

SUPPLEMENTAL AGREEMENT NO. 3

This supplemental agreement is made and entered into July 6, 2020, by and between the COUNTY OF TIPPECANOE, INDIANA, acting by and through its proper officials (hereinafter referred to as "OWNER") and CROSSROAD ENGINEERS, PC (hereinafter referred to as the "CONSULTANT").

WITNESSETH

WHEREAS, OWNER and the CONSULTANT did, on June 6, 2016, enter into a contract to provide certain professional services with respect to the **Reconstruction of Yeager Road – 1,330' South of the West Lafayette City Limits to CR 500 N, Des. No. 1401281** ("Project").

WHEREAS, OWNER and the CONSULTANT did, on April 16, 2018, amend said contract to provide additional professional services for hydraulics to replace the existing triple pipe culverts, design of inline pipe detention and water quality, and services to obtain a Memorandum of Agreement (MOA) for the Section 106 process.

WHEREAS, OWNER and the CONSULTANT did, on February 19, 2019, amend said contract provide additional right of way engineering services necessary to allow the parcels of right of way to be procured that are required to construct the Project. These services will be provided as described in the Supplemental Fee Request dated May 3, 2019.

WHEREAS, OWNER desires the CONSULTANT to provide additional professional services necessary to revise the previously designed alignment of Yeager Road. These services will be provided as described in the Supplemental Fee Request dated June 18, 2020.

WHEREAS, in order to provide for completion of the work, it is necessary to amend and supplement the contract.

NOW, THEREFORE, it is agreed by and between the parties as follows:

1. Appendix "D" is amended as attached EXHIBIT "A".
2. Except as herein modified, changed and supplemented, all terms of the original contract dated June 6, 2016 shall continue in full force and effect.

Non Collusion - The undersigned attests, subject to the penalties for perjury, that he/she is the contracting party, or that he/she is the representative, agent, member or officer of the contracting party, that he/she has not, nor has any other member, employee, representative, agent or officer of the firm, company, corporation or partnership represented by him/her, directly or indirectly, to the best of his/her knowledge, entered into or offered to enter into any combination, collusion or agreement to receive or pay, and that he/she has not received or paid any sum of money or other consideration for the execution of this agreement other than that which appears upon the face of the agreement.

In Witness Whereof, the CONSULTANT and the LPA have, through duly authorized representatives, entered into this Contract. The parties having read and understand the forgoing terms of this Contract do by their respective signatures dated below hereby agree to the terms thereof.

CROSSROAD ENGINEERS, PC  
(CONSULTANT)

COUNTY OF TIPPECANOE, INDIANA  
(LPA)

  
\_\_\_\_\_  
Trent E. Newport, President

\_\_\_\_\_  
Tracy A. Brown, President

\_\_\_\_\_  
Thomas P. Murtaugh, Vice-President

\_\_\_\_\_  
David S. Byers, Member

Attest:

Attest:

  
\_\_\_\_\_  
Mark A. Beck, Vice-President

\_\_\_\_\_  
Bob Plantenga, Auditor

## APPENDIX "D"

## COMPENSATION

A. Amount of Payment

1. The CONSULTANT shall receive as payment for the work performed under this Agreement the total amount not to exceed \$ 693,350.00 (Section A. 2. - \$626,030.00, and Section A. 3. - \$67,320.00) unless a supplemental is executed by the parties that increases the maximum amount payable.

2. The CONSULTANT shall be paid for the following work performed under this Agreement on a lump sum basis in accordance with the following:

<del>a.</del>	<del>Supplemental Field Survey</del>	<del>\$ 18,000.00</del>
<del>b.</del>	<del>Environmental Document Preparation – CE Level 4</del>	<del>\$ 51,300.00</del>
<del>c.</del>	<del>Hydraulic Analysis and Report</del>	<del>\$ 14,900.00</del>
<del>d.</del>	<del>Road Design and Plan Preparation</del>	<del>\$ 244,200.00</del>
<del>e.</del>	<del>Geotechnical Evaluation</del>	<del>\$ 4,220.00</del>
<del>f.</del>	<del>Utility Coordination (During Design Phase)</del>	<del>\$ 17,200.00</del>

a.	Supplemental Field Survey	\$ 57,000.00
b.	Environmental Document Preparation – CE Level 4	\$ 101,800.00
c.	Hydraulic Analysis and Report	\$ 20,900.00
d.	Road Design and Plan Preparation	\$ 322,000.00
e.	Geotechnical Evaluation	\$ 16,630.00
f.	Utility Coordination (During Design Phase)	\$ 21,000.00
g.	Public Hearing / Public Information Meeting	\$ 8,200.00
h.	Regulatory Submittals	\$ 23,800.00
i.	Hydraulic Design for triple culvert replacement	\$ 9,300.00
j.	Design of inline pipe detention and water quality	\$ 38,000.00
k.	Services to obtain a MOA for Section 106	\$ 7,400.00
	<b>Total Section A. 2.</b>	<b>\$ 436,520.00</b>
	<b>Total Section A. 2.</b>	<b>\$ 626,030.00</b>

3. The CONSULTANT shall be paid for the following work tasks performed under this Agreement on a unit price basis as estimated below and in accordance with the following:

a.	Preliminary T & E Reports (15 @ \$500 each)	\$ 7,500.00
<del>b.</del>	<del>Right of Way Engineering (8 @ \$1,300 each)</del>	<del>\$ 10,400.00</del>
b.	Right of Way Engineering (14 @ \$1,300 each)	\$ 18,200.00
<del>c.</del>	<del>Additional Right of Way Engineering (5 @ \$1,000 each)</del>	<del>\$ 5,000.00</del>
c.	Additional Right of Way Engineering (7 @ \$1,000 each)	\$ 7,000.00
d.	Right of Way Plats (18 @ \$500 each)	\$ 9,000.00
e.	Additional Plat Pages (10 @ \$300 each)	\$ 3,000.00
f.	Right of Way Legal Descriptions – Perm. (26 @ \$500 each)	\$ 13,000.00
g.	Right of Way Legal Descriptions – Temp. (15 @ \$500 each)	\$ 7,500.00
h.	Appraisal Problem Analysis (8 @ \$265 each)	\$ 2,120.00
	<b>Total Section A. 3.</b>	<b>\$ 57,520.00</b>
	<b>Total Section A. 3.</b>	<b>\$ 67,320.00</b>

The CONSULTANT shall not be paid for any services performed by LPA or INDOT, or not required to develop this project.

B. Method of Payment

1. The CONSULTANT may submit a maximum of one invoice per calendar month for work covered under this Contract. The invoices shall be submitted to:

Tippecanoe County Highway Department  
20 North 3rd Street  
Lafayette, Indiana 47901

The invoices shall represent the value to the LPA of the partially completed work as of the date of the invoice. The CONSULTANT shall attach thereto a summary of each pay item in Section A of this Appendix "D", including percentage complete and prior payments.

2. The LPA, for and in consideration of the rendering of the engineering services provided for in **Section A. 2.** of this Appendix "D", agrees to pay to the CONSULTANT for rendering such services the fees established above in the following manner:

- a. For each pay item, and upon receipt of invoices from the CONSULTANT and the approval thereof by the LPA, payments covering the work performed shall be due and payable to the CONSULTANT, such payments to be equal to an amount arrived at by multiplying the percentage of the specified work performed by the fee heretofore set forth. From the partial payment thus computed, there shall be deducted all previous partial fee payments made to the CONSULTANT.

- b. Upon approval by the LPA, after submittal of the completed work, a sum of money equal to the fees heretofore set forth, less the total of the amounts of the partial payments previously paid to the CONSULTANT under **Section B. 2.** of this Appendix "D", shall be due and payable to the CONSULTANT.

- c. The fee shown for **Section A. 2. g.** includes clearing the Public Hearing requirements as prescribed by INDOT and FHWA. This fee assumes either a Public Hearing or a Public Information Meeting will be required. It also assumes the LPA will provide the location for the meeting as well as a transcript of the proceedings in the event that an official Public Hearing is required.

