

CIVL 460, Group E  
Queen's University  
58 University Ave  
Kingston, ON K7L 3N9

Entuitive Consulting Firm  
120 Bremner Blvd  
Toronto, ON M5J 0A8  
(416) 477-5832

Dear Hiring Committee at Entuitive,

Group E from CIVL 460 is excited to present our proposal to take on your project titled "Building Retrofit to Achieve Sustainability Goals" as our engineering capstone project. As fourth- and fifth-year civil engineering students at Queen's University, we bring a wide range of experience — from building retrofits with Defence Construction Canada, to supporting environmental procedures at Woodfibre LNG, to conducting steel reviews with WSP, and coordinating fieldwork on commercial towers pursuing LEED Platinum and zero-carbon initiatives with EllisDon.

We believe that our coursework has equipped us to take on the technical challenges of this project. Our academic background includes structural analysis and design of steel and timber systems, concrete and construction material knowledge, as well as training in sustainable engineering practices aimed at supporting and preserving the environment.

To ensure the success of the project, we have taken on leadership roles that align with each team member's strengths and passions. Our team consists of a project manager, an environmental coordinator, a structural coordinator, and a mechanical and electrical coordinator.

The project presents an exciting opportunity for us to foster a creative and collaborative working environment while applying both our academic knowledge and practical experience gained from internships and coursework.

Thank you for considering our application. We look forward to the opportunity to contribute to Entuitive, a world-renowned engineering consulting firm.

Sincerely,

Group E — Rheya Dutkiewicz, Lily-Anna Girard, Sophia Mariani, & Jordan Raftis

# CIVL 460 – Bid Presentation

Rheya Dutkiewicz, Lily-Anna Girard, Sophia Mariani, Jordan Raftis

September 9th, 2025

# Building Retrofit to Achieve Sustainability Goals

## Project Summary:

- Mid-rise commercial building in Toronto pursuing a goal to reduce the building's carbon footprint and complete deep energy retrofit to meet net zero carbon standards.
- Phase 1 – Feasibility Study: Recommended building modifications (ex. Structural, mechanical and electrical, on-site power generation).
- Phase 2 – Structural Impacts: Analyze changes and required support upgrades to various systems.

## Client: Entuitive Engineering

- Consulting firm with a wide range of disciplines, that provide integrated services for both new and old construction.
- Entuitive is B Corp Certified, meaning they meet the highest standards of social and environmental impact, aligning with their goal of designing for a sustainable future.

**ENTUITIVE**

# Rheya Dutkiewicz

Defence Construction Canada, Contract Management – 12 months

## **Replace Culvert, Taxiway Golf**

- Daily progress reports, photographs, project submittal tracking, reviewed civil engineering drawings and design

## **Strategic Tanker Transport Capability (STTC)**

- Widening of CFB Trenton runway, new apron, hangar, and fuel farm
- Management of 99% Design Comments, quality assurance site inspections, deficiency tracking

## **Renovate Bldg. 169 8ACCS Unit**

- Complete heritage building retrofit
- Managed project meetings, submittal verification and tracking, change management processes, financial estimates



# Lily-Anna Girard

## Ledcor Health, Safety & Environment, Engineering Intern – 4 months

- Conducted on-site research and worked with industry experts to develop safety programs for construction machinery

## The Vancouver Art Gallery, Project Coordinator – 4 months

- LEED green building certification
- Reviewed mechanical and electrical shop drawings

## Woodfibre LNG, Project Coordinator – 4 months

- Worked on the concrete team for the construction of a liquefied natural gas plant
- Collaborated with the client and engineers to resolve design and constructability issues
- Implemented environmental mitigation strategies to preserve the land and surrounding ecosystems

