



Wave Runup: Does it really determine floodplains?

Corrections to common errors in modeling & mapping of wave runup & overtopping.

Joe Faries, M.CE, PE, CFM | Coastal Engineer



On Improving Technical Merit of Coastal :

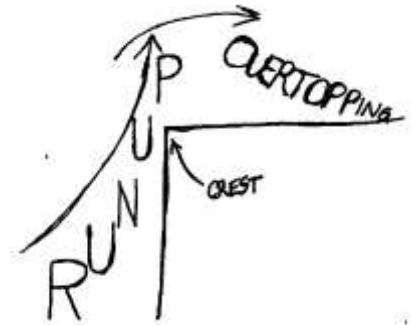
Particularly the Modeling and Mapping of
Wave Run-Up Hazards.

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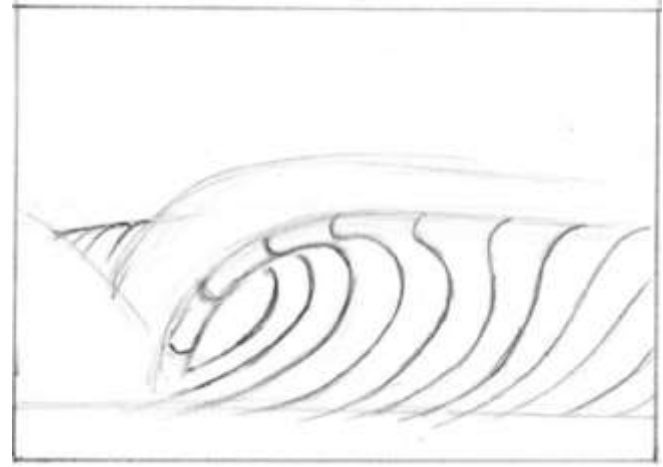
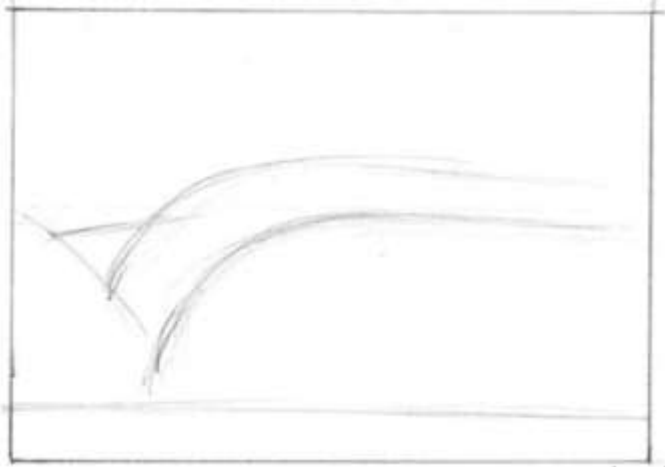
Wave — Induced Floodplain Hazards



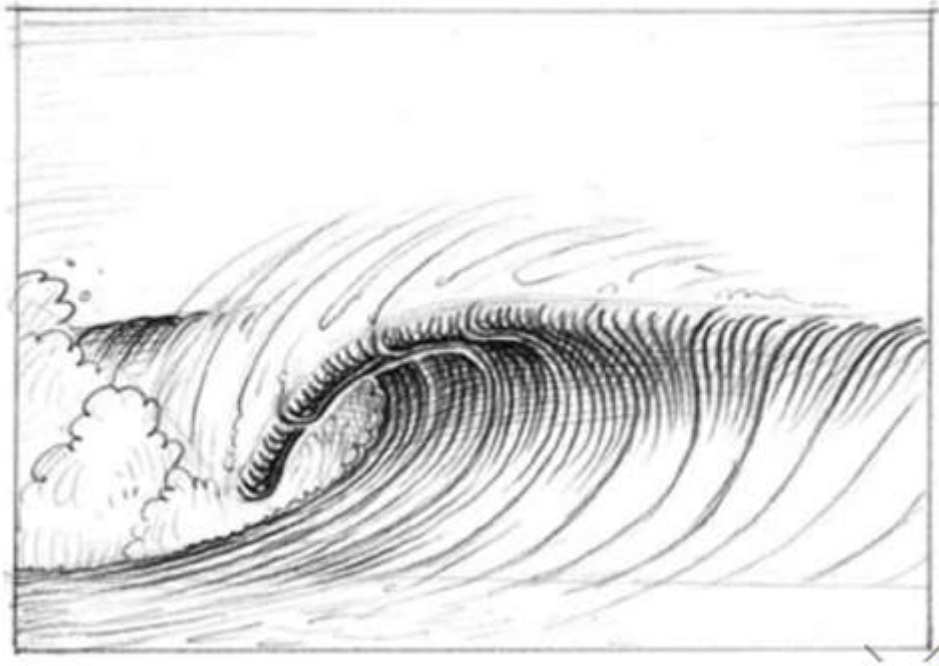
RUNUP



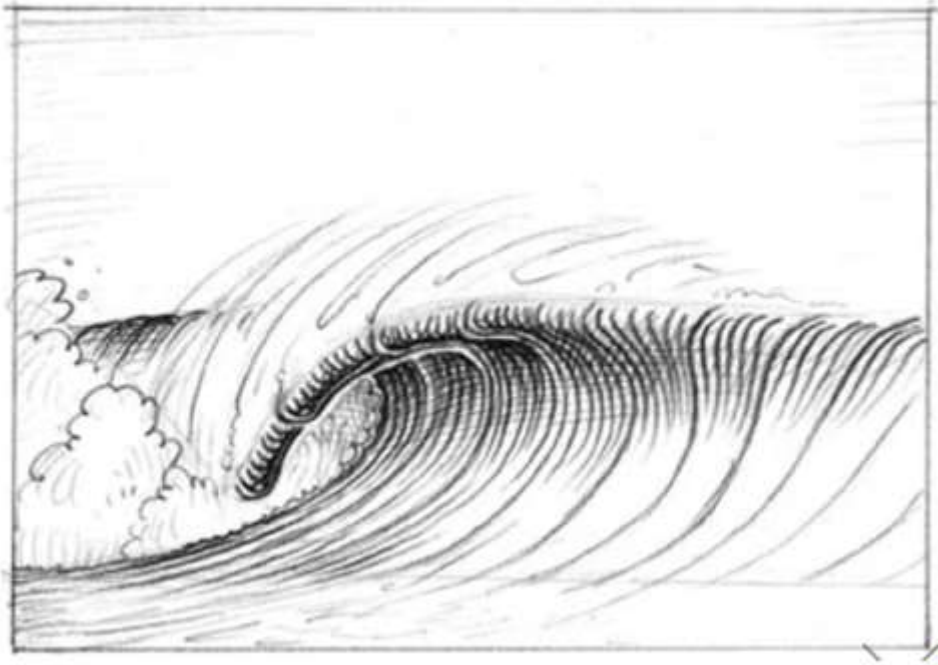
Overland Wave Analysis Transects are 'Guidelines'



Guidelines Become Masked in Final Artwork

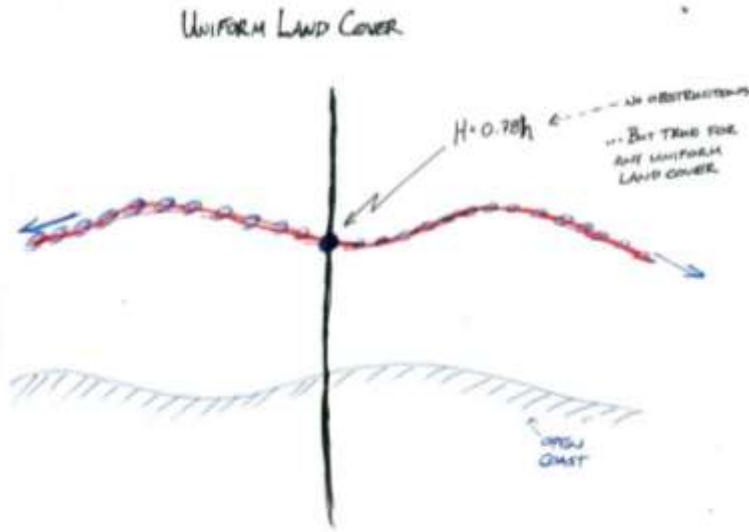


Guidelines Become Masked in Final Artwork




How many
guidelines are
needed?