- d. An amount of \$200 has been included in the fee shown for **Section A. 2. b.** to pay for anticipated fees for permit applications and NOI Advertisements that will be incurred by CONSULTANT. Amounts incurred for permit fees, public notice fees, or other such expenses in excess of that amount will be invoiced to the LPA at the actual cost plus a 10% mark-up for task coordination and administrative efforts.

- e. The LPA, for and in consideration of the rendering of the services provided for in **Section A. 3.b., 3.c., 3.d., 3.e., 3.f., and 3.g.** of this Appendix "D" agrees to pay the CONSULTANT the stated cost per unit multiplied by the actual units of work performed.

- f. Some of the services provided for in **Section A. 3.** of this Appendix "D" may be performed by Subconsultants. The CONSULTANT will submit to LPA invoices for these services, the basis of which will be the actual number of units of work performed multiplied by the specific cost per unit. The unit costs listed for these tasks are estimated. The final cost will consist of the actual invoiced amounts from the subconsultants (if applicable) plus a 10% mark-up for task coordination and administrative efforts. The LPA agrees to reimburse to the CONSULTANT for rendering such services the invoiced amount for the services provided that each such invoice shall be subject to approval as reasonable by the LPA prior to any reimbursement therefore.
3. If the LPA does not agree with the amount claimed by the CONSULTANT on an invoice voucher, it will send the CONSULTANT a letter by regular mail and list the differences between actual and claimed progress. The letter will be sent to the CONSULTANT's address on page 12 of this Contract, or the CONSULTANT's last known address.
4. In the event of a substantial change in the scope, character or complexity of the Work on the Project, the maximum fee payable and the specific fee shall be adjusted in accordance with Item 6. – Changes in Work of Section VI – General Provisions, set out in this Agreement.

June 18, 2020



Stewart Kline, Executive Highway Director  
 Tippecanoe County Highway Department  
 20 North 3<sup>rd</sup> Street  
 Lafayette, Indiana 47901

RE: Reconstruction of Yeager Road – 1,330’ South of West Lafayette City Limits to CR 500 N  
 DES #1401281  
 Supplemental Fee Proposal for Professional Services

Dear Stu:

Per correspondence with you, it is the County’s desire to adjust the original designed corridor to align with the existing intersection of CR 500 N and CR 150 W, and also to adjust the new Yeager Road alignment further to the east at the intersection with Roundtable Drive. In order to accommodate this change in alignment, additional survey and redesign from the points where the new alignment deviates from the old will be required. Geotechnical information will also be required to be gathered through the areas of new road alignment, including at the Hadley Lake Outfall for a new crossing culvert. Lastly, an additional information addendum to the approved CE document will be required to document these alignment changes.

In order to continue the development of this project, we have prepared and are submitting this supplemental fee request. We will utilize subconsultants to perform some of the services. The functions expected to be performed by subconsultants include Section 106 Documentation, Wetland Delineation, Geotechnical Investigation, Pavement Design, Noise Analysis, and Title Research services.

This supplemental fee request is summarized below:

<b>DESIGN TASK</b>	<b>Proposed Fee</b>	<b>Notes</b>
Supplemental Field Survey	\$ 39,000.00	
Environmental Document Preparation – CE Level 4	\$ 50,500.00	Includes work by subs
Hydraulic Analysis and Report	\$ 6,000.00	
Road Design and Plan Preparation	\$ 77,800.00	
Geotechnical Evaluation	\$ 12,409.00	Includes work by subs; unit price
Utility Coordination (During Design Phase)	\$ 3,800.00	
<b>Total Design</b>	<b>\$189,509.00</b>	
<b>R/W Task</b>	<b>Proposed Fee</b>	
Right of Way Engineering (6 @ \$1,300 each)	\$ 7,800.00	
Additional Right of Way Engineering (2 @ \$1,000 each)	\$ 2,000.00	
<b>Total R/W</b>	<b>\$9,800.00</b>	
<b>Total Supplemental No. 3</b>	<b>\$199,309.00</b>	

The services covered by this supplemental are all pertaining to the realignment of the original designed corridor. All design services are requested at a lump sum price, except for the geotechnical evaluation which will be unit price. All r/w task items are unit price.

If you should have any questions or need any further information, please do not hesitate to call me or Trent Newport.

Sincerely,

CrossRoad Engineers, PC

A handwritten signature in black ink that reads "Mark A. Beck". The signature is written in a cursive style with a large, prominent initial "M".

Mark Beck, P. E.  
Vice-President

## Yeager Road Re-alignment

Kalberer Road to County Road 500 North - 2.2 miles total length with S-lines  
Tippecanoe County & West Lafayette, Indiana

### MANHOOR JUSTIFICATION FOR FIELD SURVEY - REALIGNMENT

DESCRIPTION	MANHOURS BY CLASSIFICATION							TOTAL HOURS
	DIRECTOR	SURVEY MANAGER	ASSN'T SURVEY MANAGER	SURVEY CREW CHIEF	FIELD MAN	RESEARCH SPECIALIST	CADD TECH	
Project Management / Field Coordination	2	8	8	2				
Section Corner, Right-of-Way & Adjoiners Research	1	2	6			16	4	
Establish Control Circuit & Reference		2	4	6	6		4	
Establish Section Corners / Splits & Reference		2	4	8	8		4	
Locate Property Corner Information		1	4	6	6	4	4	
Establish Baselines & Reference	1	2	6	8	8		4	
Establish Bench Circuit, Set & Reference Project Benchmarks w/ USGS Elevations			4	6	6		4	
Obtain Cross Sections & Topographic Information as Required		2	6	40	40			
Locate All Utilities & Measure Downs		1	4	6	6			
Data Downloading, Perform Calculations, Complete Field Books, & Review Project		4	16	2				
Prepare Tin & Contours			4	2			20	
Route Survey Plat	2	16	24	2			40	
Prepare Survey Files for Submittal		2	4				8	
Travel Time				45	45	6		
<b>TOTAL HOURS</b>	<b>6</b>	<b>42</b>	<b>94</b>	<b>133</b>	<b>125</b>	<b>26</b>	<b>92</b>	<b>518</b>
<b>HOURLY RATE</b>	<b>\$169.77</b>	<b>\$122.93</b>	<b>\$62.64</b>	<b>\$76.49</b>	<b>\$53.27</b>	<b>\$65.21</b>	<b>\$68.43</b>	
<b>DIRECT SALARY COSTS</b>	<b>\$1,018.62</b>	<b>\$5,163.06</b>	<b>\$5,888.16</b>	<b>\$10,173.17</b>	<b>\$6,658.75</b>	<b>\$1,695.46</b>	<b>\$6,295.56</b>	<b>\$36,892.78</b>
<b>DIRECT NON-SALARY COSTS</b>								
Mileage (17 trips, 160 miles per trip, \$0.52/mile)								\$1,414.40
<b>TOTAL</b>								<b>\$38,307.18</b>
<b>USE (FOR FIELD SURVEY)</b>								<b>\$39,000.00</b>

**Yeager Road Reconstruction**  
**From 1,330' South of West Lafayette City Limits to CR 500 N**  
**Tippecanoe County, Indiana**  
 Manhour Justification For

