



# Croix des Missions, Haiti H&H Modeling from Thin Air

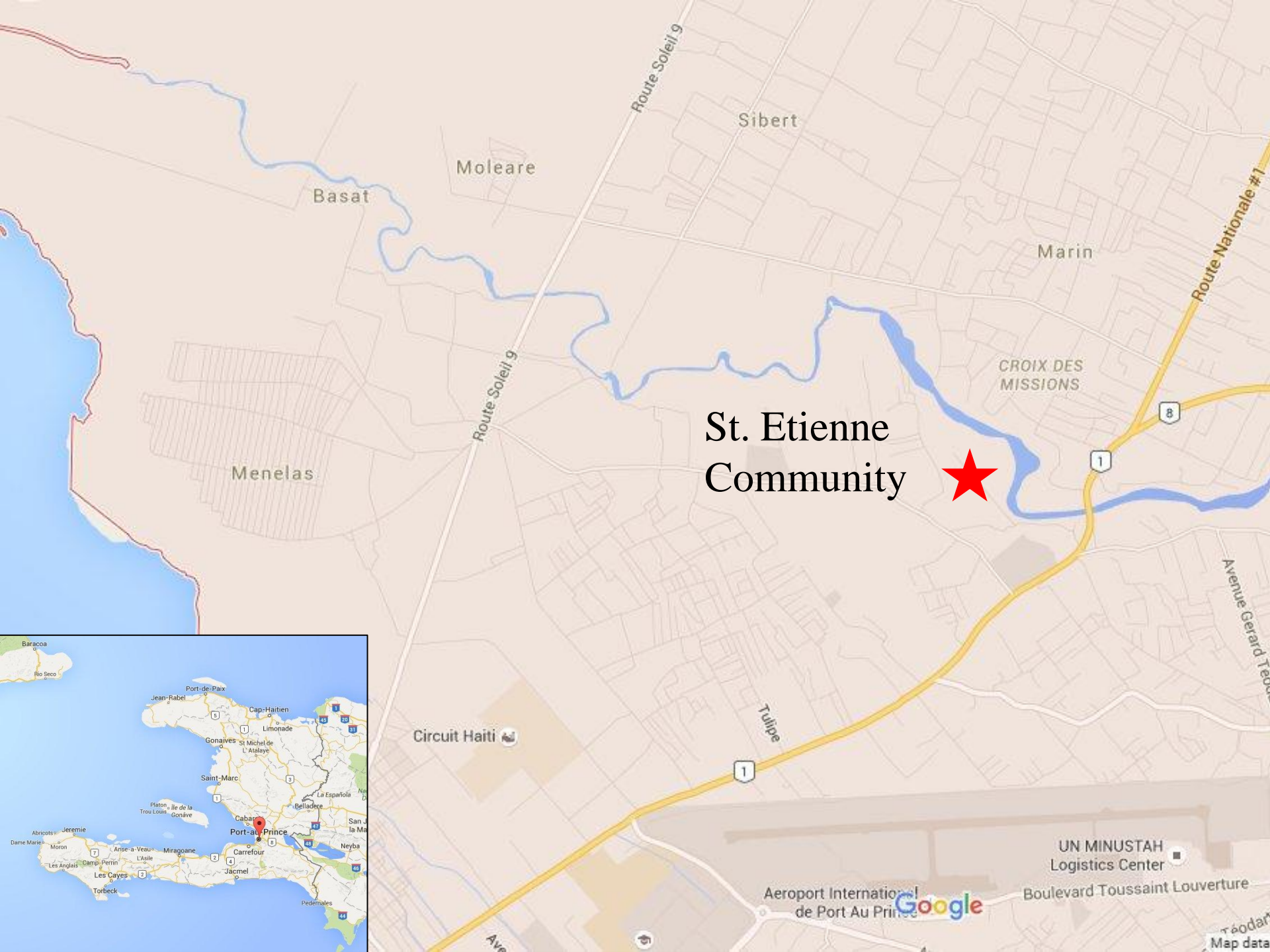
Greg Wolterstorff, P.E.  
IAFSM 2016



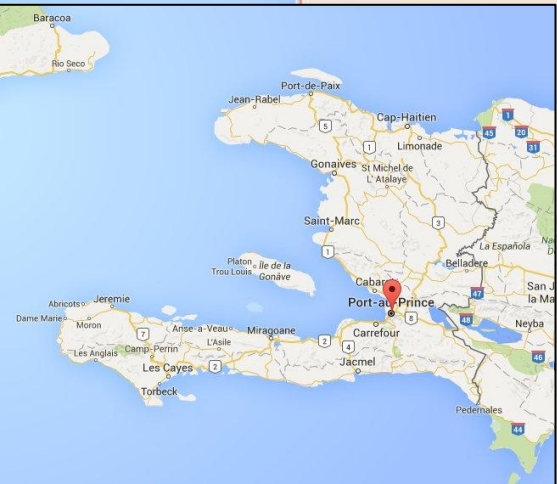
# Outline of Topics

- 1. Where in the World?**
- 2. Migration in Port-au-Prince, Haiti**
- 3. Hurricane Isaac & Sandy Flood Event**
- 4. Flood Risk Assessment**



