o Inroads ALG format.
- Alignment Chains (figures based on coordinate geometry and used as boundary lines with bearing and distance) and chain descriptions
 - o Inroads ALG format
- Individual sheets shall be saved in DGN format.
- Text file of Coordinate Geometry commands (Audit Trail) used to create points and alignments.

Surveyor's and Other Text Notes

All surveyor's notes and other pertinent text notes and any legal descriptions written shall be displayed on the worksheets and/or plats. These notes shall also be stored as separate text files for each sheet developed. The filename shall include the job number and sheet number where it appears. The format is:

Job Number(SPACE)Note Number(same as sheet number).txt.

If it is necessary to create more than one text file for a particular page, add an alpha character after the note (sheet) number. Use the letter "A"

held by the Owner for the AASHTOWare® SDMS Data Collection System. The Consultant/Surveyor is obligated to comply with all license requirements while using this software.

Field procedure shall comply with the Surveys Manual.

All field data files (PRJ) for the field work completed each day shall be submitted to the Surveys Division Office via email on a daily basis. These files are to be sent to <mailto:surveysupport@arkansashighways.com>

- 2.2 All field data processing should be performed using AASHTO SDMS Processor. This software is also furnished at no charge to the Consultant/Surveyor under the site license held by the Owner for the AASHTOWare® SDMS Data Collection and Processing System. The Consultant/Surveyor is obligated to comply with all license requirements while using this software. Processing procedures should comply with the Surveys Manual.

Processed data files shall be archived and submitted to the Surveys Division Office via email on a weekly basis. The archive shall include all files imported into, edited in, and developed by SDMS Processor. These files are to be sent to <mailto:surveysupport@arkansashighways.com>.

- 2.3 Establish field survey ties to pertinent land monuments, property corners and existing right of way monuments using the feature IP and as described in the Surveys Manual.
- 2.4 All raw and calculated field data shall be furnished to the Surveys Division as part of the final submittal on compact disk (CD) in the AASHTOWare® SDMS format, as described in the Surveys Manual.
- 2.5 Prepare all drawings, maps and plats using the Bentley Systems, Inc., Microstation Inroads, Version 8.9/SP2 and Microstation Version 8.5 or higher. The cell library, seed files, feature table, and preference tables furnished by the Department shall be used. This data shall be archived and emailed on the Thursday of each week. These files are to be sent to <mailto:surveysupport@arkansashighways.com>.

The design files (.DGN) graphics and geometry database (.ALG) shall be in the format prescribed, based on using Bentley Inroads 8.9/SP2 as specified in the information that follows:

Bentley Inroads

Land Survey coordinate geometry (COGO) and worksheets shall be developed using Bentley Inroads as follows:

- Point Number Range based on the feature code shall be as described in the Surveys Manual.
- Feature Codes shall be used as specified in the Manual or in the Project Scope.
- Complete point descriptions and all pertinent and required attributes shall be stored and displayed for each tied or calculated point necessary to define that specific point or geometry chain.

- Job name and number
- Designated as Title Services
- Federal Tax ID Number
- Billing period dates
- Total earned for the period
- Total amount due for the period

A sample invoice is attached.

NOTE: It is not necessary to follow the format shown on the attached sample invoice. However, it is necessary the items listed above be included on your invoices.

3. A completed Microsoft® Excel spreadsheet for each billing period shall accompany each invoice. The actual Excel file, furnished by the Department, will be based on the Consultant's approved estimate. This file will be furnished provided to the Consultant once a contract has been signed by the AHTD. The Excel spreadsheet will be sent by E-mail. A sample Microsoft® Excel spreadsheet is attached.

PART IIB

Land Surveys (Parcel Surveys) for Right of Way Acquisition

- 1 This portion of the project consists of performing Land Surveys within the limits of the project. The work performed and plats prepared and furnished shall meet the current Arkansas Minimum Standards for Property Boundary Surveys and Plats as well as AHTD requirements. The Surveyor performing the work shall be on the current list of those certified to perform land surveys for the AHTD.

Note: All land surveys are to be performed using Grid Coordinates from the Arkansas State Plane Coordinate System Zone in which the project is located projected to ground coordinates. The ground coordinates shall be based on the combination adjustment factor assigned by or approved by the AHTD.

