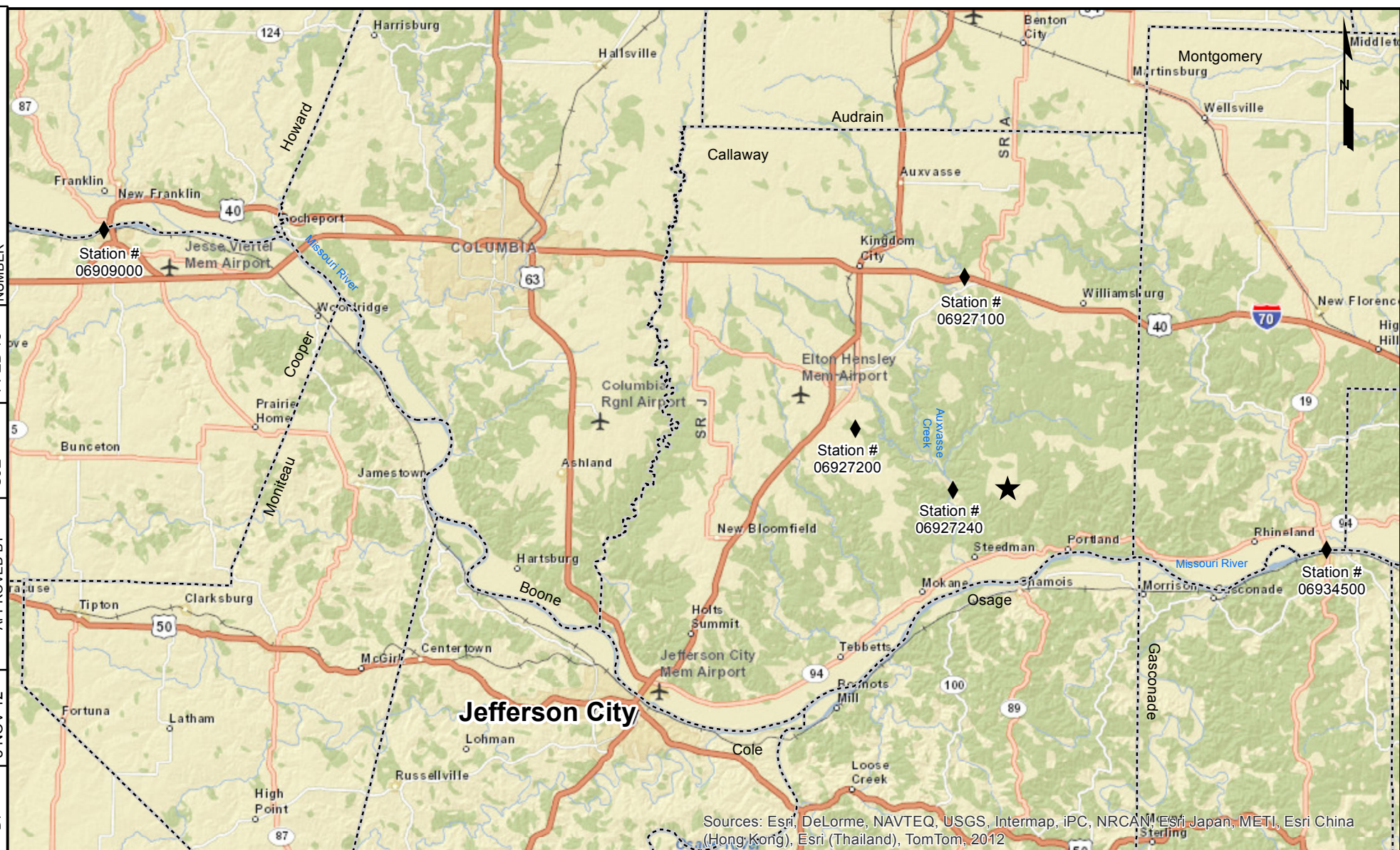


1 FEB 13	1 FEB 13	JML	CJE	CHECKED BY	APPROVED BY	KMR	8 NOV 12	DRAWN BY
GIS FILE 12-4939-GIS-A009		NUMBER						



Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, iPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, 2012

## Legend

- ★ Site Centerpoint
- ◆ USGS Gauge Stations
- ▭ County Boundaries
- Roads
- River/Stream

0 3 6 12 18 Miles

Coordinate System: NAD 1983 UTM Zone 14N  
Projection: Transverse Mercator  
RF: 1:645,000

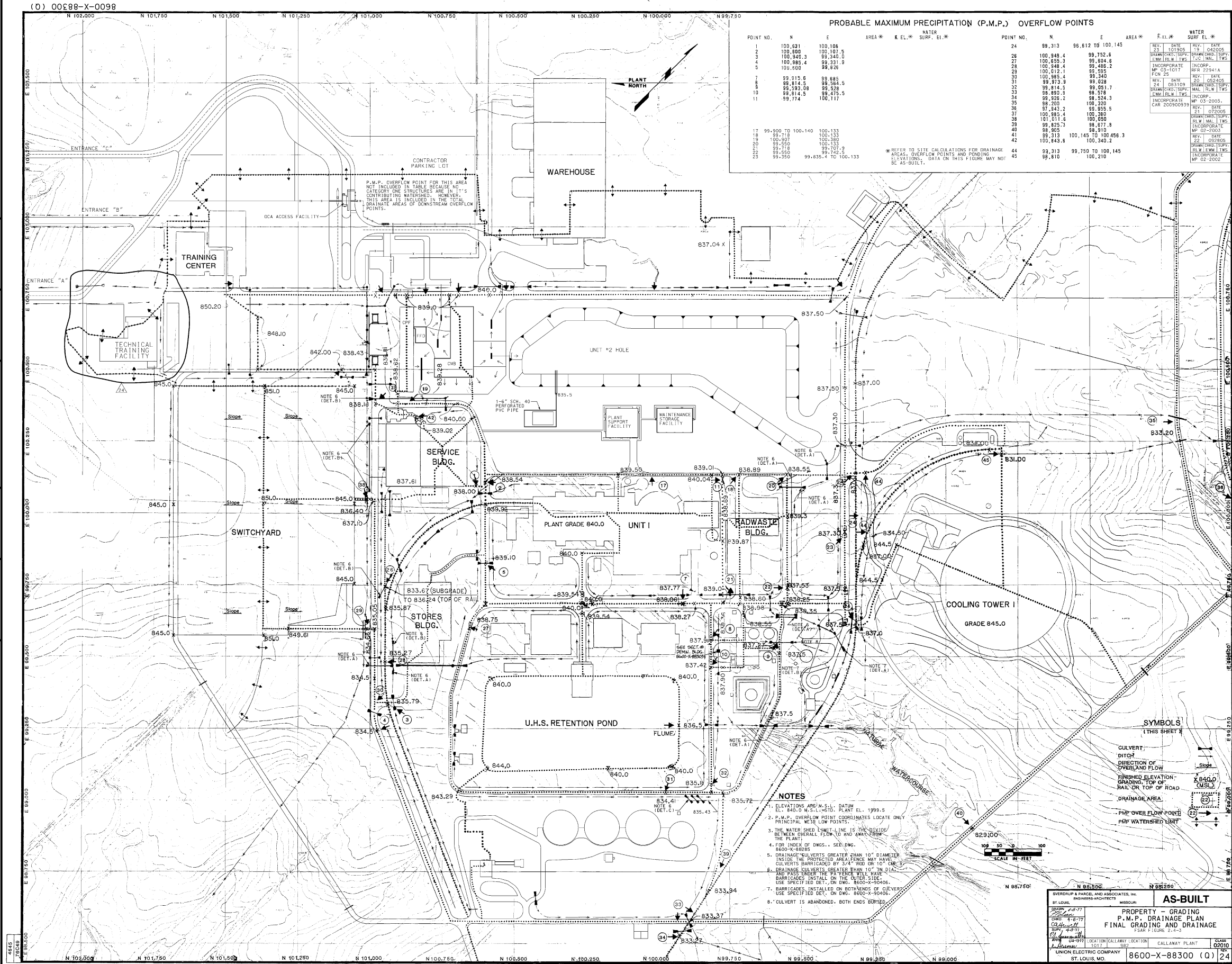
References:

- 1) Esri, DeLorme, NAVTEQ, USGS, Intermap, iPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, 2012 at: [http://goto.arcgisonline.com/maps/World\\_Street\\_Map](http://goto.arcgisonline.com/maps/World_Street_Map)
- 2) (Ameren Missouri, 2012), Callaway Energy Center Unit 1, Final Safety Analysis Report (FSAR) Callaway-SA Section 2.4, Hydrology, Rev.OL-19a, May 2012.
- 3) (Ameren Missouri, 2009), Callaway Energy Center Unit 2, Final Safety Analysis Report (FSAR), Rev 2, February, 2009.

Figure 1-1  
Location Map of Site

PREPARED FOR  
**Callaway Flooding Hazard  
Reevaluation Report**





Reference:

Ameren Missouri, 2012, "Final Safety Analysis Report (FSAR)  
Callaway-SA," Revision OL-19a, May 2012.