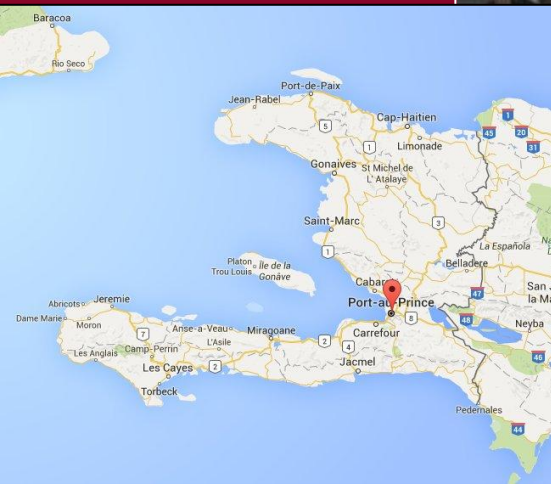


# St. Etienne Community



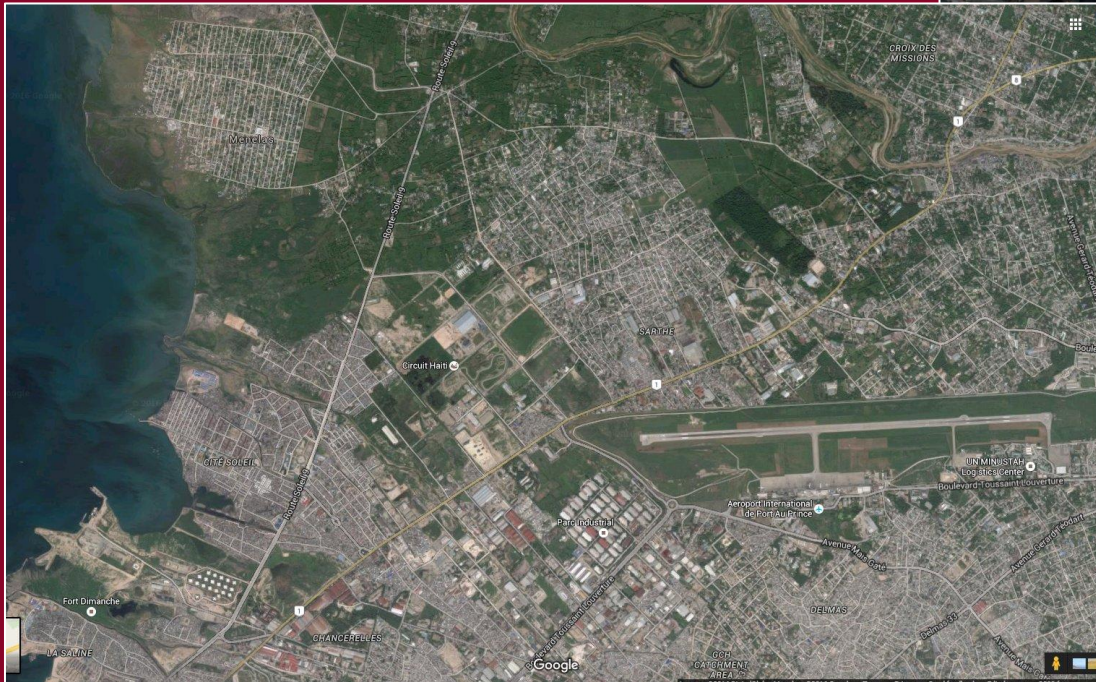
# Migration in Port-au-Prince, Haiti

- **Port-au-Prince hit hard by 2010 Earthquake**
- **People Moving from Urban Center**