- 1.1 The Consultant/Surveyor shall coordinate the work and allocate sufficient time to complete and submit the Land Surveys at the 100% level no later than (*Date Specified Here*).
- 1.2 Any revisions or corrections required by the Owner in the submitted data shall be made by the Consultant and resubmitted to the Owner within two weeks of notification of such revisions.
2. The work required to be performed by the Surveyor will be as follows:
 - 2.1 All land survey data collection, as well as any design survey data, shall be done using the AASHTOWare® SDMS Collector. All data collected shall be processed using the AASHTOWare® SDMS Processor. This software is furnished at no charge to the Consultant/Surveyor under the site license

index as well as on each certificate. Certificates are to be prepared on forms similar to the attached sample form.

- b. **Deeds:** An actual legible copy of each deed, (either photo copied or scanned), including acknowledgments, stamps, and recording data is to be furnished for each parcel and contiguous lands.
- c. **Survey Plats:** Where deeds refer to surveys by a surveyor, a complete and legible copy (border to border) of the surveyor's plat is to be furnished. All other related surveys that come to light during the course of research are also to be furnished.
- d. **Subdivision Plats:** Where parcels are deeded per subdivision plats of record or where deeds make reference to subdivision or survey plats, either recorded or unrecorded, complete and legible copies (border to border) of said subdivision or survey plats are to be furnished, along with any accompanying bills of assurance. All other related subdivision plats that come to light during the course of research are also to be furnished.
- e. **Strip Map:** A strip map shall be made and furnished similar to the attached example. The strip map is to show the approximate location of the highway project, as well as all intersecting streets, roads and highways, including their names and/or numbers. The relative location of the parcels with their certificate numbers is to be shown. Where the parcels are described by metes and bounds, their relationship is to be shown within sixteenth sections, section, township and range. Where the parcels are described within subdivisions, either recorded or unrecorded, their relationship within the subdivision is to be shown. This includes certificate numbers, lot and block numbers, street names, and subdivision names. The approximate boundaries of subdivisions are to be delineated on the strip map. The strip map is to be plotted at a scale large enough to show deed calls.

- 1.2 Title services must be completed and delivered on or before *(Date)*. Submittals are to include one copy of each certificate booklet and strip map, along with one copy of each survey plat, subdivision plat, and bill of assurance. Submittals are to be sent to the Engineer of Surveys Division. The address to use depends on method of delivery as follows:

Standard Mail

Michael Kelly, PE

Engineer of Surveys Division

Arkansas Highway and Transportation Department

P.O. Box 2261

Little Rock, AR 72203

Shipped – (UPS, Federal Express, etc.)

Kit Carson, PE, PS

Engineer of Surveys Division

Arkansas Highway and Transportation Department

10324 Interstate 30

Little Rock, AR 72209

2. Invoices for work completed on this project shall include:

PART II LAND SURVEYS

PART IIA

Title Services

1. This part of the project consists of furnishing the Arkansas Highway and Transportation Department, Surveys Division, with current ownership data, including: certificates, deeds, surveys, subdivision plats, and strip map for properties that are or may be involved. The individual(s) performing this task shall have a current license as an Abstractor in the State of Arkansas.
- 1.1 The work required to be performed and furnished to the Surveys Division by the abstractor is as follows:
 - a. **Certificates of Title:** A Certificate of Title shall be furnished for each parcel of land fronting or touching each side of the highway along the length of the project. A copy of the record legal description of any contiguous lands owned by the person or persons listed in the certificates of title shall also be furnished.

Each certificate will be for the current ownership as of the date of the certificate of title is prepared for this project and shall contain the following data:

- AHTD Job Number;
- AHTD Job Name, Review Date;
- County,
- Grantee(s) Name and Address;
- Parcel (tax) ID;
- Land Value;
- Improvements Value;
- Area (acres);
- Type of Instrument;
- Date of Instrument;
- Date Filed;
- Record Book and Page and/or Instrument Number;
- Grantor(s) name(s)
- The Record Description per the deed.
- A Certificate Number shall be assigned and shall be displayed in the lower right hand corner of each certificate.