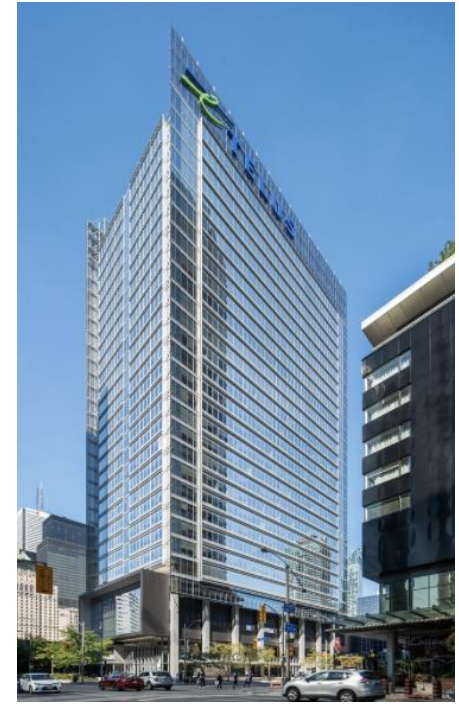




# Sophia Mariani

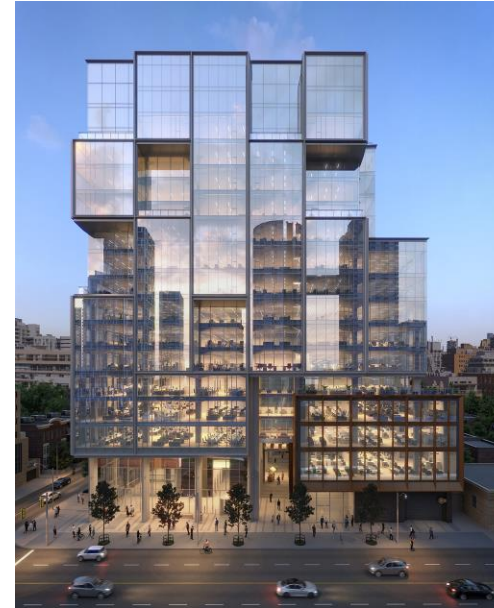
## WSP, Building Science Consultant – 4 months

- Site Work:
  - Managed concrete pours, steel reviews, asphalt placements, expansion joint repairs and inferred thermographic roof scans.
  - Garage, roof assembly and building envelop evaluations.
  - Verified compliance with project specifications and standards.
- Technical Documentation:
  - Drafted technical specifications, building condition assessments, change orders, certifications of payments and bid summaries for repair projects.
  - Prepared meeting minutes and site visit reports.
  - Reviewed CAD drawings and verified contractor/ client submittals.
- Project Communication:
  - Collaborated directly with team project managers, contractors, manufacturers and clients to align project goals and communicate progress of work.



# Jordan Raftis

- **EllisDon Internship (16 months)**  
**Field Coordination → Civil Pursuits → EllisDon Capital**
- **Portland Commons**  
16-storey commercial | Oversaw M&E Subtrades, Supported LEED Platinum, Zero Carbon, WELL Gold certifications
- **Forma Condos**  
73-storey residential | Managed concrete pours, rebar logistics and drone operations
- **Civil Design-Build**  
Wrote pursuit narratives, conducted feasibility & design coordination
- **EllisDon Capital**  
Supported financial modeling & infrastructure delivery research
- **Software Tools**  
Built & pitched tools to streamline site operations and daily tasks



Portland Commons



Forma





### **Project Manager**

- Coordinate communication and meeting times with client
- Schedule internal biweekly progress meetings and issue meeting minutes
- Quality assurance of team deliverables



### **Environmental Coordinator**

- Research methods to increase energy efficiency and applicable standards
- Investigate potential on-site power generation methods with consideration of the project's carbon footprint
- Analyze environmental impacts of proposed solution



### **Structural Coordinator**

- Review existing building structure and identify elements impacted by retrofit measures
- Evaluate structural implications of sustainable design choices (e.g., added loads from insulation, solar panels)
- Provide recommendations to ensure feasibility and support new building envelope



### **M&E Coordinator**

- Assess existing M&E systems
- Identify energy efficiency upgrades
- Evaluate renewable/on-site power generation options
- Coordinate with Envelope & Structural on integration