CALLAWAY ENERGY CENTER  
FLOODING HAZARD REEVALUATION REPORT

PCOR Paul C. Rizzo Associates, Inc.  
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12-4939-GIS-B001

GIS FILE NUMBER

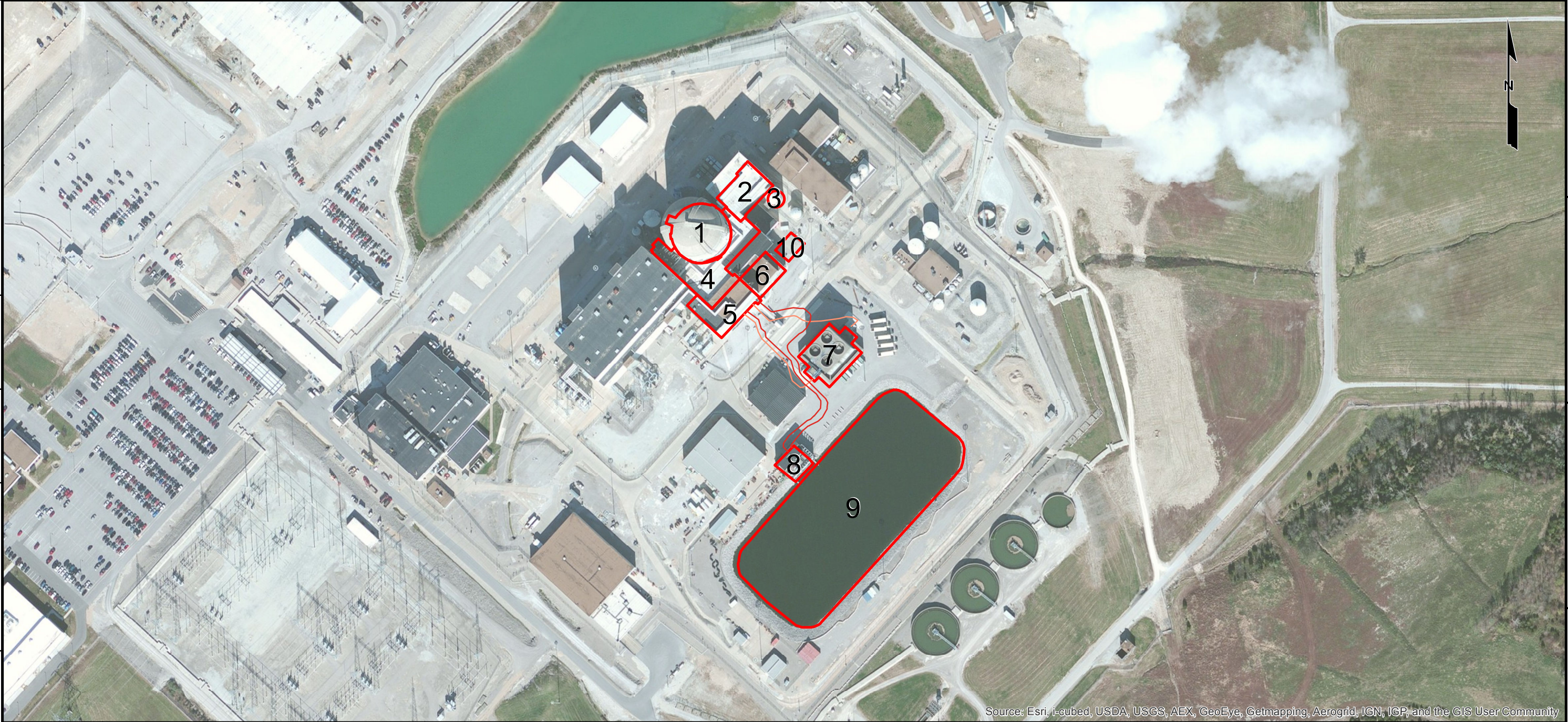
1 Feb 2013  
1 Feb 2013

JML  
CJE

CHECKED BY  
APPROVED BY

GJO  
15 NOV 2012

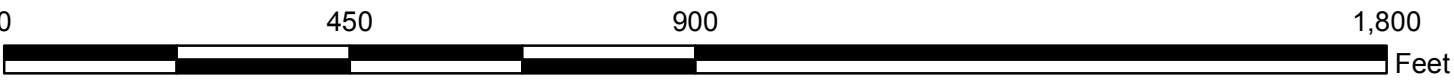
DRAWN BY



Source: Esri, i-cubed, USDA, USGS, AEX, GeoEye, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

**References:**  
1.Source: Esri, i-cubed, USDA, USGS, AEX, GeoEye, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community at [http://goto.arcgisonline.com/maps/World\\_Imagery](http://goto.arcgisonline.com/maps/World_Imagery)  
2. Ameren Missouri, 2012, "Final Safety Analysis Report (FSAR) Callaway-SA" Rev. OL-19a, 2012

Building Number	Building Description
1	Reactor Building
2	Fuel Building
3	Refueling Water Storage Tank
4	Auxiliary Building
5	Control Building
6	Diesel Generator Building
7	Ultimate Heat Sink Cooling Tower No 1
8	Essential Service Water Pumphouse
9	Ultimate Heat Sink Retention Pond
10	Underground Diesel Storage Tanks



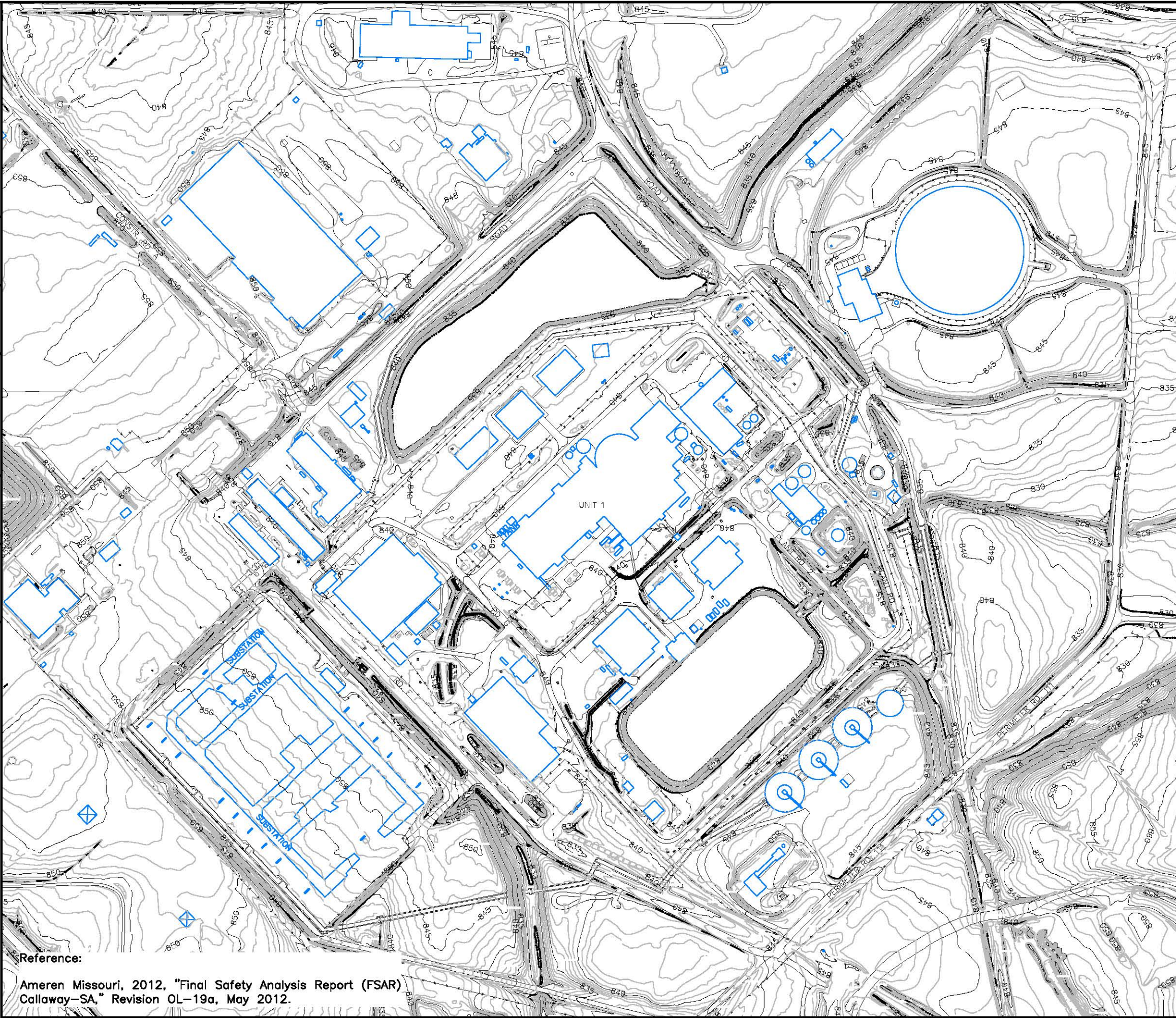
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Projection: Transverse Mercator  
RF: 1:3,000

Legend


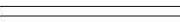
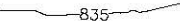
- Safety-Related Structures
- Essential Service Water Intake Piping
- Essential Service Water Return Piping

**Figure 2-2**  
**Locations of Safety-Related Structures, Systems, and Components**  
  
Prepared For  
**Callaway Flooding Hazard Reevaluation Report**





**LEGEND:**

-  STRUCTURE
-  ROAD
-  CONTOUR

**SCALE**



**FIGURE 2-3**

**AS-BUILT SITE LAYOUT  
AND TOPOGRAPHY**

PREPARED FOR

**CALLAWAY ENERGY CENTER  
FLOODING HAZARD REEVALUATION REPORT**

**PCR** Paul C. Rizzo Associates, Inc.  
ENGINEERS / CONSULTANTS / CM

Reference:

Ameren Missouri, 2012, "Final Safety Analysis Report (FSAR)  
Callaway-SA," Revision OL-19a, May 2012.