Certificate numbers shall be grouped together for all parcels within each land section and within each subdivision involved. The certificates with corresponding deeds are to be numbered and indexed by number and the owner's name. The certificates are to be furnished in booklet form with the index at the front of each booklet. The name, address and telephone number of the abstracting firm is to be on the

Note: Current procedure requires all grid coordinates be projected to ground coordinates, based on the combination adjustment factor assigned by or approved by the AHTD, for project design. This will be a specific task if it is part of a contract for work to be performed.

- 6.4 Horizontal and vertical control data – any GPS Control Data Forms; other horizontal control data; and, vertical control data that shall be used for this project.
- 6.5 The Surveys Manual will include the following:
- File Naming Procedures
 - Software Requirements
 - Point Numbering
 - Feature Codes
 - Survey Procedures for Topographic Surveys
 - Land Ties
 - SDMS Configuration
 - SDMS Sequences
 - Checklist
7. The Consultant shall submit a proposal by *(DATE)*, for performing Topographic and Digital Terrain Model Surveys on this project. The proposal shall follow the format on the attached form, “Format For Estimating Costs”, which details the following:
- The estimated level of effort in man-hours
 - Hourly rate by classification
 - Overhead costs
 - Expenses
 - Total cost
- The Consultant shall also provide the estimated cost and length of 3-wire level runs required to tie the project to government datum as detailed in the manual. This estimate should be entered on line 7.1 of the estimate form and shall be included in the total estimate price.
8. Accounting Procedures – See Appendix A-1.

PART I C

Design Surveys – Photogrammetry

Aerial Photogrammetry and Digital Terrain Model (DTM) and Mapping (Design Level). Obtain new low altitude aerial photography flown at an altitude of 1800 feet above mean terrain level (1:3600 Photo Scale Reciprocal). Perform ground support GPS control, airborne GPS, analytical aerotriangulation, DTM, topographic mapping, and prepare digital orthophotos for the design alignment with a map scale of one inch equals fifty feet (1" = 50'). The mapping corridor shall be a minimum of 1000 feet wide on each side of the preferred alternative alignment location. Photogrammetry is to be performed using Grid Coordinates based on the Arkansas State Plane Coordinate System Zone in which the project is located. Photogrammetry shall be furnished to the AHTD in Intergraph ISPM format.

- 1.9. Field surveys for all drainage structures, including bridges. Procedures as described in the Surveys Manual shall be followed.

Note: Valley Sections **are not** required for this project.

- 1.10 Provide a hard copy of the checklists and inventory sheets in Appendix F of the Surveys Manual.
2. Accuracy of measurements –All measurement data shall be consistent with minimum standards. Distances are to be measured and displayed on drawings to two (2) decimal places for projects in U.S. Foot. Bearings shall be displayed to the second. Horizontal and vertical angles shall be measured with an instrument capable of reading angles with a minimum accuracy of five seconds (5") and recorded to one second (1"). Coordinates shall be displayed and copied to disk to the fourth decimal place as a minimum to avoid bearing and distance round off when inverting between data points.
3. The work shall be done in a professional and workmanlike manner satisfactory to the Owner, and except in the matter of advising the Consultant/Surveyor what work is to be done and the results that are expected to be obtained, the Owner shall have no supervision over the Consultant/Surveyor or any of his employees. The Consultant/Surveyor will direct the work himself, using the methods prescribed by the Owner to accomplish it and will represent the will of the Owner as to the results of his work.
4. The Consultant's surveyor shall be a Professional Surveyor (PS) in the State of Arkansas. All services performed by the surveyor shall be in compliance with Arkansas laws and regulations governing the practice of Professional Surveyors and with all Federal, State and Local laws, regulations and ordinances applicable to the work.
5. The Consultant will inform the Owner when fieldwork has started on the project. During the course of the project a progress report shall be sent to the Owner each Thursday, indicating the percentage of the work completed. The report can be faxed to Surveys Division at 501-569-2344, or e-mailed to the Surveys Division Staff member who is responsible for this task as specified in the current Surveys Manual.
6. The following information is attached:
 - 6.1 One (1) copy of a location sketch, showing project location.
 - 6.2 One (1) copy of an uncontrolled aerial photo, at a scale of 1 in.=200ft (approximate), covering the project location, and outlining the minimum limits for the Topographic and Digital Terrain Model Survey.
 - 6.3 One (1) copy of the "Format for Estimating Costs" form.

