

M . P . C . , I N C .
M A N U F A C T U R I N G P R O D U C T S F O R
W A S H I N G T O N & T H E W O R L D

November 6, 2007

Independent Mathematical Contractors, Inc.
334A-106 Cherry Parks
Tacoma, WA 98402

Dear IMC:

On the recommendation of colleagues at Art, Inc., we have contracted with you to resolve a cost-issue that pertains to the recently announced expansion of our world-wide headquarters in Olympia. While the building expansion is to be connected to the existing structure, recent regulations passed by the state legislature require us to run a new line from the local power hub to provide electronic connectivity and power. Unfortunately, this necessitates running conduit through the wetlands behind the new construction, making it difficult to determine the optimum path along which the conduit should be laid.

We expect that it will cost approximately one and a half times as much to run conduit through the wetland section of the path as it does through non-wetland ground. Owing to concessions made by Olympia to encourage business development, we only have to run conduit from the edge of our building to a point at which the power company will make power available, as shown on the map that follows.

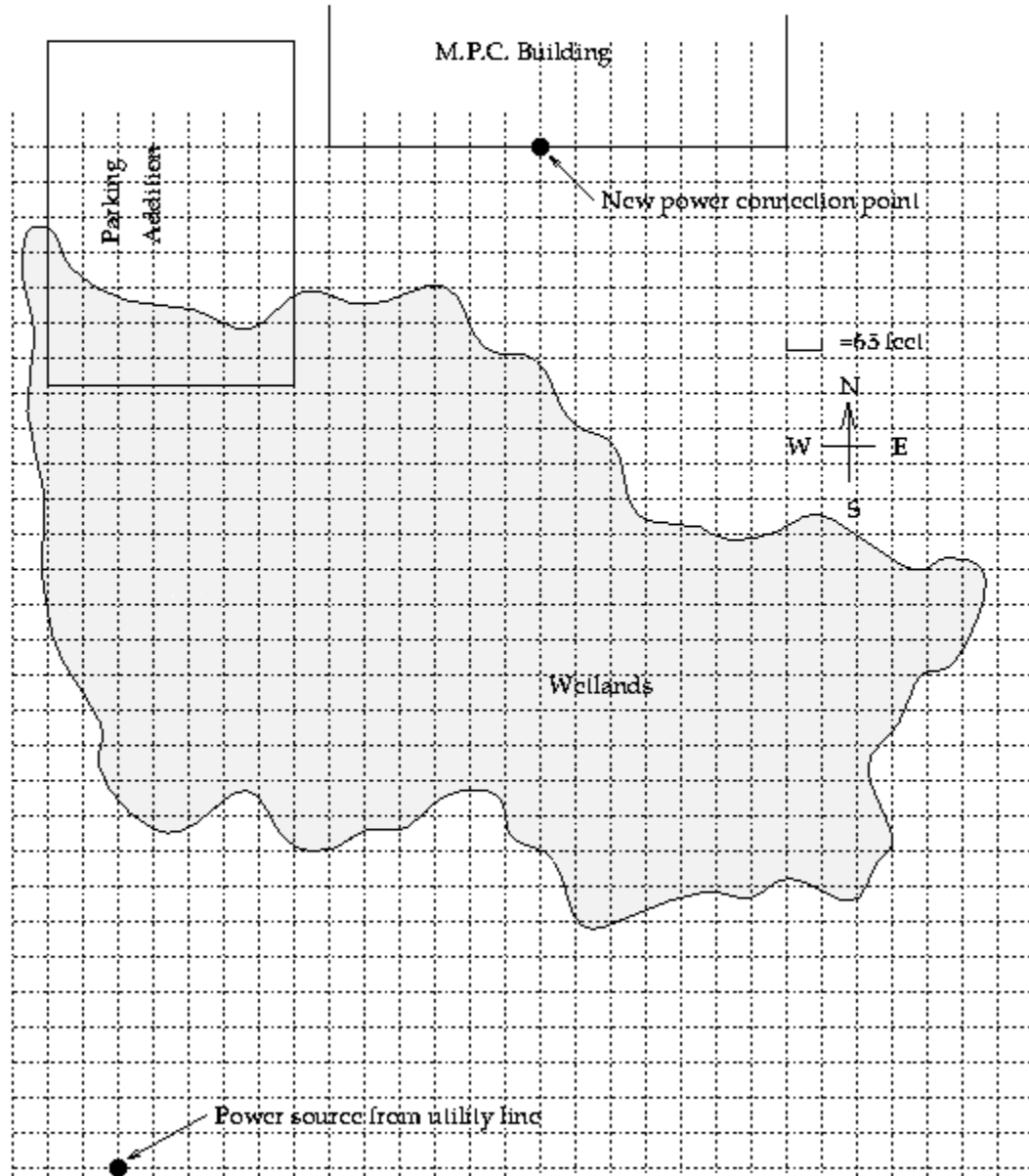
In as much as we hope to have a full budget outline for the expansion project finished by the end of the calendar year, we need your estimate for the cost of laying the conduit by the 3rd of December at the very latest. If you have questions as you are working on the project, you should consult with our chief scientist, Dr. Jennifer Quinn, who has been instructed to assist you insofar as may be possible. Please also note that it is written into your contract that you contact her by November 16th with the credentials of group members and November 21st to update us on your progress. Failure to do so may result in a substantial payment penalty. We have enclosed a copy of our technical report specifications, which should govern the presentation of your results.