How Many 'Guidelines' are Needed...

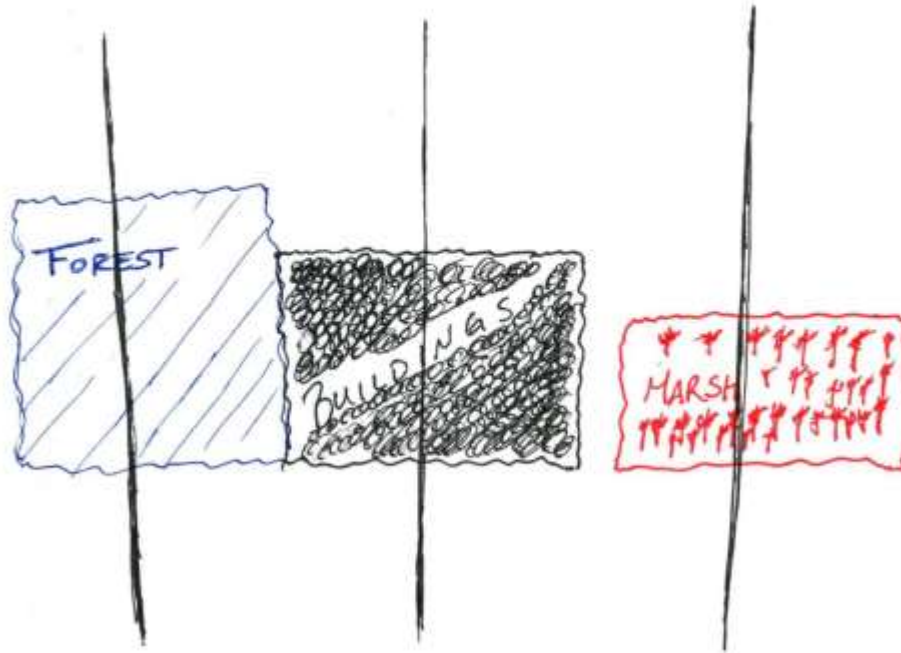


As Few As 1 ...

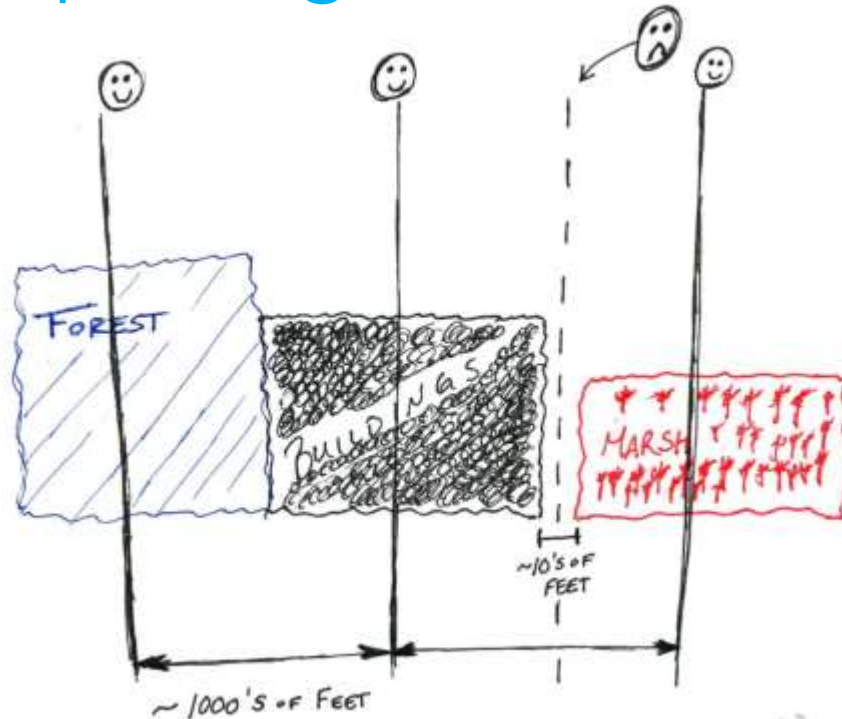


Or Zero (0) ...  Stantec

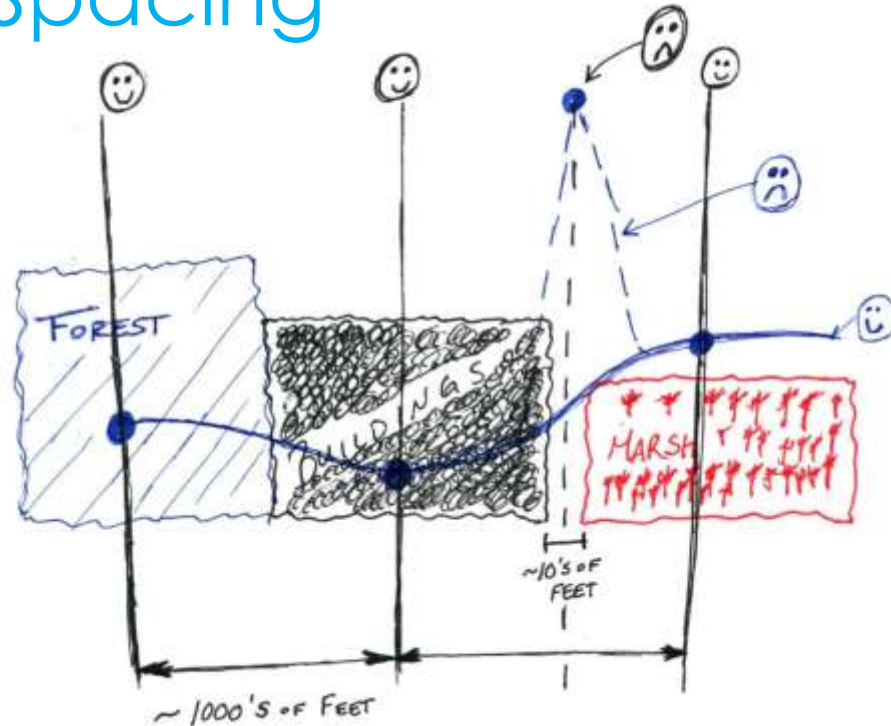
General Land Cover Variation Dictates Transect Spacing



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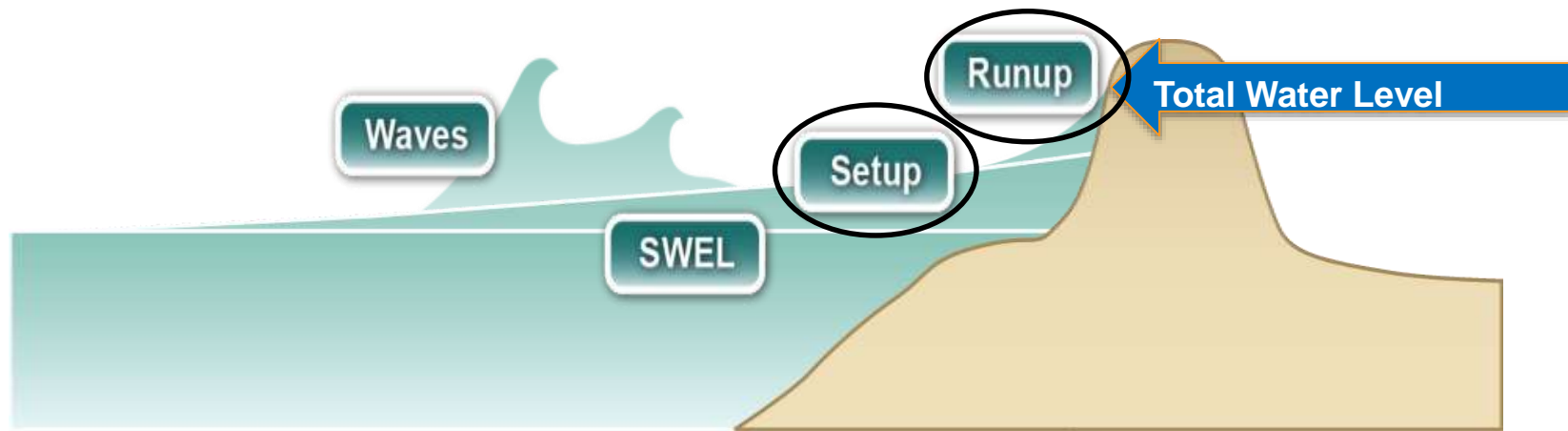


Where are the Transects?!



