RFP: TH2 CROOKSTON SLOPE STABILITY DESIGN-BUILD PROJECT

PROJECT LOCATION: CROOKSTON, MN

SPONSORING COMPANY/ORGANIZATION: NICHOLSON CONSTRUCTION

INTRODUCTION/BACKGROUND INFORMATION

In September 2003, a landslide "along the Red Lake River in Crookston destroyed half a dozen homes and a motel" ("Landslide Problem Returns…", 2014). An image of some of the damage caused by this landslide is provided in Figure 1. This slope failure occurred adjacent to Trunk Highway 2 in Crookston, MN. This highway has also experienced damage from another slope failure in 2008 just outside of Crookston less than 2 miles away from the project site (See Figure 2). Clearly, the region is prone to significant mass movement events.

The slope in Crookston along the Red Lake River is beginning to move again. To avoid the damaging effects of slope failure and to protect Trunk Highway 2, the slope must be stabilized. The Minnesota Department of Transportation (MnDOT) contracted for a design build solution to stabilize the slope. Nicholson Construction won the design-build bid and is sponsoring this BYU Capstone project. Nicholson Construction, founded in 1955, provides geotechnical construction expertise, specializing in deep foundations, earth retention, ground treatment and ground improvement.

Figure 1: Landslide damage to nearby home, September 2003 (Source: www.valleynewslive.com).

Figure 2: Damage from previous landslide (2008) on a different section of Trunk Highway 2 (Source: newsline.dot.state.mn.us).

Figure 3: Region of concern (highlighted in yellow) in Crookston, MN.

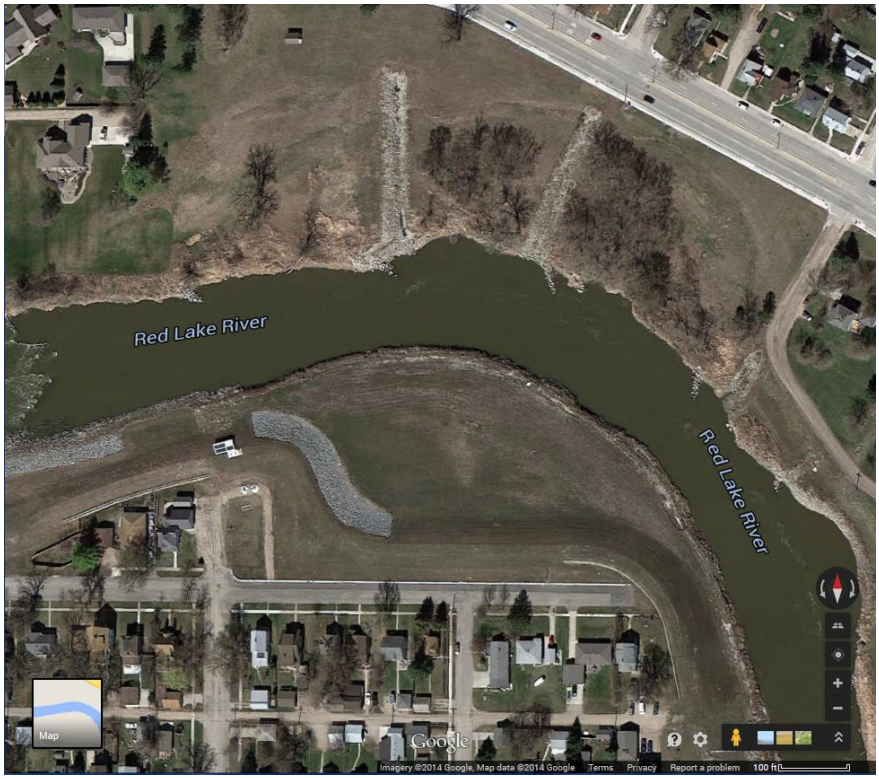

Figure 4: Close-up of landslide extent (damaged home featured in Figure 1 and several other buildings damaged in 2003 have been removed).

PROJECT DESCRIPTION AND SCOPE OF SERVICES

The Minnesota Department of Transportation (MnDOT) is contracting for a design build solution to stabilize the slope in order to protect Trunk Highway 2 (TH2). The work is primarily geotechnical, but there may be some ancillary highway, general civil, or environmental work depending on the breadth of the study desired and the solution proposed. The major tasks include:

1) Gather data and preliminary analyses related to the slope failure
2) Characterize the underlying problem behind the slope failure
3) Identify potential solutions for stabilizing the slope and protecting the highway
4) Select the most appropriate solution(s)
5) Provide a cost estimate for the proposed solution(s)

All necessary project files and data will be provided by Nicholson Construction through a Dropbox download site.

OUTCOME AND PERFORMANCE STANDARDS

Teams will provide the work "as is", meaning that there is no engineering stamp certifying the work.

Aside: The ability to continue receiving support from outside sponsors is somewhat contingent on the good work you and the undergraduate students do. You represent the BYU Civil & Environmental Engineering Department. The expectation is that you will interact in a professional manner at all times with your mentor and project sponsor, treating them with the utmost respect and consideration of their busy schedules. While successful completion of the design project is fundamental to the outcome of the work, it is expected that you will also learn important team dynamics and leadership principles. This means that in the process of completing the project you are also seeking to help each member of your design team to grow and develop confidence in his/her engineering abilities.

DELIVERABLES

The project deliverable is a proposal that presents the slope stabilization design and the cost to do the work. Specific details regarding the format and presentation of the design will be left up to the team.

The major class deliverables are:

- A final report with design alternatives for the project that include economic and environmental considerations.
- A poster reflecting a summary of your design project.
- A presentation summarizing your design project.
- All deliverables are due Friday April 1.

