Overview of 2D Unsteady Flow Modeling with HEC-RAS

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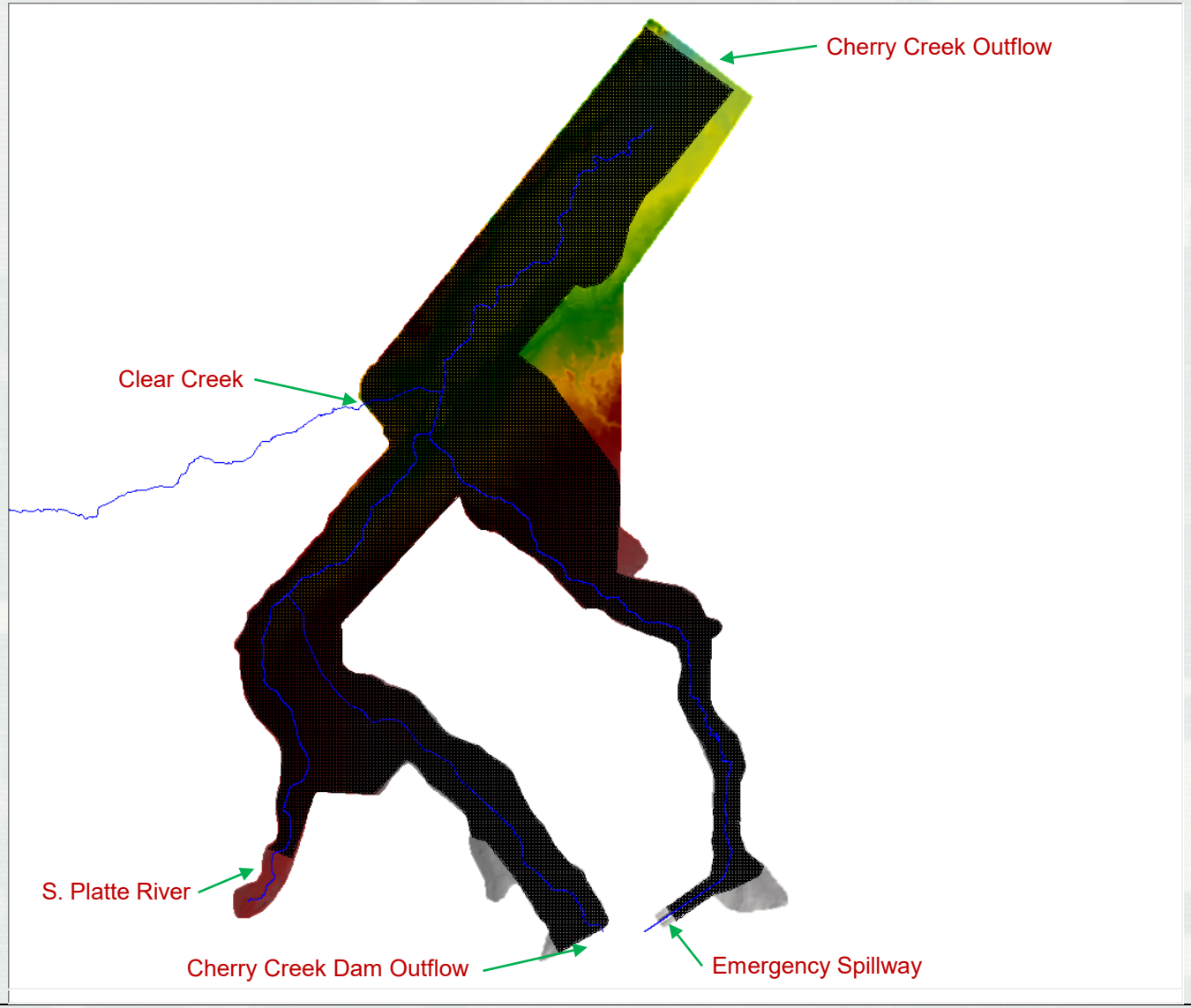
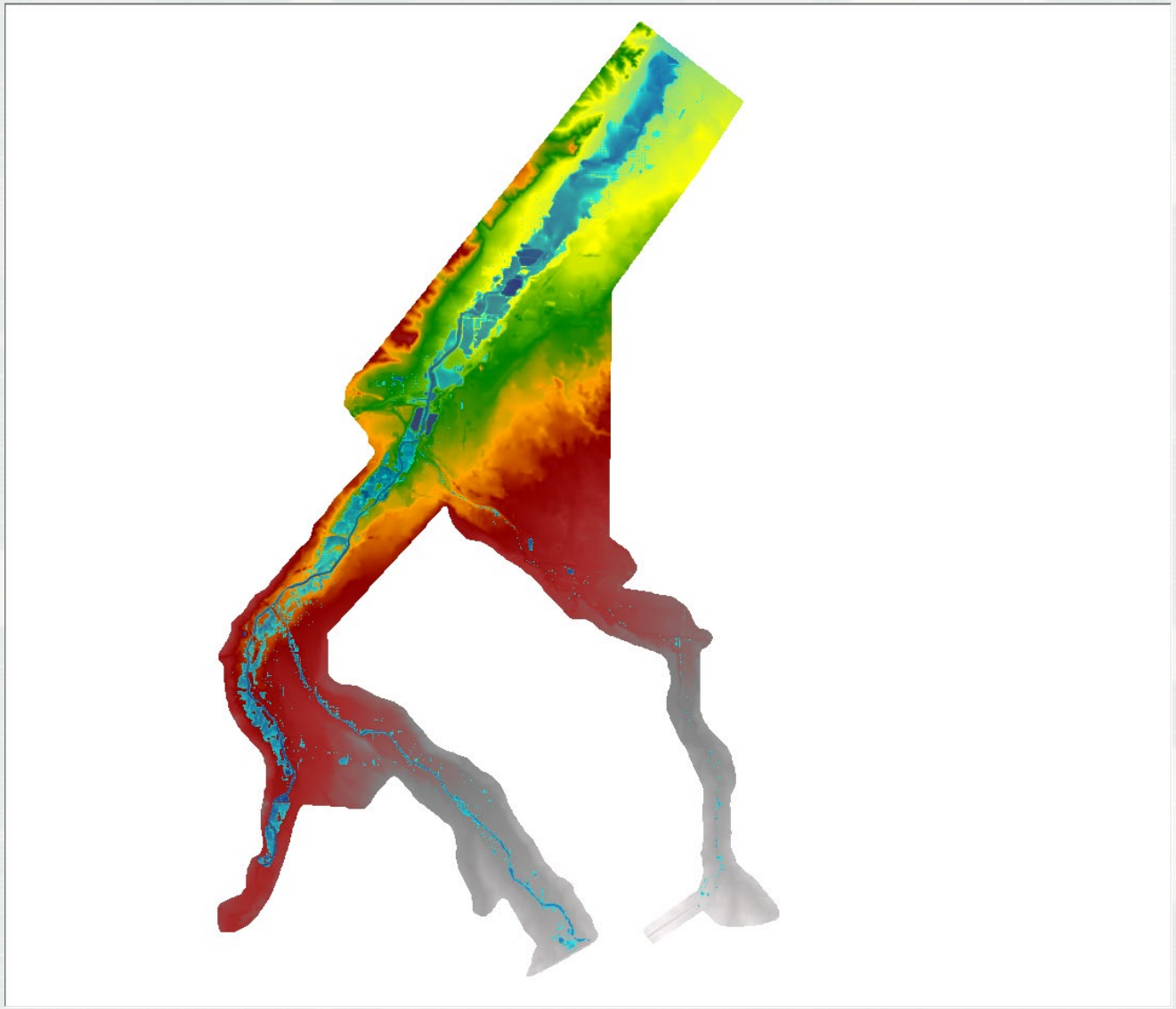
Objectives

- Overview of HEC-RAS Capabilities through Examples.
- Provide basic understanding of the types of 2D models that can be developed with HEC-RAS.
- Provide an understanding of the types of projects that HEC-RAS 2D models can be used for.