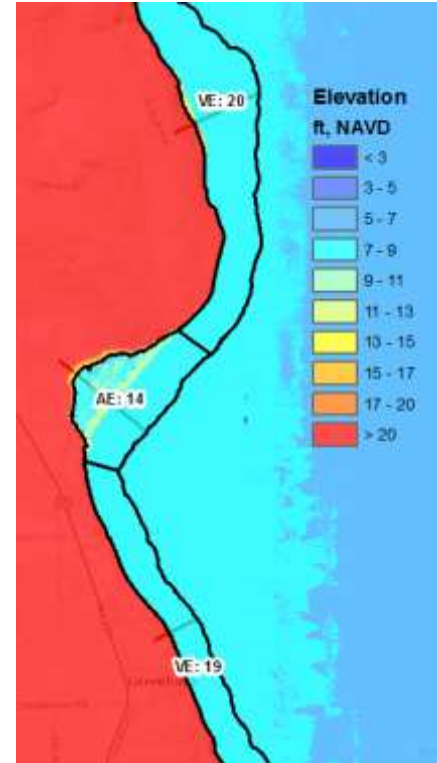
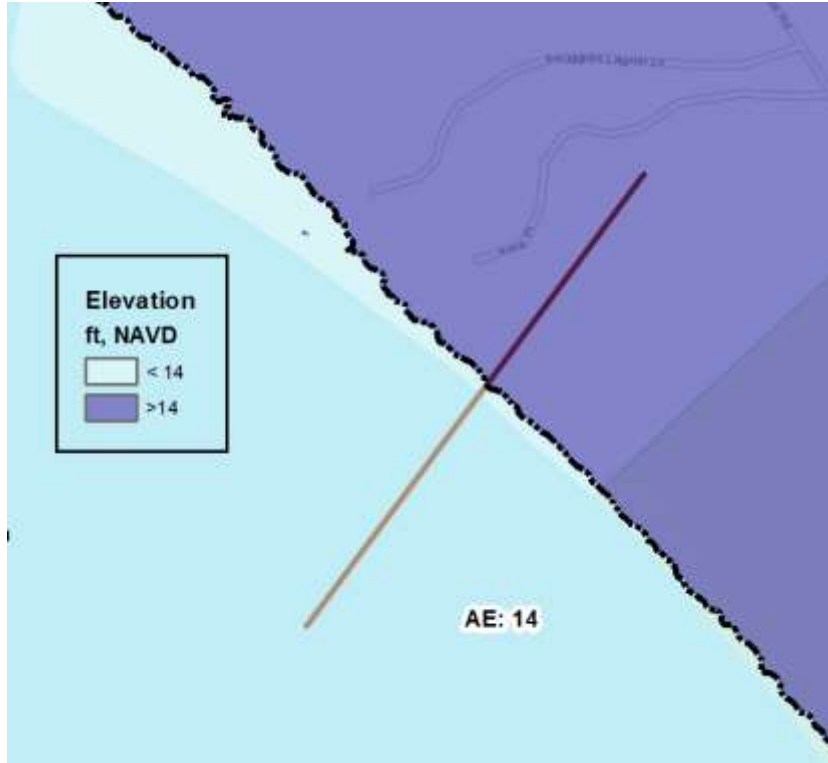
RUNNER

Overview of Wave Run-Up Hazard



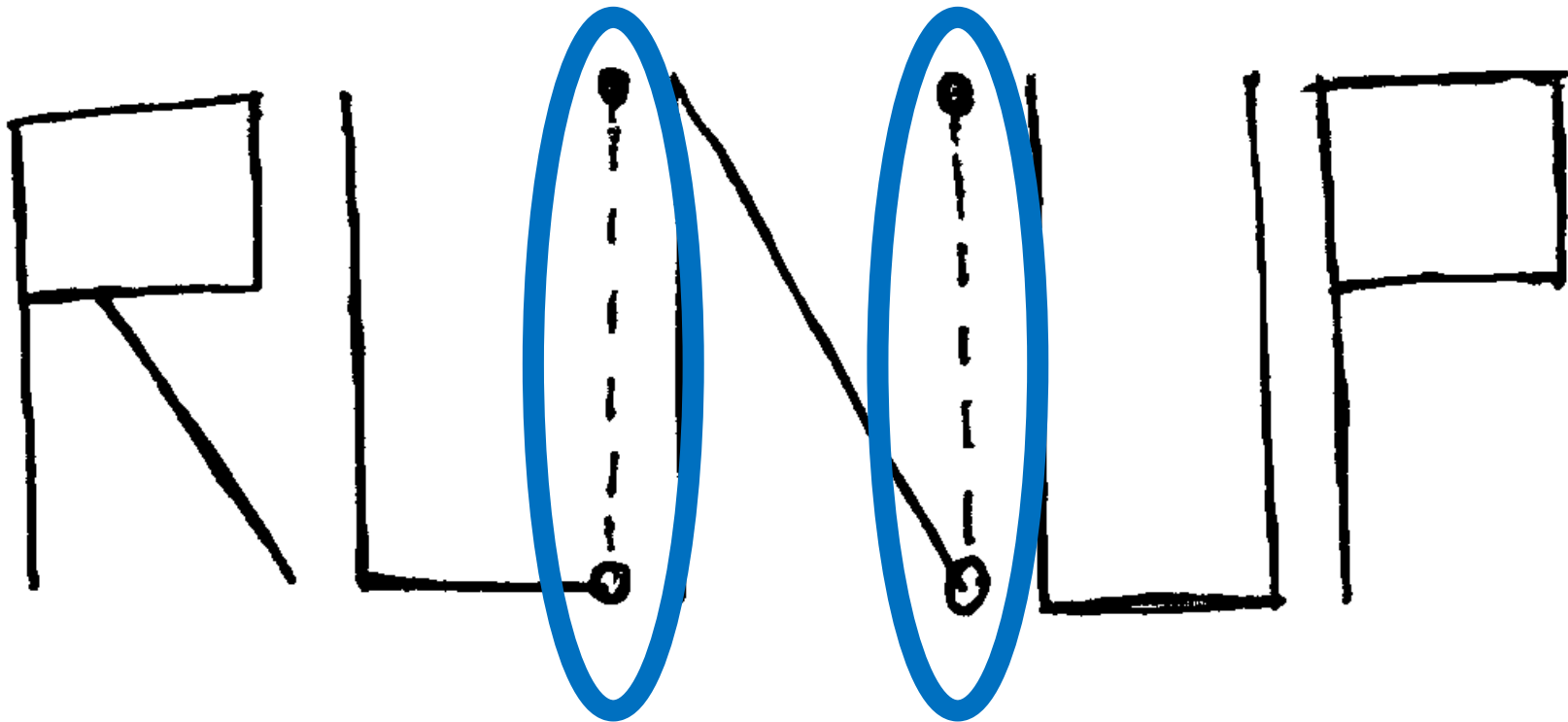
Delineation	Zone Breaks
Follow Contour of TWL	Break along the Coast Where Shoreline Characteristics

