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# WORK PLAN
## Cape Race Tower

January 2010

PINNACLE
Engineering Consultants

62A Newtown Road
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PINNACLE
Engineering Consultants

62A Newtown Road
St. John's, NL, A1C 6N7
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January 29, 2010

Mr. Mervin Morris and Mr. Jonathan Wong
DBA Engineering Consultant Limited
Suite 101, 33 Pippy Place
P.O. Box 8188
St. John's, NL, A1B 3N4

**Re: 8700 PROJECT WORKPLAN**

Dear Mr. Morris,

Enclosed is a copy of the Project Work Plan for the Hybrid Studio Project, as per requirements of Civil Engineering ENGI 8700.

The report contains information as to the operations of Pinnacle Engineering Consultants, and a detailed schedule of how the work will progress through the term.

If you have any questions or comments, please do not hesitate to contact us. We can be reached by phone at: 699-5016 or by e-mail at: pinnacle.engineering.consultants@gmail.com.

Sincerely,

M.Alacoque
Engineering Design

I.Froude
Bus. Manager

M.Kavanagh
Engineering Design

M.C. Man
IT & Drafting

//cc
//Dr. S. Bruneau (Memorial University of Newfoundland)

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## APPENDICES:

# 1.0 – PROJECT DESCRIPTION

This three-storey hybrid studio is being built to be the a place of inspiration and motivation for artists of all kinds. It has a wide open interior built to allow sunlight to enter and fill the space. The structure, which stands over 12 meters high will be built in a coastal area, about 100 meters from the shoreline. The proximity harsh weather causes a need for sound design to deal with high wind-loads.

The studio also has a roof-top deck, is clad with pine stained black, and is being constructed as a hybrid wood-steel structure. The role of Pinnacle Engineering Consultants, which is further defined in Section 2.0 is to design and detail the strcutural aspects of the studio.

# 2.0 – STATEMENT OF PROJECT REQUIREMENTS

From DBA Consulting Engineers Ltd.:
"This project is for the development of a design for a three story hybrid studio to be located near Cape Race, Newfoundland and Labrador. The studio will be built on solid bedrock approximately 100 m from the shoreline. The building is 6.1 x 6.1 m in plan and 12.2 m high. The roof, floors, and walls will consist of timber/wood construction with supplementary steel beams and/or columns as required. A section of the floor will be constructed from glass panels. The foundations will consist of reinforced concrete construction.

Project Requirements:
- Conceptual Design of structural systems and materials (i.e. vertical load-carrying systems and lateral load-carrying systems) and preparation of a brief conceptual design report describing these concepts.

- Preparation of a structural design development report with a clear description of the work and how it will be achieved. The report shall also identify specific design criteria (vertical and lateral loads, materials, codes, standards, etc.) and identify preliminary budget costs of the structural systems.

- Anaylsis and design calculations of all structural elements and special (non-typical) connections. Calculations may be performed either by hand, structural analysis software, or both.

- Preparation of detailed structural design drawings and technical specification.

- Preparation of a Class B (pre-tender) construction cost estimate based on quantity take-offs from the detailed design drawings."

# 3.0 – METHODOLOGY

The methodology of the company is based on the past experience of the company members and the methods of standard project management. This section includes detailed information on this methodology including: the team members roles and responsibilities, format of standard operating meetings, relations between the company and client, our design principles and standards, the cost estimating strategy, a definition of the desired outcomes of the project, and a note on the method of approaching problems when they arrive.

## 3.1 - Group Organization

### *3.1.1 Team Members Roles and Responsibilities*

Early in January the company member met to discuss the roles and responibilities for the project period. The following section details the role of each team member. These roles are based on the skill sets and interests of each person. There is an understanding that there will be overlap during times the team is busiest. The schedule will be designed to minimize this overlap to ensure effective and efficient company operation.

Ian Froude (IF) - Business Manager
- Main contact for client (includes: facilitating meetings and managing email account)
- Management of the team and individual work agendas.
- Planning the project and ensuring the tasks are divided efficiently and effectively among team members.
- Management of the Internal Company Finances.
- Preparation of the weekly updates for Monday class meetings.
- Project Cost Estimating

M.Chun Man (MCM) - Information Technology and Drafting.
- Management of collaboration tools including Dropbox and Google documents.
- Management of information in file systems and collaboration tools.
- CAD Specialist (drafting all drawings required for the project).