Single 2D Area with Boundary Conditions

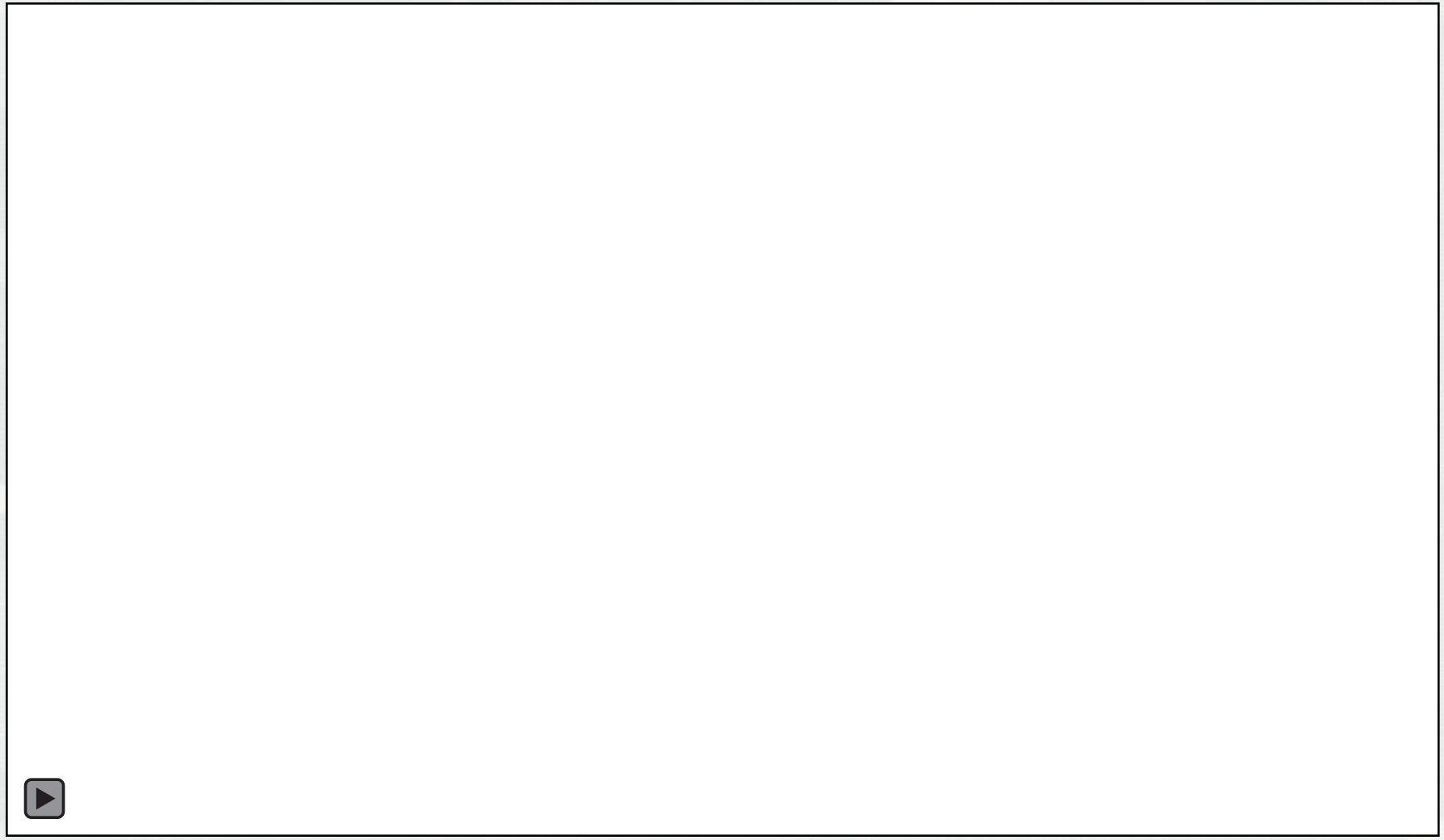


Cherry Creek Example Animation

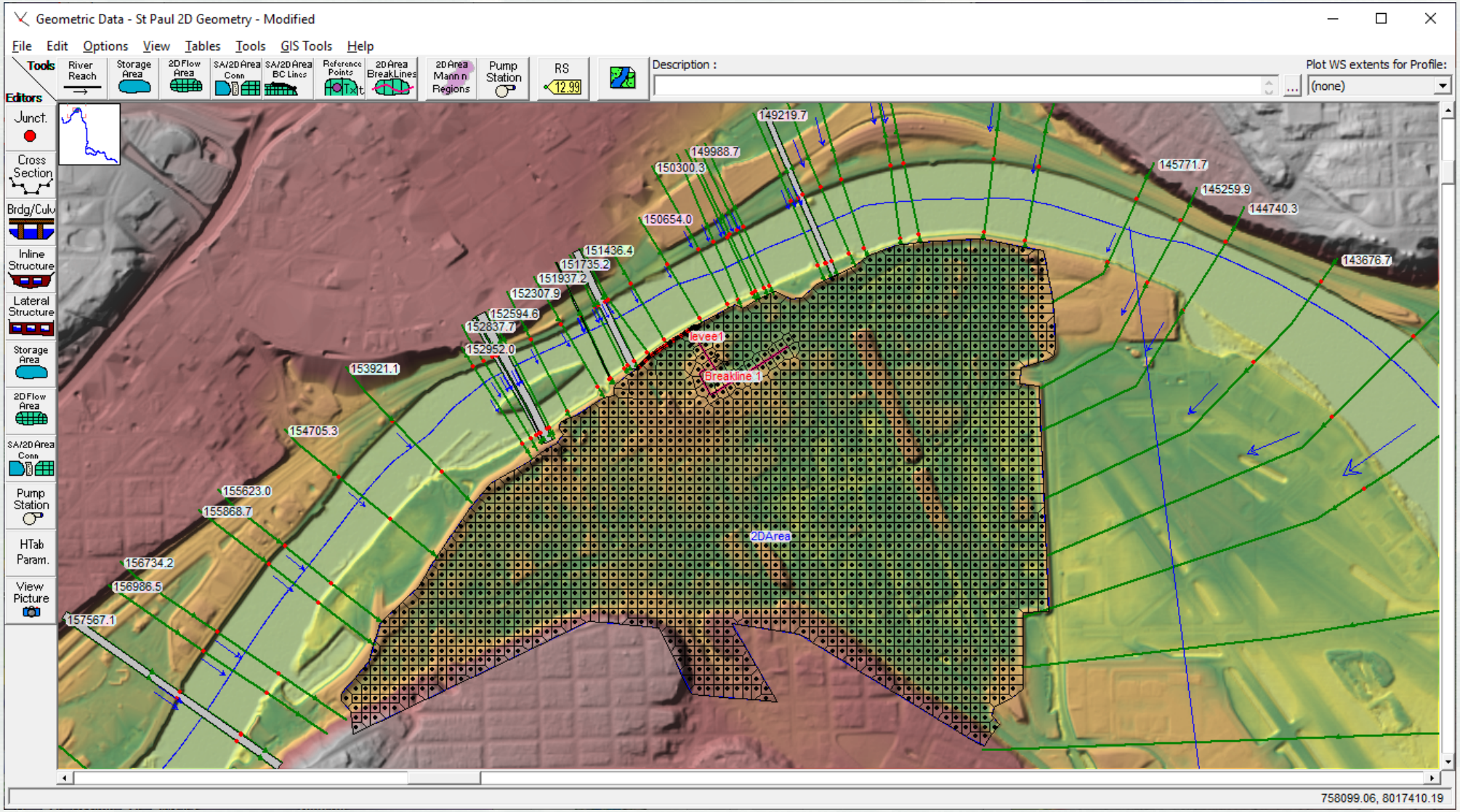


1D Main Channel with 2D Overbanks

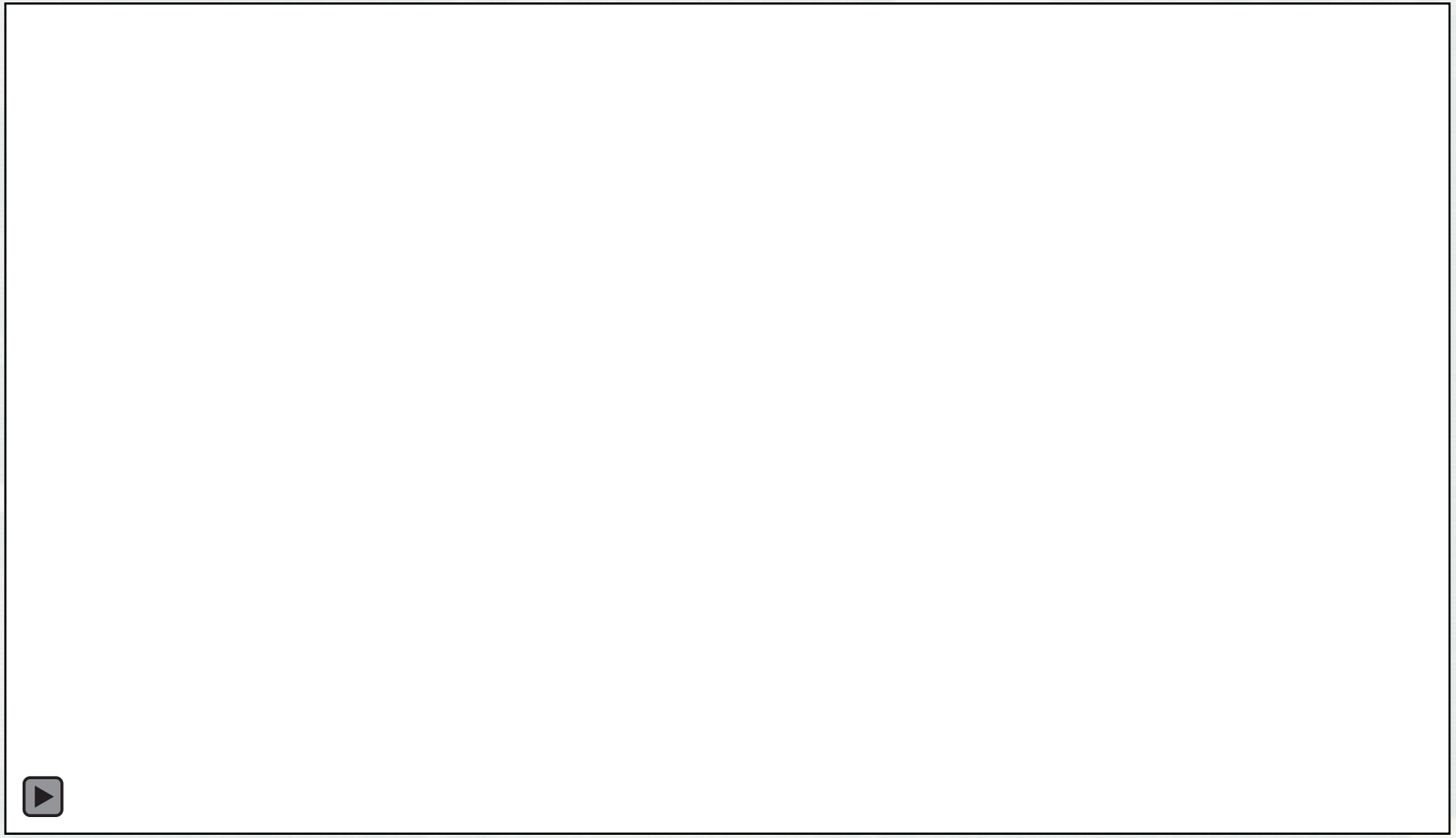
1D Channel with 2D Overbanks - Animation