PART I B

Design Surveys - Topography and Terrain Data

The project consists of performing Topographic & Digital Terrain Model Surveys for the Arkansas State Highway Commission acting by and through its Director of Highways and Transportation, hereinafter called the Owner, at (project location), in the area shown on the enclosed map. It is requested that the job be completed and submitted no later than (DATE). Ample time shall be scheduled and adequate resources dedicated to the project to complete the Topographic and Digital Terrain Model surveys by the submittal date. Completion includes submittal of 100% of Topographic and Digital Terrain Model surveys.

This part of the project consists of obtaining and submitting Topographic, and Digital Terrain Model Surveys, as detailed in the Surveys Manual as follows:

- 1.2 Obtain all pertinent topographic data. (Refer to Digital Terrain Modeling section of Surveys Manual.)
- 1.3 Set control references (Resection References) for the project. The reference monuments shall be set following procedures as described in the Surveys Manual.
- 1.4 All design data collection and processing shall be done using the AASHTOWare® SDMS Collector and SDMS Processor, respectively. The software will be furnished to Surveyors/Consultants currently certified to perform surveys for the AHTD under the site license held by the AHTD from AASHTO to use said software. The Surveyor/Consultant shall comply with all legal requirements of AASHTO while using the software.
- 1.5 All raw and calculated data shall be submitted electronically on compact disk (CD) in the required AASHTO SDMS formats.
- 1.5. All design surveys will be U.S. Foot unless specified otherwise.
- 1.6. All design surveys are to be performed using Grid Coordinates based on the Arkansas State Plane Coordinate System Zone in which the project is located.

Note: Current procedure requires all grid coordinates be projected to ground coordinates, based on the combination adjustment factor assigned by or approved by the AHTD, for project design. This will be a specific task if it is part of a contract for work to be performed.

- 1.7. Land Ties as described in the surveys manual.

Note: Land Ties are not required for this project

- 1.8. Utility surveys to locate all above ground and below ground utilities. Procedures as described in the Surveys Manual shall be followed.

format on the attached form, "Format For Estimating Costs" and titled: "CONTROL SURVEYS – ELEVATIONS."

- 4.5 If the government datum is more than two (2) miles from task project site, then the Consultant/Surveyor shall provide the estimated cost and length of 3-wire level runs required to tie the task project to the government datum as detailed in the Surveys Manual. The Consultant/Surveyor shall submit a proposal by *(Date)*, for performing Vertical Control Surveys to the actual task project location. The proposal shall follow the format on the attached form, "Format For Estimating Costs" and titled "CONTROL SURVEYS – VERTICAL CONTROL TO PROJECT."

5. Horizontal Control Surveys – Traverse

- 5.1 This part of the project consists of obtaining and submitting Horizontal Data Collection for Control Surveys, as detailed in the Surveys Manual as follows:
- 5.1.1 This survey shall be horizontal data collection on the control points for the task projects as listed in Table IV, *Control Surveys (Task Projects) for Horizontal Control*.
- 5.1.2 All horizontal traverse work shall be performed with an approved total station utilizing AASHTOWare® SDMS® Collector shall be used for all traverses. The traverse shall be a closed loop from either the GPS Control points or the primary control with adequate redundant ties between control points to perform a least squares analysis of the data. Certain GPS techniques, if approved by the AHTD in advance, may be used for this purpose. If approved in advance, RTK GPS may be done in lieu of running a conventional traverse.
- 5.1.3 The Consultant/Surveyor shall establish control points on this task project. Field generated control includes adequate control points on the ground to correctly geo-reference any alternatives, if part of the task project. Control points shall be inter-visible at distances no greater than 800 feet apart. Each control point set shall have an elevation established using three (3) wire level techniques.
- 5.1.3.1 Control points shall be a 5/8" x 24" rebar with a 2" aluminum cap as designated in the Surveys Manual. The owner, if requested by the Consultant/Surveyor, shall supply these materials.
- 5.2 The following additional information is attached:
- 5.2.1 One (1) copy of AHTD existing job control points designated as to which need horizontal coordinates.
- 5.3 The Consultant/Surveyor shall submit a proposal by *(Date)*, for performing Control Surveys - Horizontal for this task project. The proposal shall follow the format on the attached form, "Format For Estimating Costs" and titled: "CONTROL SURVEYS – HORIZONTAL."

advance, may be used for this purpose. If approved in advance, RTK GPS may be done in lieu of running traverse to Horizontal Panel Targets.