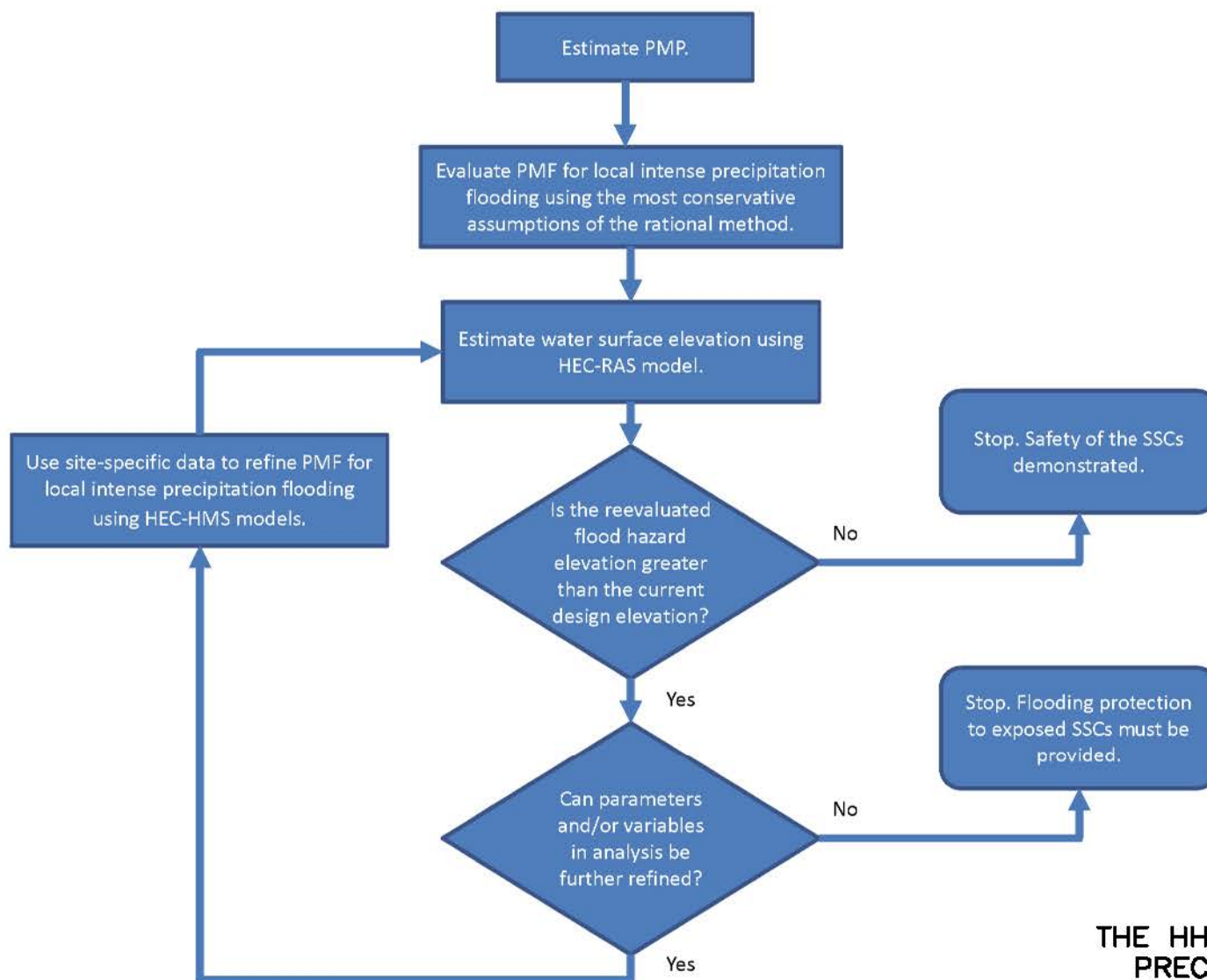


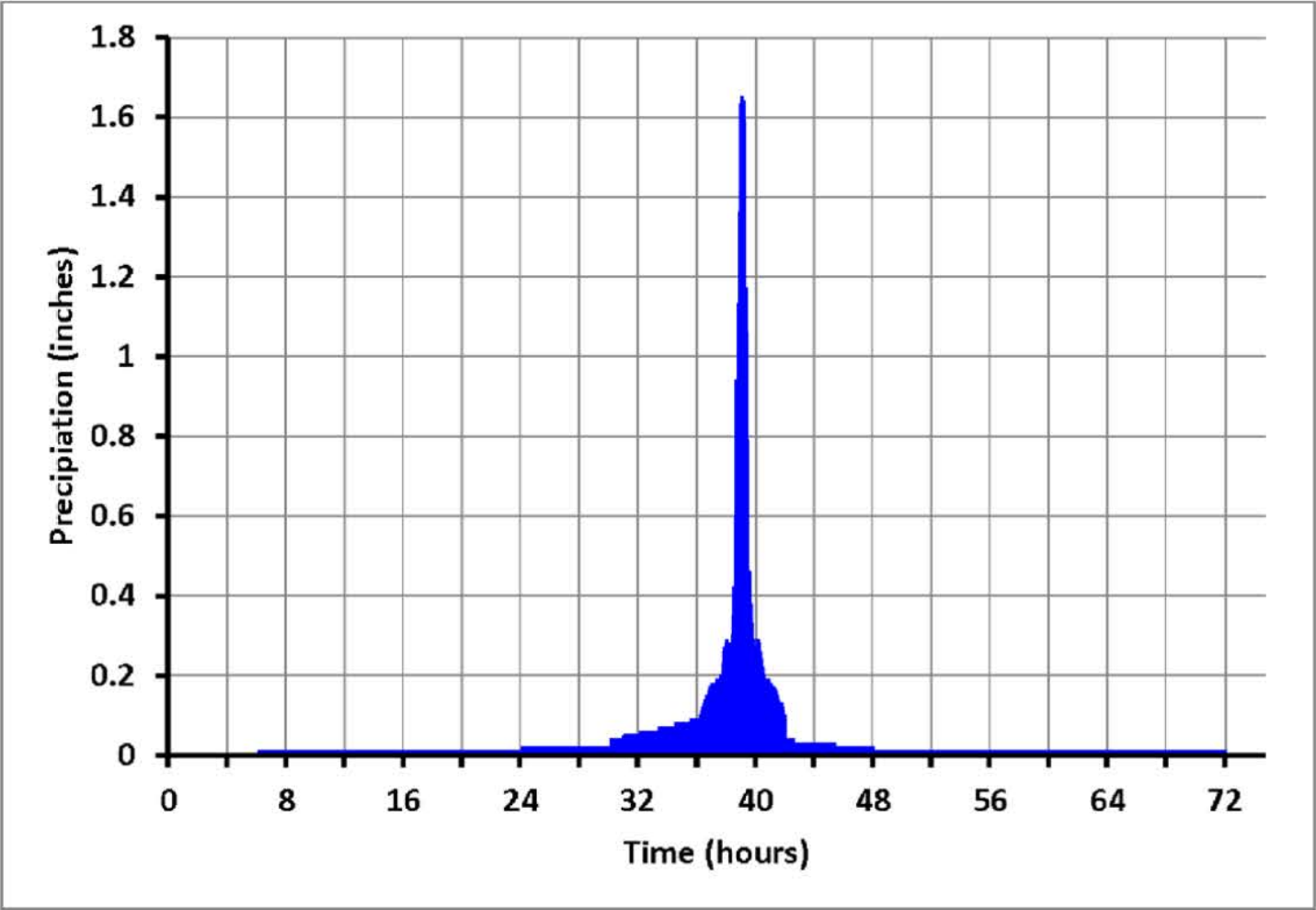
FIGURE 3-1

THE HHA DIAGRAM FOR LOCAL INTENSE PRECIPITATION FLOODING ANALYSIS

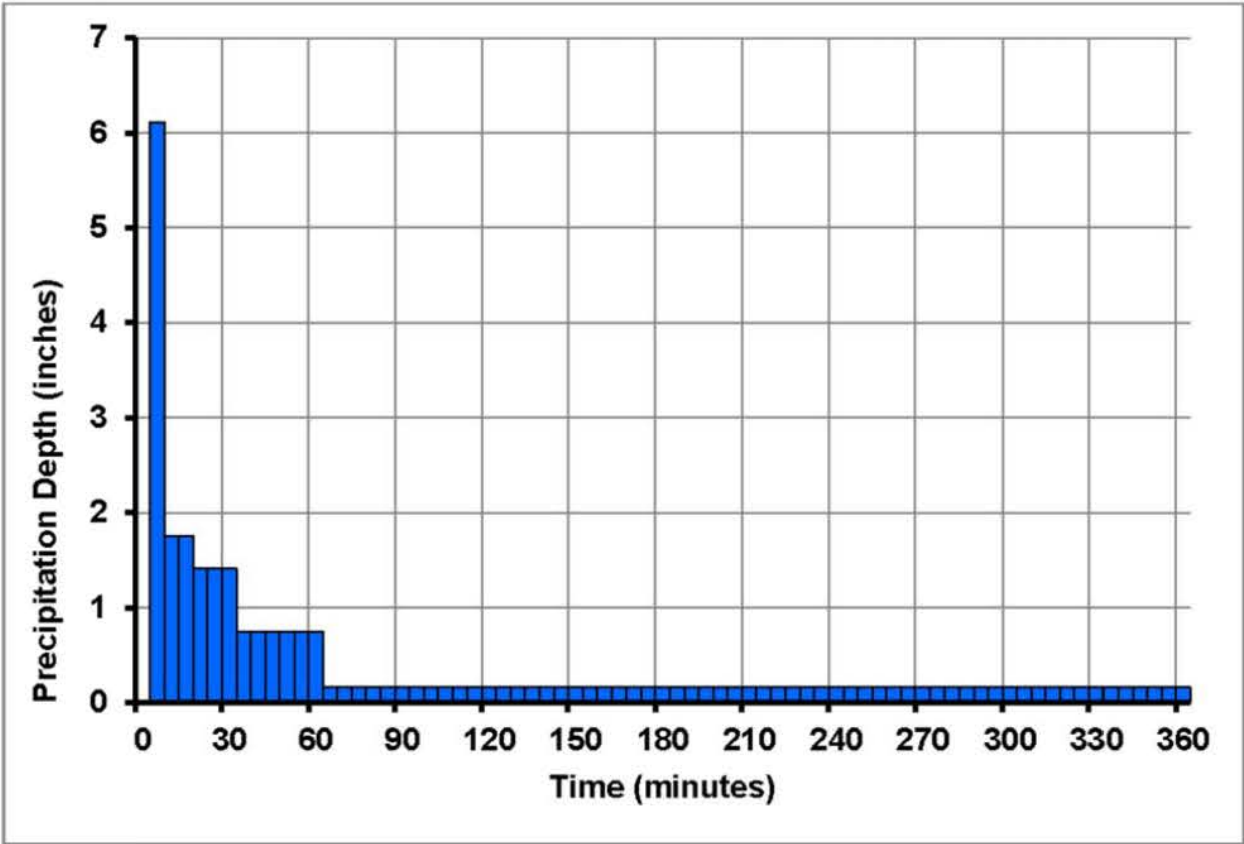
PREPARED FOR

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FLOODING HAZARD REEVALUATION REPORT