Matthew Kavanagh - Engineering Design
- Designing of the structure and ensuring National Building Code (and other) Specifications are maintained.
- Design of documents and templates for company use.

Marianne Alacoque - Engineering Design
- Designing of the structure and ensuring National Building Code (and other) specifications are maintained.
- Project cost estimating.

### *3.1.2 Company Standard Operations Meetings*

There are three weekly scheduled meetings for company operations. The description and purpose of all the meetings as well as their times and locations are detailed here.

<u>Monday's 10-11 am: In-Class Update Meeting</u>
These meetings are chaired by the instructor, Dr. Steve Bruneau and include updates from all groups in the course. Pinnacle is required to give a two minute update in each of these meeting.

These updates include a discussion on the schedule for the previous and coming week. A mention of the issues and challenges faced as well as a review up upcoming deadlines. Each member of the team will do these updates on a rotating basis.

Monday's 215-5 pm: Team Meeting (Agenda and Working Meeting)

All members of Pinnacle meet at this time each week. This is a combination of partially an agenda-based meeting and partially a working meeting.

The agenda built meeting is one hour in length and has the basic structure as defined below:

1 minute: Greetings, ask for additional agenda items and call meeting to order.
5 minutes: Review of the previous weeks meeting minutes (particularly action items).
8 minutes: Each team members is given two minutes to give a progress report on action items from the previous week as well as a review of progress towards the overall project goals.
34 minutes: This is the time designed to have agenda items submitted for any pertinent items for the week.
5 minutes: Other business not already on the agenda.
5 minutes: Review of action items for each team member.
2 minutes: Reviw the schedule of the weeks meetings.

The working meeting time slot is a time where all team members commit to being in the same room for the whole period. This time allows smaller group meetings and a time to work on tasks that require collaboration from all members. There are less time restrictions on this portion of the meeting.

Thursday's 5 pm: Team Meeting with DBA Consulting Engineers

These meetings are between 1-1.5 hours and occur in the office of DBA Consulting Engineers at Suite 101 33 Pippy Place, St. John's, NL. The purpose of these meetings is to:

1) review items due as detailed in the project schedule
2) provide an opportunity for both parties to express any questions either may have
3) maintain a level of contact with the company to ensure continued communication.

Attendees: All staff of Pinnacle; Mervin Morris and Jonathan Wong of DBA.

Weekly Operational Deadlines

5 pm Sunday: Individual weekly updates and Monday meeting agenda items sent to IF
7 pm Sunday: IF to have group weekly update finished and sent to the scheduled presenter. Agenda should also be sent to the team by this time.
4 pm Wednesday: Agenda sent to DBA for Thursday meeting.

### 3.2 - Client-Company Relations

Pinnacle and DBA Consulting Engineers meet weekly on Thursdays at 430 pm for 60-90 minutes at the clients office at 33 Pippy Place. The main contact of the company is Ian Froude (the business manager). The client contacts are Mervin Morris and Jonathan Wong. The main communication between both parties is done during weekly meetings and by e-mail.

### 3.3 - Design Principles

The structural analysis and design of the studio will be completed according to the following Canadian codes:

- CSA Standard A23.3-04—Design of Concrete Structures
- CISC Handbook of Steel Construction – Ninth Edition
- National Building Code of Canada 2005
- Department of Transportation and Works Master Specification - Version 2006
- CSA 086 Standard - Wood Design Manual 2005, by the Wood Design Council

### 3.4 - Cost Estimation Strategy

Pinnacle will be using a standard estimating procedue to determine the cost of the structural elements of this studio. It will be a class B (pre-tender) estimate, within a 20% accuracy, and will only include materials. The first step in the cost estimte is a quantity take-off of all materials to be used. During this same time another member of the team will be determing the prices of each of these items. The final step will be a summation of the costs per item and a calculation on the amount of contingency for the project..

### 3.5 - Desired Outcomes

Pinnacle strives to produce a project that will meet and exceed the expectations of the client. The unique dynamics of the team will allow us to bring the ideas and project into fruition. We aim to do this in a professional and coridal way. We also aim to be a enjoyable to work with, and derive sucess through a combination of project output and client satisfaction.

### 3.6 – Troubleshooting

As problems arise Pinnacle will approach them in a professional manner with the support of the entire team. The company will not hesitate to look for help from the clients, from the community, and from the Faculty of Engineering when it is needed. Problems will be approached with an open mind so that the optimum solution is achieved.