**Thank you!**

**Questions?**

# RHEYA DUTKIEWICZ

Belleville, ON | [theyadutkiewicz@gmail.com](mailto:theyadutkiewicz@gmail.com) | 613-848-5576 | [Rheya Dutkiewicz](#)

## EDUCATION

**B.A.Sc. in Civil Engineering**, Queen's University, Kingston, ON

**September 2021 – Present**

- Specializing in structural applications
- Proficient in Microsoft 365 applications and SAP2000

## PROFESSIONAL EXPERIENCE

**Coordinator, Construction Services**, Defence Construction Canada, Trenton, ON

**May – August 2023/2024/2025**

- Contributed to civil and structural projects through **facilitating change management** processes, managed project submittals, and **chaired site/progress meetings** with contractors, project managers, and internal staff.
- **Reviewed specifications and drawings** to ensure adherence to compliance standards and contractual obligations.
- Completed detailed **financial estimates**, meeting minutes, and on-site **quality assurance reviews** while implementing technology applications into inspections.

## PROFESSIONAL AND ACADEMIC PROJECTS

**8 Air Communications and Control Squadron Renovation, Bldg. 169**, DCC Trenton

**May – August 2024/2025**

- **Managed** daily site **inspections/progress reports** of various aspects of the interior and exterior retrofit.
- **Collaborated** with general and sub-contractors on matters involving civil work, additional rooms, and HVAC.
- Applied Microsoft Excel in the completion of financial estimates, project submittal tracking, and change management processes.
- Chaired project meetings and **issued meeting minutes** regularly to contractors, consultants, and internal project representatives.

**Permeable Pavement Parking Lot**, APSC 200, Queen's University

**October – December 2023**

- **Iterative engineering processes** and prototyping was applied to achieve a reliable and environmentally conscious design by curating various designs and testing numerous materials.
- Demonstrated **collaboration and organization** in a team environment as the acting project manager through scheduling meetings, managing submissions, and delegating tasks.
- Emphasized **problem-solving skills** through resolving operational and design challenges during prototyping.

**Replace Culvert, Taxiway Golf**, DCC Trenton

**June – August 2023**

- Completed daily progress reports, photographs, and site visits with the use of mobile applications.
- Engaged Microsoft Excel to complete **project submittal tracking**.
- Reviewed and revised civil engineering drawings and design.

## REFERENCES

**Judith Tromp**, Site Manager  
Defence Construction Canada  
[judith.tromp@dcc-cdc.gc.ca](mailto:judith.tromp@dcc-cdc.gc.ca)

**Xiaying Xin PhD. HKIE**, Assistant Professor  
Department of Civil Engineering, Queen's University  
[x.xin@queensu.ca](mailto:x.xin@queensu.ca)

# Lily-Anna Girard

21lajg@queensu.ca | (778) 953-1402

## OBJECTIVE

Driven and adventurous student working on capstone project as the environmental coordinator for a Toronto building retrofit to achieve sustainability goals. Looking forward to transforming a passion for sustainable design in urban areas into a tangible project for Entuitive. Applies enthusiastic and creative problem-solving skills to thrive under pressure and efficiently manage multiple tasks to support ongoing projects. Demonstrates strong interpersonal skills and fosters a positive and collaborative environment for others to work in.

## EDUCATION

### **Queen's University**

September 2022 – April 2026

- Candidate for a Bachelor of Applied Science in Civil Engineering for the year 2026.
- Dean's Scholar distinction
- Relevant coursework: Engineering Geology & the Biosphere, Water and Wastewater Engineering, Structural Analysis, Steel & Timber Design, Materials for Civil Engineers, and Professional Skills.

## WORK EXPERIENCE

### **Student Project Coordinator – Ledcor Construction Limited**

May 2025 – August 2025

- Supported systems and procedures on the concrete team at the new Woodfibre LNG (Liquified Natural Gas) project in Squamish, British Columbia.
- Implemented environmental mitigation strategies in compliance with regulations and standards to preserve land, water bodies, and surrounding ecosystems.
- Collaborated with the client engineers and the project team to resolve design and constructability issues through procurement and subcontractor management.
- Lived on-site in a camp setting to maintain clear communication with teams and key stakeholders.