General Mapping of Wave Run-Up Hazard



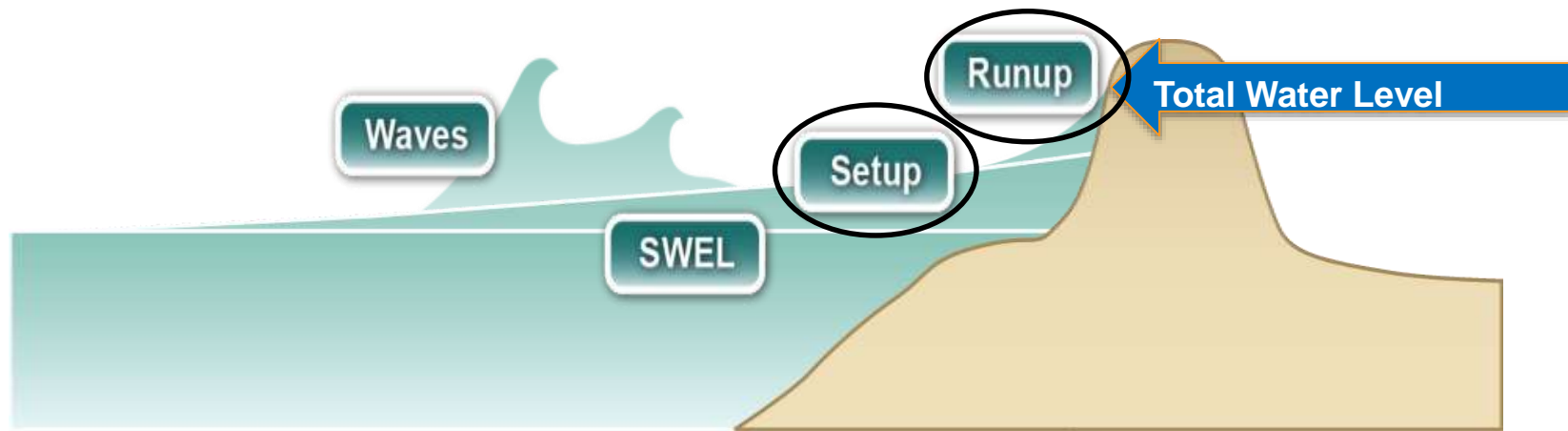


VS: RUNUP # 1

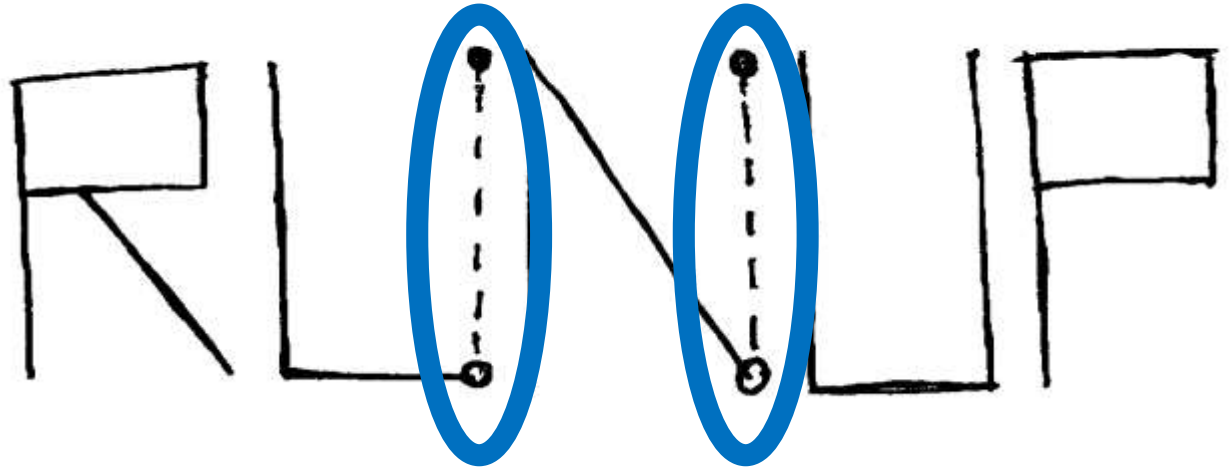


(Discontinuous)

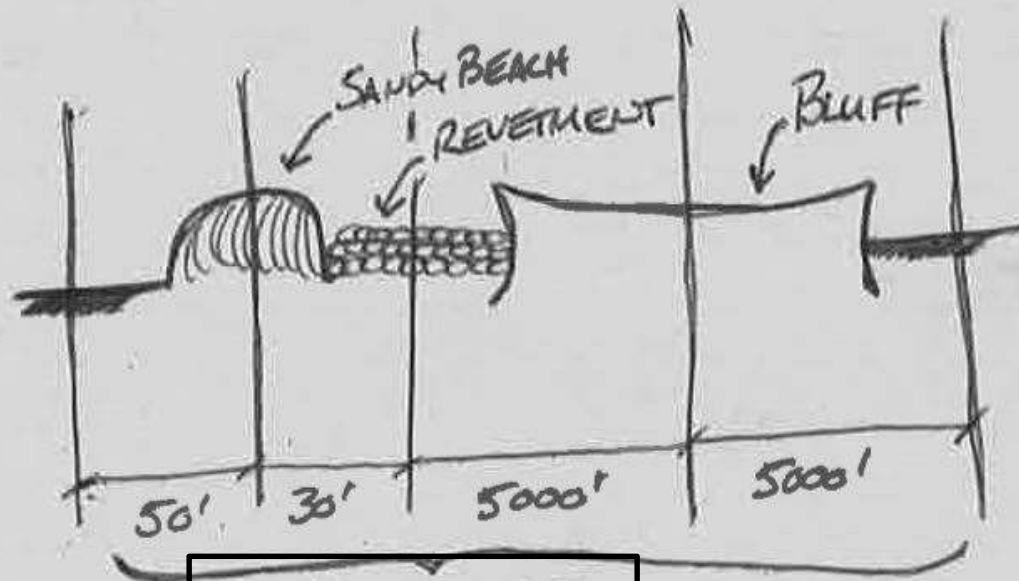
Why is It Discontinuous?



What Are the Implications . . .



