Design Team Definition, Project Selection and Scope of Work Development

Date Assigned: January 13, 2015  Date Due: January 27, 2015 (submit within D2L)

Each design team is expected to review the attached project descriptions and rank them from most desirable (1) to least desirable (5) based upon the design team’s expertise and interest. These rankings should be turned in via email by Noon (this is during lab time) on January 20, 2015. Assignments will be made by the end of lab.

The faculty course coordinator will then review these rankings, the design teams, and assign projects on Tuesday January 20, 2015 in Lab. The project design efforts will then officially begin and the design teams will be given contact information for the project mentors (both faculty and professional mentors).

The activity of the design teams in this assignment will be focused on development of a scope of work that addresses the seven areas outlined in the final report template and lecture:

- Geotechnical Engineering
- Transportation Engineering
- Structural Engineering
- Environmental Engineering
- Construction Cost Estimate
- Construction Schedule
- Life-Cycle Cost Aspects and Sustainability
- Construction Drawings and/or Model (we are hoping some groups may use the Visualization lab to present their final solution)

Formulating how these seven areas fit into the project and the scope of work for the project that includes these areas is the objective of this assignment. The assignment outcome will be a scope of work that addresses the seven items above coordinated with the project professional and faculty mentors. It should be emphasized that the scope of work should reflect the total number of members on the design team (i.e. a scope for a 5-member team should be greater than a 3-member team). The scope of work will be reviewed and modified (as appropriate) by the course coordinators to ensure workload consistency among design teams.

Each project must require the submittal of:
Initial Submission (Due January 27th)
- Proposal for the scope of work
- Plan for tracking time and weekly accomplishments
- Anticipated work effort relative to the Team’s expectation for grade (not every team may choose to strive for an “A”, but it would be certainly be great if all did
Preliminary design report in which students: (due with Update #2):
- List project goals and constraints
- Discuss three alternative ways of meeting the goals and constraints
- Recommend one of those alternatives as the best alternative
- Listing of anticipated drawings and models to be created

Final design documents and report: (Due on April 28th)
- Drawings sufficient to cover meet all aspects included in the Scope of work
- Specifications sufficient to cover all aspects included in the Scope of work
- A Proposed Contract Agreement between you as the Design-Build and your Client
- More information will be provided relative to the expectations of the final report

PLEASE BE RESPECTFUL OF MENTOR TIME AND AVAILABILITY. The professional mentors have volunteered to help with this course and professional courtesy is expected with regard to making appointments for consulting time, conference calls, etc. Also, immediate response to emails should NEVER be an expectation. Office hours of faculty mentors are a perfect time to tap their expertise and meeting requests via Outlook Calendar are a great vehicle for establishing meeting times.

It is recommended that the design teams contact the professional mentor(s) that sponsored and formulated the project as soon as possible to gather information related to the site location and project extents and discuss the seven items above within the context of the project. It is then recommended that the design teams study the project information provided and draft a scope of work for review by the faculty and professional mentors and submission.

The steps to complete this assignment:
1. Develop a proposed team, ensure that there are:
   a. At most one CEMA student (there should be 14 teams, so one team MAY be given permission to have two CEMA students)
   b. At most one ENEN student
   c. At least three expertise areas (meaning someone on your team determined their highest skill area was a 1 on Tuesday) of Civil, Construction and Environmental Engng represented on the team.
   d. Your primary project mentors cannot be a company anyone on the project team has co-oped or interned for.

2. Review the project options described below, as a team pick you Top, Second and Third choice for a project.

3. Upon receiving your project assignment contact the identified mentors and complete a scope of work for review by Drs. Federle and Foley – expect that we will add to your overall scope of work unless you clearly identify a scope of work addressing all 7 areas, regardless of what your mentor specifically expects.
Project 1 – Spaceco, Inc. – Office Warehouse Facility
The project involves the design and construction of a 56,700 SF office/warehouse facility in a suburban Chicago industrial park. The 13 acre site also has an additional lot that can accommodate a future 119,700 SF building.