### **Student Project Coordinator – Ledcor Construction Limited**

May 2024 – August 2024

- Supported and maintained systems and procedures under civil engineers for the new Vancouver Art Gallery start-up project in British Columbia.
- Coordinated and distributed request for information processes, procurement logs, and shop drawings.
- Collaborated with project managers and superintendents to track and manage project milestones.

### **Health, Safety & Environment Intern – Ledcor Construction Limited**

May 2023 – August 2023

- Assisted in multiple post incident reviews and conducted on-site research to develop safety programs for heavy-duty construction machinery, which were implemented nationwide.
- Worked with various subcontractors and authorities to gather information and spread awareness on construction site conditions and safe practices.

### **Engineering Teaching Assistant – Queen's University**

September 2024 – Present

- Working as an undergraduate project manager for the mandatory first-year engineering design course.
- Providing support and leading weekly team meetings to share insights and analytical tools.
- Mentoring students on multidisciplinary projects including the design of a water filtration system, a planetary soil sample collection scoop for a Mars rover competition, and a waterfowl protection system for the Berkeley Pit in Butte, Montana.
- Assisting in grading work where attention to detail and effective communication is pertinent.

### **Engineering Mental Health Steward – Queen's University**

September 2023 – Present

- Serving as the fourth-year Civil Engineering Mental Health Steward, offering guidance and peer support while promoting mental health initiatives within the department.
- Leading efforts to foster an inclusive and supportive environment for peers to reduce the stigma around mental health and promote well-being within the Faculty of Engineering.
- Taking an active leadership role and delivering regular presentations to share available resources.

**Barista** – The Tea Room at Queen’s September 2024 – April 2025

- Worked at a student-run café dedicated to environmental sustainability and equitability.
- Acted in a role that prioritized teamwork and organization to ensure efficient and safe operations.
- Promoted student-led environmental initiatives and advocated for responsible waste management practices on campus and throughout the city of Kingston, Ontario.

**Lead Hostess** – The Granville Island Keg July 2020 – August 2024

- Organized the guestbook and directed hosts to ensure the functionality of the restaurant.
- Developed strong communication and leadership skills in a fast-paced environment.

**Swim Coach** – Canadian Dolphin Swim Club January 2021 – July 2022

- Supervised groups of up to 20 children, teaching swimming techniques and promoting sportsmanship.
- Presented leadership and management abilities by motivating young swimmers in a highly competitive environment and effectively resolving conflicts to ensure a fun and safe environment.

## CLUBS AND EXTRACURRICULARS

**Queen’s Concrete Canoe Team** September 2023 – April 2025

- Acted as Head of Communications on the executive team of a design team at Queen’s University, handling internal communications, writing biweekly newsletters, and managing recruitment.
- Designed and tested various mixes of concrete for a canoe that was used in competition.
- Worked collaboratively to develop an environmental plan and implement strategies to minimize the project’s ecological impact.

**Third Year Design Project** January 2025 – April 2025

- Researched hydraulic structures that could effectively harness potential energy and regulate flows to protect downstream systems.
- Designed and built a functional baffle block prototype, analyzed its performance through multiple flume experiments on campus, and iterated the design throughout the semester.

**Orientation Team Implementing Safety** August 2024 – September 2024

- Promoted student engagement in Orientation Week 2024 at Queen’s University as a member of OTIS.
- Assisted with the setup and takedown of equipment while adhering to safety protocols and strict schedules to ensure smooth operations for the community.

**Frosh Regulation Enforcement Committee** August 2023 – April 2024

- Supported Orientation Week 2023 at Queen’s University as a FREC alongside other group members.
- Served as a positive role model and a valuable resource by easing the academic and social integration of first-year engineering students in a fun and traditionally Queen’s manner.
- Applied interpersonal skills to create a welcoming environment for the incoming class.

