

Council Bill: B 267-17

MOTION TO AMEND:

MADE BY: \_\_\_\_\_

SECONDED BY: \_\_\_\_\_

MOTION: I move that Council Bill B 267-17 be amended as set forth on this amendment sheet.

=====

Attachment A, the Scope of Services to Exhibit A, and Attachment B, Schedule of Hourly Labor Billing Rates to Exhibit A, attached to this amendment sheet are substituted for the Attachment A and Attachment B attached to the original bill.



PROPOSAL FOR  
**161-kV ROUTE E EVALUATION**

SUBMITTED TO  
**The City of Columbia, MO**

August 3, 2017



August 3<sup>rd</sup>, 2017

David Storvick, P.E.  
Engineering Manager  
Columbia Water & Light  
701 East Broadway  
Columbia, MO 65201

Re: Route E Evaluation Support

Dear Mr. Storvick:

The City of Columbia requires an experienced team for the upcoming 161-kV Option E Evaluation. Because we have successfully designed and/or managed the execution of over 500 miles of 161-kV transmission lines in the past 10 years, you can rely on our team to have the knowledge to add value to this new route analysis. Burns & McDonnell has a team with the experience and availability to support this project immediately.

Our team brings the following advantages to the City of Columbia for this project:

- ▶ **Safety Record** – Just like the City of Columbia, we measure ourselves against the strictest standards and integrate safety into our culture. In the past five years, we have completed over 52 million man hours with a total recordable incident rate of 0.05 on all projects.
- ▶ **Cost and Schedule Certainty** – The City of Columbia can trust that we can meet the proposed schedule and budget. Our team has previous experience with similar projects and will go to great lengths to see that your analysis is executed efficiently and on time.
- ▶ **Commitment to Quality** – The City of Columbia can be confident that quality is being measured throughout all phases of the project. Our experienced team is familiar with industry best practices, and will meet your project requirements using our thorough quality control process.

With the strength and depth of our team, we are well equipped to successfully complete the new 161-kV Option E Evaluation and we look forward to furthering our working relationship with you. If you have any questions regarding our proposal, please do not hesitate to contact Zach Weiss at 816-627-6107.

Sincerely,

Ken Gerling, PE  
Vice President  
Transmission & Distribution Services

Zach Weiss, PE  
Project Manager  
Transmission & Distribution Services



ATTACHMENT A

# SCOPE OF BASIC SERVICES

August 3, 2017

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# SCOPE OF BASIC SERVICES

THE CITY OF COLUMBIA, MO – OPTION E EVALUATION

## INTRODUCTION

Columbia Water & Light has requested a proposal from Burns & McDonnell for support services for the route evaluation of a proposed 161-kV transmission line located in Columbia, MO. The analysis will be performed on the newly proposed Option E, which will parallel the existing Ameren-owned McCredie – Overton 345-kV transmission line. The route, approximately 13 miles in length, will extend from the City of Columbia’s existing Perche Creek 161/69-kV Substation to the existing Bolstad 161/69-kV Substation, owned by the City of Columbia.

The purpose of the analysis will be to study the feasibility of the route, determine potential impacts to the existing parallel 345-kV circuit, and to develop cost and acreage impacts of the new route. Upon completion of the route study, the results will be presented to the City of Columbia Council.

## PROVIDED INFORMATION

Burns & McDonnell has been provided the following information as part of the City of Columbia’s Request for Proposal:

- ▶ S49 – Columbia – McCredie–Overton ROW – Study Report – Final w-Maps.pdf

## SCOPE OF WORK

### Project Coordination and Administration

#### *Kickoff Meeting*

Burns & McDonnell will schedule a project kickoff conference call with the City of Columbia, after receiving authorization to proceed, to allow for an opportunity to discuss design related issues and any questions regarding the project scope, schedule, or project execution approach.