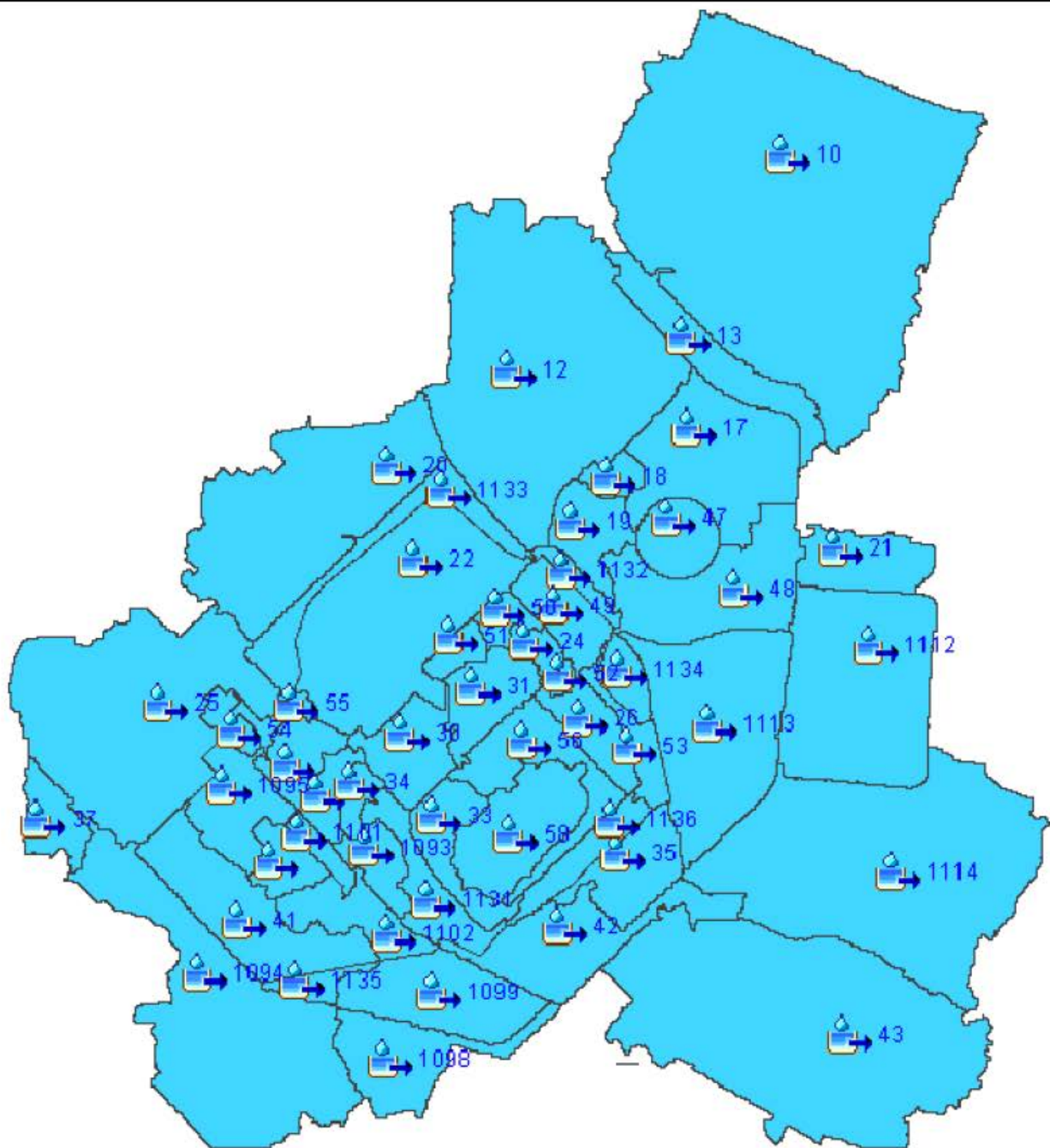


PROBABLE MAXIMUM STORM FOR LOCAL INTENSE PRECIPITATION



6-HOUR LOCAL INTENSE PRECIPITATION HYETOGRAPH





### LEGEND:



SUBBASIN

12

SUBBASIN  
NUMBER



SUBBASIN  
DELINEATION

FIGURE 3-3

HEC-HMS MODEL FOR THE  
SITE DRAINAGE ANALYSIS

PREPARED FOR

CALLAWAY ENERGY CENTER  
FLOODING HAZARD REEVALUATION REPORT



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**References:**  
1.Source: Esri, i-cubed, USDA, USGS, AEX, GeoEye, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community at [http://goto.arcgisonline.com/maps/World\\_Imagery](http://goto.arcgisonline.com/maps/World_Imagery)  
2. Ameren Missouri, 2012, "Final Safety Analysis Report (FSAR) Callaway-SA" Rev. OL-19a, 2012

1,000 500 0 1,000 2,000 Feet

Coordinate System: NAD 1983 StatePlane Missouri Central FIPS 2402 Feet  
Projection: Transverse Mercator  
RF: 1:7,500

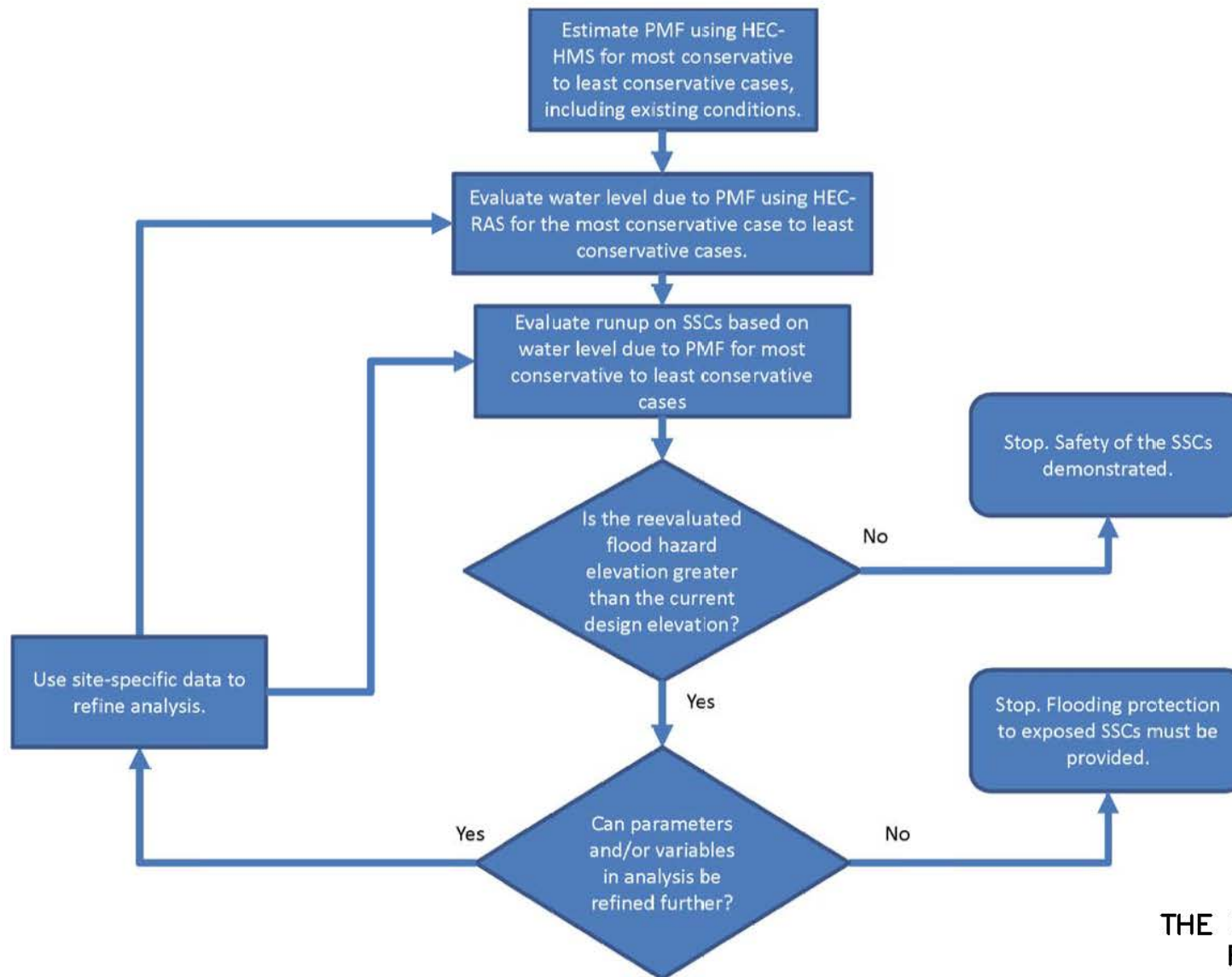
Building Number	Building Description
1	Reactor Building
2	Fuel Building
3	Refueling Water Storage Tank
4	Auxiliary Building
5	Control Building
6	Diesel Generator Building
7	Ultimate Heat Sink Cooling Tower No 1
8	Essential Service Water Pumphouse
9	Ultimate Heat Sink Retention Pond
10	Underground Diesel Storage Tanks

