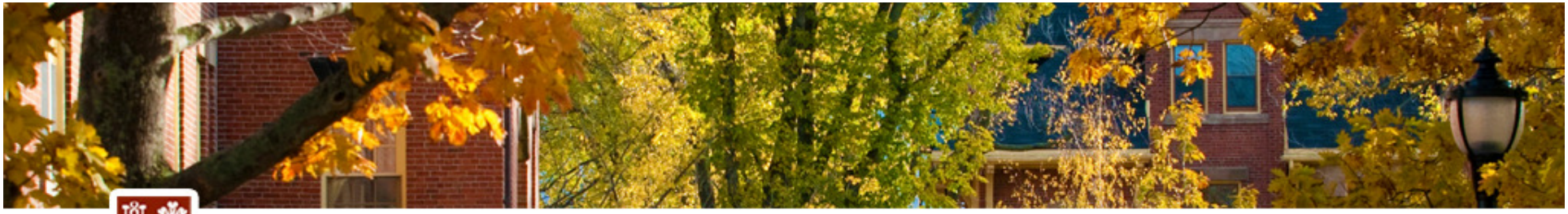

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Infrastructure Decisions Accounting for a Changing Climate

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Department of Transportation and Infrastructure, Government of New Brunswick
Presented by Adam Fenech, Ph.D.

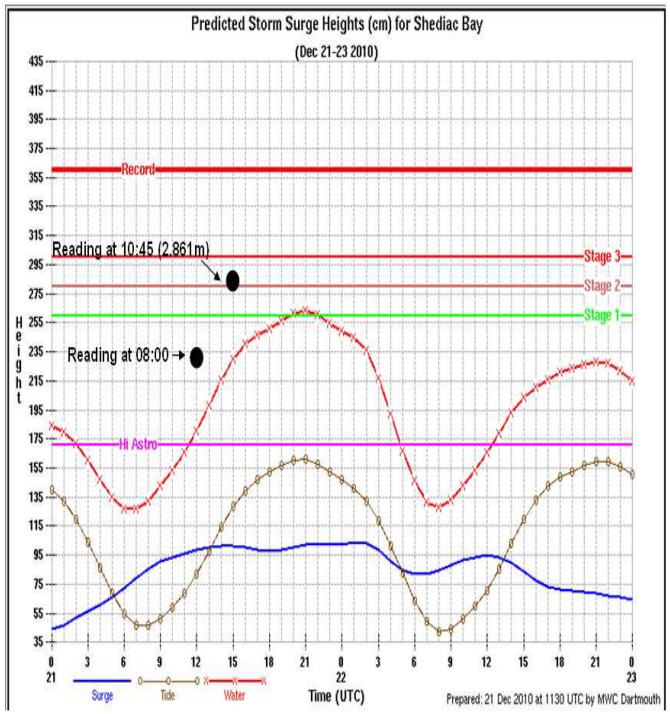
Gulf of Maine Council (GOMC) Climate Network
11 September 2013

Southwest New Brunswick
13 Dec 2010

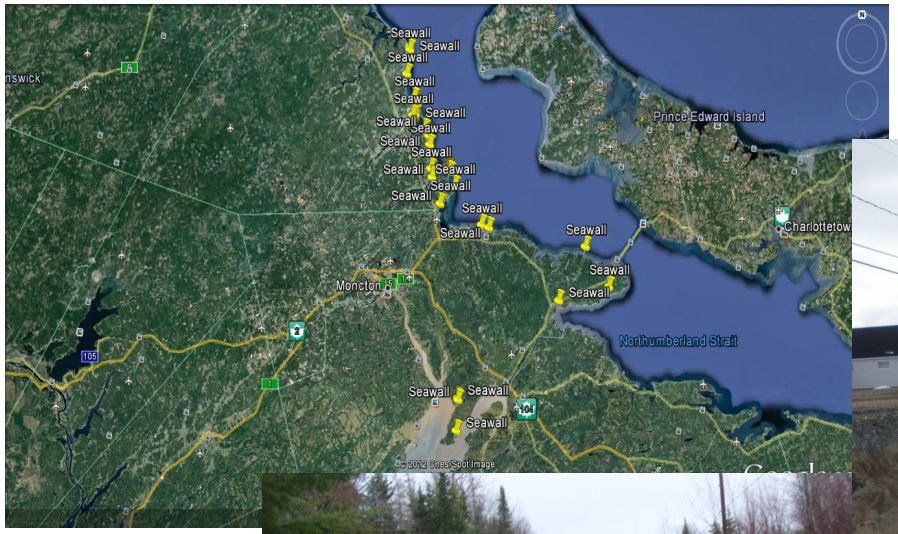
- Close to 200mm of rain
- Max Intensity of 19.5mm/hour
- 1 in 100 year storm (Gumbel)
- 1 in 195 year storm (US consultant Kleinschmidt)
- 1 in 25 year event (Daigle)