~~REVENUE~~ - BULKHEAD



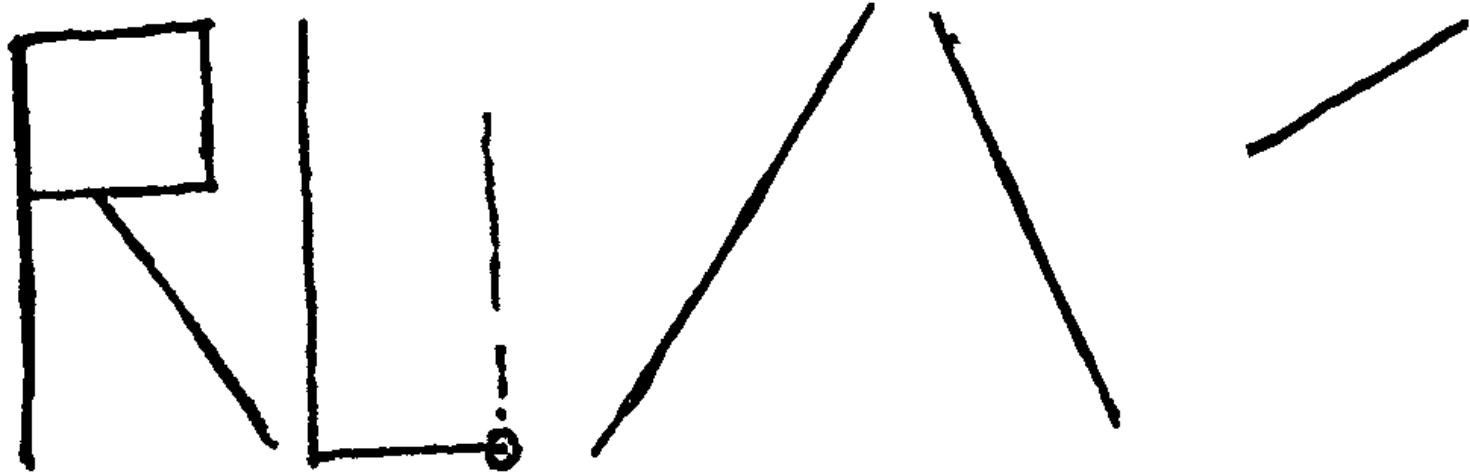
NO STANDARD
SPACING

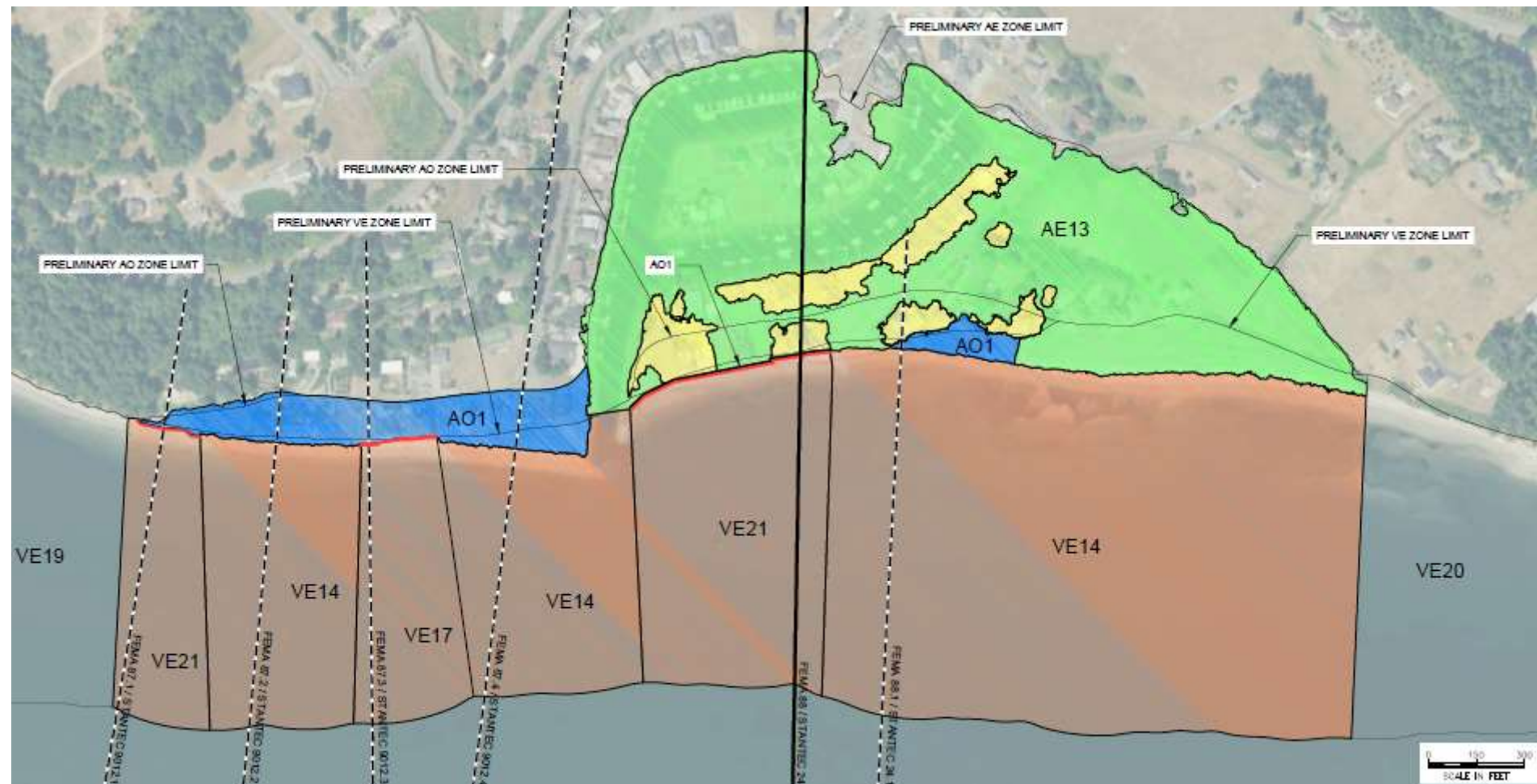


VS: RUNUP # 2

RUNUP

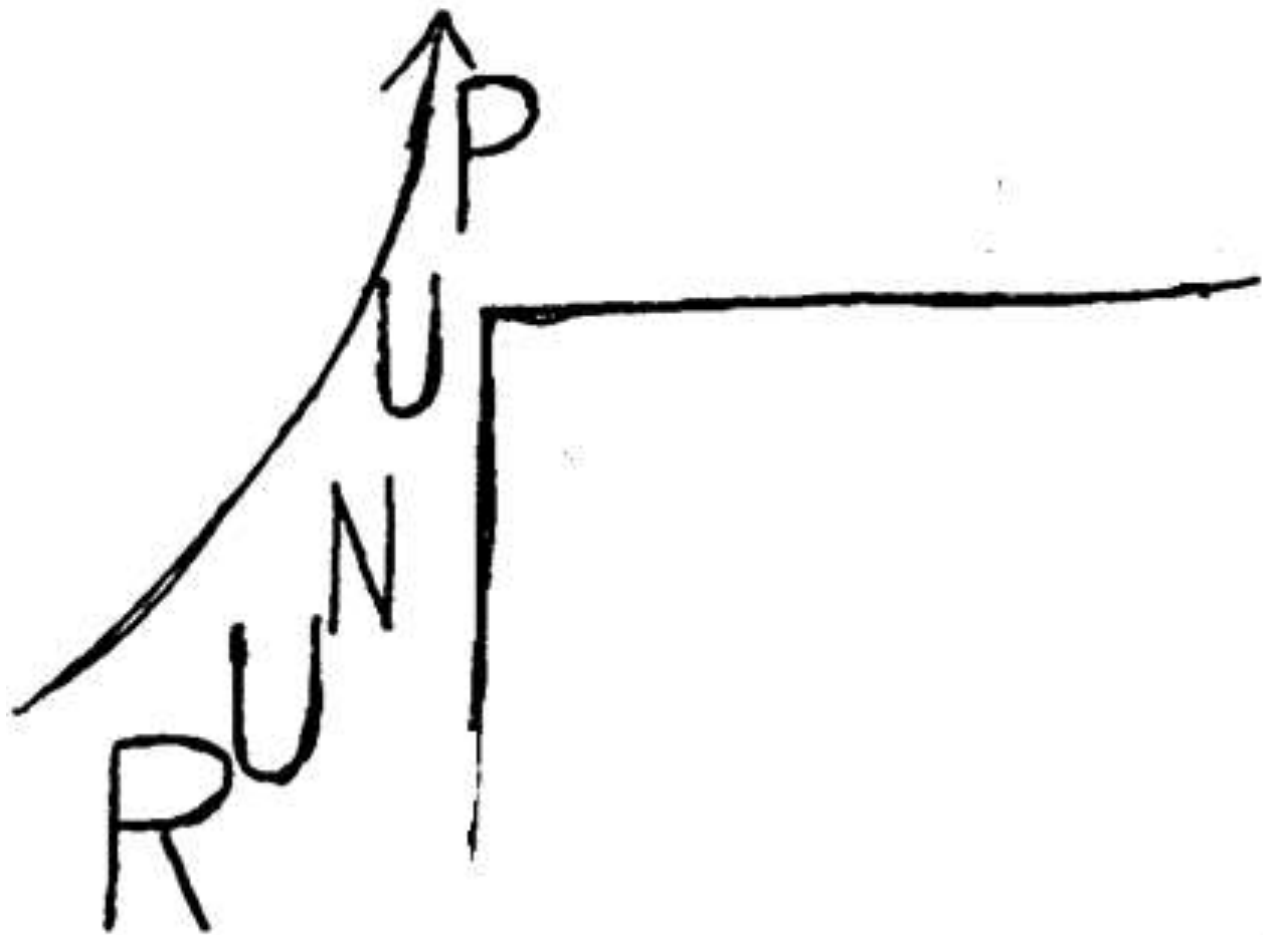
Underlying Problem





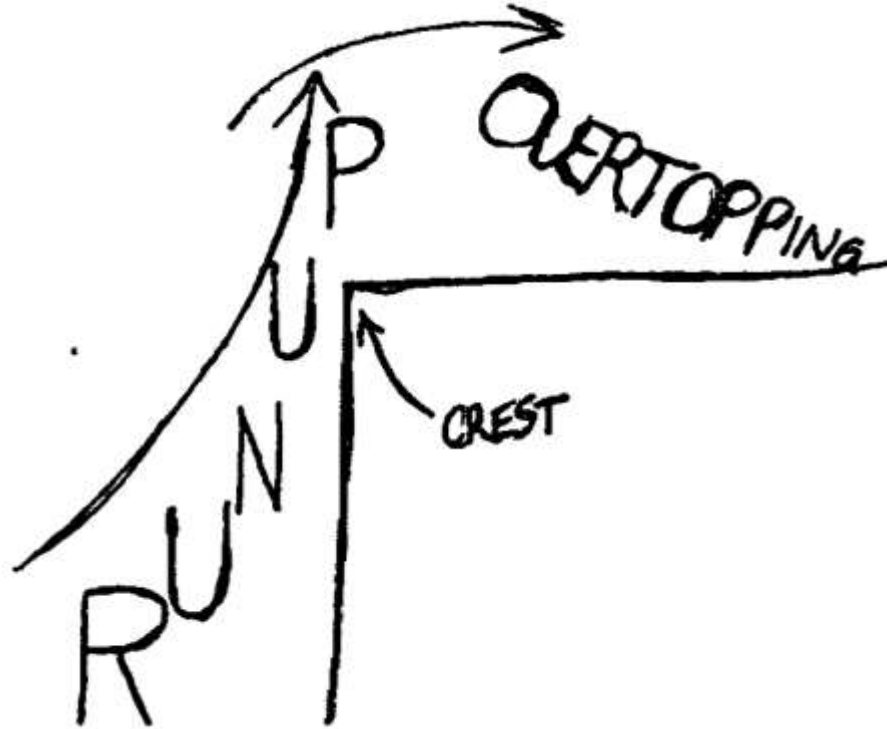