The design team’s scope of work will include:
- site design (site planning, grading/earthwork, stormwater management, utilities),
- cost considerations (quantity takeoffs, unit costs, budgeting) and
- project scheduling
- The team must pick a specific structure and complete a structural design for that portion of the project
- Sustainability and Life Cycle Costing

Project Mentor(s): Robert Anderson, PE (randerson@spacecoinc.com)
Jim Brucato - Principle Construction

Team Assignments:

<table>
<thead>
<tr>
<th>Team 1A:</th>
<th>Team 1B:</th>
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<tbody>
<tr>
<td>Trey Gallagher</td>
<td>Peter Anderson</td>
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<tr>
<td>Connor McMahon</td>
<td>Nicholas Rousakis</td>
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<td>Scott Wendt</td>
<td>Thomas Piehowski</td>
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<td>Robert Wielgos</td>
<td>James Forsythe</td>
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Project 2 – ARCO Design/Build, Inc. – Industrial Warehouse Project
A basic Request for Proposal (RFP) package for constructing an industrial warehouse that will include typical building requirements, geotechnical report with soil borings, a generic building floor plan and a topographic survey with site boundaries. Depending on the mixture of disciplines for each team, the students will then be responsible for completing some of the following selected tasks:
- Developing a site layout and civil design for the building with takeoffs for the grades, erosion control, storm and site utilities.
- Developing a structural design for the building with takeoffs for the steel structure, concrete footings and tilt-up concrete panels.
- Developing a complete estimate for the construction of the building including quantity takeoffs and associated unit costs.
- Developing a complete project schedule for the construction of the facility.

Project Mentor(s): Eric M. Safko (esafko@arcodb.com) - (678) 836-6186

<table>
<thead>
<tr>
<th>Team 2A:</th>
<th>Team 2B:</th>
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<tbody>
<tr>
<td>Rebecka Girard</td>
<td>Kellie Filips</td>
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<td>Terence Harris</td>
<td>Blake Lawson</td>
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<td>Peter Hepp</td>
<td>Ari Lee</td>
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<td>Ryan Roessler</td>
<td>Mary Luba</td>
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<td>Craig Pignataro</td>
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Project 3 – J.H. Findorff & Son, Inc. – Oconomowoc School
The Findorff project will involve the construction of a Oconomowoc School. Include

- site planning including building layout
- foundation and structural verification
- construction scheduling
- construction cost estimating
- life-cycle cost and sustainability analysis

Project Mentor(s): Mike Stern, LEED AP BD+C (mstern@findorff.com) and Tricia Fleming tfleming@findorff.com

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<thead>
<tr>
<th>Team 3A:</th>
<th>Team 3B:</th>
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<tbody>
<tr>
<td>Becca Alonge</td>
<td>Andy Huftalin</td>
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<td>Lauren Celano</td>
<td>Max Lojewski</td>
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<td>Oliver Haugland</td>
<td>Ryan Mahoney</td>
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<td>Andrew Tracy</td>
<td>Matt McDonnell</td>
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<td>Javier Porras</td>
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Project 4 – Strand Associates – Verona Road Project Stage II
This design project involves a second-stage reconstruction of US 18/151 (Verona Rd) near Madison, WI. The design project extends along US 18/151 from CTH PD to Raymond Road.
This project is expected to involve engineering considerations and activity in relation to:

- a single-point urban interchange at Verona Road and CTH PD (currently an at-grade intersection)
- a diamond interchange at Verona Road and Williamsburg Way (currently an at-grade intersection)
- collector distributor roads servicing the two interchanges
- a roundabout at the intersection of Williamsburg Way and Anton Drive
- a new roadway, Fitchrona Road, through an existing quarry
- noise walls
- site grading/earthwork
- stormwater management
- construction scheduling
- construction cost estimating
- life-cycle cost and sustainability analysis

Project Mentor(s):
Chris Bolle - Chris.Bolle@strand.com, Jared Engelke – Jared.Engelke@strand.com