# 4.0 – TASKS

## 4.1 - Major Task Descriptions

Below is a list of the major tasks associated with this project. In each of these sections there are descriptions of the smaller tasks that are within the major tasks, as well as a description of the resource required to complete these tasks. In Section 5.0 there is a detailed schedule with a detail of all tasks, duration needed for the tasks, the persons responsible, and the date to be completed.

**Task: Studio Drawings (CAD)**

A full set of drawings will be completed for the structure of the studio. The sub-tasks required to complete these drawings are:

Sub-Tasks:
The following drawings will be completed:

| Drawing Numbers | Drawing Title |
|---|---|
| 1.01 | General Notes |
| 2.01 | Foundation Plan |
| 2.02 | Slab on Grade Plan |
| 2.03 | Column Base Plate Plan |
| 2.04 | L2 Floor Framing Plan |
| 2.05 | L3 Floor Framing Plan |
| 2.06 | Roof Framing Plan |
| 5.01 | Wall Elevations |
| 5.02 | Wall Elevations |
| 6.01 | Foundation Sections and Details |
| 6.02 | Pier Plan Details and Slab Details |
| 6.03 | Wall Sections |
| 6.04 | Sections and Details |
| 6.05 | Typical Sections |

These drawings will also include:
- Schedules for beams and columns

Resource Requirements:
AutoCAD 2010, AutoCAD Templates and Standards used by Client, Google Sketch-Up, Printing Services

| |
|---|
| **Task: Structural Design and Detail**<br><br>This task requires a complete design for the structural frame and foundation of the studio. The detailed tasks are described below. |
| Sub-Tasks:<br>- Calculate vertical loadings acting on the roof and floors (live load, dead load, and snow load)<br>- Prepare preliminary structural concept plan<br>- Calculate lateral loadings (wind load and earthquake load)<br>- Design and detail joist system in roof and floors under vertical loading<br>- Calculate vertical loards on foundation (load transfer from roofs and floors, and dead load of walls)<br>- Design concrete foundation for vertical loads<br>- Design columns, lateral bracing and moment connections for vertical and lateral loads<br>- Analyze concrete foundation for lateral loads<br>- Design and detail sample connections |
| Resource Requirements:<br>CSA Standard A23.3-04—Design of Concrete Structures<br>CISC Handbook of Steel Construction – Ninth Edition<br>National Building Code of Canada 2005<br>Department of Transportation and Works Master Specification - Version 2006<br>Wood Design Manual, by the Wood Design Council |
| **Task: Reporting and Operations**<br><br>These tasks makes up the front and back ends of the companies operations. It includes all the reporting, scheduling, and managing of the company. All tasks associated with this are listed below. |
| Sub-Tasks:<br>Maintaining Group Resource Binder<br>Company Operational Costs<br>Compiling Specifications Relevant to the Project<br>Meeting Organization (Agenda building, facilitation, and minutes)<br>Final and Mid-term Progress Reports and Presentations<br>Project Work Plan<br>Reports (beyond those above) to submit to DBA<br>Company Staff Resumes (CV)<br>Maintaining Project Schedule |
| Resource Requirements:<br>Microsoft Suites (Word, Excel)<br>Google Documents<br>Dropbox (collaborative file storage) |

| **Task: Cost Estimating and Compilation of Specifications**<br><br>The final tasks associated with the project are to complete a class B cost estimate and to compile the specifications required for the project. This will bring the project to the point of pre-tender. These item sub-tasks are defined below. |
|---|
| Sub-Tasks:<br>- specifications compilation<br>- quantity take-off<br>- acquisition of item and material prices<br>- finalizing the cost estimate (ex. calculating contingency amount) and confirming quantities and verifying calculations |
| Resource Requirements:<br>Microsoft Suites<br>Cost/item list from DBA |

# 5.0 – SCHEDULE

Immediately below in Section 5.1 are the key dates for the completion of the project. Section 5.2 below has a detailed schedule of the term and details who is responsible for each task as defined in Section 4.1. The schedule in section 5.2 is design to meet these key dates.

### 5.1 - Key Deadlines

| Key Dates (all 2010) | Description |
|---|---|
| January 28 | Development Report (to DBA) |
| February 16 | Mid-term Progress Report and Presentation |
| February 18 | 50% Project Submission Report (to DBA) |
| March 11 | 90% Project Submission Report (to DBA) |
| March 25 | 100% Project Submission Report (to DBA) |
| April 5 | Final Report and Presentation |

**Previously Completed Items:**

January 14: Company Statement of Qualifications.