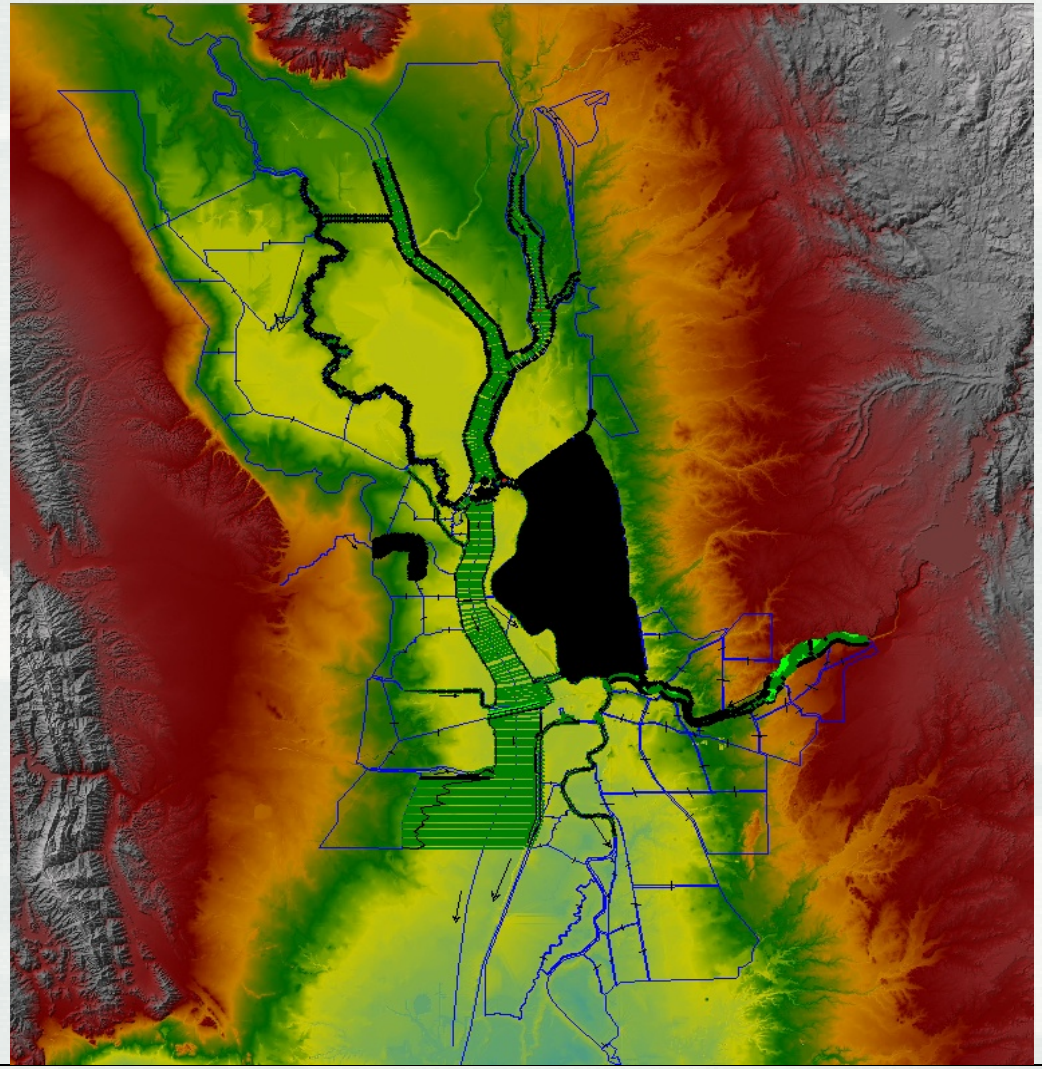
1D Model with a 2D Levee Area



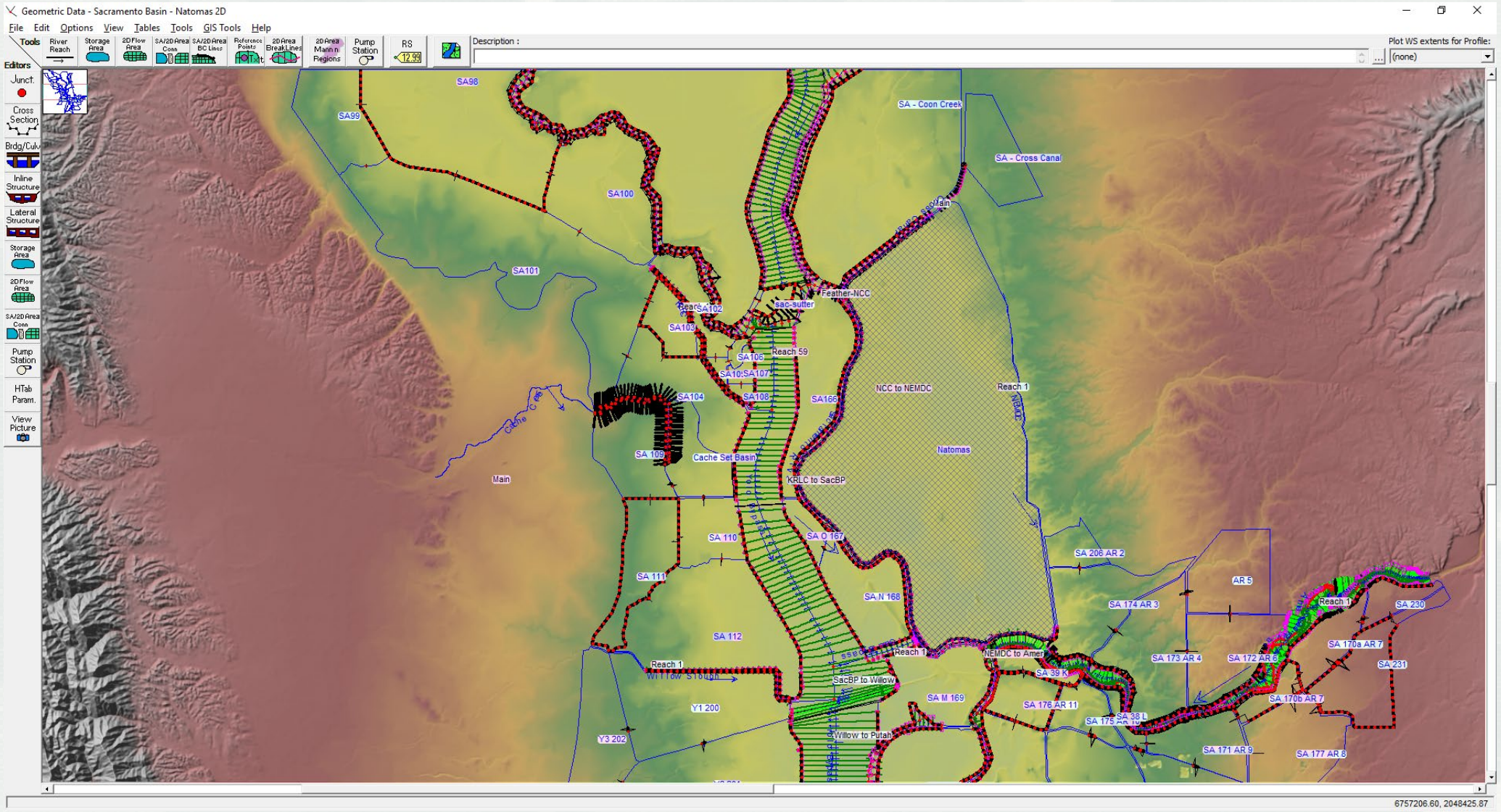
Saint Paul 1D/2D Levee - Animation



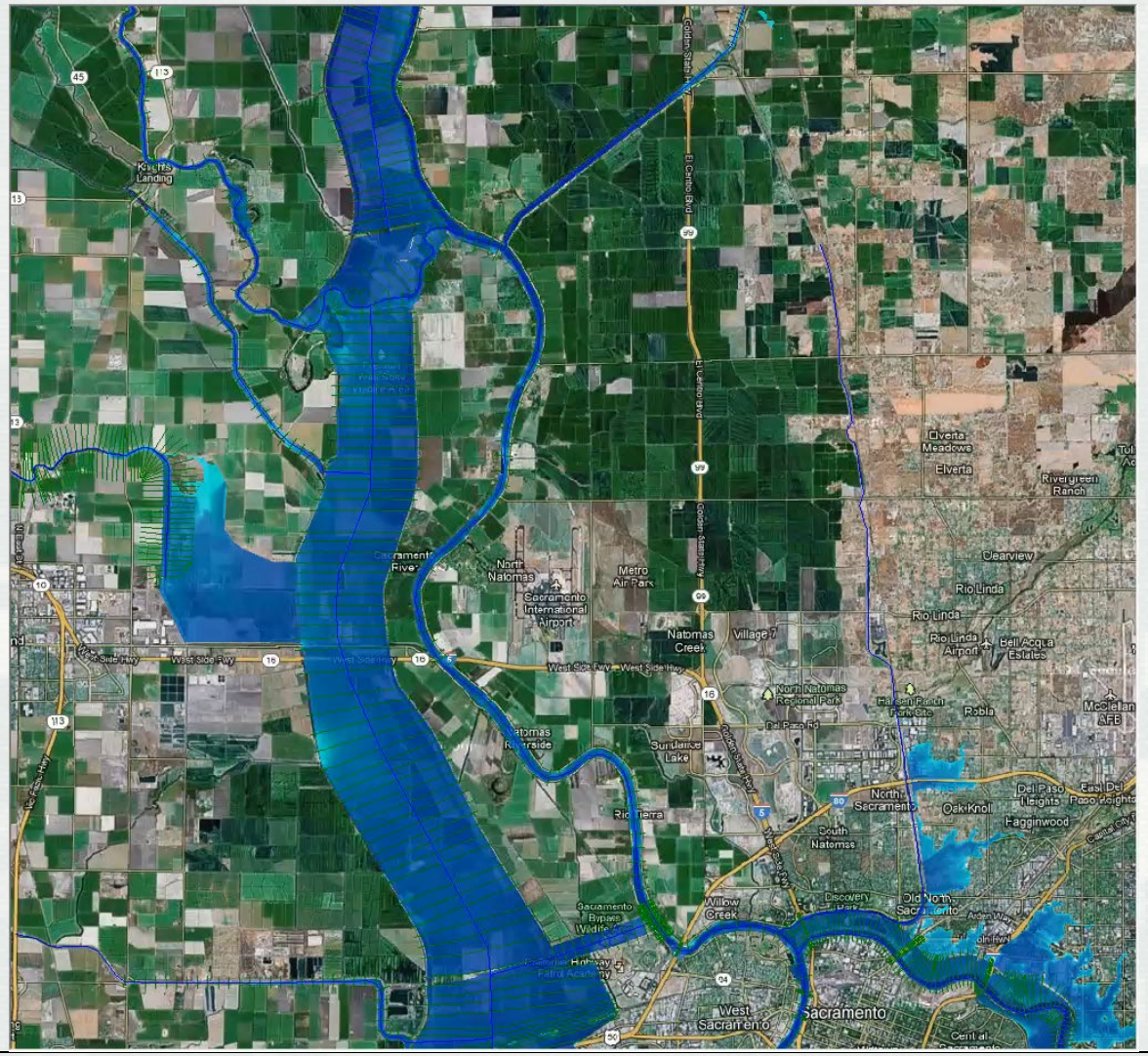
Detailed 1D/2D Model
Sacramento River System Model