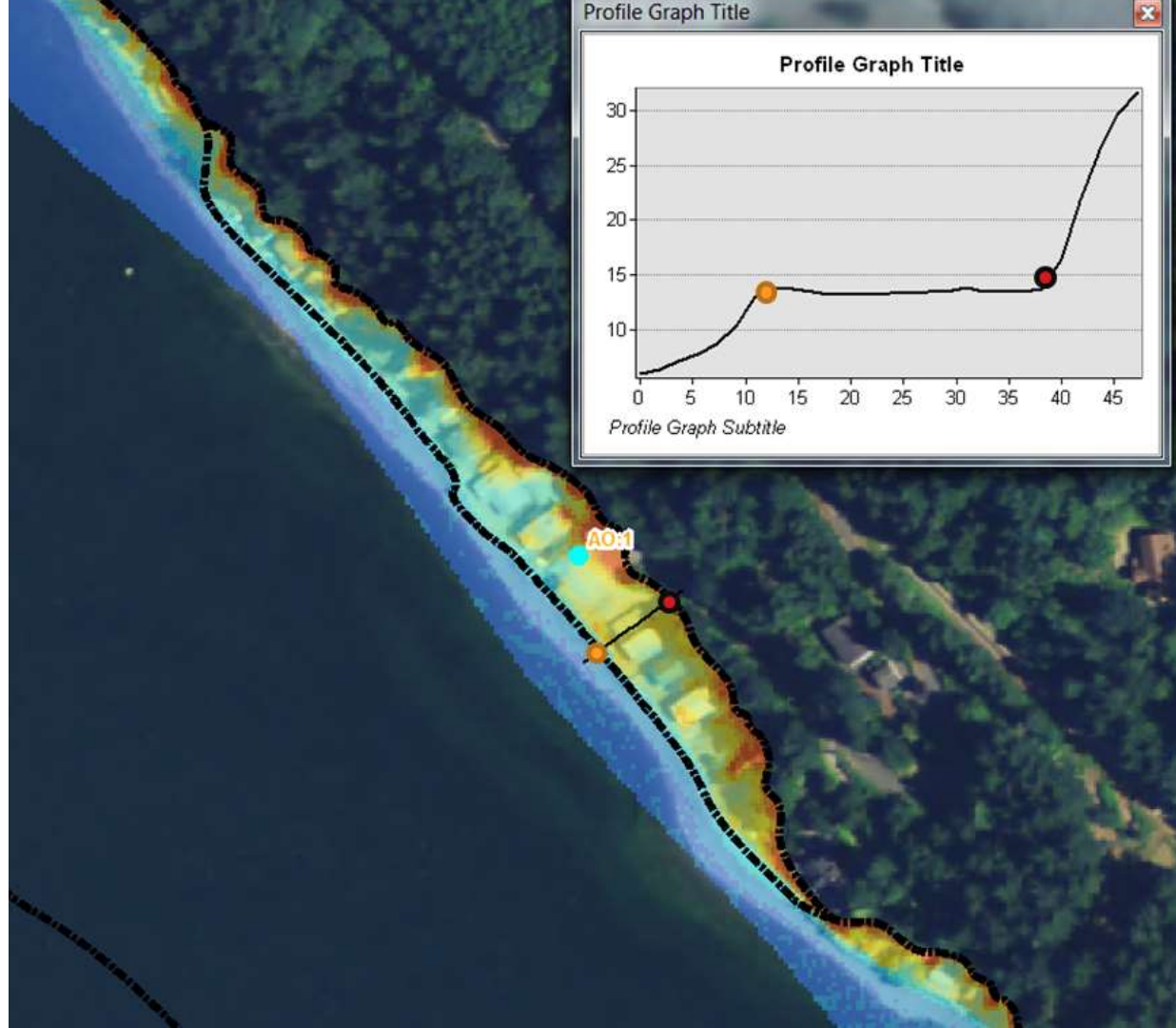
VS: RUNUP # 3

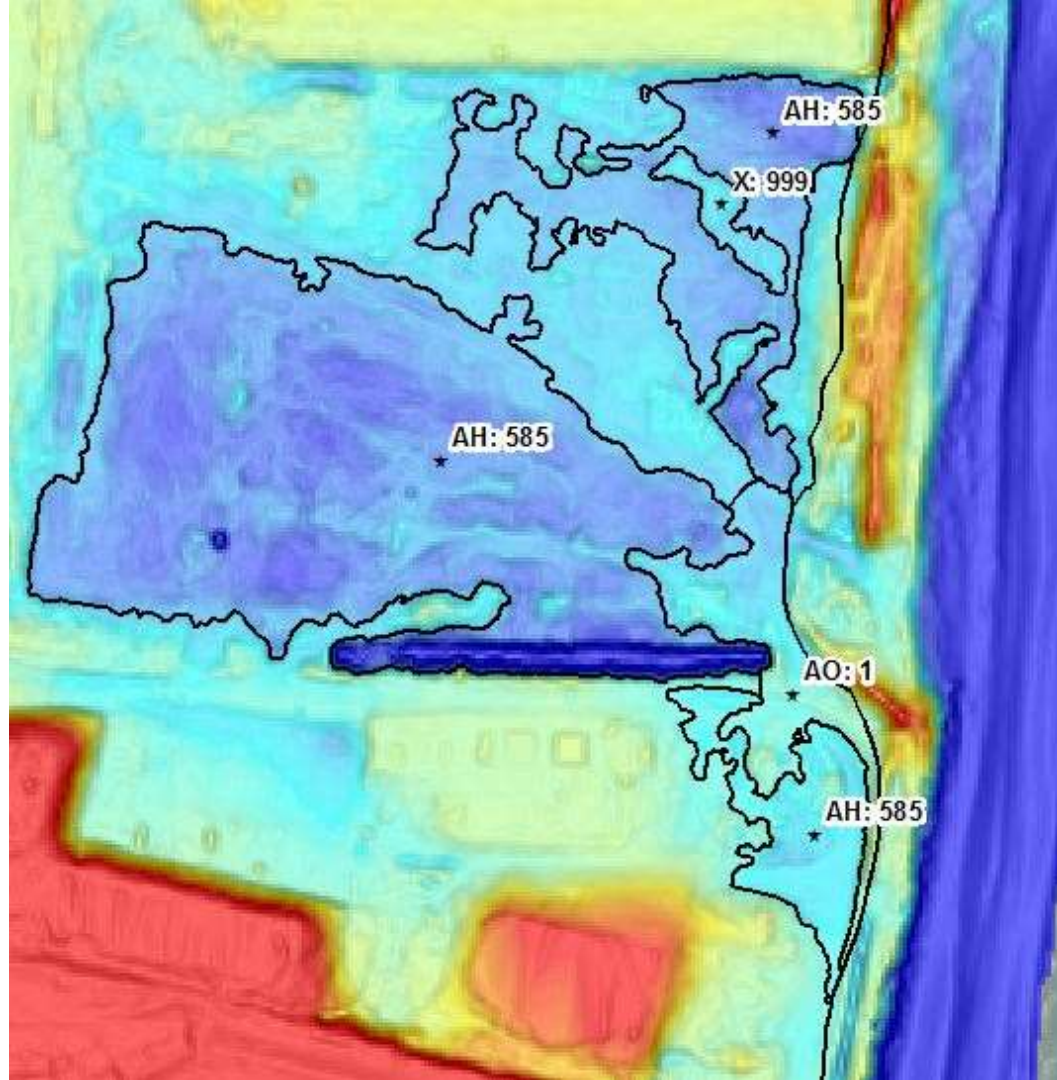




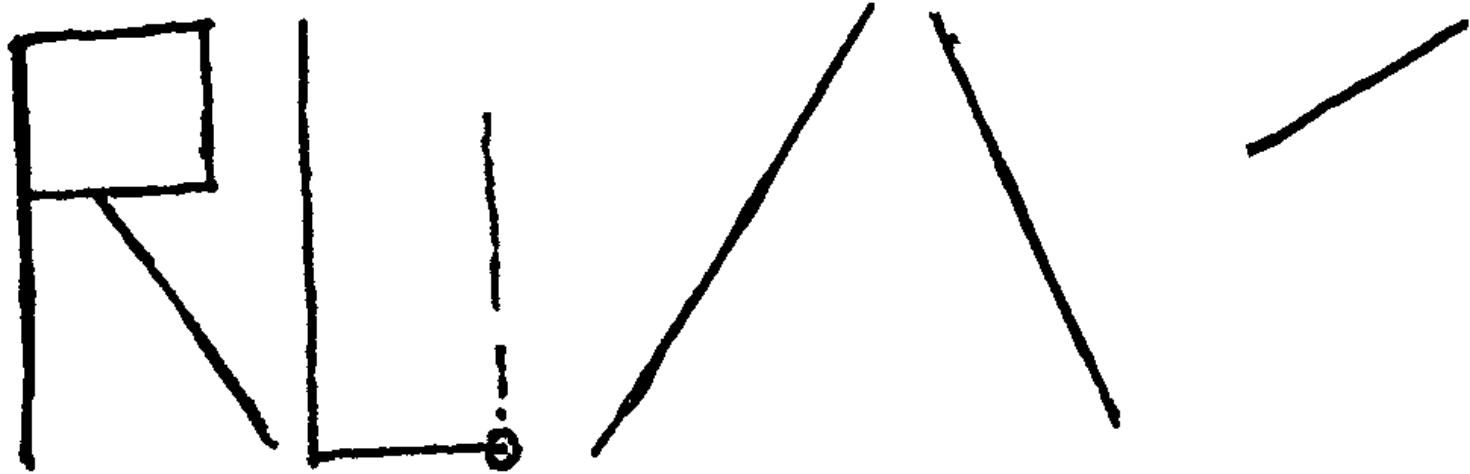
Now...Runup **can** be hazardous



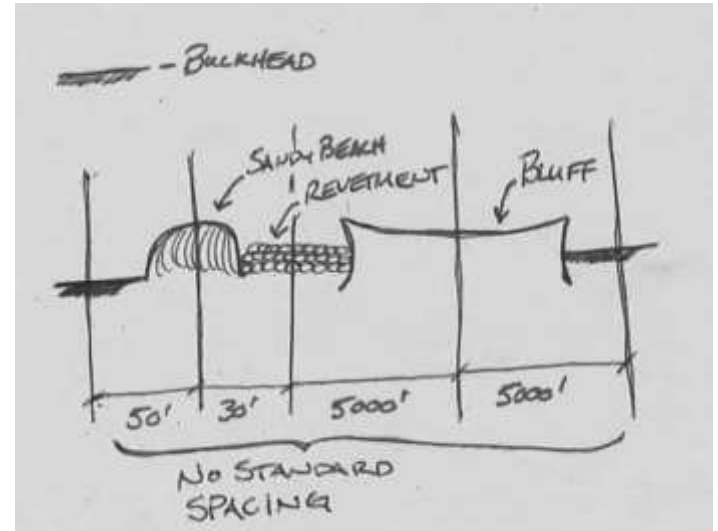
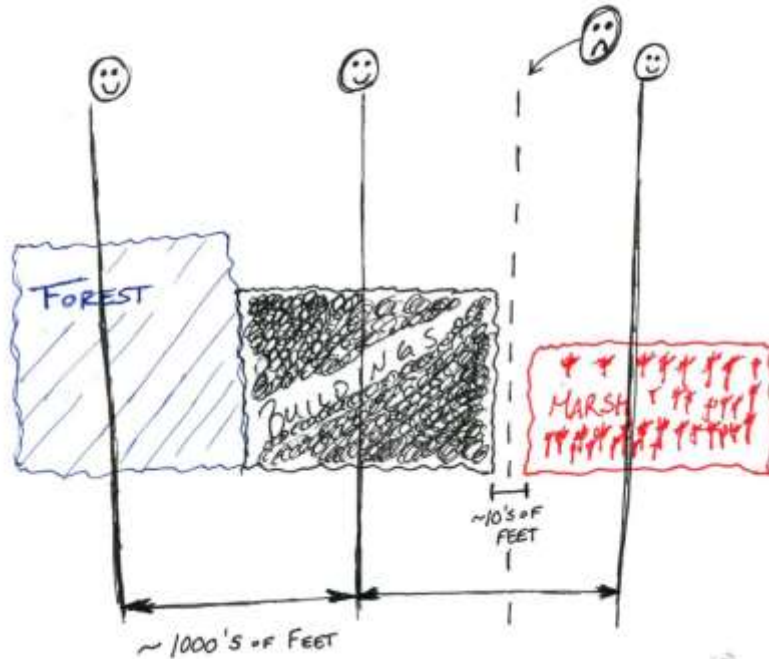