#### *Project Scheduling*

Burns & McDonnell will assist the City of Columbia in preparing and maintaining the project schedule as support activities progress and as milestone dates are determined. Upon receipt of project authorization and after completion of the project kickoff call, Burns & McDonnell will prepare a preliminary project schedule for review by the City of Columbia. After discussion of the project schedule, revisions will be incorporated into the preliminary schedule for use throughout the project. The City of Columbia shall be responsible for communicating all project schedule changes to Burns & McDonnell in a timely manner.

#### *Project Status Meetings and Coordination*

Burns & McDonnell intends to maintain regular communication with the City of Columbia regarding project updates via phone calls, meetings, and emails to meet the expectations of the project. Burns & McDonnell plans to establish a bi-weekly conference call with the City of Columbia to discuss the current project status and



# SCOPE OF BASIC SERVICES

(continued)

upcoming milestones. Burns & McDonnell will direct all other questions, concerns, and project status updates to the appropriate City of Columbia employee in a timely manner.

## *City of Columbia & Ameren Review Meetings*

Burns & McDonnell will participate in up to three (3) review meetings to be held between the City of Columbia and Ameren. Two (2) Burns & McDonnell employees will attend the meetings, at a location to be determined later, to present the evaluation results, provide technical support, and answer design related questions.

## *Quality Management*

Delivering a quality project is of the highest importance to Burns & McDonnell. We have a comprehensive quality management process that is as much a part of our culture as our emphasis on safety. The project manager will be responsible for overseeing and implementing our supplemental quality review processes.

## Evaluation Approach

### *Project Assumptions*

Burns & McDonnell will develop a set of project assumptions to be used in the route evaluation, regarding structure type, configuration, owner preferences, special clearance requirements, and other required analysis parameters. The assumptions will be based on meetings and discussions with the City of Columbia in the preliminary stages of the project. All final assumptions will be documented and transmitted to the City of Columbia in the final Report.

### *PLS-CADD*

Burns & McDonnell will utilize PLS-CADD design software, as needed, to develop approximate span lengths and conceptual structure framing, and to determine Right-of-Way (ROW) width requirements. This software will not be used to perform detailed line design and structure spotting, but will be used only as an aid to meet the needs of the route evaluation.

### *Option E Route Analysis*

Using the information provided by the City of Columbia, Burns & McDonnell will evaluate the proposed Option E, paralleling the existing McCredie – Overton 345-kV transmission line. The evaluation and feasibility study will include the following tasks:

- ▶ Approximation of average span length, structure height, and structure quantities
- ▶ Determination of required ROW width based on project assumptions and City of Columbia preferences
- ▶ High level review of “pinch points” (e.g. easement restrictions and other line obstructions) determined in the previously provided Study Report, prepared by Ameren
- ▶ Develop conceptual solutions to alignment constraints identified in the Ameren Study Report, to include possible rebuilt joint-use structures with the existing Ameren 345-kV transmission line
- ▶ Propose one (1) routing option into the Perche Creek and Bolstad Substations at each end of Option E (not parallel to the existing McCredie-Overton transmission line), to be used for cost estimating purposes

# SCOPE OF BASIC SERVICES

(continued)

## *Option E Route Acreage Impact Analysis*

After determination of the minimum required ROW width for the proposed circuit, Burns & McDonnell will prepare an acreage impact summary, using parcel data provided by the City of Columbia. The summary will include a detailed breakdown of the total quantity of parcels affected and the area of land required to be obtained for line construction. The breakdown will list the type of land for which the easement is needed, such as residential, cultivated fields, commercial, or forest, along with corresponding sum of acreage impacted. This information will then be used by the City of Columbia for feasibility and estimating purposes.

## *Cost Estimates*

Burns & McDonnell will develop two (2) cost estimates as part of the proposed evaluation. The first estimate will include the approximate construction costs for the newly proposed Option E Evaluation and study. The estimate will be based on the conceptual structure material, framing, foundation, and hardware dictated by the City of Columbia in preliminary project discussions. Structure and material quantities will be based on the final project assumptions determined as part of the Option E Evaluation. For the purpose of this estimate, it is assumed that the entirety of the new 161-kV route parallel to the existing McCredie – Overton line will be constructed on standalone single circuit 161-kV structures, and no joint-use structures will be needed.