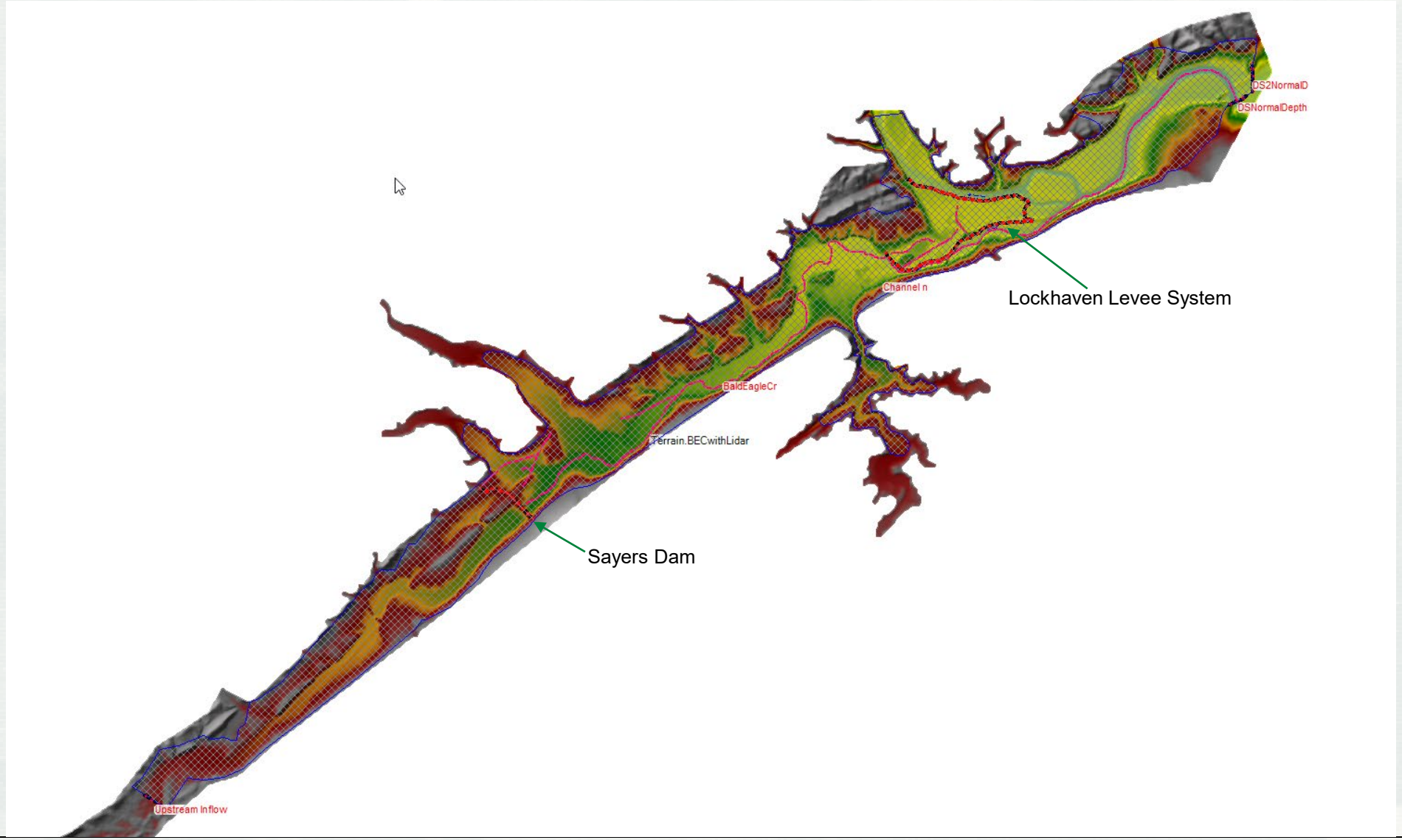
Sacramento River System Model



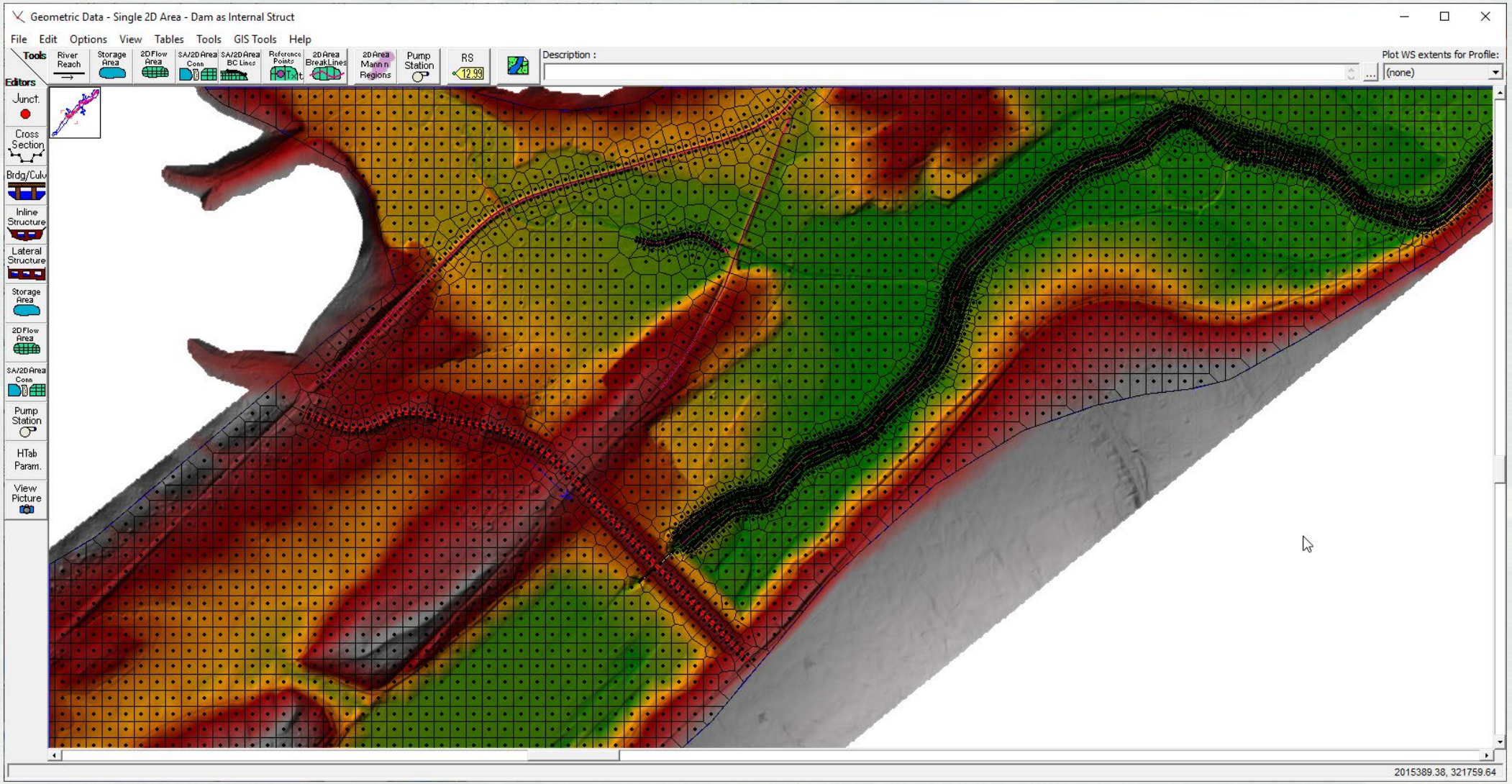
Natomas, California



Detailed Model – Single 2D Area



HEC-RAS 2D Flow Area
Detailed Computational Mesh



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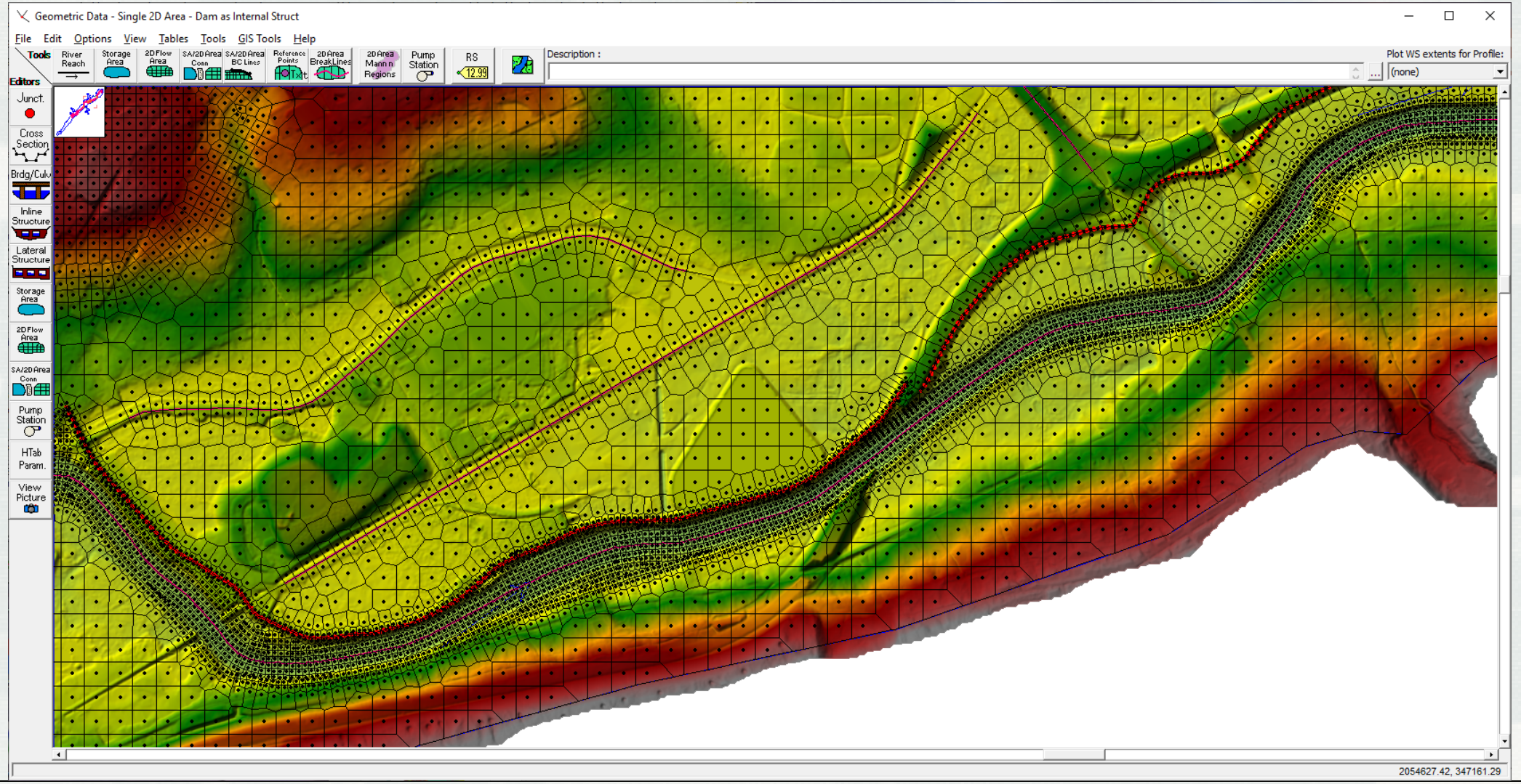
HEC-RAS 2D Flow Area
Detailed Computational Mesh



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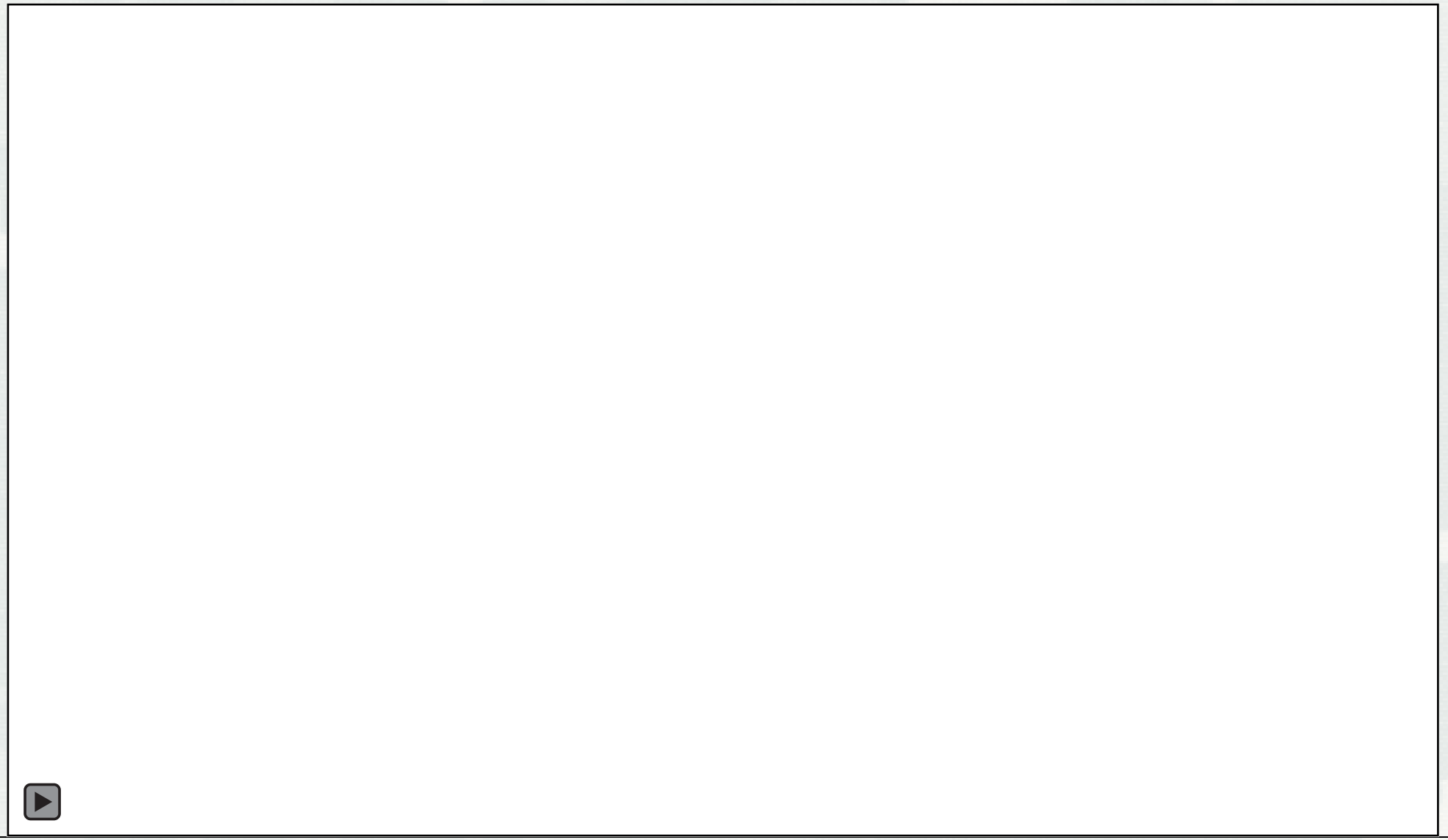
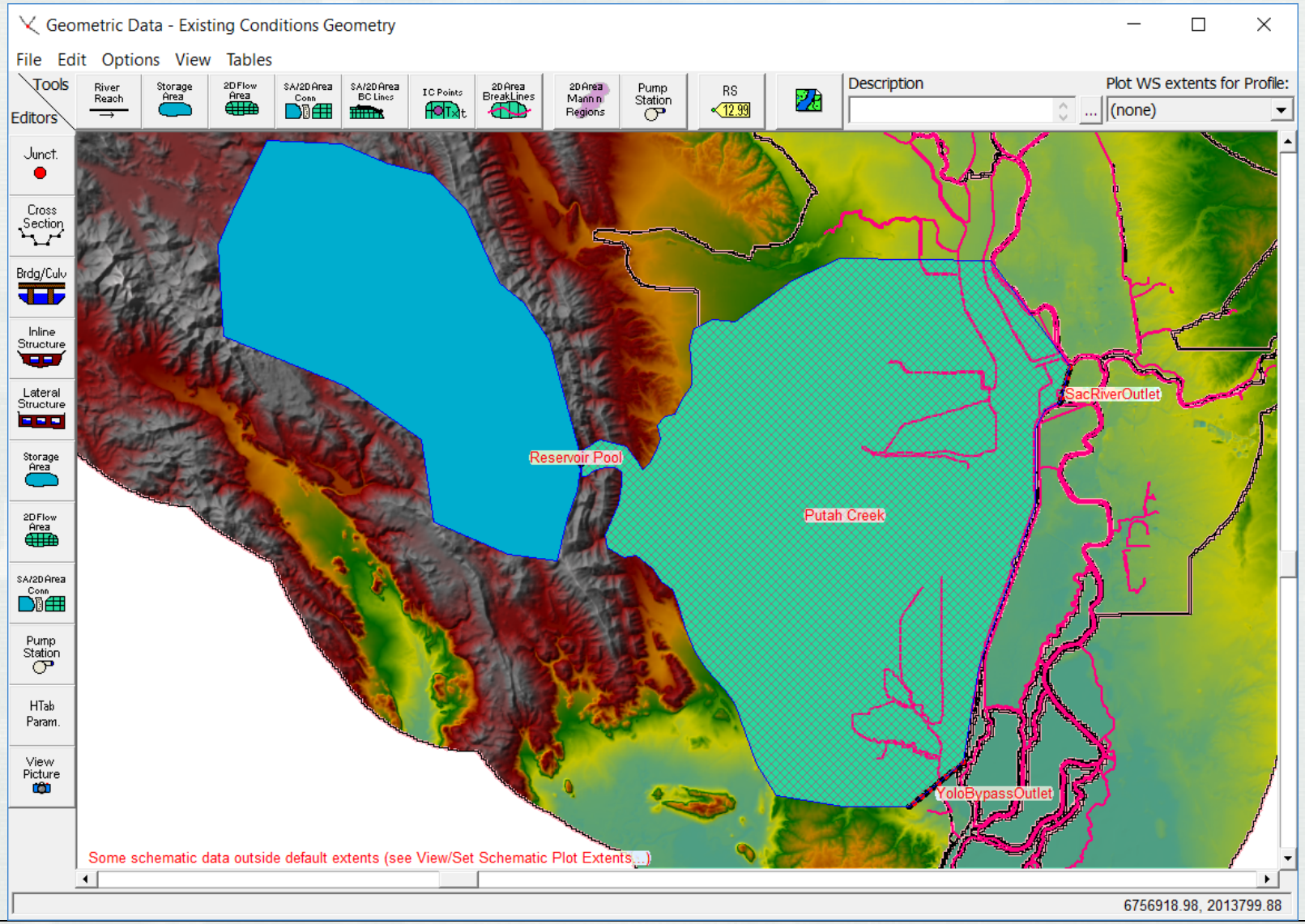
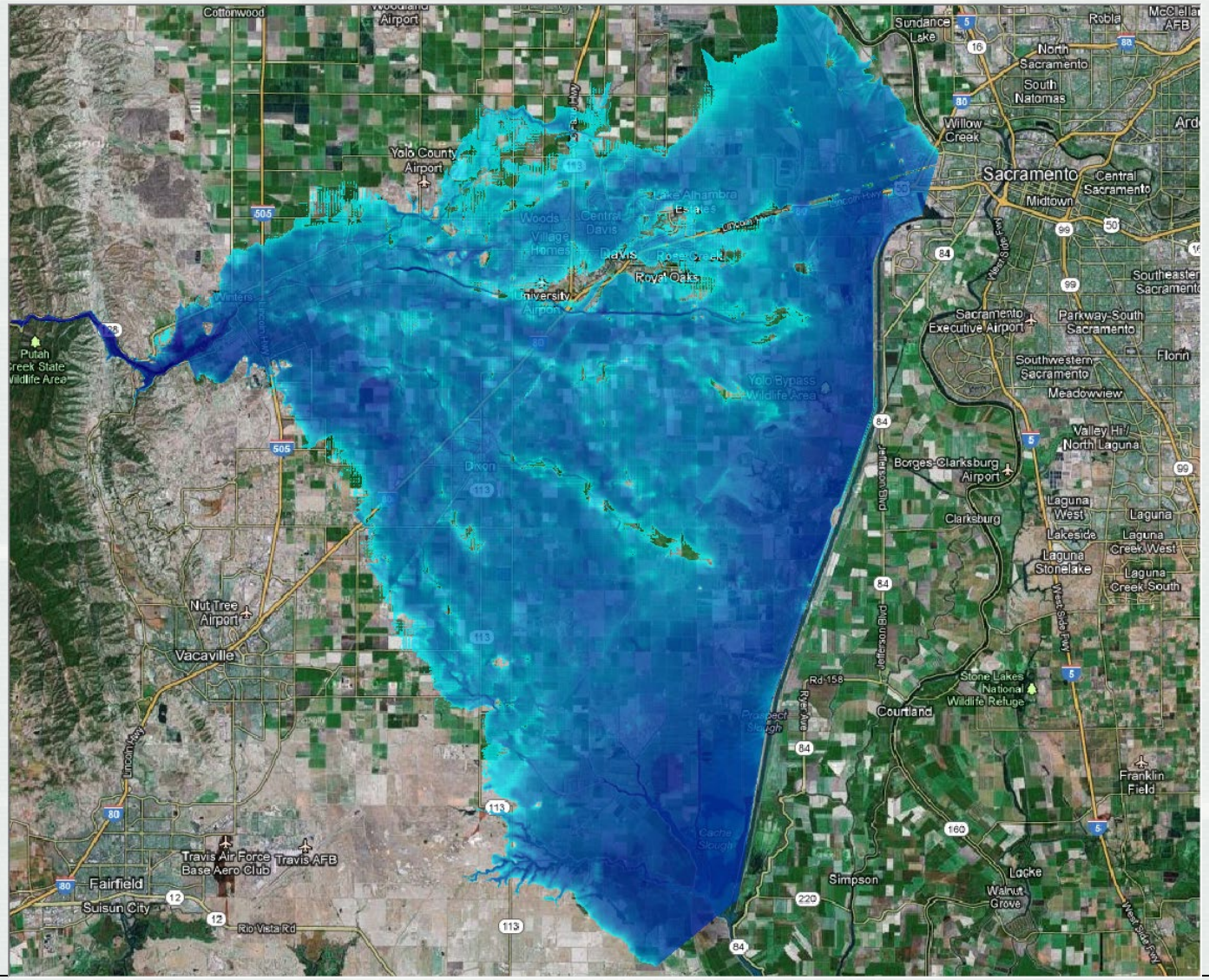
Detailed Model – Single 2D Area - Animation