ENVIRONMENTAL DOCUMENT PREPARATION - ADDITIONAL INFORMATION						
DESCRIPTION	MANHOURS BY CLASSIFICATION					
	DIRECTOR	SEN. PROJ. MANAGER	PROJECT ENGINEER	CADD MANAGER	CADD TECHNICIAN	TOTAL HOURS
Reissue of Early Coordination	1	4	8			
Update of RFI	1	4	8			
Conduct Field Inspection						
Coordinate & Notification						
On-Site Investigations		8	8			
Follow-up and Meeting Notes						
CE Document Preparation						
Coordinate with OES		24	24			
Prepare AI and submit for Public Involvement	4	24	40			
Complete AI per Public Involvement Results	1	8				
Final Report Production		2			8	
ENVIRONMENTAL DOCUMENT PREPARATION - CE	7	74	88	0	8	177
TOTAL HOURS	7	74	88	0	8	177
2016 HOURLY RATES	\$169.77	\$136.10	\$77.71	\$107.42	\$68.43	
TOTAL SALARY COSTS	\$1,188.39	\$10,071.40	\$6,838.48	\$0.00	\$547.44	\$18,645.71
DIRECT NON-SALARY COSTS						
Mileage (1 trip, 150 miles per trip, \$0.36/mile)					\$54.00	
Anticipated fees for permit applications and NOI advertisements						
Section 106 Documentation (See attached Green 3 proposal)					\$13,000.00	
Noise Analysis (See attached Shrewsberry & Associates proposal)					\$14,100.00	
Wetland Delineation (See attached Earth Source proposal)					\$4,660.00	
TOTAL DIRECT NON-SALARY COSTS					\$31,814.00	
<b>TOTAL</b>						<b>\$50,459.71</b>
<b>USE FOR ENVIRONMENTAL DOCUMENT PREPARATION - CE</b>						<b>\$50,500.00</b>
Notes:						
1. Proposal includes Section 106 HPR Long Form documentation updates. No Phase 1 Environmental Site Assessment nor other specialized studies are included or anticipated. See the attached proposals from Green 3, LLC, Shrewsberry & Associates, LLC, and Earth Source, Inc. for additional assumptions made that define the scope of work.						
2. Public involvement will occur during the design development phase and the cost associated with that service will be presented separately. Therefore, preparations for and attendance at public meetings are not included in this fee.						



## SCOPE OF SERVICES

June 12, 2020

Tippecanoe County proposes to proceed with the revised alignment to Yeager Road Reconstruction Project, Des. No. 1401281. CrossRoad Engineers, PC will enter into a subconsultant agreement with Green 3, LLC, who will complete the supplemental documentation for compliance with Section 106 of the National Historic Preservation Act and all related federal, state, and local laws in accordance with the most current INDOT regulations.

### Client Contact:

Mark Beck, [mbeck@crossroadengineers.com](mailto:mbeck@crossroadengineers.com)  
CrossRoad Engineers, PC  
317.780.1555 Ext. 111

### Project Location:

The newly proposed undertaking is located between Salisbury Road (to the east), CR N 150 W (to the west), CR W 500 N (to the north) and Kalberer Road (to the south) in Wabash Township, West Lafayette, Tippecanoe County, Indiana.

### Project Scope:

Based on information received by the client as of June 2, 2020:

A new design concept was approved by the stakeholders. This new project area includes a realignment of the original design. In the northwest project area, Yeager road would realign to connect with CR N 150 W intersection instead of following the straight roadway to CR 500 N along Yeager Road. IN the southeast, the roadway would slightly shift the roadway northeast and realign the connection to the Hadley Moore suburban development neighborhood.

### Environmental Observations/Concerns:

- After coordination with INDOT Cultural Resources Office on June 9-10, 2020, it has been determined that the following is required:
  - 2<sup>nd</sup> Addendum to the archaeology report (due to work occurring in undisturbed soils)
  - Addendum to the HPR (due to the need for a revised APE)
  - Addendum to the 800.11(e) Documentation
  - At this time no impacts to the extant MOA for the National Register-listed James Pierce Jr. Farmstead, NR-0336, within the APE is anticipated; only coordination will occur with INDOT CRO to determine any impacts due to the revised project area.
- Regarding archaeology, Notice of Entry letters need to be sent to the property owners within 6 months of archaeological fieldwork and letters need to be in hand by archaeologist.
  - The client is responsible for sending current Notice of Entry letters to property owners and to send a copy of one to Green 3.

### Green 3, LLC Level of Work and Deliverables:

- Section 106 – Addendum to HPR and Addendum to 800.11(e) documentation
- Archaeology – 2<sup>nd</sup> Addendum to Phase Ia Field Reconnaissance Survey and Report

Tasks Not Covered under This Proposal:

- Any changes in scope or impacts to resources not observed during preliminary desktop review that would require additional documentation.
- Any coordination or sending of Notice of Entry letters.
- Any onsite meeting with agencies.
- Any documentation relating to amending the extant MOA, or any other special study requested by INDOT CRO or the Indiana State Historic Preservation Officer.

If, upon consultation with all local, state, and federal agencies regarding the project, additional studies are requested or the project scope/area changes, then additional fees will be required to meet the additional scope of services.

The fee for this project is **\$13,000**. The fees will be billed lump sum based on percent complete. Totals for the project are listed in the table below (rounded to the nearest five dollars). The task and hourly breakdown for this service is attached.

Subtotal for Section 106	\$8,000
Subtotal for Archaeology	\$5,000
<b>Total</b>	<b>\$13,000</b>

Thank you, and we look forward to working with you.

Kind Regards,



Erin Mulryan, MPA  
President

Name of Project: Yeager Road Reconstruction Addendum, Tippecanoe Co., Des. No. 1401281

Job Type: Section 106 Documentation - SUPPLEMENTAL for Addendum to HPR and 800.11 Documentation

Contact Information:

Crossroad Engineers  
 Attention: Mark Beck, P.E.  
 3417 Sherman Drive  
 Beech Grove, Indiana 46107



Green 3, LLC  
 Historic Fountain Square  
 1104 Prospect Street  
 Indianapolis IN 46203

Date: June 12, 2020

Fee Justification

Task Description	Architectural Historian / QP	Historian	Total Hours
<b>Full Section 106 Review</b>			
Project Administration and Client Coordination	4.0	4.0	8.0
Site Investigation (Including Preparation- Maps, etc.)	6.0	8.0	14.0
Map Development and Photo Documentation	0.0	8.0	8.0
Preparation of Report Distribution Letter (RDL), email template, GIS shapefiles	0.0	8.0	8.0
Preparation of Addendum to Historic Property Report (HPR)	2.0	10.0	12.0
Addendum HPR Revisions per INDOR CRO	0.0	2.0	2.0
Distribution of Addendum HPR to identified Consulting Parties (CPs)	0.0	3.0	3.0
Preparation of Public Notice, RDL, Addendum to 800. 11(e) Documentation	2.0	16.0	18.0
Addendum 800.11(e) Revisions per INDOR CRO	0.0	2.0	2.0
Distribution of Addendum 800.11(e) to identified CPs	0.0	3.0	3.0
Publish Legal Notice	0.0	2.0	2.0
Coordination with INDOT Cultural Resources Office (CRO) on impacts to MOA	3.0	0.0	3.0
<b>Total Hours</b>	<b>17.0</b>	<b>66.0</b>	<b>83.0</b>
<b>Billing Rates</b>	<b><u>\$130.00</u></b>	<b><u>\$85.00</u></b>	
Subtotal Fee	\$2,210.00	\$5,610.00	\$7,820.00
Expenses:     Printing/Legal Notice Publication			\$120.00
Mileage (150 miles x 0.39/mi) for one site visit			\$58.50
<b>Total Fee for Section 106 Documentation - SUPPLEMENTAL</b>			<b>\$7,998.50</b>
	<b>Rounded to \$8,000</b>		

**Name of Project: Yeager Road Reconstruction Addendum, Tippecanoe Co., Des. No. 1401281**

Job Type: Phase Ia Archaeological Records Review and Reconnaissance Survey - SUPPLEMENTAL for 2nd Addendum

Contact Information:

Crossroad Engineers  
 Attention: Mark Beck, P.E.  
 3417 Sherman Drive  
 Beech Grove, Indiana 46107



Green 3, LLC  
 Historic Fountain Square  
 1104 Prospect Street  
 Indianapolis IN 46203

**Date: June 12, 2020**

**Fee Justification**

Task Description	Principal / QP	Field Director	Totals
<b>Phase Ia Field Reconnaissance Survey</b>			
Project Administration	2.0	2.0	4.0
Records Review	0.0	4.0	4.0
Field Investigation	0.0	16.0	16.0
Report Write-up	2.0	24.0	26.0
Correspondence with INDOT CRO	1.0	2.0	3.0
<b>Total Hours</b>	<b>5.0</b>	<b>48.0</b>	<b>53.0</b>
<b>Billing Rates</b>	<b>\$ 130.00</b>	<b>\$ 85.00</b>	
Subtotal Fee	\$ 650.00	\$ 4,080.00	\$ 4,730.00
Expenses: Printing			\$10.00
SHPO Records Check Fee (\$70/hour x 2 hours)			\$140.00
Mileage (150 miles x 0.39/mile) x 2 days			\$117.00
<b>Total Fee For Archaeology</b>			<b>\$4,997.00</b>
<b>Rounded to \$5,000</b>			