**Queen’s Bridge Building Team** September 2023 – December 2023

- Assisted in the process of designing a bridge made from popsicle sticks, floss, and glue for competition.
- Worked in an exciting setting to practice solid mechanics and physics with a passionate team.

## SKILLS

### **Technical**

- Microsoft Office 365 proficiency
- Experience in SolidWorks, AutoCAD, HEC-RAS, GeoStudio, and SAP2000
- Developing knowledge in statistics and R for data science
- Bilingual: English and French

### **Interpersonal**

- Quick learner and adaptable to new situations
- Strong work ethic with attention to detail
- Responsible and proactive
- Articulate and personable communicator
- Values teamwork and collaboration to promote diverse opinions and respect



## **EDUCATION**

**Smith Engineering, Queen's University, Kingston, ON, Canada**

2022-2026

*4<sup>th</sup> Year Civil Engineering Student*

- Appointed to be the team lead of a five person group whose objective was to build an assistive robotic arm to aid individuals with motor deficiencies. Gave detailed instructions, demonstrated effective communication and encouraged collaboration amongst the group which resulted in 100% succession of the robotic arm.
- Provided advanced and innovative solutions to build a model of permeable pavement to analyze the effects of rainwater drainage, durability of new materials, and cost efficiency, which increased performance by 20%.
- Awarded the Queen's Excellence Entrance Scholarship of \$1,500 due to a minimum average of 90-94% (2022)

## **WORK EXPERIENCE**

**WSP, Toronto, ON, Canada**

2025

*Building Science Consultant*

- Supported building envelope and site operations, including concrete pours, steel reviews, asphalt placements, expansion joint repairs and roof assembly inspections for 8+ projects at a time – ensuring compliance with project specifications and standards within WSP.
- Drafted comprehensive technical documentation including specifications, condition assessments, change orders, bid summaries, as well as meeting minutes and site visit reports. Reviewed CAD drawings and validated contractor/client submittals to maintain ENR 2025's top International Design Firm.

**The Engineering Society, Queen's University, Kingston, ON, Canada**

2024-2025

*Director of First Year*

- One of 15 applicants chosen to collaborate with 20+ directors and faculty staff members part of a student run organization with an annual operating budget of \$2.4 million to propose, create and execute various educational, professional development and social activities for 1000 first-year Engineering students.
- Enhanced recognition of resources and events available to first years by 35% through the promotion and management of two social media accounts, weekly emails and in person appearances at lectures.
- Hired, and currently manage a team of five individuals who assist in the organization of planned events, all whilst fostering a welcoming environment which has led to collaborative partnerships among the team.

**Civica Infrastructure, Woodbridge, ON, Canada**

2024

*Field Technician, Co-op Student*

- Supported water management solution projects through field investigations and data collection to assist with flow and rainfall monitoring, hydrologic and hydraulic modelling, and both inflow and infiltration evaluations.
- Conducted fog and dye tests to identify and eliminate sources of inflow and infiltration within sewer and stormwater systems and contributed sustainable solutions to reduce testing costs and supplies which cut excess overload in treatment plants by 20-50%.

**Earls Kitchen + Bar, Toronto, ON, Canada**

2023

*Front of House Staff*

- Responsible for providing exceptional customer service by managing 200+ guest reservations, seating arrangements, handling customer inquiries and complaints, all whilst ensuring coordination between kitchen staff, servers and front of house staff members remained united.
- Proposed new strategies for online ordering accessibility, selling processes and inventory layout which increased the turnover period, resulting in a 15% increase in the number of tables sat during dining rushes.
- Implemented more accurate waitlist applications to ensure customers were given precise wait times, which decreased the number of complaints by 25% during peak hours of operations, leading to increased customer satisfaction and positive feedback from guests.