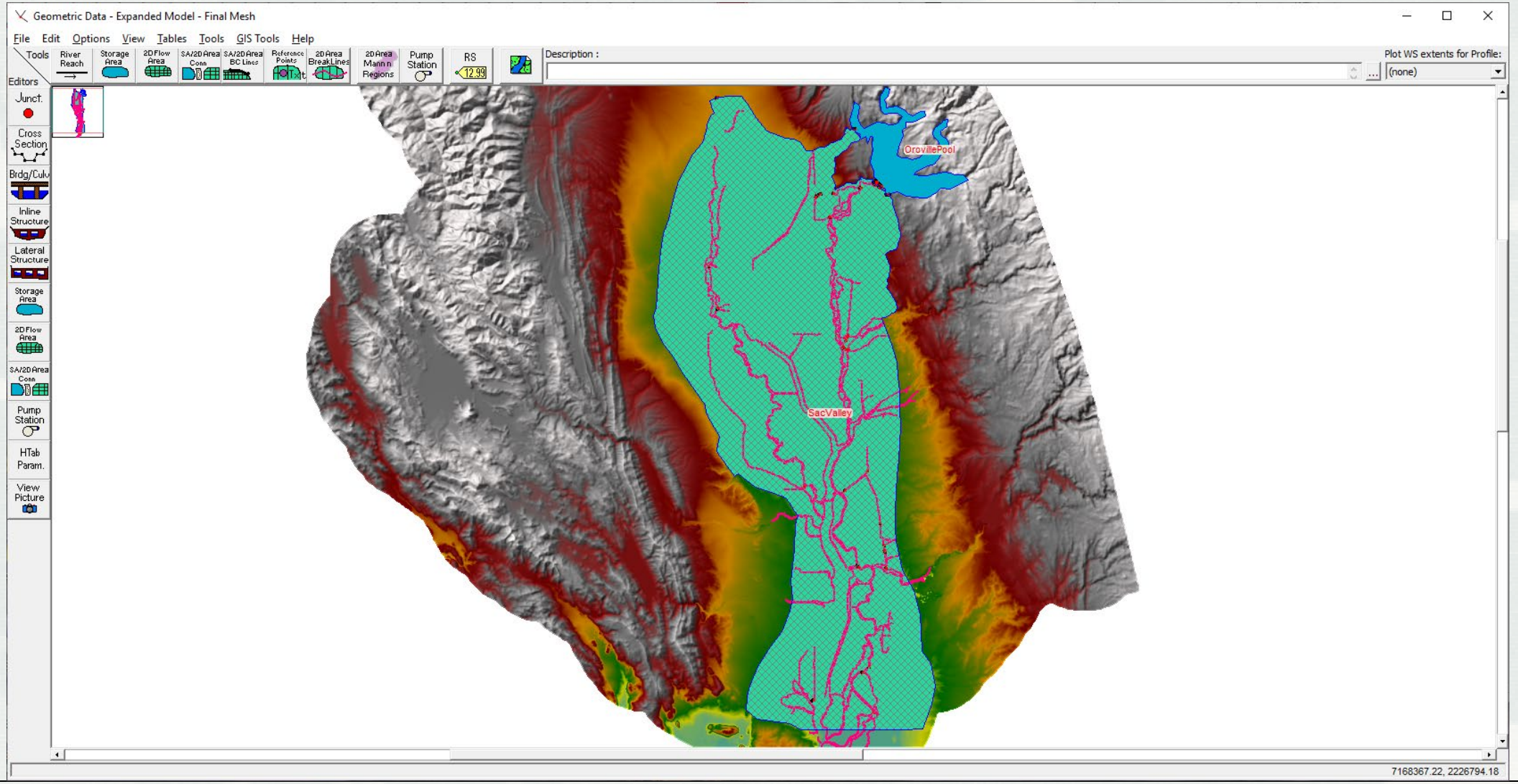
Monticello Dam Breach Example



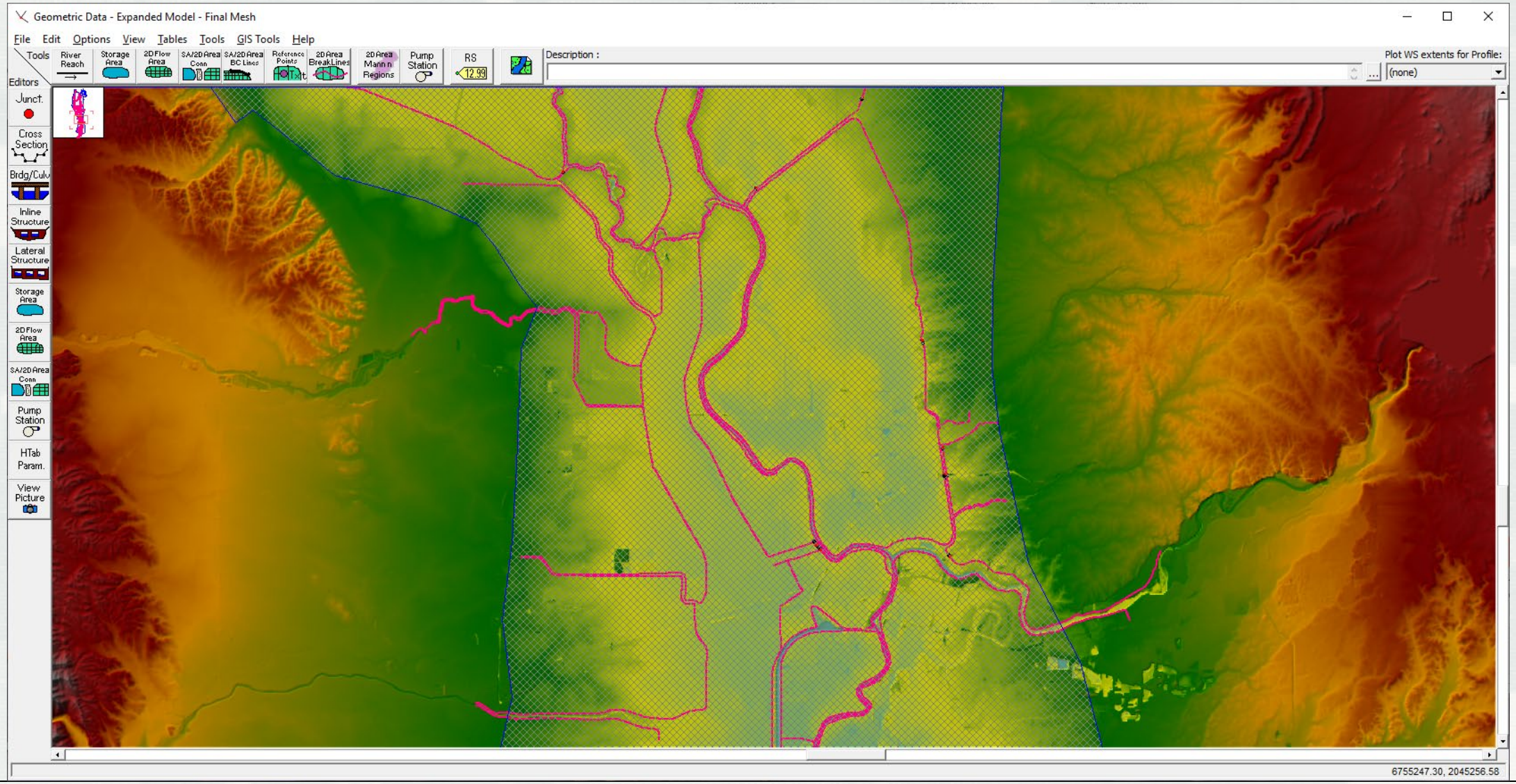
Monticello Dam Breach Example



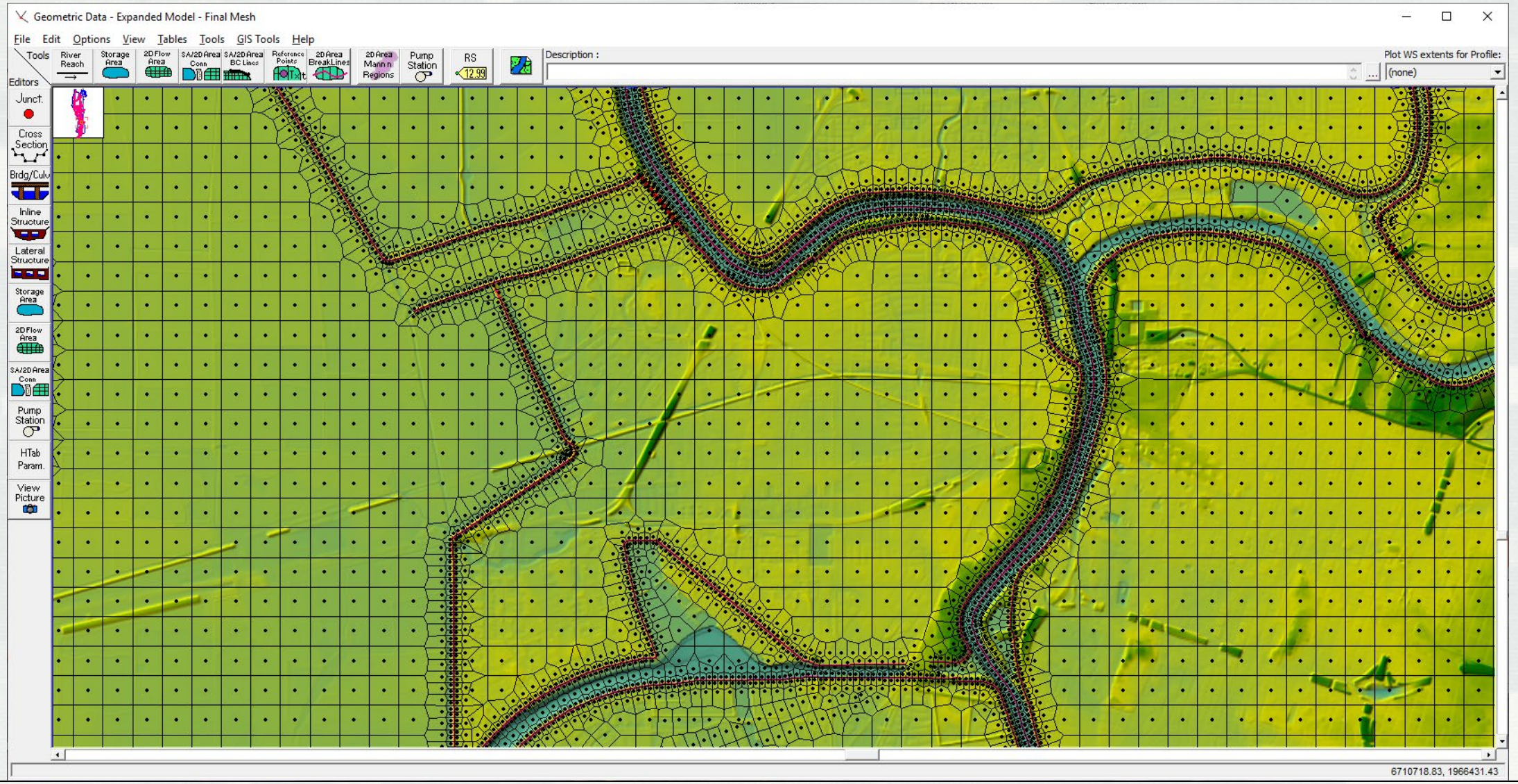
Oroville Dam – Failure Analysis