Yours sincerely,
William Buffet, President
MPC, Inc.

Encl: Technical report requirements, map

The Map...

M.P.C., Inc. Map of Wetlands and Power Link



M.P.C., Inc. Technical Report Requirements

All reports submitted to MPC, Inc. should be written so that all members of the board of directors can understand the issues raised therein and therefore be able to appropriately use the report. The board members can all boast of a good university education, but owing to their preoccupation with business matters should be assumed only to remember precalculus and some basic ideas from calculus.

Reports should further:

- Be written in the first person plural (e.g., "We found the requisite data from the figure...").
- Include mathematical formulas in the text of the body of the report as appropriate to describe the methods and results obtained.
- Clearly explain how the mathematical formulas that are included bear on the problem being solved.
- Consist of
 - An *Introduction*, describing the problem to be solved, and an indication of the mathematical method used to solve it.
 - A *Body*, describing the mathematical problem that was solved to answer the question(s) posed in the introduction and the solution to it.
 - A *Conclusion*, summarizing the results obtained from the solution described in the body and clearly stating their relevance to the original problem as described in the introduction.
- Be 2.5--5 pages in length.

Logistics of Group Work

You may self-select groups of two to three students. You must inform me of your group members by November 16—either by e-mail or web form.

The students are often apprehensive about the grading of group projects, but a system that I've found works really well is that I allow the students in the group to determine the distribution of the points. For example, if a group of three receives an 50 on an assignment, then they have a total of $3 \times 50 = 150$ points to distribute among themselves. They fill out a form, sign it, and return it to me. For the most part, the students split the points evenly, but as the semester goes on, they are more willing to allocate the points differently.

Assigning Points to Papers

One of the reasons why the calculus projects have been successful is that I used a checklist to grade them. The idea for the checklist came from a very nice article by **Annalisa Crannell** at Franklin & Marshall College in *PRIMUS* 4, 3 (1994), 193-201. She also has some excellent advice about writing mathematics on the Web.

NAME: _____

total: _____ out of: _____

CHECKLIST FOR YOUR WRITING PROJECT

DIRECTIONS:

Please attach this page with a paper-clip to your writing assignment when you turn it in. This list will be used by your instructor to grade your assignment, and will be returned to you with comments. Keep a copy of your paper for your own reference.

Please feel free to use this checklist as a guide for yourself while writing this assignment.

DOES THIS PAPER:	
1. clearly (re)state the problem to be solved?	_____
2. state the answer in a complete sentence which stands on its own?	_____
3. clearly state the assumptions that underlie the formulas?	_____
4. provide a paragraph which explains how the problem will be approached?	_____
5. clearly label diagrams, tables, graphs, or other other visual representations of the math (if these are indeed used)?	_____
6. define all variables used?	_____
7. explain how each formula is derived, or where it can be found?	_____
8. give acknowledgement where it is due?	_____
IN THIS PAPER,	
9. are the spelling, grammar, and punctuation correct?	_____
10. is the mathematics correct?	_____
11. did the writer solve the question that was originally asked?	_____
DID THE AUTHOR	
12. comply with all deadlines?	_____

COMMENTS: