Managing Socio-Political Expectations and Adverse Field Conditions

- Perth, ON Rocky Ramps -

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Matthew McCombs & Stephen Braun

Matrix Solutions Inc.
ENVIRONMENT & ENGINEERING
Project – Perth, ON Rocky Ramps

- Little Tay Dam (left) – 25 m width, 1 m height
- Haggart Dam (right) – 50 m width, 1.5 m height
Project – Perth, ON Rocky Ramps
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- Replacement of two dam structures splitting flow through Stewart Park with rocky ramps
- Design Constraints:
  - Maintain access for property owners
  - Fish passage – Walleye and White Sucker
  - Maximize desired flow split between the two river branches
  - No impact on flood elevations
  - Aesthetic design
Progress to Date in Aug, 2017

- Two weeks prior to construction of Phase II (larger rocky ramp structure)
- Phase I Rocky Ramp completed in 2015
- Design and permitting complete for Phase II
Council Meeting

- Enhance aesthetics of Little Tay Rocky Ramp
- Re-convincing the public and council of concepts
- Added deposition concerns, conveyance issues, increased aesthetic expectations
Addressing Concerns

- Informing the public and council of constraints, discussing cost savings, a keeping the design in context - knowledge is power
- Municipality wanted an artistic rendering of the design drawings days before the presentation (we are not artists) – not well received
- Held site meeting to discuss likes/dislikes of the existing structure
- Proposed alterations to the existing ramp and aesthetic options for Phase II
- Discussed what we can’t control
  - Vegetation, log jams, debris, garbage, poaching, kayaks
Generational Geomorphology

- What is an aesthetically pleasing river supposed to look like?
  - Dynamic equilibrium vs. controlled uniformity
Phase I Alterations

- Success from
  - Lots of communication with each property owner and manage expectations, explain limitations
  - Working in the wet
Phase II – The Big One
Cofferdam Installation

- These cofferdams provide a clean and relatively easy method to construct in the dry.
Field Equipment Failure

- Sometimes field equipment just fails
- Ensure proper warning signs for pedestrians, close watch, allow the bag to settle overnight before working
Losses and Fixes

- Loss only to the stock piled material available on site to fill the notched section of the dam and time
- Material was later incorporated into the ramp
What Next?

- No damage to downstream property
- Alluvial fan cleanup required
- Also need to re-do fish survey, figure out new cofferdam, get approval from MNRF
New Plan

- Rockfill cofferdam (learn how to design, memo, approval) using rocky ramp material (for re-use), complete required bog works, build crest of ramp and add sandbags, remove cofferdam material to be used for ramp construction
Clay

A necessary evil or fines in a starved system

- Wanted to avoid the use of fines
- Ended up using more fines attempting to seal up the face after trying tarps.
Turtle Break
Improving Connectivity

- Remove depositional zone by improving channel connectivity
Then Came the Flood
Working in Flood Conditions

• Work in the semi-wet
• Make sure to apply clay in the dry as much as possible
• Next time avoid plastic and geotextiles as much as possible – at least natural materials can filter out
Continued with the implementation of rock rows and a small low flow notch to improve fish passage
Releasing the Flood