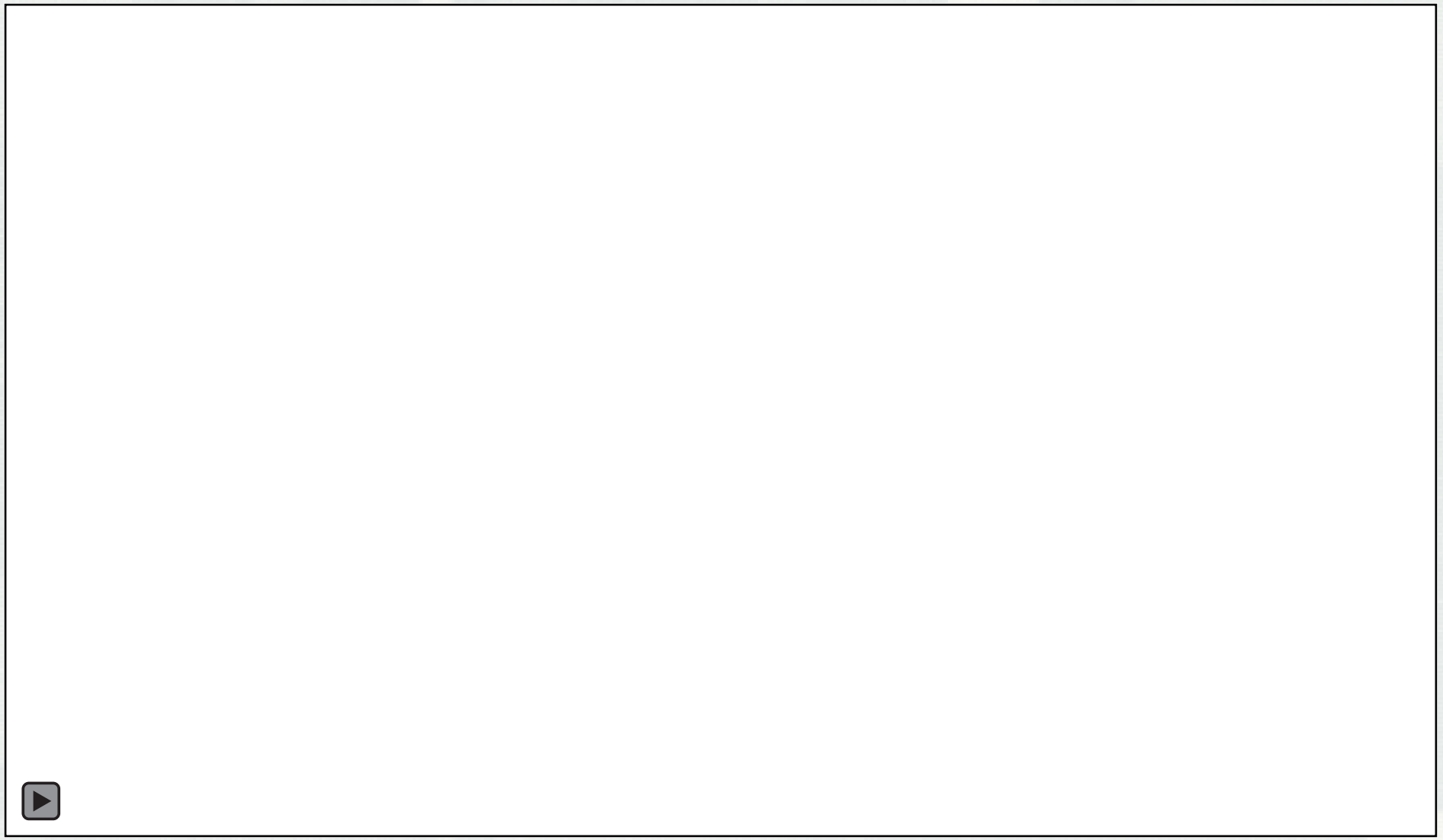
Oroville Dam – Failure Analysis



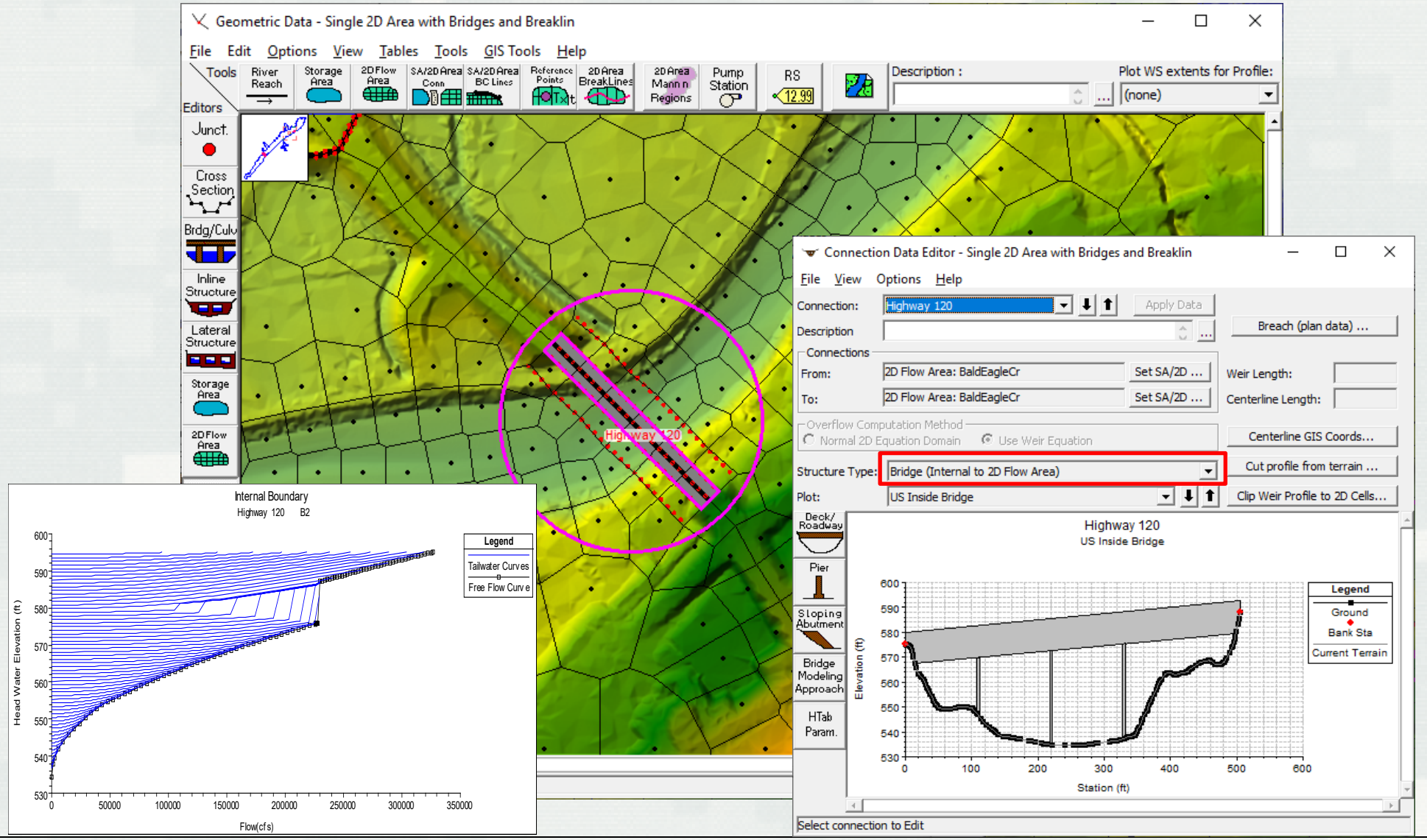
Oroville Dam – Failure Analysis



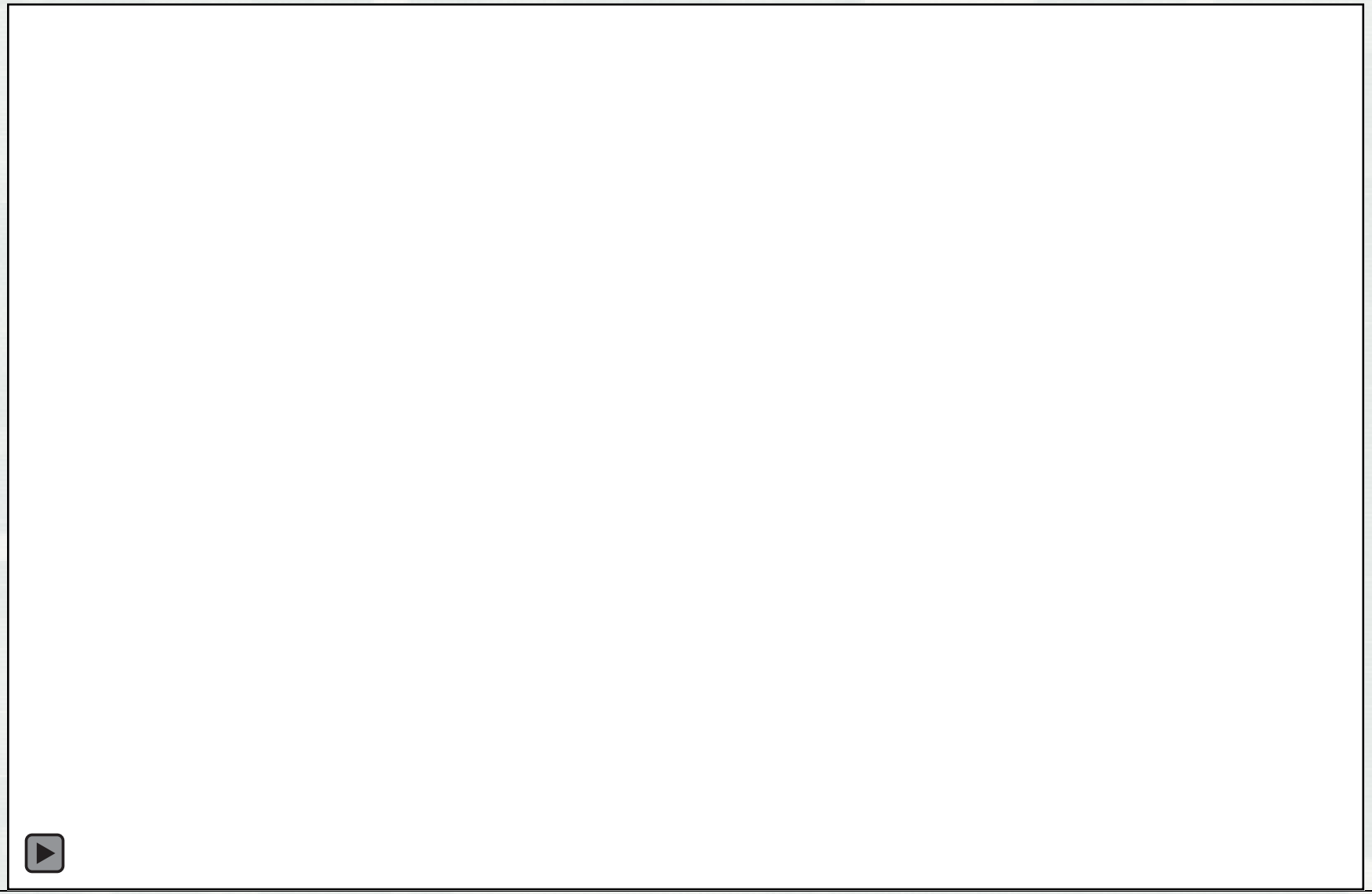
Oroville Dam – Failure Analysis - Animation