June 12, 2020

Mark A. Beck, PE  
CrossRoad Engineers, PC  
3417 Sherman Dr.  
Beech Grove, IN 46107



**RE: Proposal for Noise Analysis  
Yeager Road Improvements – New Alignment, Des #1401281, West Lafayette, IN**

Dear Mr. Beck:

Shrewsberry & Associates (Shrewsberry) is pleased to submit this proposal to CrossRoad Engineers (CrossRoad) to provide engineering services for the revisions to the previously submitted noise analysis and report for the road extension project on Yeager Road to be constructed between Station 37+75 and County Road 500N in Tippecanoe County, Indiana. The proposed alignment has changed from the one used in the previous noise analysis and report (dated April 28, 2016). This proposal presents our understanding of the scope of services required to deliver a revised Noise Analysis Report to the Indiana Department of Transportation (INDOT) and the estimated fees that represent this effort.

We have prepared this proposal based on your e-mail correspondence on June 8, 2020. The following paragraphs outline our proposed scope of services and estimates of our professional fees.

#### **SCOPE OF SERVICES**

Shrewsberry proposes to perform the required engineering services for the following project items:

- Reassess existing land activities and prediction of traffic noise levels using FHWA TNM 2.5 (TNM).
- Incorporate new roadway alignments and associated traffic volumes in a TNM model. Additional revised alignments, as requested by the client, can be incorporated into the TNM model as an additional service.
- Evaluate existing receptors within the 500-foot boundary of existing and proposed alignments in a TNM model. Existing receptors that are planned to be removed as part of the proposed construction will not be included in the models.
- If modeling indicates noise impacts to receptors, noise abatement measures in the form of traffic noise barriers will be evaluated for impacted receptors.
- Feasible traffic noise barriers will be evaluated to determine if the barriers meet INDOT's cost effectiveness criteria in accordance with 2017 INDOT Noise Policy. A complete determination of reasonableness includes surveys of potentially affected property owners which is not included in this scope of services.

- A draft Noise Impact Analysis Report will be assembled for submission to INDOT. Comments and revisions from INDOT's review of the draft report will be incorporated in the final Noise Impact Analysis Report for submission and approval by INDOT's Noise Committee. INDOT will perform an initial review of the report and the three TNM models and then a final review of the final package.

#### **ASSUMPTIONS**

- A max of three TNM models are anticipated; existing conditions, proposed condition, and proposed condition with berm.
- A proposed model with a berm east of the historic house will be analyzed as requested by CrossRoad.
- Only one new alignment for Yeager Road and Round Table Drive will be analyzed. See attached New Proposed Alignment Exhibit for proposed alignment in black linework. Multiple alignments or revisions to the alignment shown in the attached exhibits could be analyzed by way of an additional services agreement.
- Proposed traffic data for Yeager Road to be provided by CrossRoad Engineers.
- Three exhibit sheets will be re-produced at 150 scale.

#### **EXCLUSIONS**

- Additional ambient noise measurements in the field. The data from 2016 will be used.
- Additional traffic counts in the field. The data from 2016 will be used.
- Additional Field visits and on-site meetings
- In-person comment review with INDOT
- Property Research for new future developments.
- Coordination with any stakeholders, property owners, utilities or consultants other than Crossroads and INDOT.

#### **SCHEDULE**

Anticipated completion of this work is one month from Notice to Proceed. No work shall be performed under this task order beyond three months from notice to proceed. If work is required by Shrewsberry beyond three months, it will need to be supplemental agreement.

#### **PROFESSIONAL FEES**

Shrewsberry proposes to perform the aforementioned scope of services for the lump sum fee of \$14,100.

We understand that payment for services rendered will be based on the earned value of the appropriate task and invoiced on a monthly basis until work has been completed.

## TERMS AND CONDITIONS

This is only a proposal of Shrewsberry's scope of services and is not binding on either party until acceptable terms and conditions have been negotiated and agreed upon between both parties. If you have any questions regarding this proposal, please do not hesitate to contact us. Thank you for the opportunity to submit this proposal, and we look forward to working with you on this and future projects.

Sincerely,

**SHREWSBERRY & ASSOCIATES, LLC**



Jordan Diemer, P.E.  
Project Manager

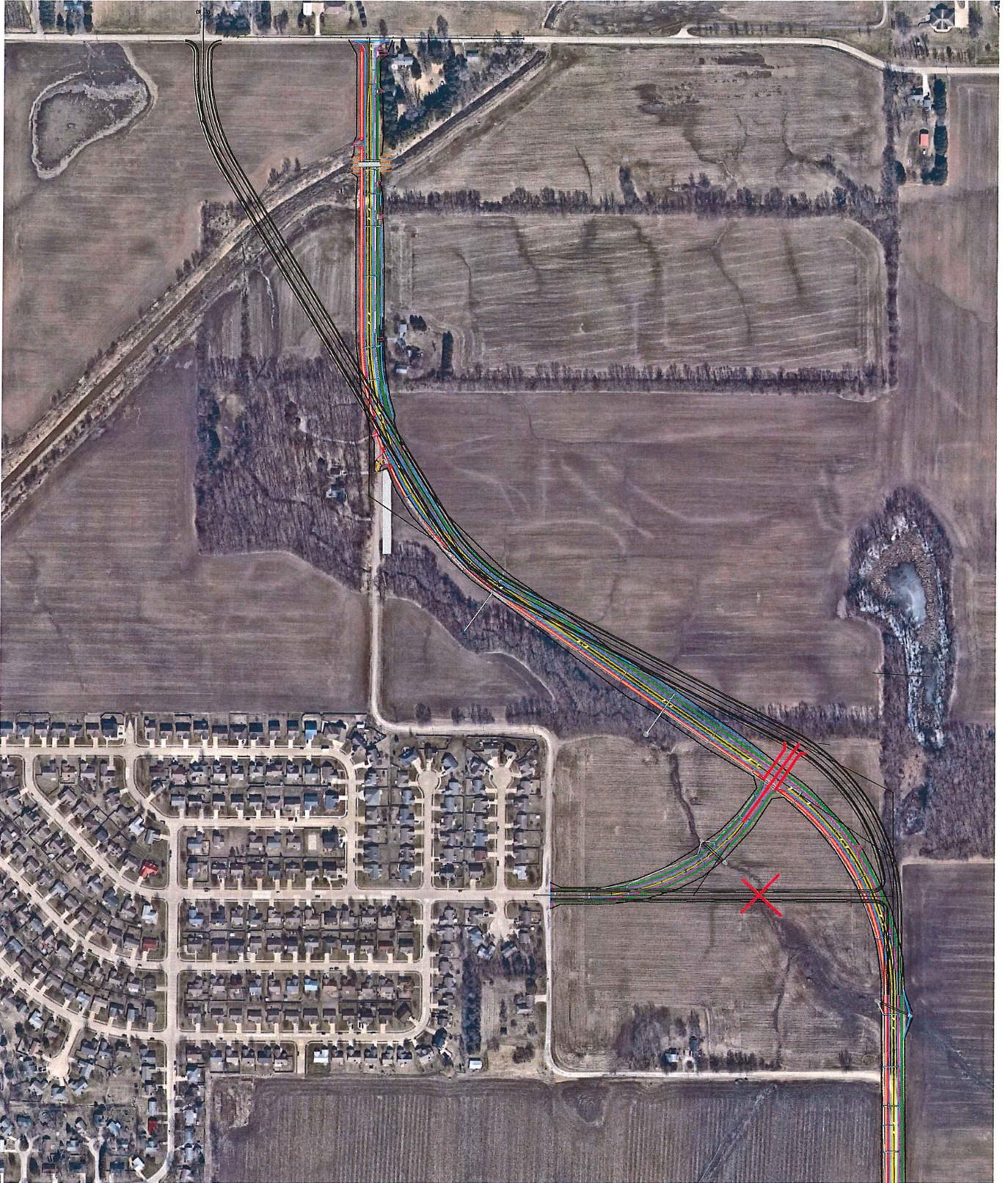
### Referenced:

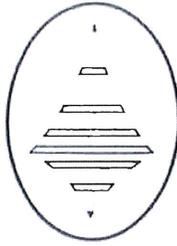
- New Proposed Alignment Exhibit



Task Description	Reimbursable Expenses		Estimated Hours and Billing Rates				Total
	Mileage	Miscellaneous Postage, Fees, Equipment, etc.	Director	Engineer 6 - Brian Kinder	Engineer 4 - Jordan Diemer	Engineer 1	
Description				\$ 204.29	\$ 138.71	\$ 84.19	
<b>TASK #1: FULL TNM RE-ANALYSIS</b>							
Update Alignments and Traffic in TNM Model				2	24	4	\$ 4,074.38
Model Proposed Alignments/Volumes to Determine Future Noise Levels					8		\$ 1,109.68
INDOT Model Review and Approval							\$ -
Revisions to TNM Model based on INDOT Review					4		\$ 554.84
Barrier Attenuation Analysis					2		\$ 277.42
Full Noise Analysis Report Update				2	24	8	\$ 4,411.14
Update Exhibits for Report						12	\$ 1,010.28
Resident Surveys - Not included in Scope of Work							\$ -
INDOT Report Review							\$ -
Revisions to Noise Report based on INDOT Review				1	8		\$ 1,313.97
INDOT Review and Approval							\$ -
Noise Committee Review and Approval							\$ -
Contingency - 10%							\$ 1,275.17
<b>Subtotal</b>				<b>5</b>	<b>70</b>	<b>24</b>	<b>\$ 14,026.88</b>
<b>Shrewsberry &amp; Associates TOTAL</b>							
							<b>\$ 14,100.00</b>

Hourly Rates based on performing 100% of the work in 2020





**Earth Source Inc**  
*Committed to Excellence in Land Stewardship & Design for over 30 years*

Mr. Mark Beck  
CrossRoads Engineers  
3417 Sherman Drive  
Beech Grove, IN 46107

June 9, 2020

re: Professional Wetland Services  
Yeager Road Improvements  
Tippecanoe County, Indiana

Dear Mr. Beck:

We are very pleased to offer continuing professional wetland services for the Yeager Road improvements project located near West Lafayette in Tippecanoe County, Indiana. We reviewed the revised alignment information supplied by your office. The following proposal is based upon this research and will constitute our understanding, and is organized as follows: Site/Project Description, Scope of Basic Services, Additional Available Services, Items to be provided by Owner, Products, Cost of Services-Payment, and Time of Services.

Should you have any questions of this proposal, or of the services provided by **Earth Source Inc.**, please do not hesitate to contact me personally. We anxiously await your approval of this proposal for professional services.

Sincerely,  
**Earth Source Inc.**,

Eric P. Ellingson, C.P.G., P.W.S.  
President

Enclosure

14921 Hand Road, Fort Wayne, IN 46818 Phone (260) 489-8511 Fax (260) 489-8607

landscape architecture • land planning • wetland delineation, permitting & design  
native seed nursery • ecological restoration • management

**PROPOSAL FOR PROFESSIONAL WETLAND SERVICES  
CROSSROAD ENGINEERS: YEAGER ROAD IMPROVEMENTS**

**Site/Project Description**

As per information provided by Crossroad Engineers and research by **Earth Source Inc. (ESI)**: for the Yeager Road project. The project is located in Sections 1, 6, 31 and 36 of Wabash Township, T23/24N, R04/05W, Tippecanoe County, Indiana.

**Scope of Basic Services**

A. **Wetland Delineation.** Perform a wetland delineation, using the 1987 Corps of Engineers Wetlands Delineation Manual and Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region, or methodology in force at the time of delineation, by flagging on-site perimeters/edges of areas meeting wetland criteria (hydric soils, wetland hydrology and hydrophytic vegetation), as per FM. The entire project area will be investigated. Open water or ditch sections may be identified as waters of the United States and delineated by ordinary high water, special aquatic sites within waters of the United States will be flagged. Wetland mapping to be performed utilizing global positioning system (GPS), with location data presented in AutoCAD format. This Item includes field investigation; wetland location; report describing on-site wetland sections; and wetland delineation plan and associated graphics.

**Additional Available Services**

1. Prepare Department of the Army, Corps of Engineers (ACOE), Section 404 - Permit application and individual Indiana Department of Environmental Management (IDEM), Section 401 application, with appropriate exhibits, data forms. This item includes submittal of ACOE 404 and IDEM 401 permit applications, and normal coordination with resource agencies.
2. Site meetings with ACOE for jurisdictional determination or out of the ordinary contact and coordination with regulatory, permitting and reviewing agencies during the delineation and permitting process.

**Items to be provided by Owner in order to perform Basic Services**

1. Written permission to access property, original site topographic base map, preliminary site development plans and site aerial photographs as available.
2. A single contact person with primary responsibility for timely review of work, invoices, and documents provided by **ESI**.
3. Owner will be responsible for maintaining maps, and wetland boundaries once delineated and mapped by **ESI** under this contract.

**Products** (Basic Services proposal only)

Basic Services, Item A

1. Wetland delineation.
2. Approximate wetland location plan and preliminary report of findings.
3. Wetland delineation report with supporting graphics.
4. Section 401/404 permit requirements and recommendations.

**Cost of Services and Payment**

- To perform the above described Basic Services, Item A, we propose a lump sum Cost of Services of \$ 4,660.

Cost of Services is based upon the information supplied by Mr. Beck and research by **ESI**. Cost includes telephone, and reproduction expenses; mileage will be invoiced at the federal mileage rate. Cost of Services for Additional Available Services may not be

**PROPOSAL FOR PROFESSIONAL WETLAND SERVICES  
CROSSROAD ENGINEERS: YEAGER ROAD IMPROVEMENTS**

required nor fully quantified at this time. An invoice will be submitted upon completion of the wetland assessment/delineation, with invoices to follow at substantial progress points throughout completion of the project. Payment must be paid in full in thirty days from invoice date, and, at **ESI** option, services may be suspended until account is paid. Accounts thirty days past due will accrue interest and charges. Owner will be responsible for reasonable attorney fees and all costs associated with collection. In the event the project is terminated for any reason, **ESI** will determine the percentage of work completed, and will bill accordingly with that amount immediately due and payable.

**Time of Services**

Upon your timely authorization to proceed, and return of executed contract to **ESI**, we will begin the wetland delineation as early as 22 June 2020.

Proposal materials remain the property of **ESI**. Proposal may be withdrawn if not accepted within 60 days. Please sign below and return one original set which will complete our agreement and authorize **ESI** to proceed. Please contact Mr. Eric P. Ellingson if you have any questions regarding this proposal.