- 3.2 The Consultant/Surveyor shall submit a proposal by *(Date)*, for performing Photogrammetry Mapping Control Surveys for each task project. The proposal shall follow the format on the attached form, "Format For Estimating Costs", and titled: "CONTROL SURVEYS – PHOTOGRAMMETRY MAPPING TARGETS."

4. Vertical Control Surveys – Elevation

- 4.1 This part of the project consists of obtaining and submitting Vertical Data Collection for Control Surveys, as detailed in the Surveys Manual as follows:

- 4.1.1 This survey shall be vertical data collection to and through the task projects as listed in Table III, *Control Surveys (Task Projects) for Vertical Control*.

- 4.1.2 Vertical control shall be established from a minimum of two (2) NGS First or Second Order vertical control monuments and shall be based on NAVD 88 Datum. Three-wire leveling shall be used to establish vertical control to and within the task project limits for benches and control points as detailed in Surveys Manual.

An approved automatic level and a high quality wood Philadelphia type rod with readings made to the thousandth (*##.###*) shall be used on all projects.

- 4.1.3 The Consultant/Surveyor shall establish vertical control points on this task project. Each control point shall have an elevation established using three (3) wire level techniques.

- 4.1.4 As detailed in the Surveys Manual, vertical control points are to be set as follows:

- 4.1.4.1 Every ½ mile to the task project location and every ¼ mile within the task project location.

- 4.1.4.2 On every major culvert and bridge to and within the task project location.

- 4.1.4.3 All primary control points and random traverse points.

- 4.2 The following additional information is attached:

- 4.2.1 One (1) copy of AHTD existing job control points designated as to which need elevations.

- 4.3 An elevation control plan shall be prepared and accompany the estimate. The plan shall include a narrative and a layout on an at least 1"=2000' aerial photograph or USGS Quadrangle sheet. The plan shall include:

- The NGS Bench Marks found and to be used.
- The elevation control route proposed.
- The types and proposed locations of the marks to be established along the elevation control route.

- 4.4 The Consultant/Surveyor shall submit a proposal by *(Date)*, for performing Vertical Control Surveys on this task project. The proposal shall follow the

- 3.1.3.7 If requested by the property owner, the Consultant/Surveyor shall return to the job site and remove the target material after the task project has been flown and all targets have been located on the photograph.
- 3.1.3.8 As soon as all targets have been placed on the project, the Consultant/Surveyor shall contact the Section Head of Photogrammetry at (501) 569-2410 and the Surveys Division Staff member who is responsible for this project as specified in the current Surveys Manual.
- 3.1.4 If determined to be a "PICK" project then the following shall apply:
 - 3.1.4.1 If the pick location is within the AHTD right-of-way and will be used for primary control, place a 5/8" x 24" rebar with a 2" aluminum cap, stamped as designated in the Surveys Manual, at the location designated on the photograph. The owner, if requested by the Consultant/Surveyor, shall supply these materials.
 - 3.1.4.2 If the pick location is within the AHTD right-of-way and the surface is asphalt, then a concrete nail can be used to designate the spot.
 - 3.1.4.3 If the pick location is within the AHTD right-of-way but not suitable for permanent marking, as described above, then a suitable temporary mark shall be made so that all required information can be collected.
 - 3.1.4.4 If the pick location is not within the AHTD right-of-way then a suitable temporary mark shall be made so that all required information could be collected.
- 3.1.5 When collecting information of the "pick" target or placing a target on private property, which is the case on many of the targets, the Consultant/Surveyor shall contact the property owner. The property owner shall be made aware that the target is for aerial flight control only and not necessarily the center of the highway improvements.
- 3.1.6 If personal contact cannot be made, a copy of the notification form shall be left at the in an "easy to be seen" location on the property. This form is found in the Surveys Manual.
- 3.1.7 If the Horizontal Panel Targets (HPT) is to be part of the primary control network, then they shall have elevations run to them using AASHTOWare® SDMS® and three (3) wire level techniques.
- 3.1.8 All Vertical Panel Targets (VPT) are to have elevation loops run to them using AASHTOWare® SDMS® and three (3) wire level techniques. Certain GPS techniques, if approved by the AHTD in advance, may be used for this purpose. If approved in advance, RTK GPS may be done in lieu of running elevations to Vertical Panel Targets.
- 3.1.9 All Horizontal Panel Targets (HPT) are to be traversed in using an EDM. This traverse shall be a closed loop from either the GPS Control points or the primary control. Certain GPS techniques, if approved by the AHTD in