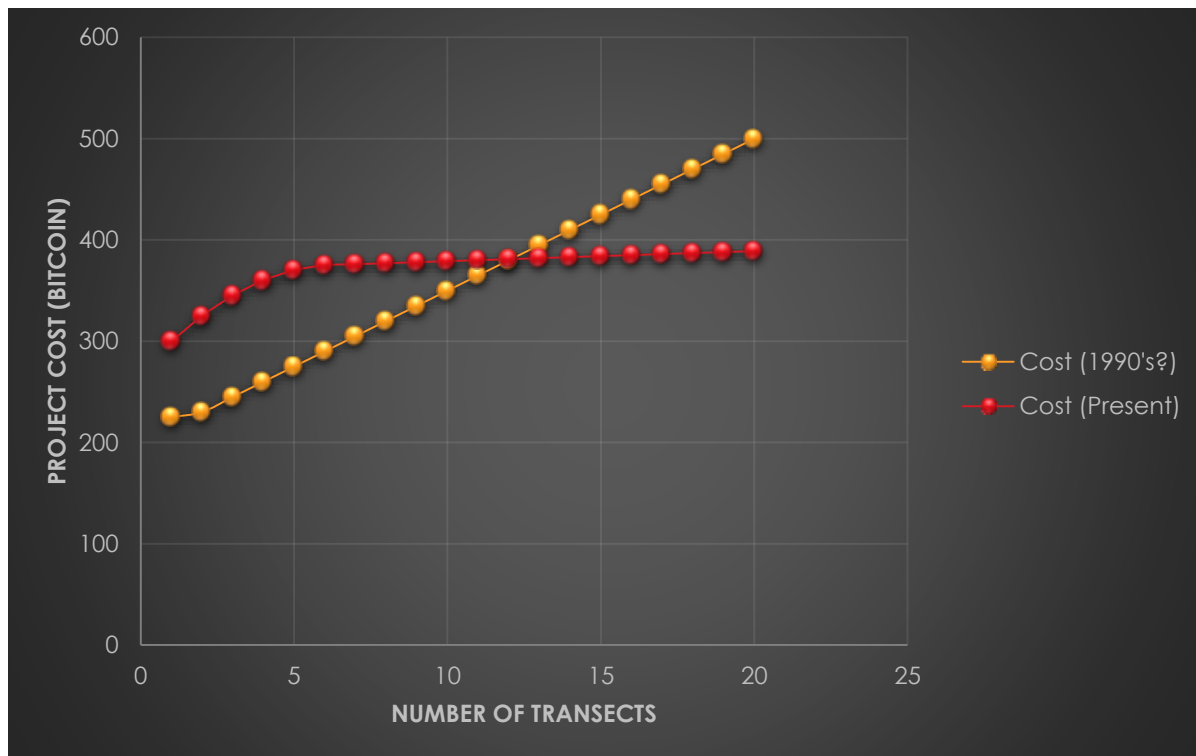
Underlying Problem



Scoping Standards do not Differentiate(?)



Concerned About Unit Cost?



Economies of Scale Because . . .

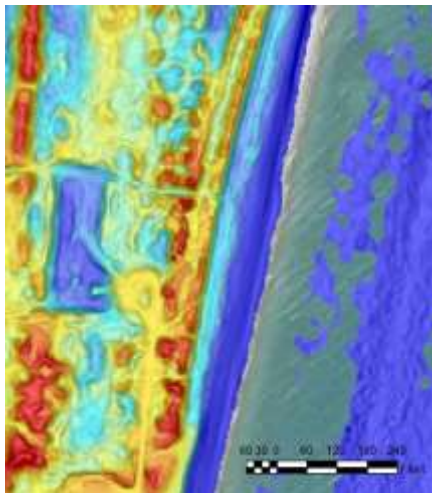
Remotely-Sensed Data

Economies of Scale Because . . .