Respectfully submitted,  
**Earth Source Inc.**,



Eric P. Ellingson, C.P.G., P.W.S.  
President

6.9.20  
date

\_\_\_\_\_  
Signature

\_\_\_\_\_  
date

\_\_\_\_\_  
Printed Name

\_\_\_\_\_  
Address of contracting entity



**Yeager Road Reconstruction**  
**From 1,330' South of West Lafayette City Limits to CR 500 N**  
**Tippecanoe County, Indiana**  
 Manhour Justification For

HYDRAULIC ANALYSIS AND REPORT - REALIGNMENT						
DESCRIPTION	MANHOURS BY CLASSIFICATION					TOTAL HOURS
	DIRECTOR	SEN. PROJ. MANAGER	PROJECT ENGINEER	CADD MANAGER	CADD TECHNICIAN	
Plotting Stream Cross Sections		1		2	8	
Hydraulic Analysis	2	8	16	4		
DNR Modeling Checklist		2	8			
Evaluate Structure Type Options						
Prepare Report	1	2	8			
<b>HYDRAULIC ANALYSIS AND REPORT</b>	<b>3</b>	<b>13</b>	<b>32</b>	<b>6</b>	<b>8</b>	<b>62</b>
<b>TOTAL HOURS</b>	<b>3</b>	<b>13</b>	<b>32</b>	<b>6</b>	<b>8</b>	<b>62</b>
2016 HOURLY RATES	\$169.77	\$136.10	\$77.71	\$107.42	\$68.43	
TOTAL SALARY COSTS	\$509.31	\$1,769.30	\$2,486.72	\$644.52	\$547.44	\$5,957.29
DIRECT NON-SALARY COSTS						
Mileage (1 trips, 150 miles per trip, \$0.36/mile)					\$54.00	
TOTAL DIRECT NON-SALARY COSTS					\$54.00	
<b>TOTAL</b>						<b>\$6,011.29</b>
<b>USE FOR HYDRAULIC ANALYSIS AND REPORT</b>						<b>\$6,000.00</b>

CrossRoad Engineers, PC

3417 Sherman Drive, Beech Grove, Indiana 46107

**Yeager Road Reconstruction**  
**From 1,330' South of West Lafayette City Limits to CR 500 N**  
**Tippecanoe County, Indiana**  
 Manhour Justification For

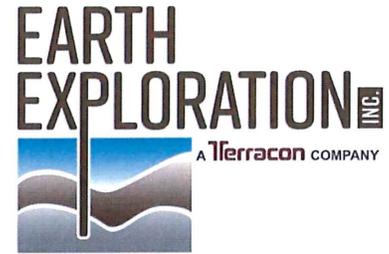
ROAD DESIGN AND PLAN PREPARATION - REALIGNMENT						
DESCRIPTION	MANHOURS BY CLASSIFICATION					TOTAL HOURS
	DIRECTOR	SEN. PROJ. MANAGER	PROJECT ENGINEER	CADD MANAGER	CADD TECHNICIAN	
Review Survey Notes		1	2		2	
Update Preliminary Title Sheet			1		1	
<del>Update Index Sheet</del>						
Update Original Cross Sections		1	4	4	16	
<del>Update Plan &amp; Profile Sheets</del>						
<del>Update Prel. Typical Cross Section</del>						
Confirm & Update Original Grade Controls	1	2	4	4		
Update Preliminary Grade & Geometrics	1	4	12	4	4	
Incorporate Utility Information			2	2		
Update Abbreviated Engineer's Assessment	1	4	8		8	
Update Preliminary Drainage Design	1	8	16	2	8	
Update Preliminary Plan & Profile Sheets	1	4	16	4	16	
Update Preliminary Detail Sheets	1	4	16	12	32	
Preliminary Cross Sections with Proposed Templates	1	4	8	8	4	
Update Preliminary Design Calcs.	1	8	16	2	8	
Update Preliminary Quantity Calcs.	1	2	16	2	8	
Update Preliminary Cost Estimate	1	4	16			
<del>Commitments</del>						
Stage 1 Submittal	1	4	8	1	4	
<b>STAGE 1 DESIGN PLANS</b>	<b>11</b>	<b>50</b>	<b>145</b>	<b>45</b>	<b>111</b>	<b>362</b>
Geotechnical Request and Submittal		1	2			
Preparation for Field Check						
Revise Plans per Stage 1 Review	1	4	24	8	24	
Plan and Profile Sheets	1	4	24	8	24	
Detail Sheets	1	4	24	8	24	
Proposed R/W Design		1	4	1	4	
Preliminary Plat No. 1		1	4	2	4	
Preliminary MOT sheets	1	2	8	2	8	
Cross Sections	1	2	8	8	16	
Design Coordination w/ affected Agencies		8	8			
Pavement Design						
<del>Coordinate Field Check</del>						
<del>Preliminary Field Check Held</del>						
<del>Revise Plans per Field Check</del>						
Finalize R/W Design	1	1	8	2	8	
Preliminary Quantity Calculations	1	4	24	2	8	
Preliminary Construction Cost Estimate	1	4	8			
Final Hydraulics and Storm Sewer Calculations		8	40			
Preliminary Design Calculations		4	24			
Typical Cross Sections	1	1	4	2	4	
Cross Sections		2	16	2	8	
Plan & Profile Sheets	1	4	16	8	16	
<del>Preliminary Special Provisions</del>						
Preliminary Structure Data		1	4		4	
<del>Incorporate Information from Utility Coordination</del>						
<del>Environmental Consultation Form</del>						
<del>Commitments</del>						
Stage 2 Submittal						
<b>STAGE 2 HYDRAULICS</b>	<b>21</b>	<b>106</b>	<b>395</b>	<b>98</b>	<b>263</b>	<b>883</b>
Preparation for Final Field Check						
Revise Plans per Stage 2 Review						
Paving Quantities for Approach Table						
	<i>these functions overlap existing scope and are not included in supplemental</i>					

**Yeager Road Reconstruction**  
**From 1,330' South of West Lafayette City Limits to CR 500 N**  
**Tippecanoe County, Indiana**  
 Manhour Justification For

ROAD DESIGN AND PLAN PREPARATION - REALIGNMENT						
DESCRIPTION	MANHOURS BY CLASSIFICATION					
	DIRECTOR	SEN. PROJ. MANAGER	PROJECT ENGINEER	CADD MANAGER	CADD TECHNICIAN	TOTAL HOURS
Pavement Markings Lighting Design Finalize Index Sheet Finalize Maintenance of Traffic Details Finalize Detail Sheets Structure Data Sheets Underdrain Tables Paved Side Ditch and Sodding Table Miscellaneous Tables Finalize Cross Sections Coordinate Field Check Final Field Check Held Revise Plans per Final Field Check Structure Quantities Underdrain Quantities Earthwork Quantities Miscellaneous Quantities Finalized Final Construction Cost Estimate Revise Preliminary Special Provisions Environmental Consultation Form Incorporate Information from Utility Coordination Traffic Control Plan Checklist Commitments Stage 3 Submittal	<i>these functions overlap existing scope and are not included in supplemental</i>					
STAGE 3 FINAL DESIGN PLANS	21	106	395	98	263	883
Incorporate Information from Utility Coordination Revise Plans per Final Check Submittal Project Numbers & Sheet Numbers Correct Final Special Provisions Final Construction Cost Estimate Updated Commitments Final Tracings Submittal	<i>these functions overlap existing scope and are not included in supplemental</i>					
FINAL TRACINGS	21	106	395	98	263	883
TOTAL HOURS	21	106	395	98	263	883
2016 HOURLY RATES	\$169.77	\$136.10	\$77.71	\$107.42	\$68.43	
TOTAL SALARY COSTS	\$3,565.17	\$14,426.60	\$30,695.45	\$10,527.16	\$17,997.09	\$77,211.47
DIRECT NON-SALARY COSTS						
Pavement Design (see attached proposal from Earth Exploration)						
Mileage (10 trips, 150 miles per trip, \$0.36/mile)					\$540.00	
TOTAL DIRECT NON-SALARY COSTS					\$540.00	
TOTAL						\$77,751.47
USE FOR ROAD DESIGN AND PLAN PREPARATION						\$77,800.00

June 11, 2020

Mr. Mark Beck, P.E.  
CrossRoad Engineers, PC  
[mbeck@crossroadengineers.com](mailto:mbeck@crossroadengineers.com)



7770 West New York Street  
Indianapolis, IN 46214  
(317) 273 1690  
(317) 273 2250 (FAX)

Re: Proposal for Professional Services  
Geotechnical Evaluation  
Yeager Road  
West Lafayette, Tippecanoe County, Indiana  
EEI Project No. CJ165110

Dear Mark:

We understand that the City of West Lafayette is planning to extend Yeager Road along a new alignment. As you know, we completed a geotechnical evaluation and pavement design for this project in 2019. Since then, the alignment of the road has changed. Based on information provided with the request, the improvements are anticipated to consist of new HMA pavement along a new alignment approximately 5,100 ft in length. The alignment shares commonality with some of the previous alignment. With regard to drainage, we anticipate a new 18 ft x 5 ft box culvert at a ditch crossing. At this time, we anticipate cut and fill to be 5 ft or less. As such, our scope will include:

- Performing up to 3 borings along the roadway alignment and 2 borings near the box culvert to evaluate the existing pavement and foundation soil conditions. In addition, hand augering will be completed at strategic locations;
- Completing laboratory testing sufficient to characterize the subsurface conditions and provide geotechnical recommendations for the discussed elements. Previous laboratory testing will be utilized where appropriate; and
- Updating our previous geotechnical report with earthwork and pavement subgrade considerations for the new alignment.