- 2.2 The following additional information is attached:
One (1) copy each of GPS Control Observation Log Form, GPS Recovery Form, GPS Visibility Form, and GPS Pencil Rubbing Form.
- 2.3 In lieu of submitting the checklists and inventory sheets in Appendix F of the Surveys Manual, the GPS Forms listed above shall be submitted for each session and for each station.
- 2.4 The Consultant/Surveyor shall submit a proposal by *(Date)*, for performing GPS Collection Surveys on each task project. The proposal shall follow the format on the attached form, "Format For Estimating Costs" and titled: "CONTROL SURVEYS – GPS COLLECTION."

3. Photogrammetry Mapping Targets

- 3.1 This part of the project consists of obtaining and submitting Photogrammetry Mapping Targets Collection for Control Surveys, as detailed in the Surveys Manual as follows:
- 3.1.1 This survey shall be data collection on the Photogrammetry Mapping Targets for the task projects as listed in Table II, *Control Surveys (Task Projects) for Photogrammetry Mapping Control*.
- 3.1.2 The Owner's Photogrammetry Section, prior to the start of the task project, shall determine whether the task project is a Photo Identifiable Point (pick) or a target project.
- 3.1.3 If determine to be a "TARGET" project, then the following shall apply:
- 3.1.3.1 Target Material shall be supplied by the owner.
- 3.1.3.2 Targets shall be placed in an open area within 100' of the location shown on the photograph provided.
- 3.1.3.3 The target shall be placed on the ground in a plus "+" shape with three (3) foot legs. The orientation of the legs does not matter except that each leg shall be 90 degrees from the previous leg. The length from one leg end to an opposite end shall be six (6) foot.
-
- NOTE: If the task project is designated as High Altitude, then twelve-foot (12') targets shall be utilized with six (6) foot legs.
-
- 3.1.3.4 At the center of this target shall be placed a 5/8" x 24" rebar with a 2" aluminum cap as designated in the Surveys Manual. The owner, if requested by the Consultant/Surveyor, shall supply these materials.
- 3.1.3.5 If the target can be placed such that it is painted on asphalt then a concrete nail can be placed at the center in lieu of the cap and rebar.
- 3.1.3.6 The following information shall be placed on the target:
Job Number (as listed in Table II)
Point Number (as listed on the photo)
AHTD Surveys Division (501) 569-2341

The receivers used for network surveys should record the full wave-length carrier phase and signal strength of both the L1 and L2 frequencies, and track at least eight satellites simultaneously on parallel channels. Dual frequency instruments are required for all baselines. Receivers should have sufficient memory and battery power to record six (6) hours of data at 15-second epochs.

- 2.1.10 Special Requirements - Antenna set-up is critical to the success of this task. Fixed-height tripods are preferred for all receivers. The plumbing bubbles on the antenna pole of the fixed-height tripod shall be shaded when plumbing is performed. They shall be shaded for three (3) minutes before checking and/or re-plumbing. Also, the perpendicularity of the poles shall be checked at the beginning of the project and any other time there is suspicion of a problem.

When a fixed-height tripod is not used, the height of the antenna shall be carefully measured to prevent station set-up blunders from occurring. Tribrachs used for these set-ups shall be checked and adjusted when necessary. Totally independent measurements of the antenna height above the mark in both metric and English units shall be made before and after each session.