An additional cost estimate will be developed for the transmission line scope of Option A, based on the previous analysis performed by the City of Columbia. Burns & McDonnell will use the structure and material quantities from the previously developed estimate and update the pricing to reflect present day costs.

## **Alternative Joint-Use Structure Design Review & Estimate**

Although the original scope of work for this evaluation assumes the entirety of the proposed route will be single circuit 161-kV structures, the possibility of 345/161kV joint-use structures with the City of Columbia and Ameren is a viable design alternative in identified “pinch points”. In the event that the City of Columbia receives approval from Ameren to study this possibility, Burns & McDonnell is available to provide supplemental support and a revised cost estimate for this alternative.

Under the supplemental scope, Burns & McDonnell proposes to develop two (2) conceptual structure framing possibilities based on Ameren and City of Columbia transmission lines standards and code requirements. Conceptual structure framing exhibits will be prepared for transmittal and review by both parties. After review and discussion with both the City of Columbia and Ameren, the conceptual structures will be used to create a revised Option E cost estimate, including the new hardware and resulting foundation costs.

This supplemental scope has not been included in the original cost estimate. However, an estimate for this additional work has been provided in the “Estimated Hours and Cost” portion of the Proposal as an addendum to the original contract price.



# SCOPE OF BASIC SERVICES

(continued)

## Burns & McDonnell Deliverables

### *Route Evaluation Report*

After completion of the Option E Evaluation, Burns & McDonnell will prepare a report summarizing the project overview, assumptions used, acreage impact, and study conclusions.

### *Cost Estimates*

Burns & McDonnell will prepare and transmit to the City of Columbia two (2) separate cost estimates, as described in the Evaluation Approach section of the proposal.

### *City of Columbia Council Meeting*

Upon completion and transmittal of the previous deliverables, two (2) Burns & McDonnell employees will attend one (1) City of Columbia Council meeting to discuss the evaluation results, provide recommendations, and answer resulting questions from the meeting attendees.

## REQUIRED INFORMATION

In addition to the items provided by the City of Columbia as part of the Request for Proposal, Burns & McDonnell will require the following additional information for completion of the project:

- ▶ Proposed transmission line route (DXF or KMZ)
- ▶ Project milestones
- ▶ DXF files containing parcel boundaries, easements, geographic information (for acreage impact analysis), and road ROW extents
- ▶ DXF files containing the layout of the proposed 161-kV substation terminations
- ▶ Current revisions of all Columbia Water & Light transmission line standards
- ▶ City of Columbia structure framing, foundation, and hardware preferences
- ▶ Design information for the transmission portion of Option A, including all drawings, structure framing, material preferences, bill of materials, and any other pertinent design documents

## CLARIFICATIONS

- ▶ Project management and analysis activities associated with the route evaluation have been estimated with a total anticipated duration of nine (9) months.
- ▶ The proposed estimates include expenses for travel, lodging, and meals for two (2) Burns & McDonnell employees to attend three (3) joint meetings between the City of Columbia and Ameren. Review meetings will be completed at a time agreed upon by the City of Columbia, Ameren, and Burns & McDonnell. The estimate also includes expenses for two (2) Burns & McDonnell employees to attend one (1) City Council meeting for the presentation of the study results. Burns & McDonnell assumes that no visit to the project site will be required for this study.

# SCOPE OF BASIC SERVICES

(continued)