January 21: Concept Design: Conceptual design of Hybrid Studio including: materials; sketch of design (plan sections at several elevations with cross-sections in both directions at each of the elevations and foundation detail); and reasoning of design decisions.

### 5.2 - Detailed Schedule

This section lays out a detailed schedule organized by each week in the project period. Each of the sub-tasks from Section 4.1 are included in this schedule and they are divided among the members of the company. In the tables below, organized on a weekly basis, it defines the activity, the total time required, and the time required divided among the members of the company.

Also included following the schedule, is a description of the operational activities that occur each week to ensure that all background work required for success are completed.

Importantly, there are key deadlines included in each of weekly schedules below. All scheduled activities are designed to meet the timeline of the course and the deadlines set by DBA.

**<u>January 24 to January 30</u>**

Key Deadline: January 28: Development Report to DBA

| Task | Duration (hours) | Personnel |
|---|---|---|
| Items for Development Report<br>- Cost Estimate<br>- External Loadings | <br>6<br>10 | <br>ALL<br>MA |

| | | |
|---|---|---|
| - Scheduling | 7 | IF |
| Drawings | 21 | MCM |
| Project Work Plan | 10 | IF |

**January 31 to February 6**

| Task | Duration (hours) | Personnel |
|---|---|---|
| Design and detail joist system in roof and floors under vertical loads | 20 | MA: 10<br>MK: 10 |
| Drawings | 21 | MCM |
| Mid-term Progress Report and Presentation | 14 | IF |
| Company Members Resumes (CV)<br>Editing Company Members Resumes (CV) | 7 | All<br>IF (1) |

**February 7 to February 13**

| Task | Duration (hours) | Personnel |
|---|---|---|
| Design and detail joist system in roof and floors under vertical loads | 20 | MA: 10<br>MK: 10 |
| Drawings | 21 | MCM |
| Mid-term Progress Report and Presentation<br>Mid-term Presentation Preparation | 14<br>5 | IF<br>All (5) |
| 50% Submission Report to DBA | 3 | IF (most);<br>All |

**February 14 to February 20**

Key Deadlines:
February 15 - 50% DWG Internal Review
February 16: Mid-term Progress Report and Presentation
February 18: 50% Submission Report to DBA

| Task | Duration (hours) | Personnel |
|---|---|---|
| Calculate vertical loads on foundation (load transfer from roofs and floors, and dead load of walls) | 10 | MK: 5<br>MA: 5 |
| Calculate lateral loadings (wind load and earthquake load) | 10 | MA |
| Drawings<br>Drawing Review | 21<br>3 | MCM<br>IF,MK,MA(1) |
| Mid-term Presentation and Report<br>Mid-term Presentation and Report Preparation | 3<br>3 | IF<br>All |

**February 21 to February 27**

| Task | Duration (hours) | Personnel |
|---|---|---|
| Design concrete foundation for vertical loads | 10 | MA: 5<br>MK: 5 |
| Drawings | 21 | MCM |

**February 28 to March 6**
Key Deadline: February 28 – 75% DWG Internal Review

| Task | Duration (hours) | Personnel |
|---|---|---|
| Design concrete foundation for vertical loads | 10 | MA: 5<br>MK: 5 |
| Design columns, lateral bracing and moment connections for vertical and lateral loads | 15 | MK: 7.5<br>MA: 7.5 |
| Drawings<br>Drawing Review | 21<br>3 | MCM<br>IF,MK, MA (1) |
| 90% Submission Report to DBA | 3 | IF |
| Specifications Compilation | 8 | IF: 3<br>MK: 1.5<br>MA: 1.5 |

**March 7 to March 13**
Key Deadlines:
March 08 - 90% DWG Internal Review
March 11: 90% Submission Report to DBA

| Task | Duration (hours) | Personnel |
|---|---|---|
| Design columns, lateral bracing and moment connections for vertical and lateral loads | 3 | MA |
| Analyze concrete foundation for lateral loads | 15 | MA: 7.5<br>MK: 7.5 |
| Drawings | 21 | MCM |
| Final Report and Presentation | 15 | IF |