Some GPS antennas have detachable ground planes and radomes. In order to help identify what exactly was used at a particular site, it would be useful to have a snapshot of the setup and, if possible, a close-up of the antenna as viewed from the side. The GPS antennas shall have stable phase centers and choke rings or large (> 16 cm) ground planes to minimize multipath interference.

- 2.1.11 A rubbing of the stamping of the mark shall be made at each visit to a station. If it is impossible to make a rubbing of the mark, a plan sketch or digital picture of the mark shall be substituted, to accurately recording all markings.

- 2.1.12 For each station visited, a visibility obstruction diagram shall be prepared and the TO-REACH description carefully checked for errors or omissions.

- 2.1.13 The following shall be recorded at each occupation of a station:

- receiver manufacturer;
- antenna manufacturer;
- receiver model number (part number);
- antenna model number (part number);
- the complete serial number of the receiver, and;
- the complete serial number of the antenna;
- antenna heights.

- 2.1.14 Success of this task requires that the highest quality GPS data be collected. Therefore, during each station occupation, the operators shall carefully monitor the operation of the receivers. Any irregularities in the data due to equipment malfunction, DOD adjustment of the satellite orbit, obstructions, etc., shall be reported to the Surveys Division Staff member who is responsible for this task as specified in the current Surveys Manual.

10:30 am – 11:00 am	Break
11:00 am – 12:00 pm	Lunch
12:00 pm – 12:30 pm	Setup
12:30 pm – 2:30 pm	Session B
2:30 pm – 3:00 pm	Break / Setup
3:00 pm – 5:00 pm	Session C

Friday / Travel Day

8:00 am – 8:30 am	Setup
8:30 am – 10:30 am	Session A
10:30 am – 11:00 am	Break / Setup
11:00 am – 1:00 pm	Session B
1:00 pm – 2:00 pm	Lunch
2:00 pm – 5:00 pm	Travel

Note: This schedule should be adjusted accordingly so that optimum satellite coverage is utilized and occupation times should correspond to the operation times of area AHTD CORS Sites.

- 2.1.8 Each station shall be occupied at least three times - twice at one observing window and once at the other. Adjacent stations shall be directly connected in at least one observing session, and at least one-half of all base lines shall be repeated. The CORS base lines shall be repeated. CORS data shall be used throughout the task project.

NOTE: The observation schedule shall be provided to the Owner at the beginning of each task project and whenever the Consultant/Surveyor revises the observation schedule.

- 2.1.9 The GPS receivers and antennae shall be of geodetic quality collecting full-wavelength L1/L2 Dual Frequency data and they shall be set to track satellites down to a 15-degree elevation angle. Data collection shall be accomplished as specified in the field utilizing a dual-frequency receiver in the compressed mode at a 15-second epoch collection interval. The model of the antenna used for observations shall be on the list of calibrated/modeled antenna by the National Geodetic Survey which can be found at <http://www.ngs.noaa.gov/ANTCAL/index.shtml>.

The GPS system used shall produce Receiver Independent Exchange (Rinex) Version 2.10 data format which can be found at <http://www.ngs.noaa.gov/CORS/rinex210.txt>. The Consultant/Surveyor shall provide the raw GPS data in the manufacturer's native format and in the RINEX v2.10 format.