For the scope discussed above, we propose to provide our services on a unit rate basis in accordance with the attached Cost Estimate and Fee Justification. The cost is estimated to be up to \$12,409. Should you have any questions or if you require additional information, feel free to contact us. We understand that your firm will prepare an agreement with our previously negotiated terms and conditions. It is a pleasure to be working with you again.

Sincerely,  
**EARTH EXPLORATION, INC.**

Kellen P. Heavin, P.E.  
Project Engineer

Enclosure: Cost Estimate  
Geotechnical Engineering Manhour Fee Justification

**Cost Estimate**  
**Geotechnical Exploratory Field Services and Laboratory Testing**  
**Yeager Road**  
**West Lafayette, Tippecanoe County, Indiana**

	<u>Unit</u>	<u>Unit Price</u>	<u>Total</u>
<b><u>GEOTECHNICAL FIELD</u></b>			
1. Mobilization and Field Coordination			
a. SPT Rig	1 ea	\$284.00	\$284.00
b. CPT	ea	\$475.00	
c. Mileage	140 mi	\$3.70	\$518.00
2. Truck mounted borings with split spoon sampling			
a. Standard	ft	\$20.00	
b. Night time	ft	\$23.60	
3. Truck mounted borings with drilling fluid			
a. Standard	ft	\$22.00	
b. Night time	ft	\$26.00	
4. Truck mounted core drilling			
a. Standard	ft	\$41.00	
b. Night time	ft	\$48.40	
5. Truck mounted borings			
a. Truck mounted borings through bedrock or boulders or concrete pavement			
i. Standard	ft	\$41.00	
ii. Night time	ft	\$48.40	
b. Bridge deck coring and restoration			
i. Standard	ea	\$368.00	
ii. Night time	ea	\$434.00	
6. Cone penetrometer testing			
a. Set up			
i. Standard	ea	\$84.00	
ii. Night time	ea	\$99.00	
b. Subsurface profiling			
i. Standard	ft	\$13.00	
ii. Night time	ft	\$15.00	
c. Profiling with pore pressure measurement			
i. Piezometric Saturation			
a. Standard	ea	\$98.00	
b. Night time	ea	\$115.00	
ii. Penetration			
a. Standard	ft	\$15.25	
b. Night time	ft	\$18.00	
iii. Pore water dissipation test			
a. Standard	hr	\$200.00	

	<u>Unit</u>	<u>Unit Price</u>	<u>Total</u>
b. Night time	hr	\$235.00	
iv. Hydraulic conductivity and consolidation			
a. Standard	ea	\$79.00	
b. Night time	ea	\$93.00	
d. Profiling with Shearwave Velocity Measurement			
i. Standard	ft	\$17.00	
ii. Night time	ft	\$20.00	
e. Sample			
i. Standard	ea	\$26.00	
ii. Night time	ea	\$30.00	
7. Hand or truck soundings			
a. Standard	ft	\$13.25	
b. Night time	ft	\$15.50	
8. Hand auger drilling			
a. Standard	10 ft	\$13.75	\$137.50
b. Night time	ft	\$16.25	
9. Skid mounted borings with split spoon sampling			
a. Standard	100 ft	\$31.50	\$3,150.00
b. Night time	ft	\$37.25	
10. Skid mounted borings using drilling fluid			
a. Standard	ft	\$33.50	
b. Night time	ft	\$39.50	
11. Skid mounted core drilling			
a. Standard	ft	\$46.00	
b. Night time	ft	\$54.00	
12. Skid mounted boring through bedrock or boulders			
a. Standard	ft	\$48.00	
b. Night time	ft	\$56.00	
13. Skid mounted soundings			
a. Standard	ft	\$19.00	
b. Night time	ft	\$22.00	
14. Skid Mounted Cone Penetrometer Testing (CPT)			
a. Set up			
i. Standard	ea	\$121.00	
ii. Night time	ea	\$143.00	
b. Subsurface profiling			
i. Standard	ft	\$18.75	
ii. Night time	ft	\$22.00	
c. Profiling with pore pressure measurement			
i. Piezometric Saturation			
a. Standard	ea	\$116.00	
b. Night time	ea	\$137.00	

	<u>Unit</u>	<u>Unit Price</u>	<u>Total</u>
ii. Penetration			
a. Standard	ft	\$22.00	
b. Night time	ft	\$26.00	
iii. Pore Water Dissipation Test			
a. Standard	hr	\$231.00	
b. Night time	hr	\$273.00	
iv. Hydraulic Conductivity and Consolidation			
a. Standard	ea	\$89.00	
b. Night time	ea	\$105.00	
d. Profiling with Shearwave Velocity Measurement			
i. Standard	ft	\$26.25	
ii. Night time	ft	\$31.00	
e. Sample			
i. Standard	ea	\$34.00	
ii. Night time	ea	\$40.00	
15. Furnishing of a boat	Actual Cost		
16. Barge set-up expenses			
a. Navigable water			
i. Barge set-up	ea	\$6,300.00	
ii. Rental of support equipment and/or boat	Actual Cost		
iii. Drill rig down time	hr	\$157.00	
b. Non-navigable water barge set-up	ea	\$5,250.00	
17. Additional disassembly and reassembly			
a. Navigable water	ea	\$2,200.00	
b. Non-navigable water	ea	\$2,000.00	
18. Barge mounted borings with split spoon sampling	ft	\$35.00	
19. Barge mounted core drilling	ft	\$48.00	
20. Barge mounted boring through bedrock or boulders	ft	\$48.00	
21. Barge mounted soundings	ft	\$21.00	
22. Casing through water	ft	\$9.00	
23. Uncased sounding through water	ft	\$6.00	
24. Set up for borings and machine soundings			
a. Borings and machine soundings less than 20 ft deep	3 ea	\$74.00	\$222.00
b. Rock core borings	ea	\$126.00	
25. Additional 2-in. split spoon sampling	2 ea	\$22.00	\$44.00
26. 3-in. split spoon samples	ea	\$24.00	
27. 3-in. Shelby tube samples	2 ea	\$66.00	\$132.00
28. Bag samples			
a. 25-lb sample	ea	\$54.00	
b. 5-lb sample	2 ea	\$35.00	\$70.00
29. Field vane shear test			
a. Standard	ea	\$121.00	

	<u>Unit</u>	<u>Unit Price</u>	<u>Total</u>
b. Night time	ea	\$143.00	
30. 4½-in. cased hole	ft	\$13.25	
31. Installation of Geotechnical Instruments			
a. Inclinator casing installation			
i. Standard	ft	\$16.00	
ii. Night time	ft	\$19.00	
b. Piezometer installation up to 25 ft below surface	ea	\$284.00	
c. Piezometer installation deeper than 25 ft below surface	ea	\$315.00	
d. Metal protective outer cover for inclinometer and piezometer casings	ea	\$132.00	
32. Not Used		\$126.00	
33. Railroad expenses	Actual Cost		
34. Twenty-four hour water levels			
a. Field measurements per borehole			
i. Standard	5 ea	\$40.00	\$200.00
ii. Night time	ea	\$48.00	
b. PVC slotted pipe	ft	\$6.50	
35. Special borehole backfilling			
a. 0 to 15 ft			
i. SPT			
a. Standard	5 ea	\$150.00	\$750.00
b. Night time	ea	\$175.00	
ii. CPT			
a. Standard	ea	\$49.00	
b. Night time	ea	\$57.00	
b. More than 15 ft			
i. SPT			
a. Standard	ft	\$7.00	
b. Night time	ft	\$8.25	
ii. CPT			
a. Standard	ea	\$2.00	
b. Night time	ea	\$2.40	
c. Pavement restoration			
i. Standard	ea	\$65.00	
ii. Night time	ea	\$75.00	
36. Dozer rental	Actual Cost		
37. Traffic control			
a. Flag crew	day	\$800.00	
b. Equipment Rental (1 days of lane closures with flaggers)	Actual Cost		
c. Flag crew with equipment	day	\$950.00	
38. Centerline surveying	Actual Cost		
	<b>Subtotal (Geotechnical Field)</b>		<b>\$5,507.50</b>