- Legend**
- Model Catchment Sub-basins
  - Safety-Related Structures, Systems, and Components
  - Inundation Area

840.17 Peak Flood Elevation for Subbasins

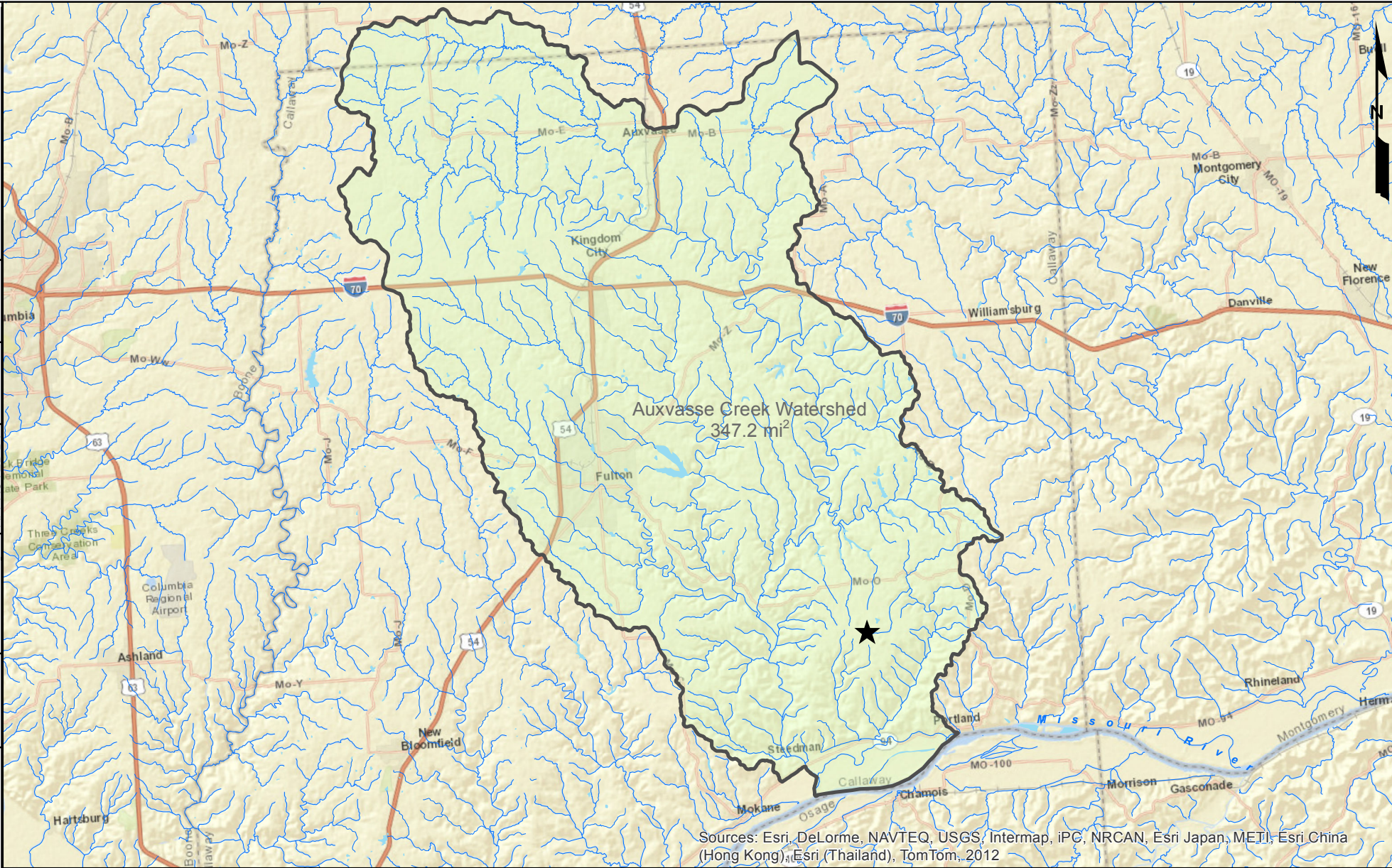
**Figure 3-4**  
**Inundation Map of the**  
**Reevaluated Design Flood Level**  
  
**Prepared For**  
**Callaway Flooding Hazard**  
**Reevaluation Report**





**FIGURE 3-5**  
**THE HHA DIAGRAM FOR RIVER FLOODING ANALYSIS**  
 PREPARED FOR  
**CALLAWAY ENERGY CENTER**  
**FLOODING HAZARD REEVALUATION REPORT**

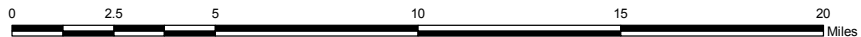




Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, iPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, 2012

## Legend

- ★ Site Centerpoint
- Auxvasse Creek Watershed
- Roads
- Streams
- County Boundary



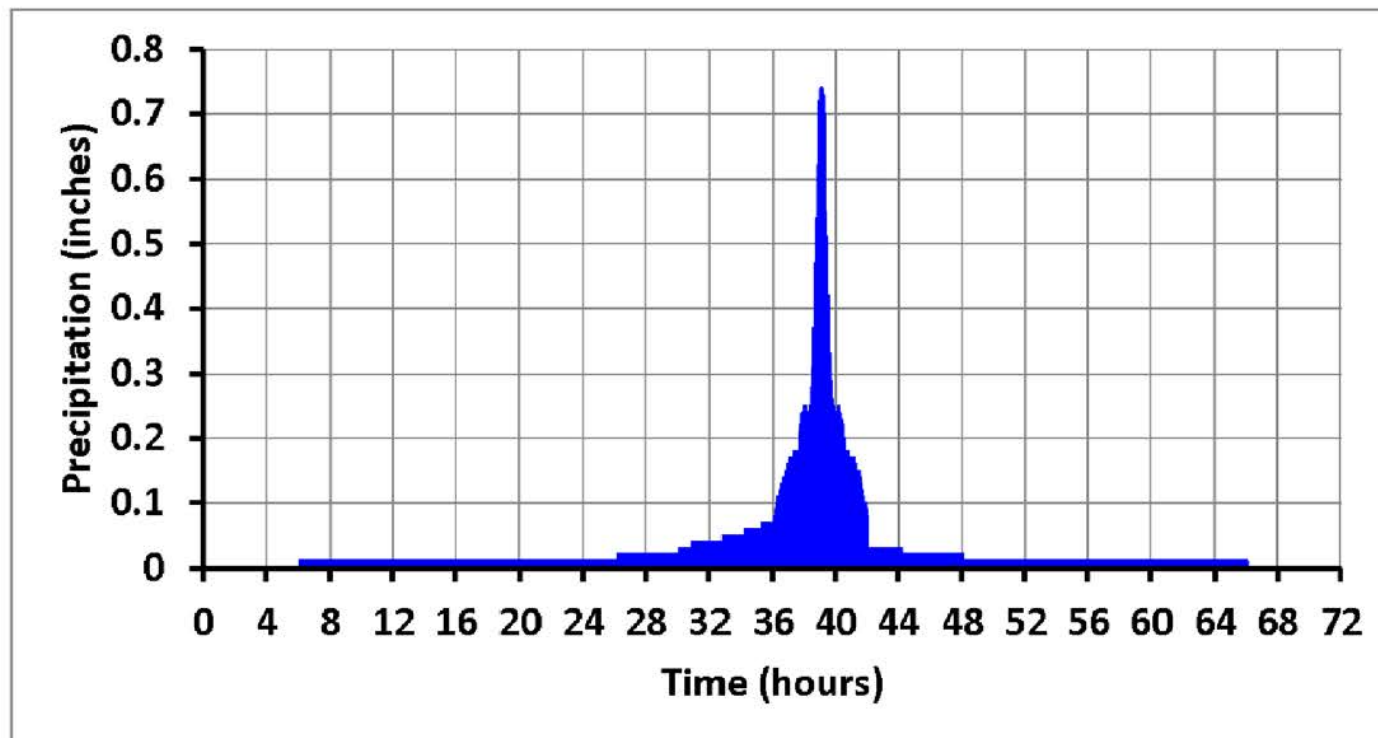
Coordinate System: NAD 1983 UTM Zone 14N  
Projection: Transverse Mercator  
RF: 1:300,000

### References:

1. Esri, DeLorme, NAVTEQ, USGS, Intermap, iPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, 2012 at: [http://goto.arcgisonline.com/maps/World\\_Street\\_Map](http://goto.arcgisonline.com/maps/World_Street_Map)  
Date Accessed: 1 February, 2013
2. (USDA, 2008) United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) 12-digit HUC Boundaries, 2008, Auxvasse Creek Watershed Boundary, Website: <http://datagateway.nrcs.usda.gov/>;  
Date Accessed: 15 November 2012

Figure 3-6  
**Watershed Map**  
PREPARED FOR:  
**Callaway Flooding Hazard  
Reevaluation Report**