- 2.1.3.2 All GPS control points set shall consist of a 5/8" rebar with a 2 1/2" aluminum cap. These caps will be furnished by the Department. Sufficient length of rebar shall be used to provide stability for the soil conditions encountered for each point set with a minimum length of 48". Each point shall be stamped according to the AHTD marking and numbering system.
- 2.1.4 Global Positioning System (GPS) shall be used to establish survey controls on the task project. It shall be established from first order (1:100,000) NGS Geodetic Survey control points, Arkansas High Accuracy Regional Network points, and Continuous Operating Reference Stations (CORS) in the area based on NAD 83 (1997) and using GEOID96. First order (1:100,000) accuracy shall be maintained on all baselines. Procedures for GPS shall comply with those set out in Geometric Geodetic Standard and Specifications for using GPS Relative Positioning Techniques, by the Federal Geodetic Control Committee, version 5.0 (Reprinted 8/1/1989), or later.
- 2.1.5 Data from the CORS in the region shall be used in the processing. The seven AHTD NGS National CORS are located in Batesville (ARBT), Camden (ARCM), Fayetteville (ARFY), Hope (ARHP), Harrison (ARHR), Little Rock (ARLR), and Paragould (ARPG). There are fourteen NGS National CORS in addition to the AHTD CORS in the area. Positions and data for the NGS CORS are available from the NGS web site and the AHTD ftp web site.
- 2.1.6 Data from the surrounding NGS and AHTD CORS sites shall be retrieved and compiled by AHTD. All data processing shall be done by AHTD.
- 2.1.7 The observing scheme shall be arranged so that for each station, the start time of one of the observing sessions shall be at least four (4) hours different from the other two. The observing scheme shall be arranged to ensure that adjacent stations are directly connected in at least one observing session, and at least half of all base lines are repeated. Three (3) sessions of two (2) hours each shall be observed on each control point. In order to provide a check, the equipment shall be broken down and reset with a minimum of 30 minutes between the three sessions.

A typical schedule is as follows:

Monday / Travel Day

8:00 am – 11:00 am	Travel
11:00 am – 12:00 pm	Lunch
12:00 pm – 12:30 pm	Setup
12:30 pm – 2:30 pm	Session A
2:30 pm – 3:00 pm	Break / Setup
3:00 pm – 5:00 pm	Session B

Tuesday – Thursday

8:00 am – 8:30 am	Setup
8:30 am – 10:30 am	Session A

AASHTO to use said software. The Consultant/Surveyor shall comply with all legal requirements of AASHTO while using the software.

1.19 Data shall be furnished to the AHTD as specified in the Surveys Manual as follows:

- Collection data shall be in AASHTOWare® SDMS® .PRJ format.
- Edited data shall be in AASHTOWare® SDMS® .EDI format.
- Processed SDMS formatted data shall be in the AASHTOWare® SDMS® .PAC format
- Control Point data shall be in AASHTOWare® SDMS® .CTL format
- Static GPS data shall be in RINEX v2.10 format.
- RTK GPS data shall be in TRIMBLE® .DC format.
- Calculated RTK GPS data shall be in AASHTOWare® SDMS® .CAL format.

1.20 Accounting Procedures – See Appendix A-1

1.21 Proposals submitted shall follow the format on the attached form, “Format For Estimating Costs”, which details the following:

- The estimated level of effort in man-hours
- Hourly rate by classification
- Overhead costs
- Expenses
- Total cost

1.21.1 Additional information to be included with proposals includes:

- A list of the make and model of levels and level rods to be used for this project, if applicable.
- A list of the make and model of total stations to be used for this project, if applicable.
- A list of the make and model of GPS equipment to be used for this project, if applicable.

2. Static GPS

2.1 This part of the project consists of obtaining and submitting GPS Collection for Control Surveys, as detailed in the Surveys Manual as follows:

2.1.1 This survey shall observe the GPS Control stations along the task projects as listed in Table I, *Control Surveys (Task Projects) for GPS Collection*.

2.1.2 Static GPS techniques, approved by the AHTD, shall be used for this purpose.

2.1.3 The Owner, prior to the start of the task project, shall set all GPS Control points in Arkansas. The Consultant/Surveyor shall set all GPS Control points outside of the State Boundary.

2.1.3.1 All GPS control points shall consist of pairs of inter-visible points. One point shall be designated the station monument and one as an azimuth mark.

- Billing period dates
- Total earned for the period
- Total amount due for the period

A sample invoice is attached.

Note: It is not necessary to follow the format shown on the attached sample invoice. However, it is necessary the items listed above be included on your invoices.

A completed Microsoft® Excel spreadsheet for each billing period shall accompany each invoice. The actual Excel file, furnished by the Department, will be based on the Consultant's approved estimate. This file will be furnished provided to the Consultant once a contract has been signed by the AHTD. The Excel spreadsheet will be sent by E-mail. A sample Microsoft® Excel spreadsheet is attached.