During the week of April 4th both a presentation to sponsors and poster session for students, faculty and other interested people will be organized.

TERM OF CONTRACT

Undergraduate students are to work during winter semester, eight hours/week/student with at least 3 hours working together. Any class time or time spent on class assignments counts towards the eight hours.

PAYMENTS, INCENTIVES, AND PENALTIES

Much of the capstone work is graded by graduate student mentors, including evaluations of the following components:

- Team process (how well you work together to accomplish the goals)
- Project proposal
- Project Management Plan (PMP)
- 50% complete status report
- Final report, poster, and presentation
- Overall satisfaction of the client in meeting specific deliverables

CONTRACTUAL TERMS AND CONDITIONS

There will be no monetary compensation with respect to the work completed, and all work is completed and delivered on a "best effort" basis.

EVALUATION AND AWARD PROCESS

Three different graduate students will evaluate proposals blindly, and the average of their scores will be the grade you are given on the proposal and used for granting awards where there is competition. They will be evaluating you from the exact rubric listed below.

Timeliness - 1 pt off per full hour late, up to 5.	5
Grammar/Spelling - 1 pt off per blatant error, up to 10.	10
Cover Page - Title, Data, Sponsor, Team Name, Team Members, Department of Civil & Environmental Engineering, Ira A. Fulton College of Engineering and Technology, Brigham Young University - 1 pt per piece of information included.	8
Cover Letter - brief letter of introduction that 1) states your intent to propose and 2) how you may be contact - 4 pts per piece completed.	8
Executive Summary (3/4 to 1 page that summarizes the contents of your proposal) - 7 points for completion, helpfulness - 3 pts max.	10
Team Abilities (Adjust the SOQ to make it relevant to the project) - Summary AS A TEAM of 1) relevant courses and experience, and 3) abilities to complete the work on time and in a professional manner, 4) including use of specific engineering tools/software. Include résumés. 2 pts for including résumés, 6 more points max, 2 per piece completed.	8
Key Personnel - 1) Identify which individuals will focus on which pieces of your potential tasks, and 2) some kind of organizational chart or visual describing how you will work together as a team. 5pts max per piece.	10
Project Understanding - 1) Did they address specific items mentioned in the RFP? 2) Do they repeat basic background in somewhat new terms to *demonstrate their understanding* of the project? 3) Do they mention key deliverables they may need to provide? 4) Did they articulate a *specific* approach for developing design alternatives and deliverables? 4 pts max per piece.	16
Formatting - Does it look professional? Consistent? Yes or no, 5 pts each.	10
Concise vs. Wordy, Meaningful vs. Fluffy, repetitive wording. 8 pts means concise, and accurate, and specific. 1 pt means often confusing, wordy, or vague.	8
Clear and professional flow of writing and style. 7 pts means that you would feel comfortable handing this in if it were your own; it is easy to read and understand; feels professional; 1 pt means it feels like it was cut-pasted, rushed, and done with little thought; hard to read; feels like a high school essay.	7
Video Interview - Message is clear and consistent with proposal, each member participates, professional but catches your attention. Leniency on video/audio quality will be given with a focus on the content and overall organization.	20
Total	120

PROCESS SCHEDULE

- **October 21, 4:00 pm** - Request for Proposals will be available online: http://cecapstone.groups.et.byu.net/content/winter-2015-projects
- **October 27, 4:50 pm** - Question and Answer period with respect to the proposal and submission procedures. The period where you can register your intent to propose on a project will begin. Each team will need to identify the primary target of their proposal and three other alternatives (no proposal necessary). Public knowledge of an intent to propose should help distribute proposals more evenly.
- ***November 17, 4:00 pm** - Three copies of the proposal must be submitted at the beginning of class. Team video interviews should be made available online or on disc and referenced in the proposal.
- **December 1** - Award notification.

*The review committee reserves the right to reject any proposal or presentation that is not submitted in a timely fashion or in accordance with the instructions given in this RFP.

CONTACTS

Sponsor Representative: Rick Deschamps

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Address: 12 McClane Street, Cuddy, PA 15031

Graduate Mentor: Kristin Ulmer

Email: kjulmer16@gmail.com

Phone: 541-231-1463

Faculty Mentor: Dr. Jones

Email: norm@byu.edu

SUBMITTAL REQUIREMENTS FOR THE PROPOSAL

Turn in three copies of the proposal. The proposal should include:

- Cover letter
- Executive summary, 1 page or less (by itself)
- Work plan that outlines the approach to solving the problem, how the team will work together (including weekly work schedule that shows the hours each team member will work and the time block the team will be together, this is a necessary requirement).
- Description of necessary tools, data, equipment, etc. A couple of paragraphs or a bullet list with one sentence explanation for each item.
- Schedule indicating important milestones.
- Engineering Design Budget. This is an estimate of the design phase cost.

- Outcome and Performance Standards. Provide the following statement: “Teams will provide the work "as is" meaning that there is no engineering stamp certifying the work.”
- Statement of qualifications that outlines the background, experience, education, and organizational structure of the team. Include some discussion of how you plan to become a "high functioning" team in the course of completing the project.
- Outside consultants (professors or others) that are necessary to “make this work.”
- Appendices (Appendix A: 1 page resume for each member of the team, Appendix B: additional information if necessary)

SOURCES

“Landslide Problem Returns to Crookston”, http://www.valleynewslive.com/story/25555128/landslide-problem-returns-to-crookston (May 19, 2014), accessed October 2014.

“Sixth Street Landslide: Early work begins on stabilization project”, http://www.crookstontimes.com/article/20140519/News/140519597 (May 19, 2014), accessed October 2014.

Nicholson Construction, http://www.nicholsonconstruction.com.