# Migration in Port-au-Prince, Haiti

- Relocate to Rural Zones Nearby
- St. Etienne Community Forms



# Hurricane Isaac & Sandy - 2012

## *Route Nationale #1 Bridge*



# Hurricane Isaac & Sandy 2012

*Boulevard des Americains Bridge (Route Soleil 9)*





# Hurricane Isaac & Sandy 2012

## *St. Etienne Community*



# Flood Risk Assessment

## **CHALLENGES**

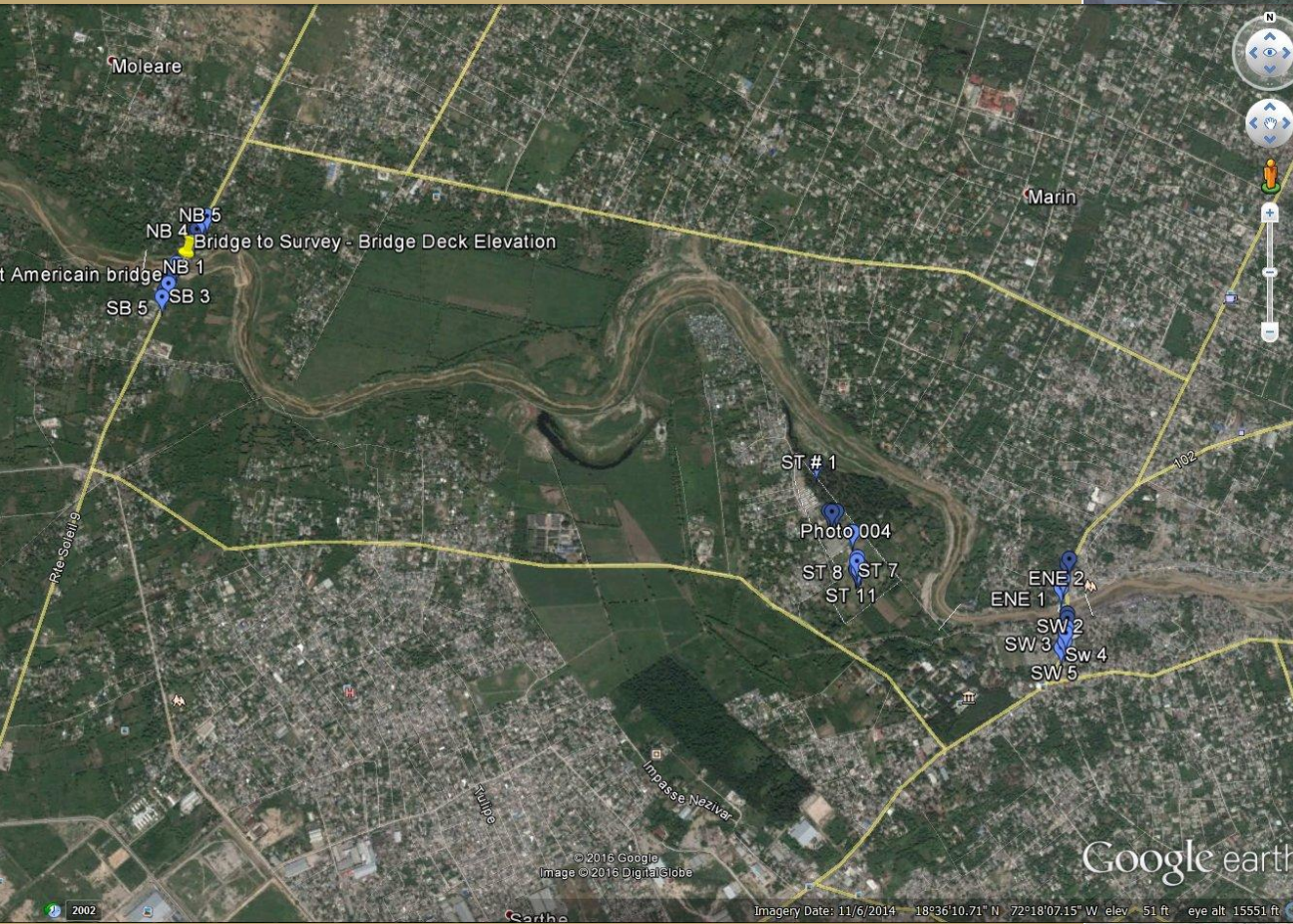
- **Local Engineer Rapid Assessment: Predicted 5-10' of Flooding in 100-Year Storm**
- **No FEMA FIS**
- **1000 Square Mile Watershed – No Gauges**
- **No Discharges**
- **No Topo Or Cross Sections**
- **\$20,000 Budget**

## **STRENGTHS**

- **YouTube**
- **Eye Witness Accounts**

# Flood Risk Assessment

## I. SURVEY



# Flood Risk Assessment

## 2. SITE VISIT



**FIGURE 1: SITE LOCATION AND SURVEY POINTS**



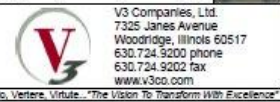
V3 Companies, Ltd.  
7325 James Avenue  
Woodridge, Illinois 60517  
630.724.9200 phone  
630.724.9202 fax  
www.v3co.com