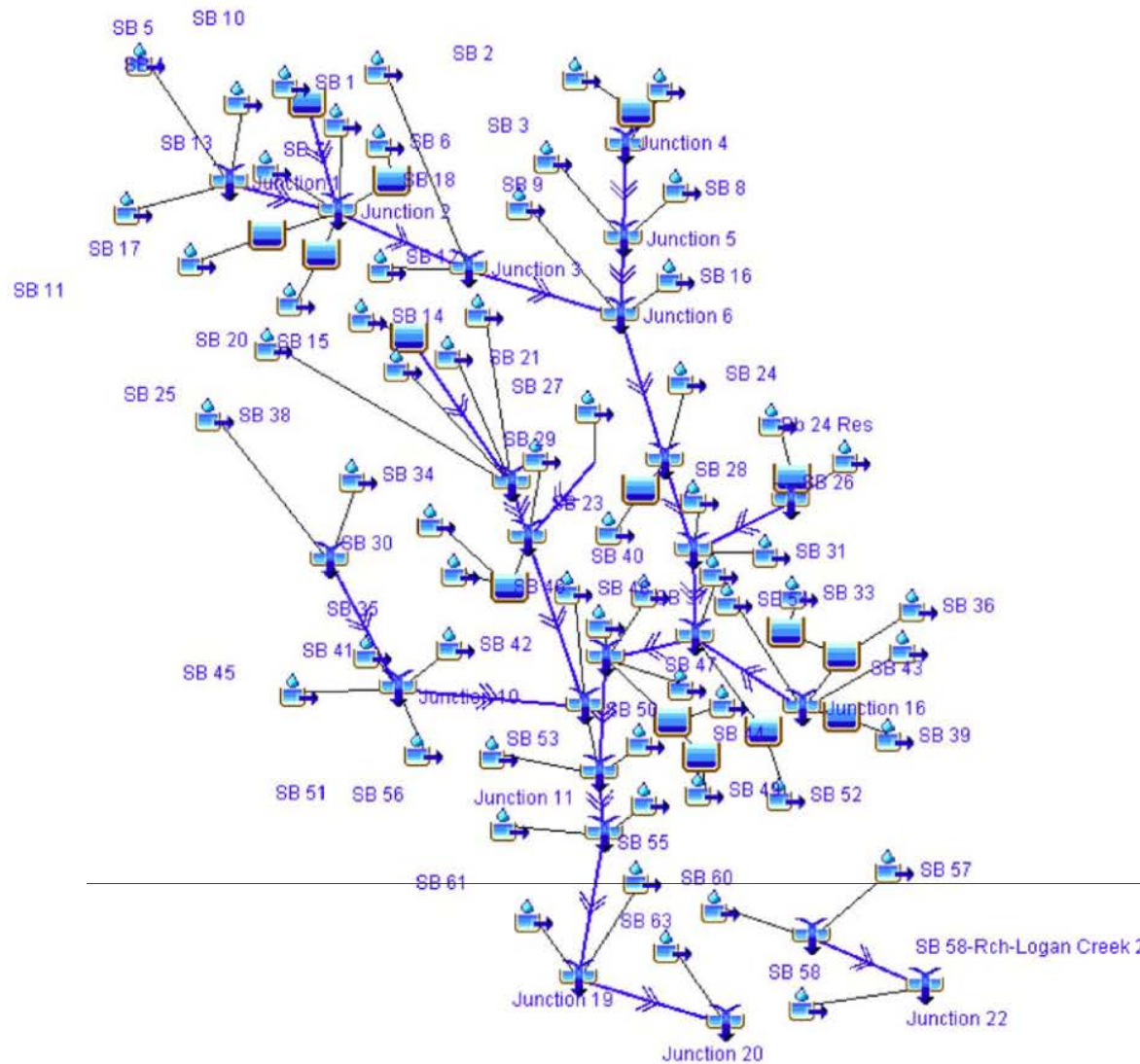


PROBABLE MAXIMUM STORM FOR AUXVASSE CREEK WATERSHED

FIGURE 3-7  
WATERSHED HYETOGRAPH

PREPARED FOR  
CALLAWAY ENERGY CENTER  
FLOODING HAZARD REEVALUATION REPORT





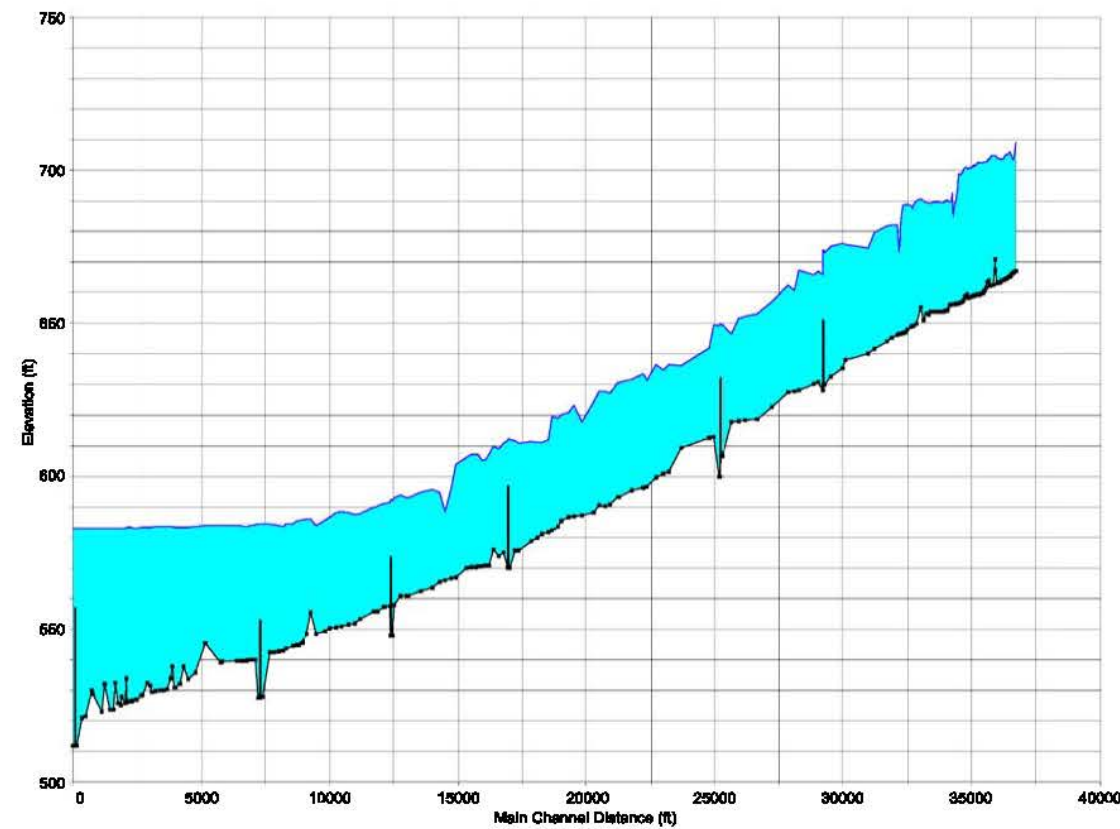
### LEGEND

- SB 24 SUBBASIN NUMBER
- SUBBASIN
- RIVER REACH
- JUNCTION
- RESERVOIR

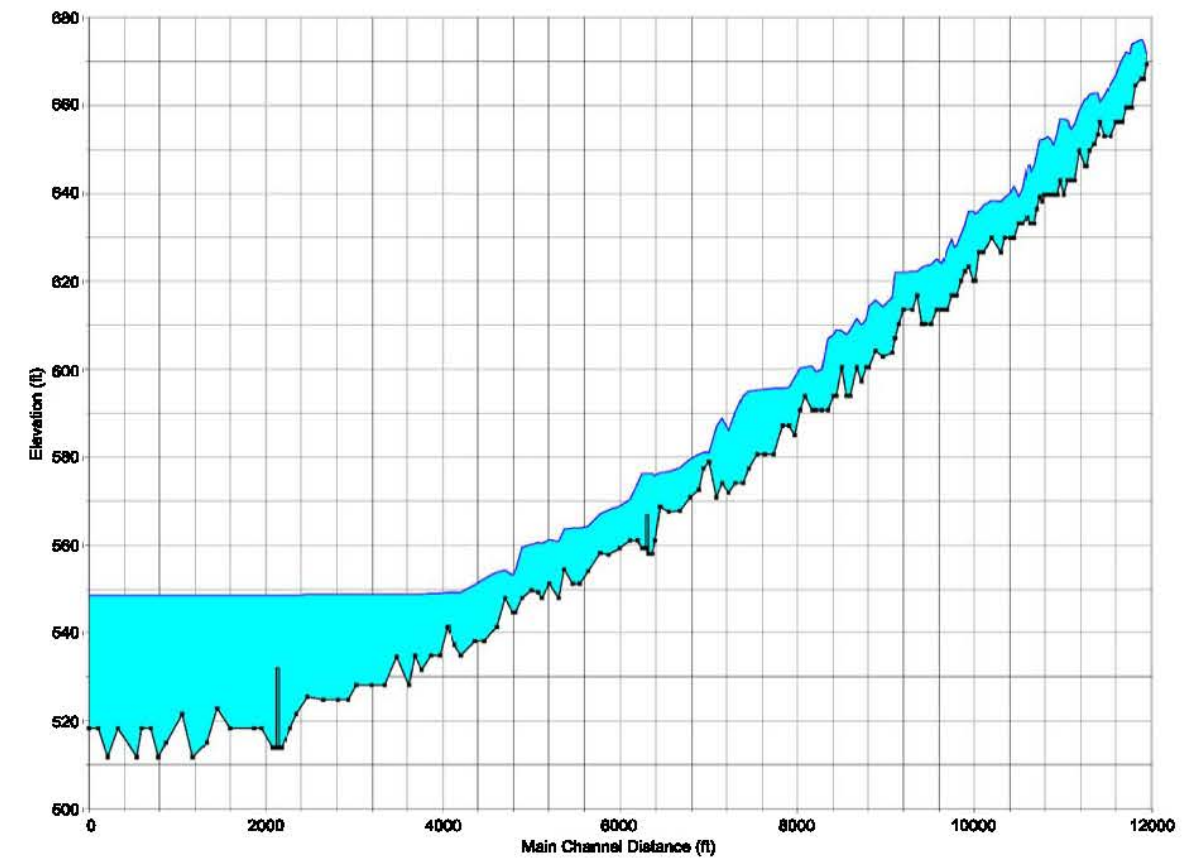
FIGURE 3-8  
HEC-HMS MODEL FOR THE  
WATERSHED DRAINAGE ANALYSIS

PREPARED FOR  
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FLOODING HAZARD REEVALUATION REPORT