**GEOTECHNICAL LABORATORY**

	<u>Unit</u>	<u>Unit Price</u>	<u>Total</u>
39. Sieve analysis for soils	3 ea	\$52.00	\$156.00
40. Hydrometer analysis	3 ea	\$61.00	\$183.00
41. Sieve analysis for Aggregates			
a. Analysis by Washing (AASHTO T-11)	ea	\$81.00	
b. Analysis by Using (AASHTO T-27)	ea	\$142.00	
42. Liquid limit	3 ea	\$41.00	\$123.00
43. Plastic limit & plasticity index	3 ea	\$30.00	\$90.00
44. Liquid Limit Ratio	ea	\$79.00	
45. pH test	3 ea	\$16.50	\$49.50
46. Loss on Ignition Test			
a. Loss on Ignition Test (Conventional)	5 ea	\$26.00	\$130.00
b. Loss on Ignition Test (Sequential)	ea	\$55.00	
c. Organic content based on Clorimeter	ea	\$26.00	
47 Topsoil Tests			
a. Phosphorus tests	2 ea	\$23.00	\$46.00
b. Potassium tests	2 ea	\$23.00	\$46.00
48 Moisture Content Test			
a. Moisture Content Test (Conventional)	50 ea	\$7.25	\$362.50
b. Moisture Content Test (Microwave)	ea	\$9.00	
49 Expansion Index of Soils	ea	\$247.00	
50 Specific Gravity Test	3 ea	\$38.00	\$114.00
51 Unit weight determination	5 ea	\$19.00	\$95.00
52 Hydraulic Conductivity Test			
a. Constant Head	ea	\$247.00	
b. Falling Head	ea	\$300.00	
53 Unconfined Compression Test on Soils & Rocks			
a. Unconfined Compression Test (Soils)	5 ea	\$50.00	\$250.00
b. Remolding of soil samples with chemical admixtures in chemical soil modification/stabilization (3 samples is equal to 1 unit)	ea	\$125.00	
c. Point Load Strength Index of Rock	ea	\$55.00	
54 Compressive Strength and Elastic Moduli of Intact Rock			
a. Compressive Strength of Intact Rock	ea	\$120.00	
b. Elastic Moduli of Intact Rock	ea	\$452.00	
55 Consolidation Test	ea	\$500.00	
56 Triaxial test			
a. Unconsolidated - Undrained (UU)	ea	\$375.00	
b. Consolidated - Undrained (CU)	ea	\$550.00	
c. Consolidated - Drained (CD)	ea	\$775.00	
d. Pore Pressure measurement with a. or b. and use of back pressure for saturation	ea	\$260.00	
57 Direct Shear Test	ea	\$575.00	

	<u>Unit</u>	<u>Unit Price</u>	<u>Total</u>
58 Moisture-Density Relationship Test			
a. Standard Proctor	ea	\$150.00	
b. Modified Proctor	ea	\$165.00	
59 Soil Support Testing			
b. Subgrade Resilient Modulus on Remoulded Soils	ea	\$660.00	
c. Resilient modulus on Shelby tube	ea	\$420.00	
60 Collapse Potential Evaluation Test	ea	\$500.00	
61 Water Soluble Sulfate Test	2 ea	\$110.00	\$220.00
62 Water Soluble Chloride Test	ea	\$110.00	
63 Soil Resistivity Test	ea	\$150.00	
64 Shale Durability Tests			
a. Slake Durability Index Test	ea	\$140.00	
b. Jar Slake Test	ea	\$15.00	
<b>Subtotal (Geotechnical Laboratory)</b>			<b>\$1,865.00</b>

**PAVEMENT CORES AND TESTING**

1. Mobilization of coring equipment	LS	\$225.00	
2. Mobilization mileage for coring equipment	mi	\$2.00	
3. Pavement core (partial depth)	ea	\$140.00	
4. Pavement core (full depth)			
a. Standard	ea	\$215.00	
b. Night time	ea	\$255.00	
5. Sub-base sample	ea	\$66.00	
6. Cement concrete pavement core density determination	ea	\$36.00	
7. Cement concrete core compressive strength test	ea	\$35.00	
8. Bituminous extraction test	ea	\$90.00	
9. Sieve analysis of extracted aggregate test	ea	\$61.00	
10. Recovery of asphalt from solution by Abson method	ea	\$378.00	
11. Theoretical maximum specific gravity test	ea	\$80.00	
12. Bulk specific gravity test	ea	\$35.00	
13. Air voids calculation	ea	\$31.00	
14. Core report for full depth core	ea	\$65.00	
<b>Subtotal (Pavement Investigation)</b>			

**Summary of Fees**

<b>Geotechnical Field</b>	<b>\$5,507.50</b>
<b>Geotechnical Laboratory</b>	<b>\$1,865.00</b>
<b>Pavement Cores and Testing</b>	
<b>Estimated Total</b>	<b>\$7,372.50</b>



**Yeager Road Reconstruction**  
**From 1,330' South of West Lafayette City Limits to CR 500 N**  
**Tippecanoe County, Indiana**  
 Manhour Justification For

<b>UTILITY COORDINATION - REALIGNMENT</b>						
(10 Utility Companies in the Area)						
DESCRIPTION	MANHOURS BY CLASSIFICATION					TOTAL HOURS
	DIRECTOR	SEN. PROJ. MANAGER	PROJECT ENGINEER	CADD MANAGER	CADD TECHNICIAN	
Distribute Plans and Project Schedule to Utility Companies		2				
Request Relocation Plans with Estimated Relocation Schedules		2				
Provide Utility Companies with all Plan Revisions that affect Utilities		2			4	
Obtain Written Documentation from Utility Companies Regarding Existing Locations / Relocations		5				
Review Relocation Plans and Schedules to Verify All Conflicts Are Resolved	2	10				
Meetings with Utility Companies to Review Relocation Plans and Schedules to Address Conflicts	<i>these functions overlap existing scope and are not included in supplemental</i>					
Upload Written NTP with Approved Utility Relocation Plans to ERMS						
Review Utility Work Plan for each Utility and Submit to INDOT's Contract Administration Division						
Prepare and Submit Utility Coordination Certification						
Review Construction Plans for Potential Utility Conflicts and Transmit to Utility Owners with Instructions						
Review Utility Relocation Plans and Cost Estimates for Accuracy and Acceptability						
Prepare Utility Reimbursement Agreements						
Coordinate with LPA and INDOT to Investigate Potential Plan Revisions to Minimize Excessive Utility Relocation Costs						
Prepare Special Provisions to Coordinate Utility Relocation During Construction						
Schedule, Conduct and Prepare Minutes for Utility Field Check						
<b>TOTAL HOURS</b>	2	21	0	0	4	27
2016 HOURLY RATES	\$169.77	\$136.10	\$77.71	\$107.42	\$68.43	
TOTAL SALARY COSTS	\$339.54	\$2,858.10	\$0.00	\$0.00	\$273.72	\$3,471.36
DIRECT NON-SALARY COSTS						
Mileage (6 trips, 150 miles per trip, \$0.36/mile)					\$324.00	
TOTAL DIRECT NON-SALARY COSTS					\$324.00	
TOTAL						\$3,795.36
USE FOR UTILITY COORDINATION						\$3,800.00