St. Etienne Site  
Croix des Missions, Haiti

DATE: 01/12/16  
SCALE: See Scale Bar



NOTE: Elevations are in feet  
 0 100 200  
 Feet



BASE LAYER: DigitalGlobe Aerial Imagery (2011)

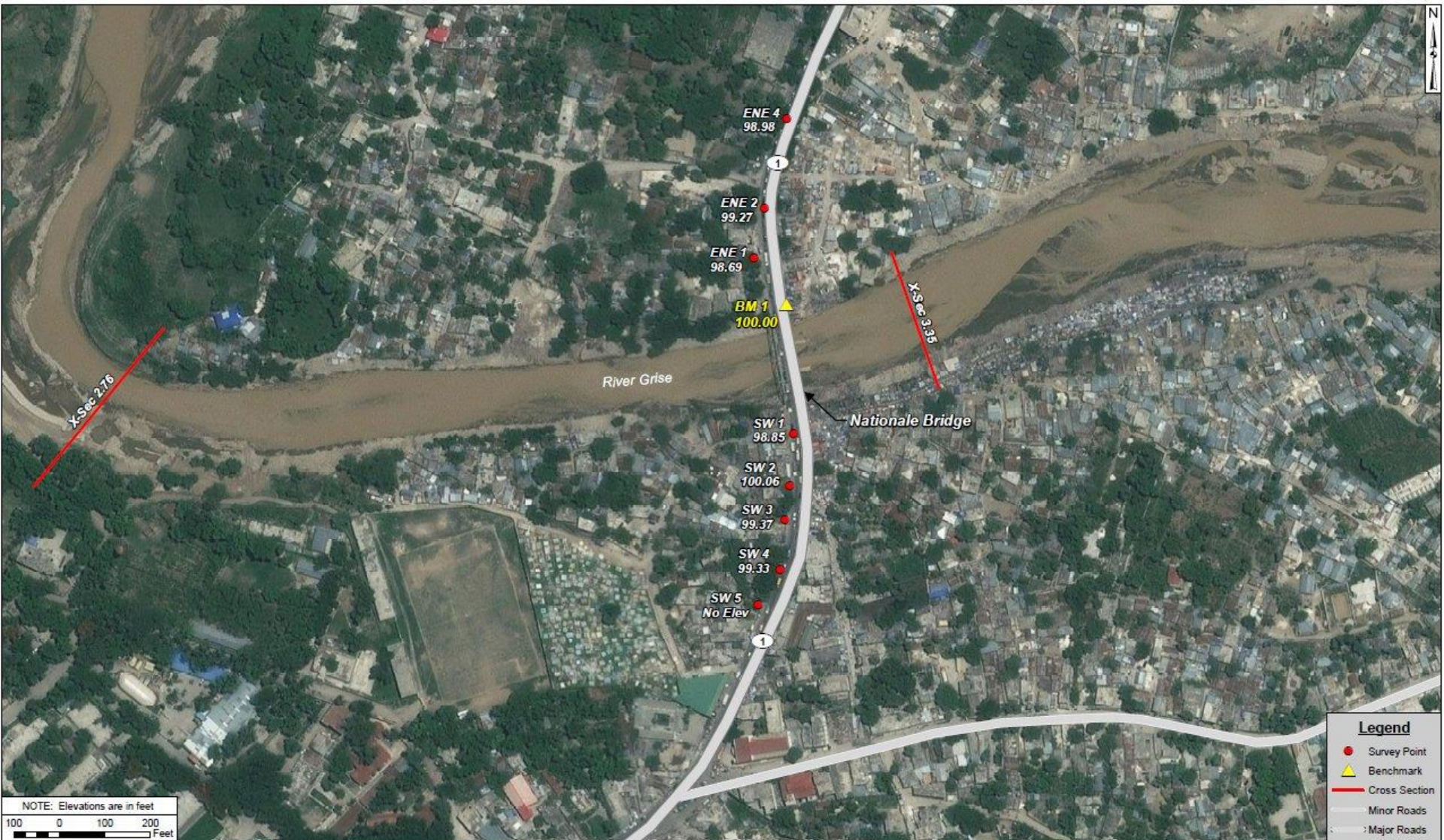
SITE: St. Etienne Site  
 Croix des Missions, Haiti