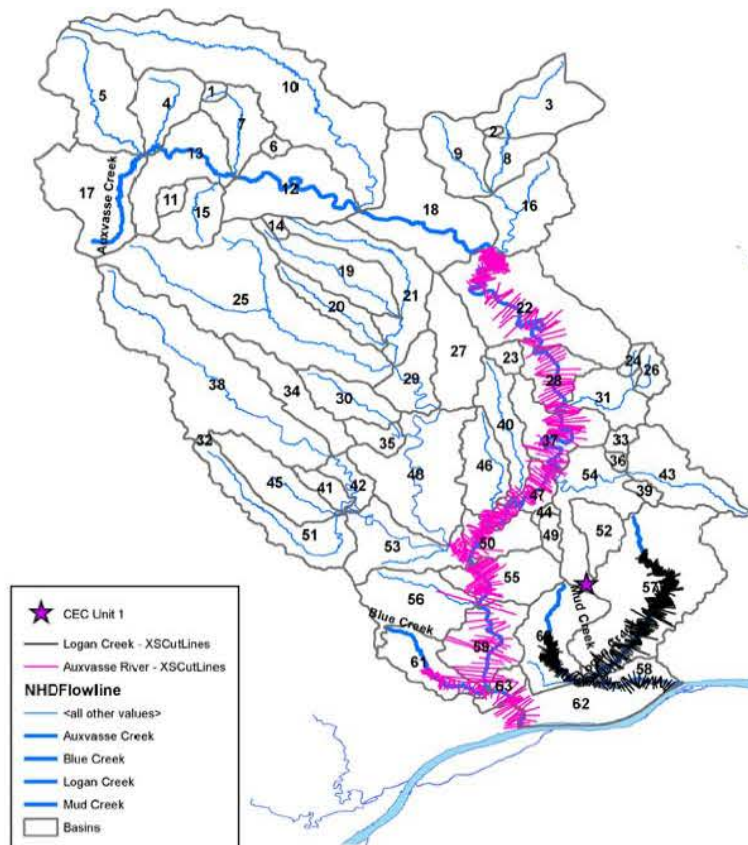




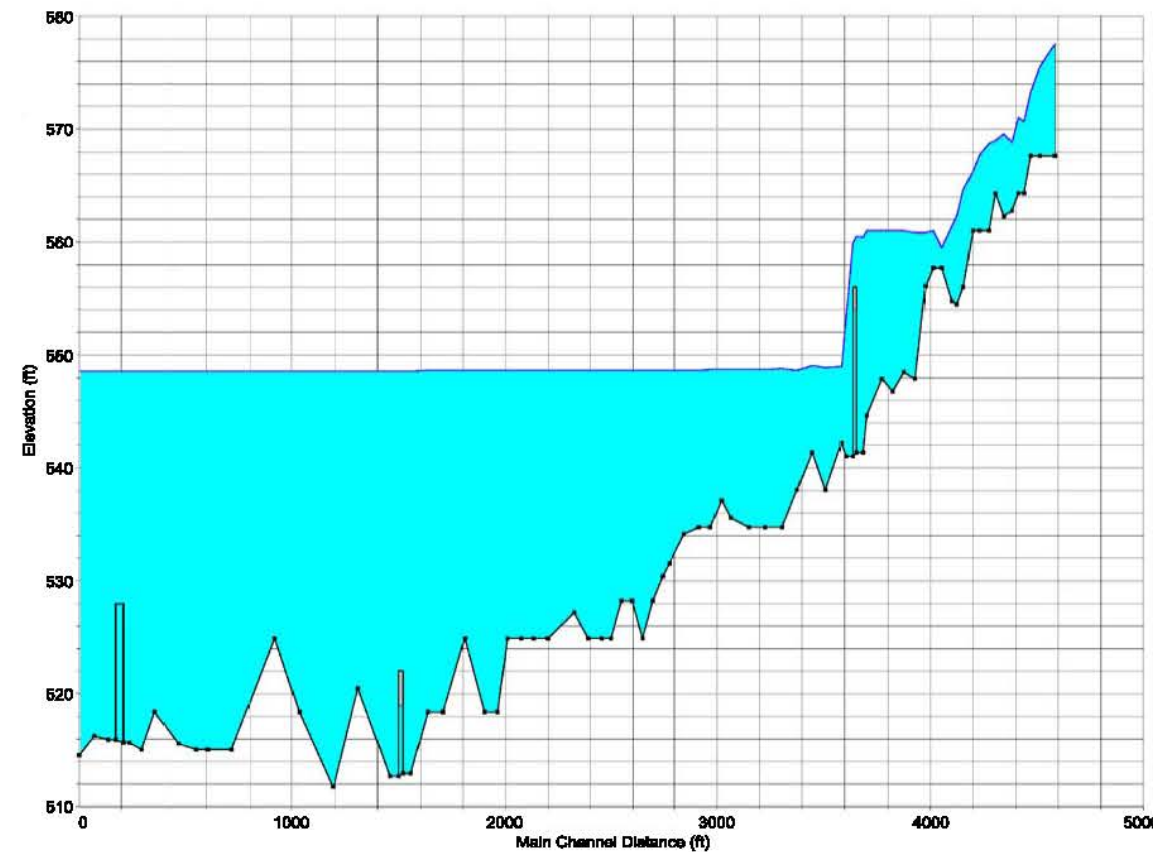
AUXVASSE CREEK WATER SURFACE PROFILE  
(NOT TO SCALE)



LOGAN CREEK WATER SURFACE PROFILE  
(NOT TO SCALE)



HEC-RAS MODEL  
(NOT TO SCALE)



MUD CREEK WATER SURFACE PROFILE  
(NOT TO SCALE)

#### LEGEND

- HEC-RAS SCENARIO 4  
EXISTING CONDITIONS
- GROUND

FIGURE 3-9  
HEC-RAS MODEL  
FOR RIVER FLOODING  
PREPARED FOR  
CALLAWAY ENERGY CENTER  
FLOODING HAZARD REEVALUATION REPORT