2D Bridge Modeling

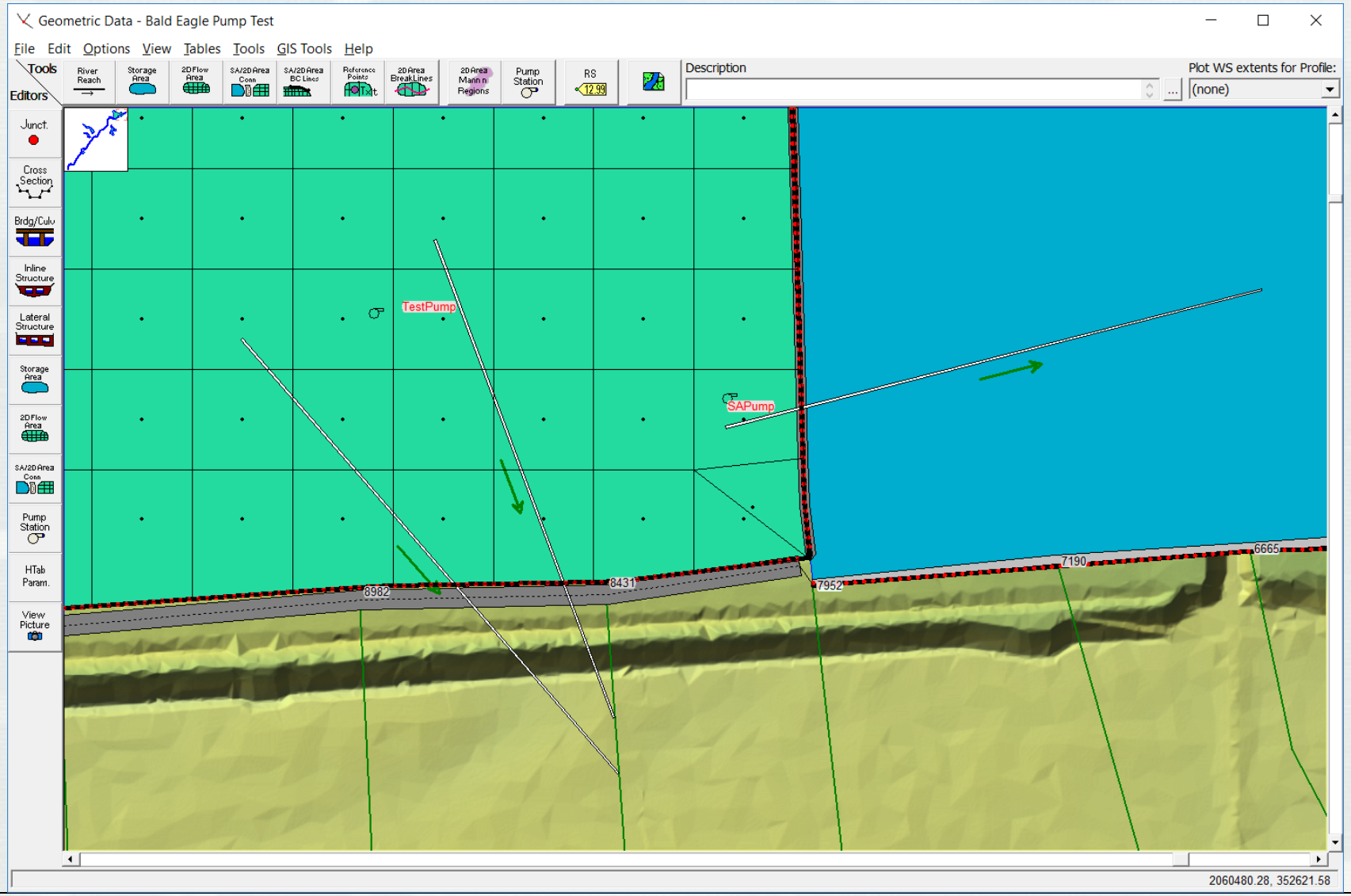


Multiple Bridges



Pump Station

Pump Stations Example



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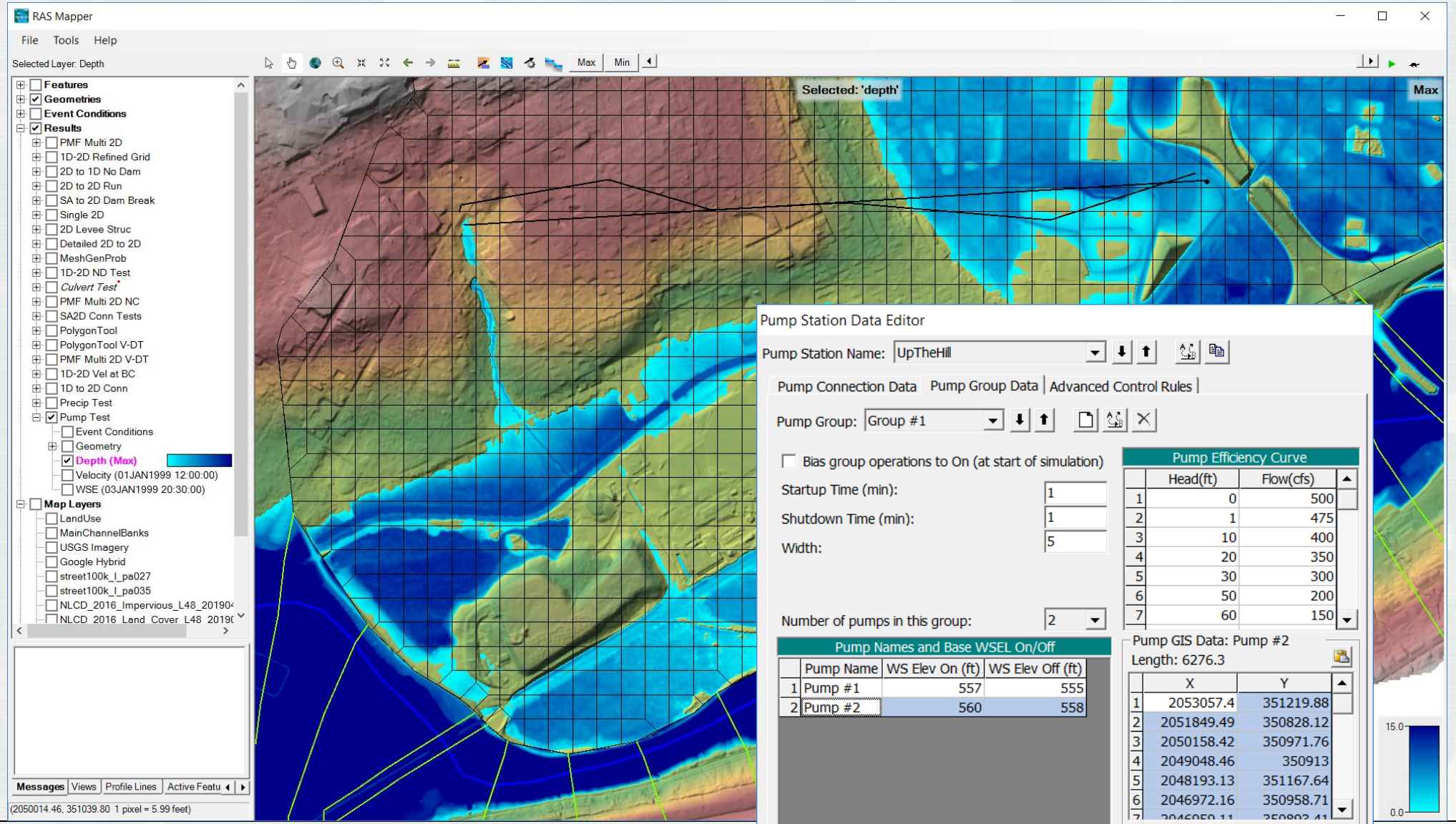
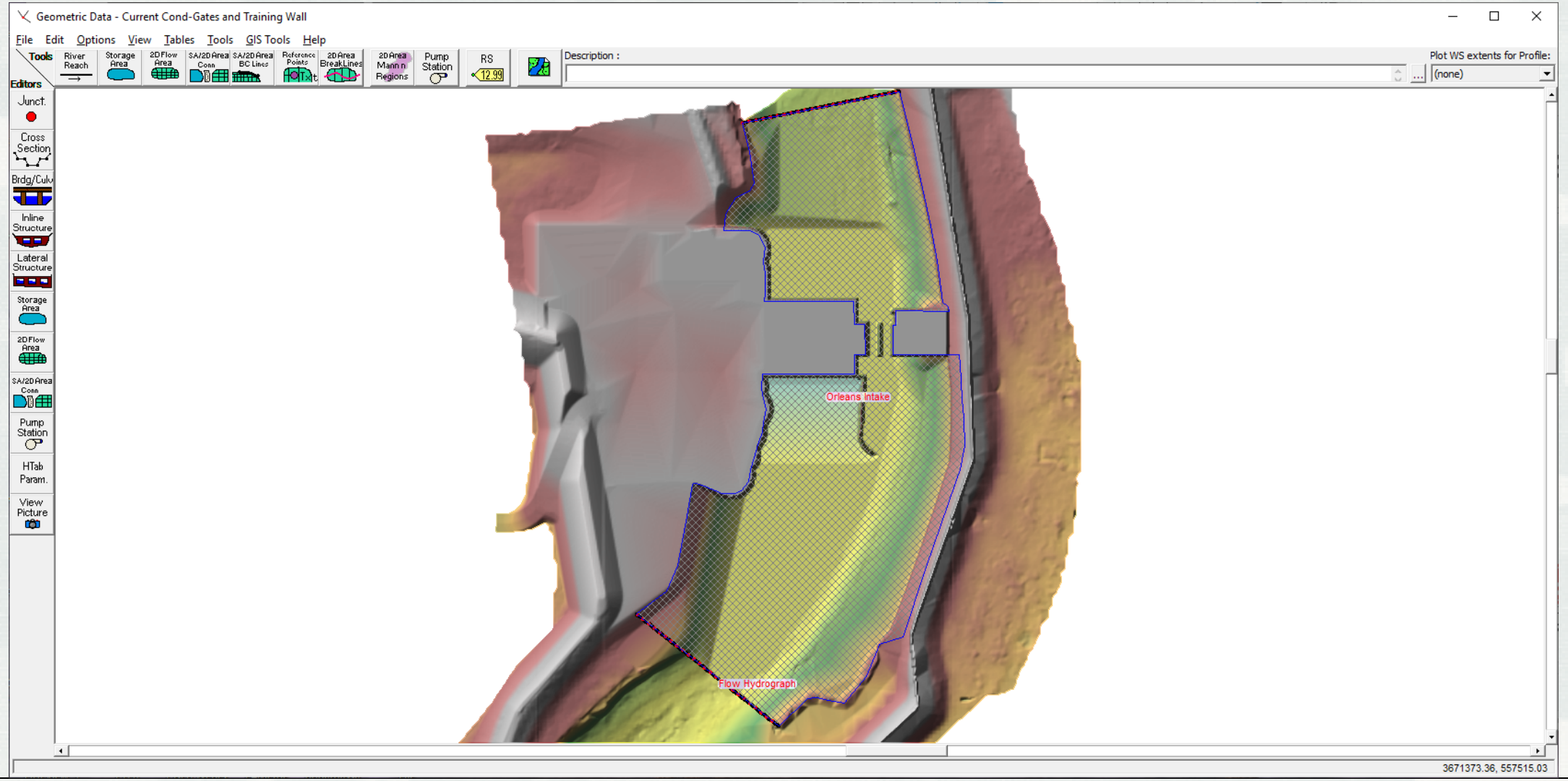
Pump Stations Example