**March 14 to March 20**

| Task | Duration (hours) | Personnel |
|---|---|---|
| Design and Detail sample connections | 20 | MA: 10<br>MK: 10 |
| Drawing | 21 | MCM |
| Final Report and Presentation | 15 | IF |
| 100% Report to DBA | 3 | IF |
| Cost Estimating | 3<br>3 | IF<br>MA |

**March 21 to March 27**
Key Deadlines:
March 22 - 100% DWG Internal Review
March 25: 100% Submission Report to DBA

| Task | Duration (hours) | Personnel |
|---|---|---|
| Drawing<br>Drawing Review | 21<br>3 | MCM<br>IF, MK, MA: (1) |
| Final Report and Presentation | 15 | IF |
| Specifications Compilation Completion | 4 | IF |

**March 28 to April 3**

| Task | Duration (hours) | Personnel |
|---|---|---|
| Final Presentation Preparation | 8 | All |

**April 4 to April 10**
Key Deadlines:
April 5: Final Report and Presentation

**Weekly Operational Activities (All)**
Team Meeting (1.5 hours/week)
Client-Company Meeting (1.5 hours/week)
In-Class Meeting (1 hour/week)
Administration (1 hour/week)

**Weekly Operations Activities for the Business Manager (IF)**
Agenda Building and Meeting Organization (1.5 hours/week)
Management (3 hours /week) (includes binder, scheduling, etc.)
Administration (1 hour/week)

### 5.3 - Monitoring and Evaluation

At each team meeting there is a scheduled portion of the agenda focused on updates. These updates will be complemented by reviews of the overall schedule. The Business Manager is responsible for ensuring the team stays on the pre-defined schedule within a small margin of change. If there is a significant change in the schedule it is the responsibility of the Business Manager, in cooperation with the company members to schedule the remainder of the project period to fulfill the requirements and meet the deadlines.

The Business Manager also divides the work for each week based on the deadlines and balances that with the other responsibilities of each of the team members. This ensures that all resources are being utilized fully in completion of the project.

# 6.0 – PROJECT COST

At the beginning of the project the company acquired $200.00 in capital funding from its members to fund expenses associated with the project. A 15% contingency has been put in place to cover any extras as well.

The two major categories of costs are printing (reports and documentation) and transportation (mainly to the client's office).

The budget is being managed by the Business Manager, Ian Froude. Regular budget updates will be presented at meetings once per month and reimbursements will be made to company members bi-weekly.

# 7.0 – DELIVERABLES

**Title: Development Report (due January 28th, 2010 )**

This report is to include:
a. a preliminary cost estimate for the studios structural systems
b. A 10-week project schedule broken down into tasks
c. A list of all drawings that will be completed and submitted for the project

Method of Delivery:
Physical copy in print as well as an electronic copy (pdf) submitted by e-mail.

**Title: Mid-term Progress Report and Presentation (due February 16th, 2010)**

This report and presentation will include: updated status on past, current and future tasks; an updated schedule for the remainder of the project life; and descriptions of changes to the project that have occurred through the term.

Method of Delivery:
This report will be submitted via e-mail (pdf) and physical copy. It will also be accompanied by a formal presentation by all members of the team.

**Title: 50 % Submission Report (due February 18th, 2010)**

This report is to include drawings completed to the 50% mark. This willl lay out the drawings which includes elevations of all sides of the studio; plan sections for the three levels of the structure; and details of the foundation.

Method of Delivery:
An electronic copy will be submitted by e-mail (pdf) and a physical copy will be submitted during the weekly meeting with the client.

**Title: 90 % Submission Report (due March 11th, 2010)**

This report is to include drawings completed to the 90% mark. This includes the beam and foundation sizes, with calculations justifying the choice of member.

Method of Delivery:
An electronic copy will be submitted by e-mail (pdf), and a physical copy will be submitted during the weekly meeting with the client.

**Title: 100% Report (due March 25th, 2010)**

This report is to be the submission of the completed drawings (including: elevations, plans, wall sections, foundation details, beam and column schedule), a Class B cost estimate, a printed and bound copy of the specifications required for the project, and a preliminary copy of the final

report that is to be officially submitted on April 5, 2010.

Method of Delivery:
Both an electronic copy (pdf) and a physical copy will be submitted. This will be a bound report. It will include a full sized set of drawings (min. 24 x 36")

**Title: Final Report and Presentation (due April 5th , 2010)**

Formal Report:
This report is both the final submission for the course and for DBA Consulting Engineers Ltd. This is to include: a full set of drawings and a class B cost estimate.