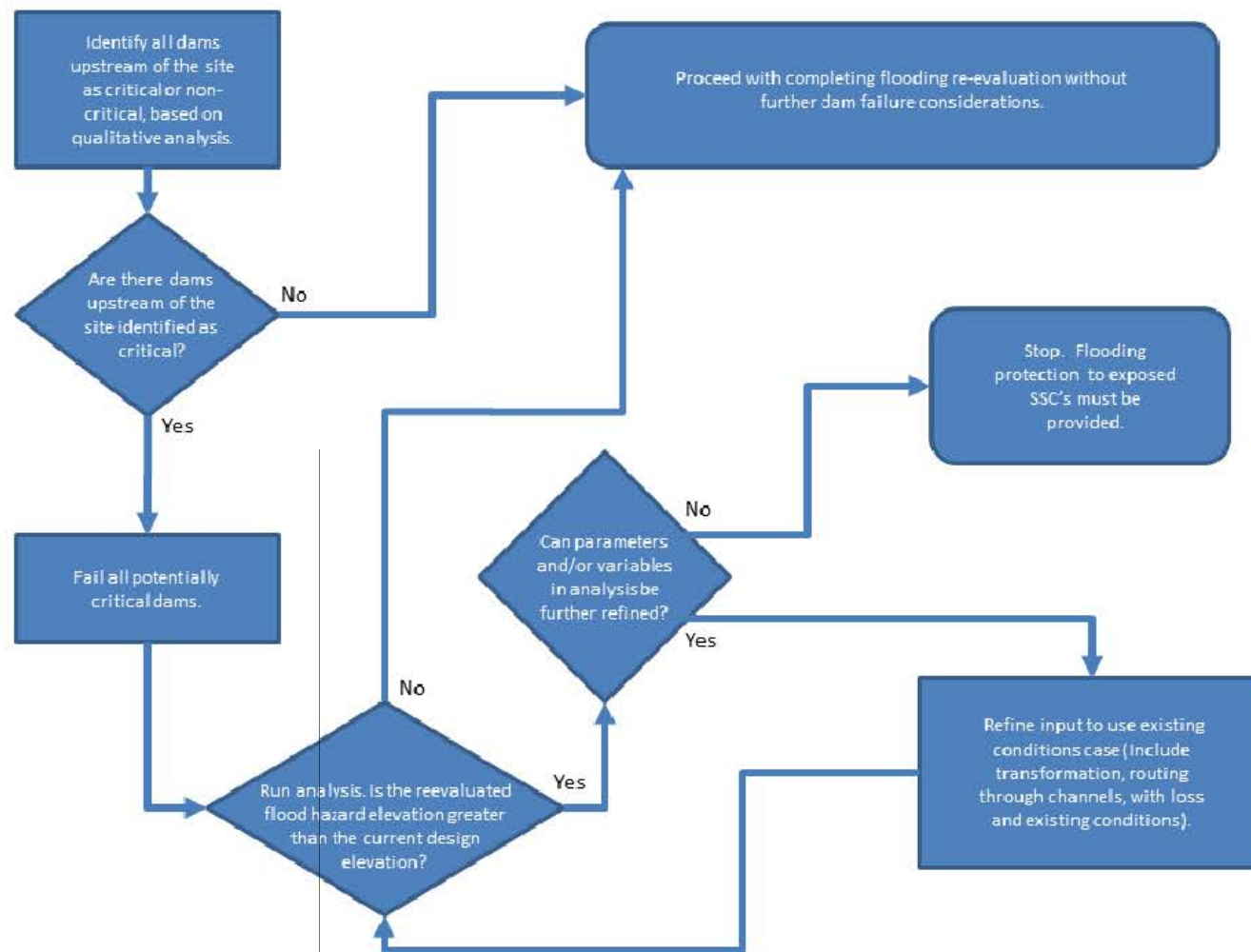
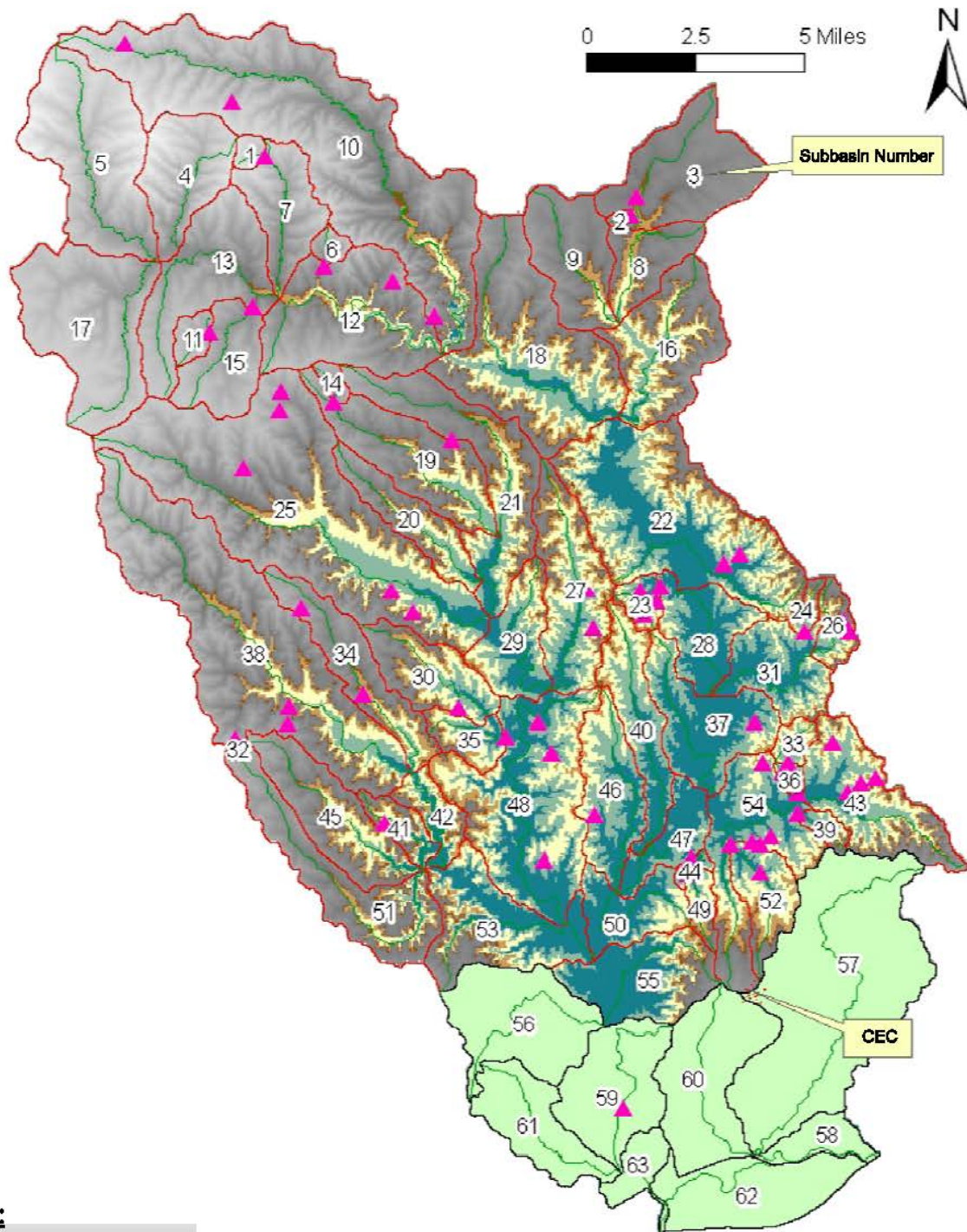


FIGURE 3-10  
THE HHA DIAGRAM FOR  
DAM BREAK ANALYSIS  
PREPARED FOR  
CALLAWAY ENERGY CENTER  
FLOODING HAZARD REEVALUATION REPORT  
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### Legend:

Buildings

Dams

River/Stream

#### Subbasins

Downstream Sub-basins

Upstream Sub-basins

#### topography, Ft

High: 964.096

Low: 511.162

#### Storage Depth below 810 ft, Ft

0.01 to 5

5 to 20

20 to 50

50 to 100

100 to 300

FIGURE 3-11

### LOCATIONS OF DAMS NEAR THE SITE

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FLOODING HAZARD REEVALUATION REPORT



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(NOT TO SCALE)

FIGURE 3-12  
CENTRAL STABLE  
REGION

PREPARED FOR  
CALLAWAY ENERGY CENTER  
FLOODING HAZARD REEVALUATION REPORT

Reference:

Ameren Missouri, 2012, "Final Safety Analysis Report (FSAR) Callaway-SA," Revision OL-19a, May 2012.



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DRAWN BY	CVL	CHECKED BY	JML	02-01-13	CAD FILE	12-4939-A5
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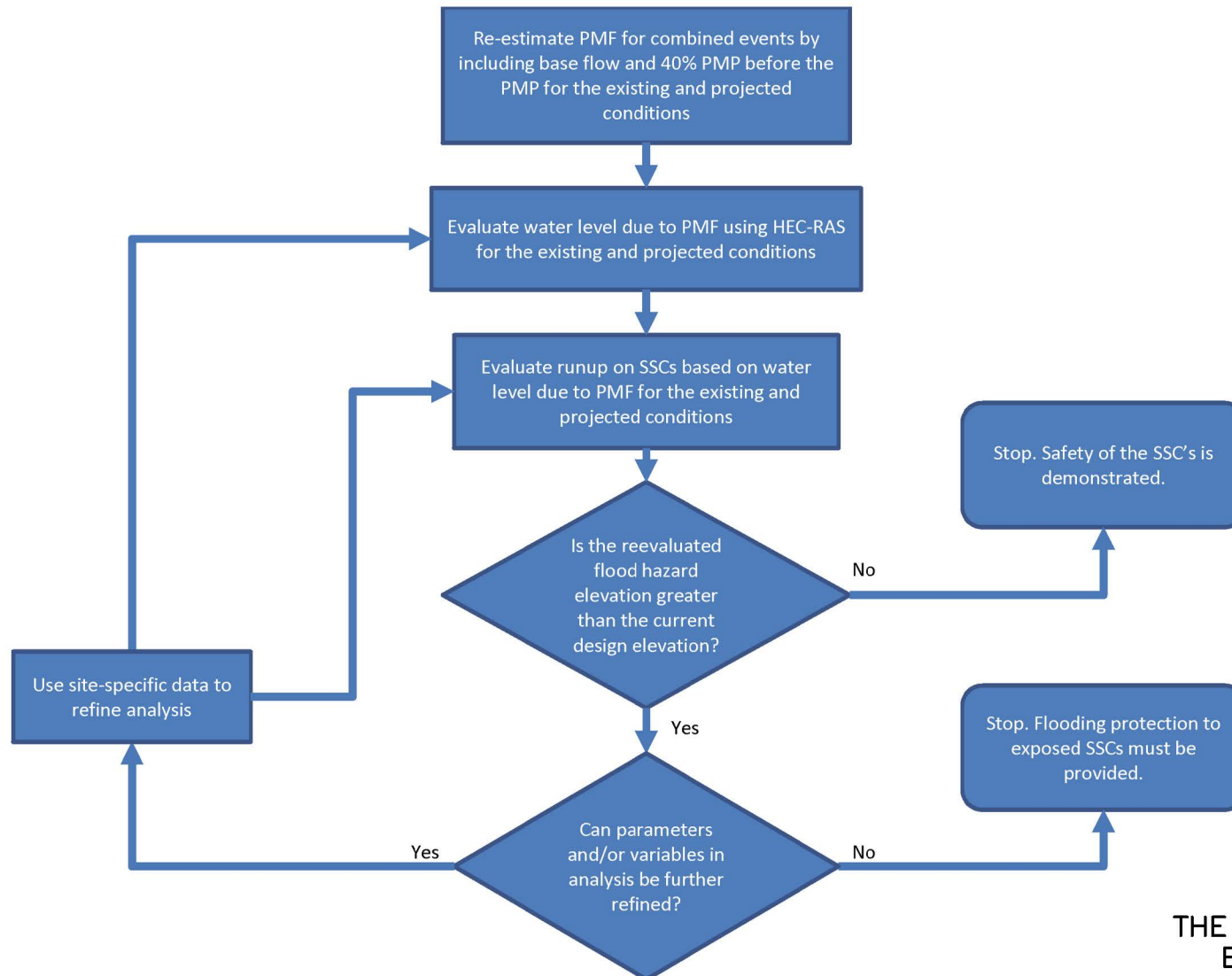


FIGURE 3-13

# THE HHA DIAGRAM FOR COMBINED EVENTS FLOODING ANALYSIS

PREPARED FOR

CALLAWAY ENERGY CENTER  
FLOODING HAZARD REEVALUATION REPORT