TITLE: **FIGURE 3: AMERICAINS BRIDGE**

**Legend**

- Data Point
- ▲ Benchmark
- Cross Section
- Minor Roads
- Major Roads

DATE: 01/12/15  
 SCALE: See Scale Bar



NOTE: Elevations are in feet  
 100 0 100 200 Feet

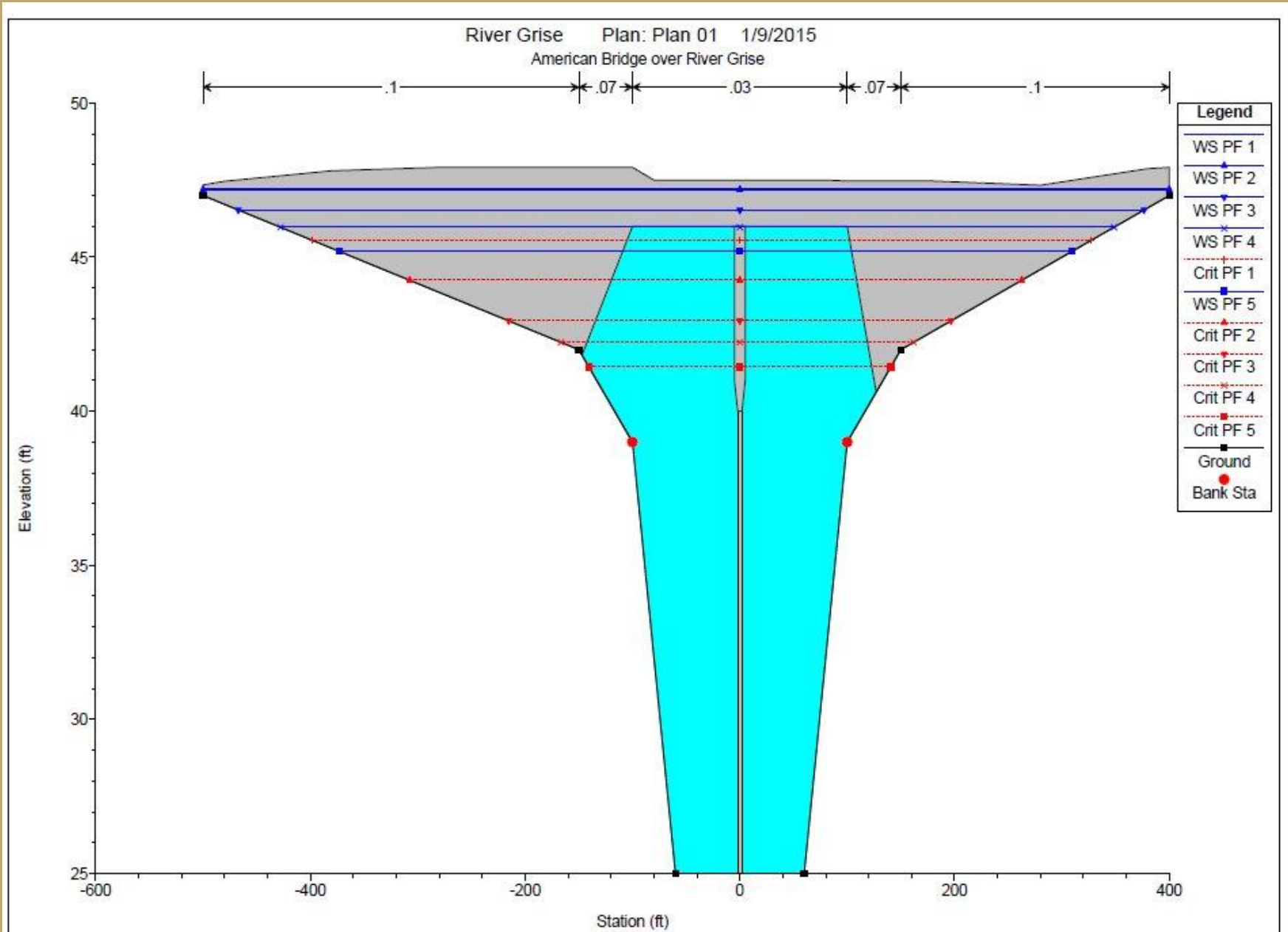
**Legend**

- Survey Point
- ▲ Benchmark
- Cross Section
- Minor Roads
- Major Roads

# Flood Risk Assessment 3. EROSION CONTROL

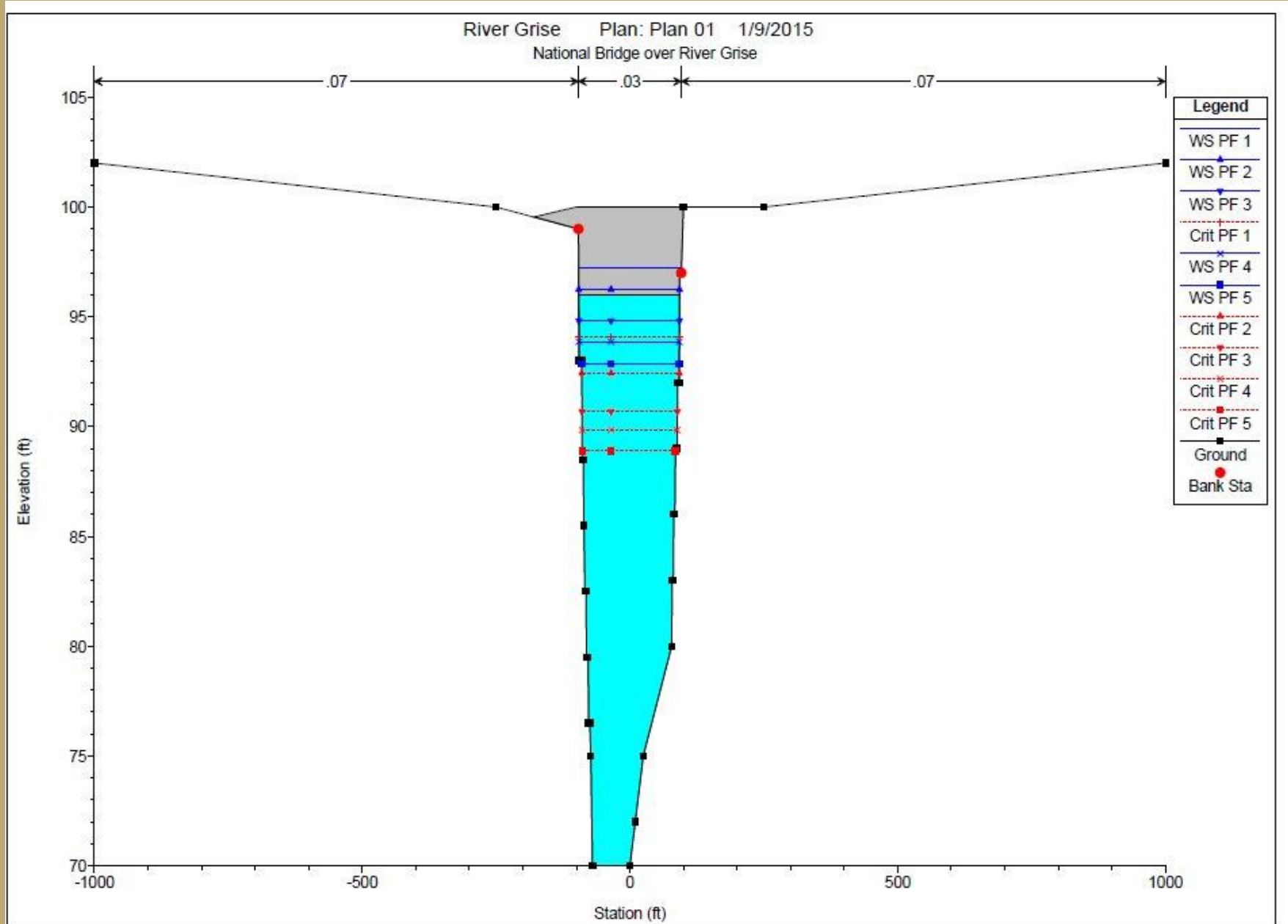