Detailed Modeling of Gates – Orleans Canal



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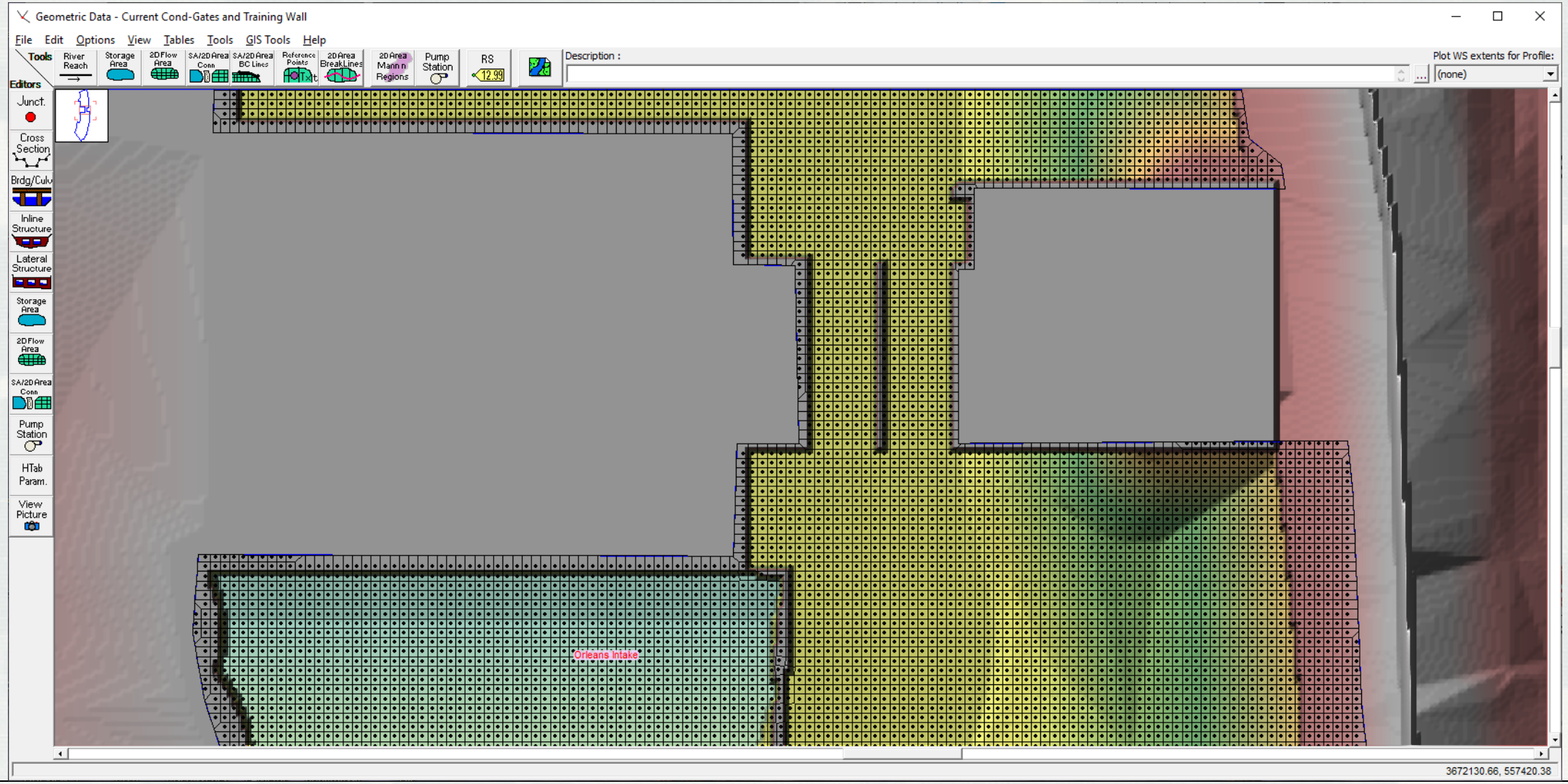
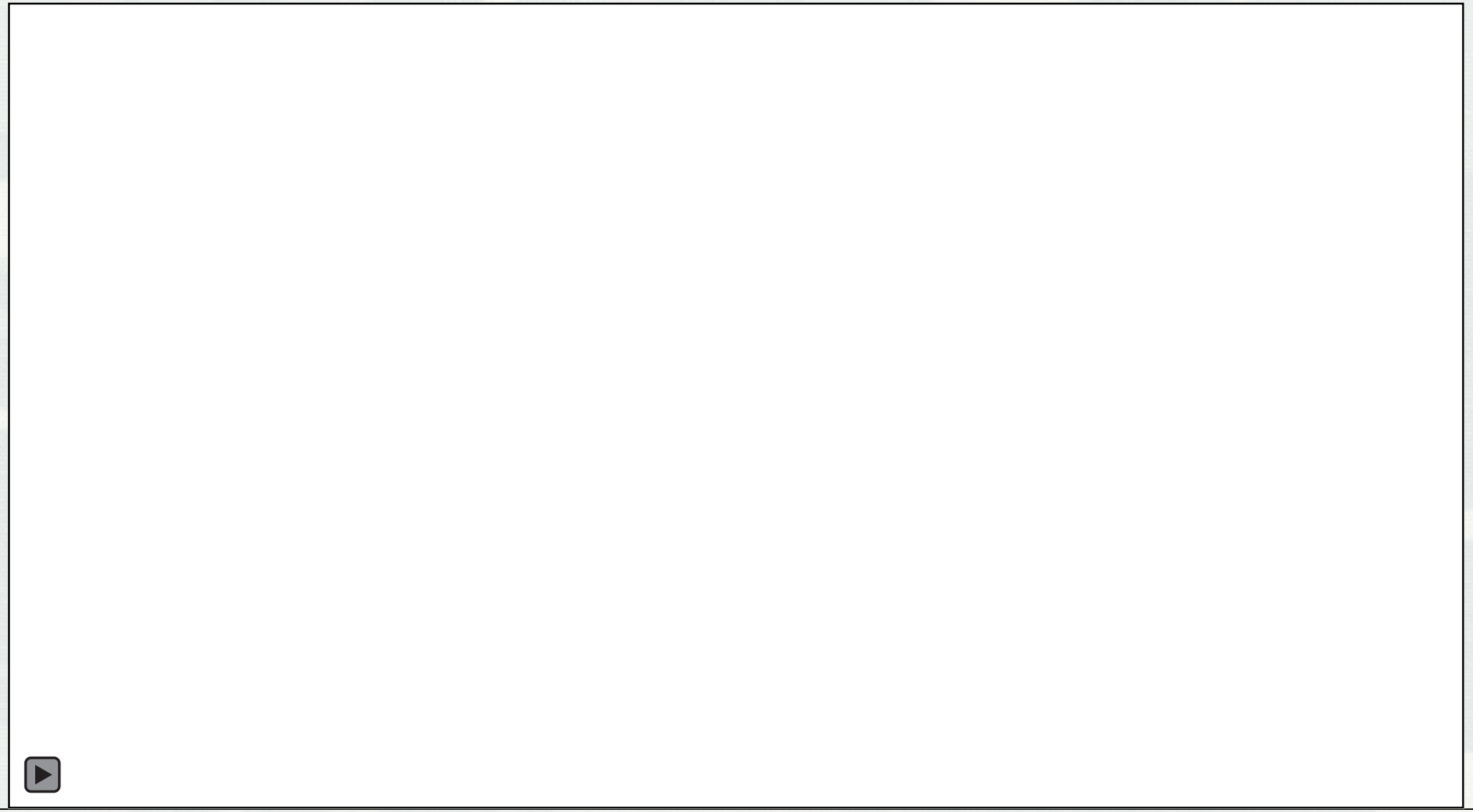
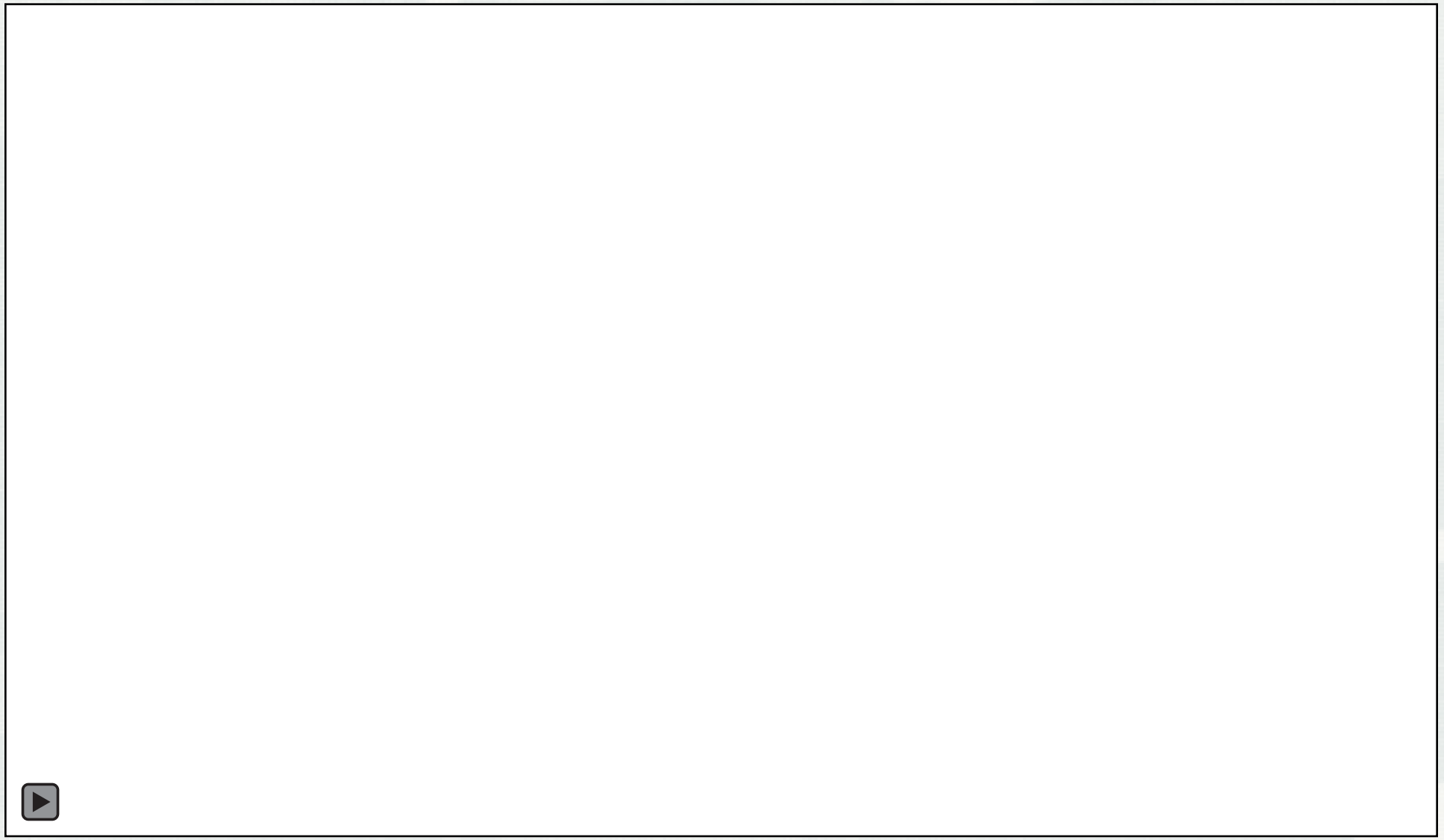


Orleans Canal - Animation



Gridded Precipitation and Infiltration example

Hurricane Laura Precipitation



Hurricane Laura Wind Field

Hurricane Laura Water Surface

Questions?