Method of Delivery:
Both an electronic (pdf) and physical copy will be submitted in the form of a formal technical report. This will be a bound report. It will include a full sized set of drawings (min. 24 x 36").

Presentation:
This is the final presentation and will summarize the final report and detail the design.

Method of Delivery:
This will be presented in-person to both the instructor and DBA by all members of Pinnacle. There will also be copies printed for both parties on 8.5x11" paper with two slides per sheet.

Group Binder:
The binder includes: personal resumes of all team members, the Statement of Qualifications, Project Description, Project Life Meeting Minutes and Agendas, all previously submitted documents; and individual team member work journals.

Method of Delivery:
This will be submitted to Dr. Steve Bruneau inside a three-hole binder divided into sections that are clearly labeled. All papers, with exception to the design drawings, will be on 8.5x11" paper.

# 8.0 – RISK AND VULNERABILITIES

The company aims to minimize the level of risk associated with the project and to the reduce the number of vulnerabilities through planning and preparation. Included below are the risks and vulnerabilities that have the ability to effect the outcome of the project.

**a.** The use of new software: There may be software that the company may need to use to complete this project and which the company is not familiar with.

**b**. Availability of the Client: As the term progresses and it gets closer to the construction season, there is the possibility that the client will become busier and less available for the company to work with.

**c.** Team Stability / Resource Availability: There is a concern that if the company gets busier as the term progress the work on this project will descrease.

**d.** Business Processes: Pinnacle is implementing a number of business processes to streamline the operations of the business. These allow the members to work more efficiently, but there is a risk that the new processes will be cumbersome throughout the beginning of the project and prove to take more time than saved.

**e.** Company Member's Familiarity: This team was brought together for this project so the company also runs the risk that there may be confusion over the roles of the different members. There is also the possibility that members will become frustrated if it appears that some members of the team as working more than others. The business manager will work to ensure that all company members understand the importance of each others work and that it is balanced in a fair manner.

**f.** Inexperience in Design/Scheduling: The team lacks long-term experience in design and scheduling. There is a risk that processes and design will take longer than anticipated.

Pinnacle Engineering Consultants is fully aware of these risks and vulnerabilities and will continue to review the plans to ensure that they are minimized. The company is confident that it will be successful in this project despite these risks and vulverabilities.

# REFERENCE

DBA Consulting Engineers - Mervin Morris and Jonathan Wong

PEGNL: Guidelines and Recommended Minimum Fees for Architectural and Engineering Projects

Vipin Acharya: Structural Engineer

# Appendix A

## OUR GOAL

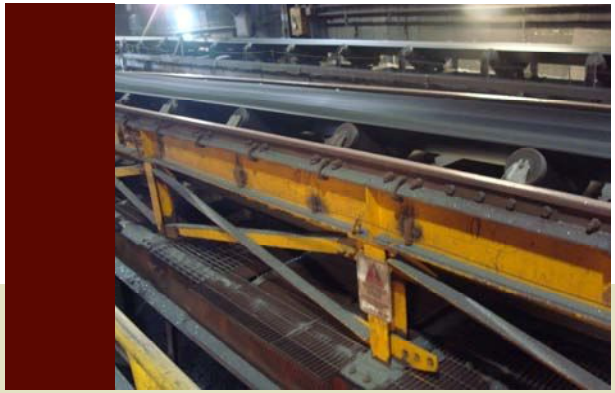
The goal of PInnacle Engineering Consultants is to provide exceptional engineering services to its clients, excelling in the areas of transportation, land development, water resources, municipal, environmental and structural engineering. We are dedicated to working with clients to provide high quality work in every project.

Pinnacle has a strong commitment to the values of corporate and social responsibility. It is of utmost importance to us to treat our clients, staff, partners, and external community with a high level of respect.