Southeast New Brunswick
21 Dec 2010

- ‘Northeasterlies’ Storm
- 40 mm of rain, Winds 96 km/hour
- Astronomical tide



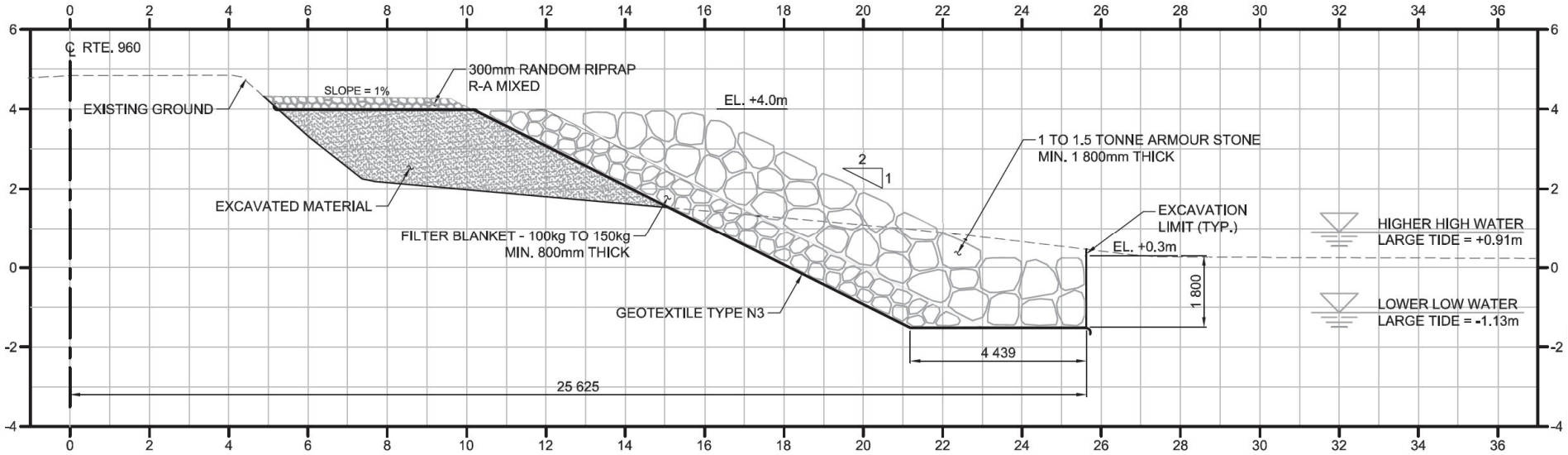
The Affected Locations



NB DOTI
Builds Seawalls to Protect Roads

- 35 sites (6,400 meters) of new Seawalls in the last 2 years in South-East NB = $8M; 9,200 meters remain at risk

Adaptation (1) Building New Seawalls
Rte 530 8.44 meters high due to numerous design criteria

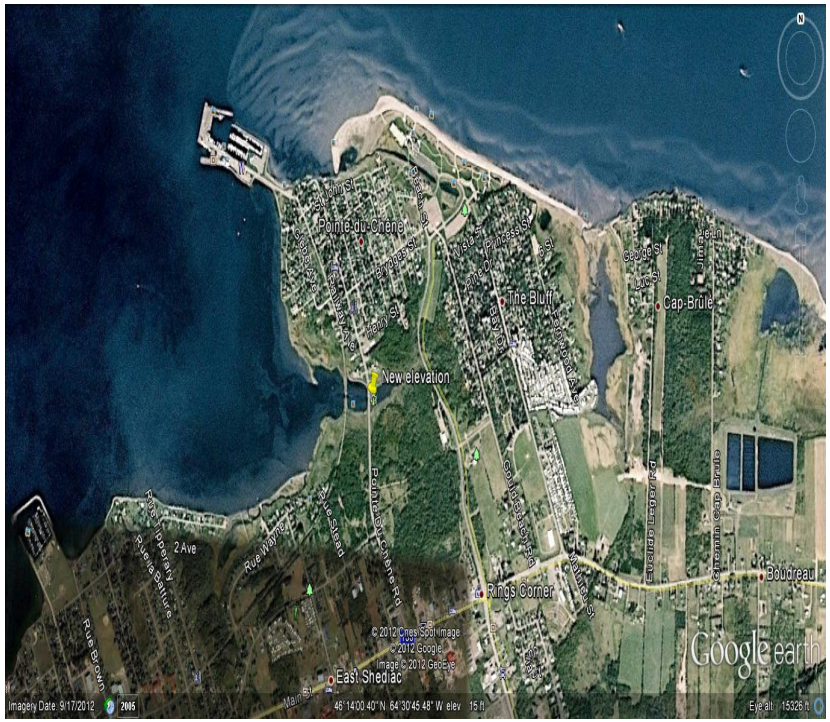


Adaptation (2) Raising the final grade of roads in vulnerable areas - Pointe-Du-Chêne

- Anticipation of sea level rise for final design grade for road bridge

- Original grade 1.9m
- Final grade 3.6m
- If doing today, 4.3m

- Federal Auditor General's office uses as example of Climate Change adaptation



Adaptation (3) Replacing Culverts

- Many are too small (80%)
- Standard is 1:100 year event sizing
  (for past 20 years)
- 1,200mm to 2 x 2,100mm diameter

Conclusions

- NB DTI is paying attention - since 2008-2009: 28M$ damage from 13 storms for regular replacement!
- Newer infrastructure being built that is capable of performing under more extreme climate conditions
- Climate change adaptation present challenges ($)
- Intra departmental committee was formed in NB Government to further address the challenges of climate change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