- ▶ The two (2) route cost estimates prepared by Burns & McDonnell will only include the material and labor costs (structures, hardware, foundations, wires, etc.) of the proposed transmission lines. These costs will be based on the most current pricing information available to Burns & McDonnell at the time of their preparation. Burns & McDonnell recognizes that the market conditions and availability of accurate design information could greatly impact the final construction costs. The City of Columbia will be responsible for determining costs associated with easement acquisition and other project indirects. The provided cost estimates are assumed to be to an accuracy level of AACE Class 4.
- ▶ Burns & McDonnell has not included funding in the estimate to account for any detailed line design, consisting of structure spotting using PLS-CADD software, structure loading calculations, or plan and profile development.
- ▶ The route not parallel to the existing McCredie – Overton transmission line, developed by Burns & McDonnell into both the Perche Creek and Bolstad substations, will be based on engineering judgement only, in an effort to minimize the impact on adjacent landowners and existing infrastructure. No environmental or cultural impact study will be performed as part of this routing effort. The intent of this proposed route is only to provide one route alternative to be used in the corresponding cost estimate.
- ▶ A review of environmental, wetland, or cultural impacts will not be performed as part of this study.
- ▶ Burns & McDonnell assumes that the City of Columbia will be responsible for the review of all easements required for this project. No labor has been included in the project estimate to account for the review of unique site-specific easement acquisition challenges.

## SCHEDULE

Although few milestone dates have been provided, Burns & McDonnell will work with the City of Columbia to develop a detailed project schedule after acceptance of the project Proposal. At the time of this proposal preparation, Burns & McDonnell has assumed the following milestone dates:

Assumed Date	Task
9/18/2017	Notice-to-Proceed Received by BMcD
9/29/2017	City of Columbia transmits Required Information to BMcD
10/2/2017	Work Commences
10/6/2017	Project Kickoff Call
12/22/2017	Submittal of Draft Report
2/23/2018	Submittal of Final Report
4/24/2018	Presentation to City of Columbia Council

The work outlined above will commence ten (10) days following acceptance of the Notice to Proceed from the City of Columbia. The project has an assumed duration of nine (9) months.

# SCOPE OF BASIC SERVICES

(continued)

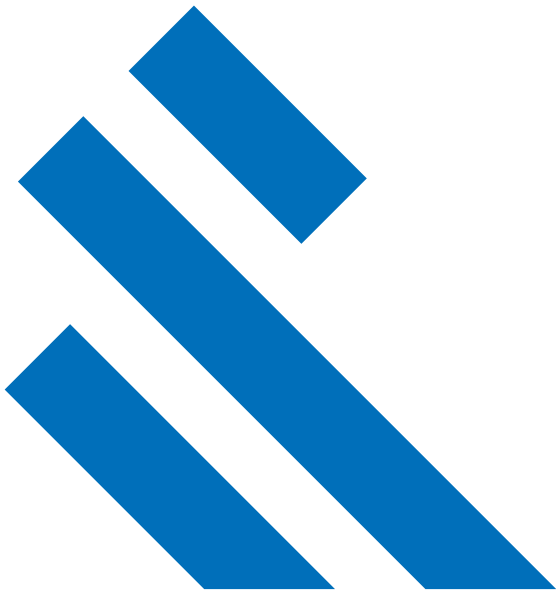
## ESTIMATED HOURS AND COST

Burns & McDonnell estimates a total fee for the Option E Evaluation project tasks of **\$91,515**, based on **442** estimated labor hours and **\$2830** for travel and other project related expenses. See the included cost estimate table for a detailed breakdown of the labor by task. The proposed hourly rate breakdown can be found in “Attachment B: Schedule of Hourly Labor Billing Rates”.

If the additional scope noted in the “Alternative Joint-Use Structure Design Review and Estimate” portion of the proposal is desired as a revision to the original scope, a fee of **\$17,781** will be requested as an addendum to the above referenced project estimate.

## TERMS AND CONDITIONS

Burns & McDonnell proposes to complete these services on a time and material basis under the new Agreement for Professional Engineering Services between the City of Columbia, Missouri and Burns & McDonnell Engineering Company, Inc.



ATTACHMENT B

# SCHEDULE OF HOURLY LABOR BILLING RATES

August 3, 2017

# SCHEDULE OF HOURLY LABOR BILLING RATES

August 3, 2017

POSITION CLASSIFICATION & LEVEL	HOURLY BILLING RATE
General Office - 5	\$59.00
Technician - 6	\$74.00
Assistant - 7	\$84.00
Assistant - 8	\$112.00
Assistant - 9	\$134.00
Staff - 10	\$152.00
Staff - 11	\$166.00
Senior - 12	\$183.00
Senior - 13	\$203.00
Associate - 14	\$213.00
Associate - 15	\$223.00
Associate - 16	\$227.00
Associate - 17	\$232.00

## Notes

- ▶ A technology charge of \$9.95/hour will be added to the above listed labor billing rates for costs relating to printing, copying, scanning, software usage, computer hardware, conference call lines, and other technology related office expenses.
- ▶ All travel expenses, including lodging, meals, and transportation, will be billed to the City of Columbia at the direct cost to Burns & McDonnell.



**COST ESTIMATE**

The City of Columbia, MO

Start Date: 9/1/2017  
 Estimate End Date: 6/1/2018  
 Duration: 9 months

Option E Evaluation  
 Revision: 8/3/2017

ACTIVITY DESCRIPTION	HOURS (BY CLASSIFICATION LEVEL)									TOTALS	EXPENSES (BY TYPE)				TOTALS(\$)
	Level 15	Level 14	Level 13	Level 12	Level 11	Level 10	Level 9	Level 8	Level 7		TRAVEL	LODGING	MEALS	EXPENSE	
	<b>PROJECT COORDINATION &amp; ADMINISTRATION</b>														
Project Initiation			8		24					32					
Kickoff Meeting (Conference Call)			2		2					4					
Project Scheduling			2		12					14					
Project Status Meetings & Coordination			27		27					54					
City of Columbia/Ameren Review Meetings			24		24					48	\$1,000	\$900	\$250		
Quality Management			8		8					16					
<b>ENGINEERING</b>															
Design Assumptions			12		4					16					
PLS-CADD			20		4					24					
Route E Analysis			80		12					92					
Route E Acreage Impact			16		4					20					
Route E Cost Estimate			40		8					48					
Original Route Cost Estimate			24		2					26					
Route Evaluation Report			24		8					32					
City of Columbia Council Presentation			8		8					16	\$300	\$300	\$80		
<b>TOTAL HOURS</b>	<b>0</b>	<b>0</b>	<b>295</b>	<b>0</b>	<b>147</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>442</b>					
<b>LABOR BILLING RATE (\$/hr)</b>	<b>\$223.00</b>	<b>\$213.00</b>	<b>\$203.00</b>	<b>\$183.00</b>	<b>\$166.00</b>	<b>\$152.00</b>	<b>\$134.00</b>	<b>\$112.00</b>	<b>\$84.00</b>						
<b>TECHNOLOGY CHARGE (\$/hr)</b>	<b>\$9.95</b>	<b>\$9.95</b>	<b>\$9.95</b>	<b>\$9.95</b>	<b>\$9.95</b>	<b>\$9.95</b>	<b>\$9.95</b>	<b>\$9.95</b>	<b>\$9.95</b>						
<b>DIRECT EXPENSE (\$)</b>											\$1,300	\$1,200	\$330	\$0	
<b>EXPENSE MULTIPLIER</b>											1.00	1.00	1.00	1.00	
<b>SUBTOTAL LABOR(\$)</b>	<b>\$0</b>	<b>\$0</b>	<b>\$59,885</b>	<b>\$0</b>	<b>\$24,402</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>						
<b>SUBTOTAL EXPENSE (\$)</b>	<b>\$0</b>	<b>\$0</b>	<b>\$2,935</b>	<b>\$0</b>	<b>\$1,463</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>		\$1,300	\$1,200	\$330	\$0	
<b>CONTINGENCY (%)</b>	<b>0%</b>														
<b>TOTAL LABOR, EXPENSE (\$)</b>	<b>\$0</b>	<b>\$0</b>	<b>\$62,820</b>	<b>\$0</b>	<b>\$25,865</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$88,685</b>	<b>\$1,300</b>	<b>\$1,200</b>	<b>\$330</b>	<b>\$0</b>	
<b>GRAND TOTAL=</b>										<b>\$91,515</b>					





CREATE AMAZING.

9400 Ward Parkway  
Kansas City, MO 64114  
[burnsmcd.com](http://burnsmcd.com)