

## CIV498 Design Project Winter 2017

**Project Title:** On-site Water, Stormwater and Wastewater Servicing

**INSTRUCTOR:** Andrew Hellebust, P.Eng.

Email: ahellebust@rivercourt.ca

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### STUDIO SUMMARY

Students will develop a design to service a property with proposed residences for 200 people and a winery producing 50,000 cases of wine per year. The property will also provide greenspace, food production areas, vineyards and habitat. The design must comply with the Ontario Building Code and MOECC regulations and students must compare groundwater impact (nitrate) and surface water impact (ammonia, phosphorus etc.) when choosing whether to use a surface or subsurface disposal of treated effluent and what treatment technologies to use. Options are to be compared based on greenhouse gas impact, reuse of water and nutrients, and effects on greenspace and layout. Advanced on-site wastewater treatment technologies, including constructed wetlands, are to be considered with a preferred option presented. Preliminary designs are to be submitted for well water supply, non-potable reuse and stormwater management.

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### TECHNICAL BREADTH

#### Primary Discipline:

Building Materials  
Building Science  
Community Development  
X Environmental  
Geotechnical  
Structures – Building  
Structures - Bridge  
Transportation Planning

#### Secondary Areas:

X Assessing Alternatives  
X Building Codes  
Building Materials  
Building Science  
X Computer Modeling/Drafting  
X Constructability  
Construction Management  
X Durability  
X Energy Efficiency  
X Environmental Assessment  
X Environmental Issues  
X Estimating Cost  
Ethics  
Financing  
Foundations  
X Geotechnical  
GPS  
X Groundwater  
Infrastructure Planning  
X New Technologies  
Project Management  
Public Policy  
Quality Assurance/Control  
X Resilience  
Scheduling/Planning  
X Social/Political/Economic Issues  
Structural design  
X Sustainable design  
Systems  
Transportation  
Urban Planning  
Using analysis software  
X Water Treatment  
Other:

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## **DELIVERABLES**

- Project proposal at start of term (group grade)
- 4 technical memoranda throughout the term (combination of group and individual grades)
- Interim presentation (group grade)
- Final presentation (group grade)
- Final report (individual grade)

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## **GRADING**

Studio Session Participation:	10%
Interim Deliverables :	30%
Interim Presentation:	10%
Final Report:	40%
<u>Final Presentation:</u>	<u>10%</u>
	100%

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