## **CERTIFICATIONS**

- |                                   |      |
|-----------------------------------|------|
| • Suspended Work Platform Systems | 2025 |
| • First Aid & CPR/AED Level C     | 2024 |
| • WHMIS                           | 2024 |
| • Smart Serve                     | 2021 |

# Jordan Raftis

jrftis@ellisdon.com | (647)-549-0703 | www.linkedin.com/in/jordan-raftis

**Skills:** Proficient in Microsoft Office, Financial Modeling, Bluebeam Revu, SolidWorks, Revit, Drone Videography; Skilled in developing applications using Python, React, JavaScript, HTML, VBA and CSS

## SUMMARY OF QUALIFICATIONS

Emerging infrastructure professional with end-to-end experience across project delivery, from site coordination on complex high-rise developments to research and analysis supporting public-private partnerships (P3s). Currently contributing to EllisDon Capital’s work on major Canadian P3 projects, with a focus on financial modeling and delivery model research. Previously supported pursuit efforts in the Design Build Civil division, preparing RFQ and RFP submissions for large-scale public infrastructure projects. On-site experience includes managing concrete operations, rebar procurement, and sub-trade coordination across residential and commercial builds. Also engaged in software development, creating custom tools that enhance workflow efficiency, affordability analysis, and AI innovation.

## PROFESSIONAL EXPERIENCE

**EllisDon Corporation** — Co-op Student, Toronto, Ontario May 2024 - Present

Gained diverse experience across field operations, pursuits, and infrastructure advisory through multiple roles supporting major residential, commercial, and public-sector projects. Worked on-site coordinating sub-trades, contributed to RFQ/RFP development in civil pursuits, and enhancing understanding of financial modeling for capital planning on national infrastructure initiatives.

- Capital Services – Capital Co-op Student (Present): Developing financial modeling skills and infrastructure delivery research for active P3 projects across Canada. Responsibilities include assisting with quantitative analysis of different delivery structures, affordability metrics, and long-term value to support investment planning and procurement strategy.
- Design Build Civil – Project Coordinator (January – April 2025): Assisted in RFQ/RFP development, collaborating with consultants to craft strategic technical narratives. Created Civil Opportunity Documents and conducted feasibility research to develop scope presentations that supported early-stage project planning and competitive bidding strategies.
- Forma Condos – Field Coordinator (September – December 2024): Managed concrete pours, rebar procurement, and on-site logistics for a 73-story high-rise residential building. Conducted drone operations for site analysis and maintained rebar orders in Excel, ensuring alignment with structural drawings. Verified concrete mix specifications, monitored placement, and coordinated material deliveries to maintain schedule efficiency.
- Portland Commons – Project Coordinator (May – August 2024): Coordinated sub-trades for finishes, signage, and deficiency management on a 16-story commercial development. Managed RFIs, submittals, and subcontract change orders, ensuring clear communication with consultants and maintaining project alignment. Assisted in LEED certification compliance through monthly reports and on-site verification.

**Raftis Realty** — Property Coordinator, Toronto, Ontario 2021 - Present

- Coordinated property maintenance for 10 residential and 2 commercial properties, ensuring top-notch condition and tenant satisfaction.
- Assisted with lease agreements, accurately documenting terms and ensuring legal compliance.
- Fostered positive tenant relationships through effective and responsive communication.

## EDUCATION

**Queen’s University** — Bachelor of Applied Science, Civil Engineering 2021 - 2026

- Relevant Courses: Structural Design, Hydraulics II, Geotechnical Engineering, Water and Wastewater Engineering, Economic and Business Practice
- Involvements: President of Civil Engineering (2025 - Present), Co-Chair of Queen’s Reserve Circle (2025 - Present), Varsity Cross Country & Track Team (2021), Queen’s Concrete Toboggan Team (2022 - Present), Sponsorship Coordinator at Queen’s Global Energy Conference (2023 - 2024), Civil Engineering Society - Merchandise Coordinator (2024 - 2025)

### Certifications

Basic Pilot Certificate - Small Remotely Piloted Aircraft  
Smart Serve Certified  
Standard First Aid & CPR-C

### Interests

Golf, hockey, marathon running, personal fitness, app development and travel