Bing

LiDAR



Oblique

Economies of Scale Because . . .

Modern Software

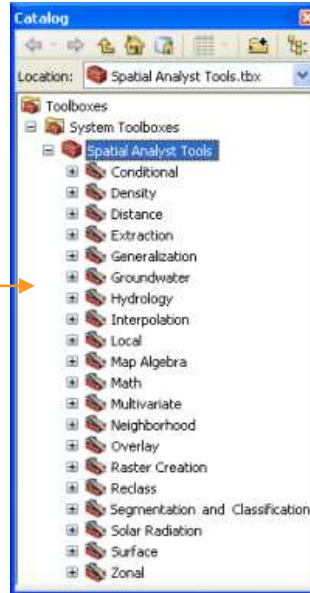
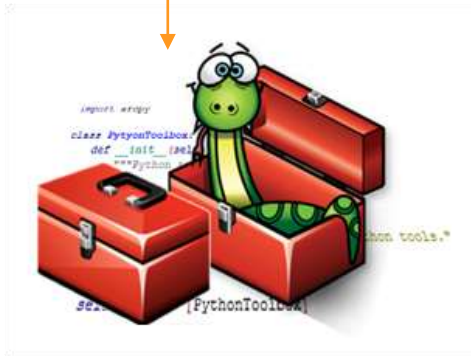
Economies of Scale Because

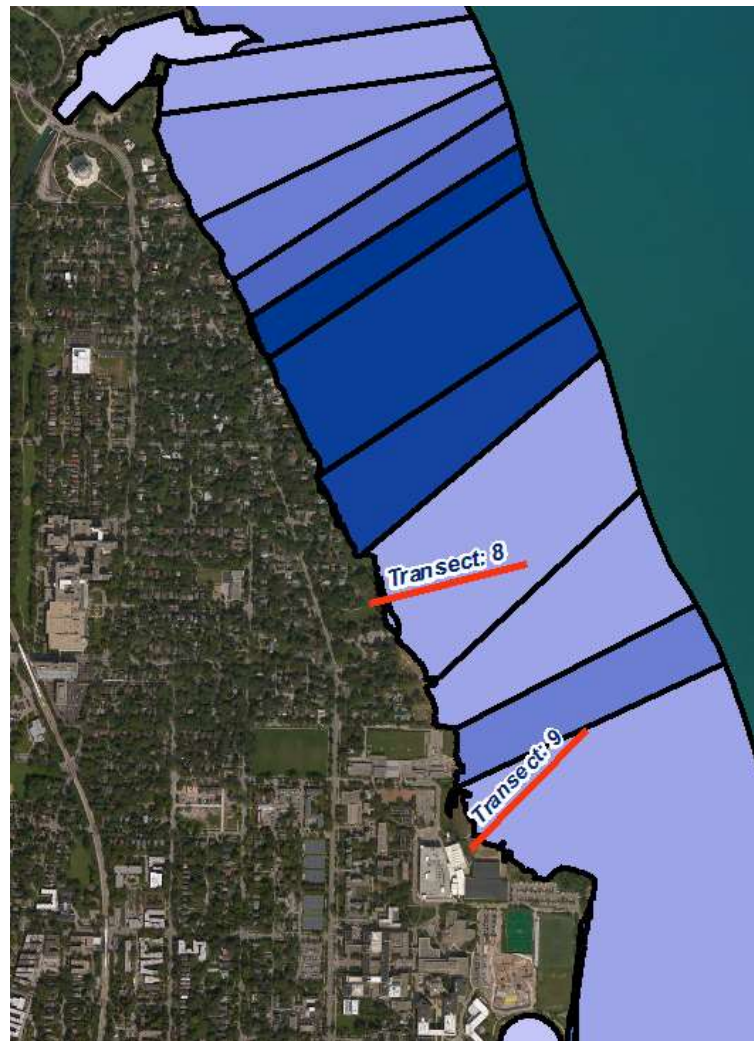
Custom Software Development

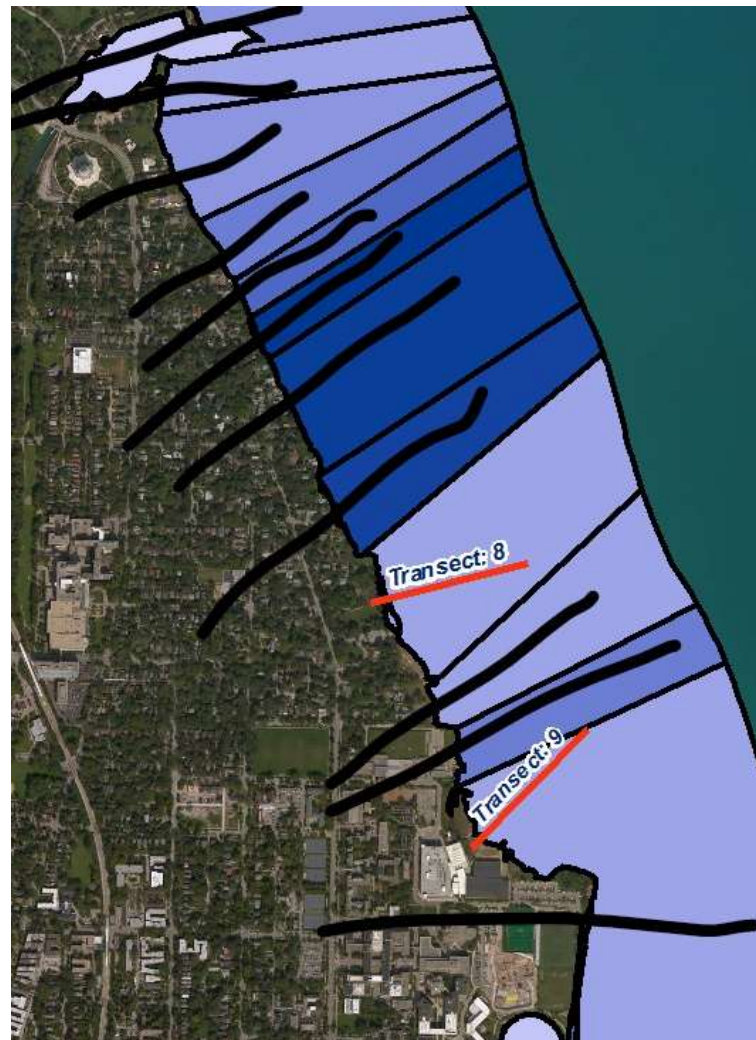


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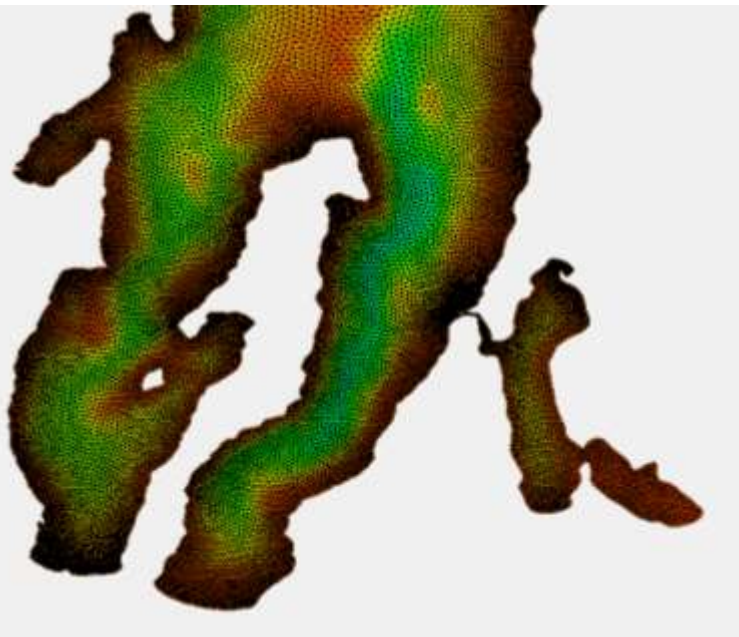
$$R_{2\%} \approx \gamma_{\beta} \gamma_r \xi H$$







Concerned about cost?



- Mesh Resolution Adequate to Resolve Wave Generation and Nearshore Shoaling and Refraction

Transect analysis must leverage the detailed 2D modeling

Concerned about cost?



Avoid appeals!



Questions?