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<tr>
<th>Team 4A:</th>
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<tbody>
<tr>
<td>Mike Billings</td>
<td>Abby Deats</td>
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<tr>
<td>Lucas Butz</td>
<td>Sean Kozlowski</td>
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<td>Tom Maloney</td>
<td>Theresa McGreevy</td>
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<td>Fred Schmitt</td>
<td>Andrew Nalied</td>
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<td>Jeff Spanheimer</td>
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Project 5 – R.A. Smith National – Drexel Avenue between S. 27th Street and the I-94 interchange
This project includes the design and reconstruction of Drexel Avenue between S. 27th Street and the I-94 interchange from a two-lane rural cross section to a four-lane urban cross section with a median and turn lanes. The roadway is in very poor condition, is annually inundated with floodwaters, is not able to accommodate projected traffic volumes and does not have any provision for bicycle or pedestrian traffic. The straight, rural roadway gently drops from 27th Street easterly through a low area with wetlands on both sides of the road and then rises towards a bridge over I-94. The north side of the project is open, undeveloped land and includes land owned and designated by Milwaukee County for Falk Park. Some residential homes are located east of 20th Street. The south side consists of a few residential homes near 27th Street and a woodland swamp from 27th Street to 20th Street. It should be noted that surface water is present at this location throughout the year. Drexel Avenue is surrounded by varied land uses and includes topography that requires careful planning as well as environmental considerations. Soil borings have already been taken along the existing road; marsh probes were gathered outside the right-of-way; and wetlands were delineated. In the middle of the project, very wet, compressible soils were found and identified as being a challenge for the design team. The overall length of the project is approximately 2,600 lineal feet.

Elements of the project will include roadway horizontal design; vertical design; cross sections; earthwork calculations; analysis of soils for pavement design; traffic analysis; development of solutions for compressible soils in the wetland area; storm sewer and detention pond design and bridge/slab structure design over the wetlands.

Mentors:
Joseph Diekfuss, Ph.D.     Tim Barbeau, P.E., P.L.S.
joseph.diekfuss@rasmithnational.com     tim.barbeau@rasmithnational.com
(262) 317-3367     (262) 317-3307
Chris Stamborski, P.E.     Justin Schueler, P.E.
chris.stamborski@rasmithnational.com     justin.schueler@rasmithnational.com
(262) 317-3337     (262) 317-3388
John Bruggeman, P.E., PTOE
john.bruggeman@rasmithnational.com
(262) 317-3353

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<tr>
<th>Team 5A:</th>
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<tbody>
<tr>
<td>Ted Boyle</td>
<td>Aaron Johnston</td>
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<tr>
<td>Santiago Esquivel</td>
<td>Sam Kassel</td>
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<tr>
<td>Tim O'Connor</td>
<td>Wadee Rafati</td>
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<td>John Omboko</td>
<td>Michael Waters</td>
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<td>Andrew Stasiukevicius</td>
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Project 6:
Mentored by MU Faculty – Verona Road Project
This design project involves a reconstruction of US 18/151 (Verona Rd) near Madison, WI. The design project extends along US 18/151 from Raymond Road to US 12/14 (Beltline). This project is expected to involve engineering considerations and activity in relation to:
- a single-point urban interchange
- a roundabout jug-handle urban interchange including bridge over roundabout
- pedestrian overpass near Whenona Way
- noise walls
- site grading/earthwork
- stormwater management
- construction scheduling
- construction cost estimating
- life-cycle cost and sustainability analysis

Project Mentor(s): Chris Foley, PhD, PE

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<tr>
<th>Team 6A</th>
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<tbody>
<tr>
<td>Kevin Elies</td>
<td>Will Allen</td>
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<td>Kevin Glauber</td>
<td>Chris Fuerbringer</td>
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<td>Kristen Meehan</td>
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<td>Sulisse Munich</td>
<td>Kevin Kuhtz</td>
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<td>Sam Suing</td>
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Project 7:
EWB Pedestrian Bridge

Project Mentor(s): Benjie Hayek

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<tr>
<th>Team 7</th>
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<tbody>
<tr>
<td>Rachel Beyer</td>
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<td>Liam Sawyer</td>
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<td>Kurt Wagner</td>
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<td>Kelsey Welch</td>
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