# PINNACLE
# Engineering Consultants

## PROFESSIONAL EXPERIENCE

City of St. John's, Department of Engineering and Planning
City of Mount Pearl, Department of Engineering
Incortec Incorporated
Iron Ore Company of Canada
MAE Design Ltd.
Memorial University, Faculty of Engineering
Newfoundland Energy Services
Tiller Engineering Incorporated
Engineers Without Borders Canada
Brook Construction Ltd.
Froude's Construction Ltd.
Professional Network Association
Signals and Communications-Department of National Defence
SNC Lavalin, Montreal, QC - Structural Building Engineering
Government Purchasing Agency - Government of NL
Corner Brook Port Corporation, Operations Management
Public Works Government Services Canada - Government of Canada
Urban Systems, Edmonton, AB
Urban Systems, Kelowna, BC



Tel: 709.699.5016

Email: pinnacle.engineering.consultants@gmail.com

62A Newtown Rd.
St. John's, NL

# OUR TEAM

## IAN FROUDE

### BUSINESS MANAGEMENT

Much of Ian's work experience has built his skills for planning, organizing, and leading a team. Ian has had work experience across a wide spectrum, including working in municipal government, research, private contractors, and non-governmental organizations. This has left Ian with a wide range of essential skills to any business. These include leadership skills; strong communication abilities, both written and verbal; and planning and organizing in both the short and long term.

Ian's professional work experience includes:

- Design and cost estimating for a $2.6 million water and sewer replacement for George Street, St. John's, NL. He completed a full design, cost estimate, and step-by-step plan for construction to limit disruption to business. Ian not only understands the design of this system, but also the social impacts that the project process could have.
- Assisting a Project Manager on a $15 million construction project. Undertook planning and communication tasks to ensure consultants and site superintendents had effective and efficient communication.
- Analysis of the Leary's Brook Watershed to determine river flows due to future development in the watershed.

## CHUN MAN

### INFORMATION TECHNOLOGY AND DRAFTING

Chun has worked in many locations across Canada, including Newfoundland, Ontario, Alberta, and British Columbia. This has provided him with a wide range of experience that is essential on any project. Chun has been involved with urban and rural geometric highway design. He has experience in marine design and has been directly involved in the management of construction projects. His most recent experience, allowed him to be involved in the design of a $42 million interchange, and a $10 million corridor improvement project. This has given him highly refined skills in developing detailed construction drawings and in planning.

Chun's professional work experience includes:

- Completed a master transportation plan for the District of West Kelowna using ArcMAP to show critical paths through Westbank and surrounding areas.
- Developed conceptual solid timber wharf design options for the Department of Fisheries and Small Craft Harbours; Completed conditional report on the existing wharf structure at Bird Cove.
- R.A. Pollett Building - CBPC – Conceptual Layout Plan: Completed detailed electrical layout design for the Pollett facility; Conducted an EcoEnergy Retrofit feasibility study for Corner Brook Port facilities.

## MATTHEW KAVANAGH

### ENGINEERING DESIGN

Through the Civil Engineering program at Memorial University, Matthew has gained valuable experience in various fields of engineering including municipal, transportation, structural, environmental, construction, and project management. This has provided him with a wide variety of skills that will benefit any company, including creative thinking, organizational skills, problem solving, communication abilities, and project management and planning. Matthew maintains a strong and efficient work ethic an is a strong addition to any project.

Matthew's professional work experience includes:

- Performing structural analysis/design selection for Tiller Engineering relating to the installation and upgrade of telecommunications towers.
- Managing and organizing the selection, purchase, installation, and outfitting of a prefabricated structure for the Iron Ore Company of Canada (IOCC) to supplement core logging activities within the Carol Lake mine site.
- Managing a civil/structural audit and organized the structural upgrade of ore silo storage vessels at the Carol Lake production facility for IOCC.

## MARIANNE ALACOQUE

### ENGINEERING DESIGN

Marianne has a wide variety of civil consulting experience in transportation engineering, structural engineering, water resources and land development. She has worked in various cities across Canada in small, medium and huge sized engineering consulting firms. Her experience ranges from the design of single-lot rural residential septic systems to the structural analysis of load transfer system for the new Montreal Symphony Orchestra concert hall. She brings professionalism, organization, creativity and enthusiasm to the team.

Marianne's professional work experience includes:

- Modeling and analysis of sanitary sewage network in Fort Saskatchewan, AB with the goal or providing annual upgrading recommendations.
- Analysis of existing sanitary lift station in Fort Saskatchewan with pump replacement options.
- Structural steel connection design for a water desalination plant in Fouka, Algeria.
- Design of a grading and utilities plan for a commercial building lot in Edmonton.
- Preparing a stormwater drainage model for the Town of High Level, AB using GIS.
- Completing a Parking Analysis for the Town of Bonnyville Downtown Redevelopment Plan.

Contact Information: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