# Flood Risk Assessment 3. HYDRAULICS

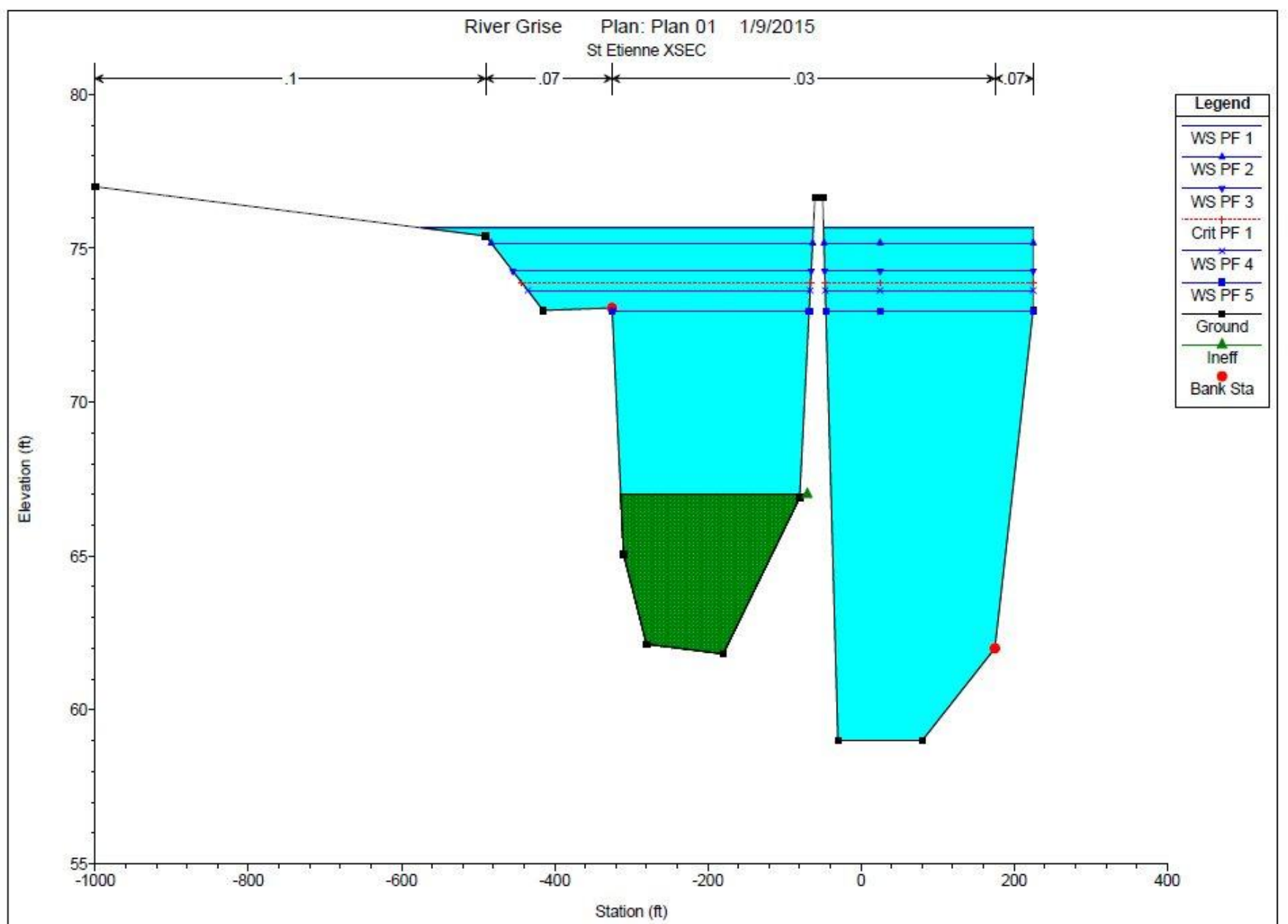




# Flood Risk Assessment 3. HYDRAULICS

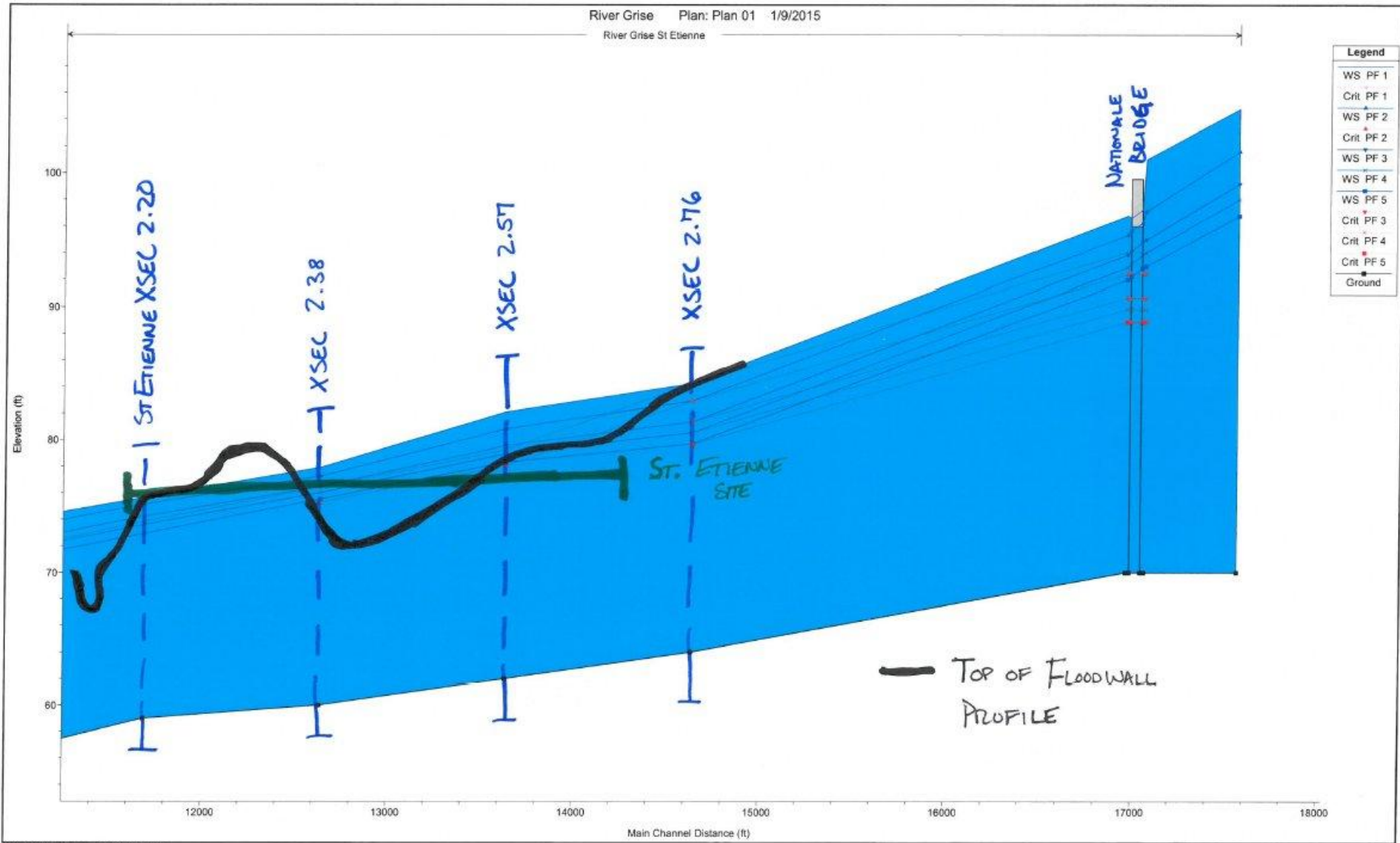


# Flood Risk Assessment 3. HYDRAULICS



# Flood Risk Assessment 3. HYDRAULICS

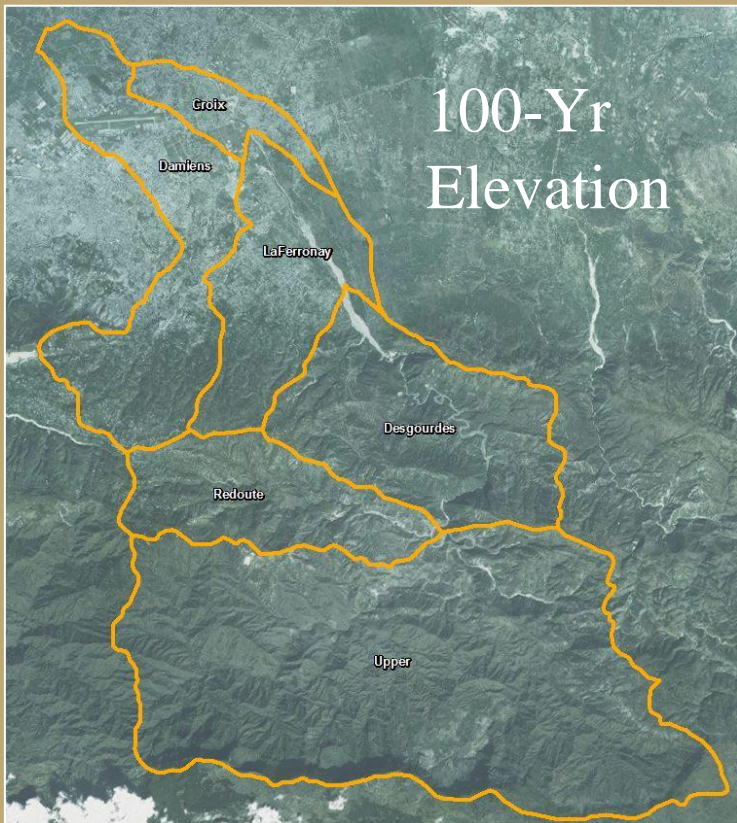
FIGURE 6



# Flood Risk Assessment

## 4. CONCLUSIONS

- **V3 Confirmed 0-2' Flooding in Hurricanes**
- **V3 Predicted 1-5' Flooding in 100-Year**
- **St. Etienne Investment is Continuing**





**QUESTIONS?**