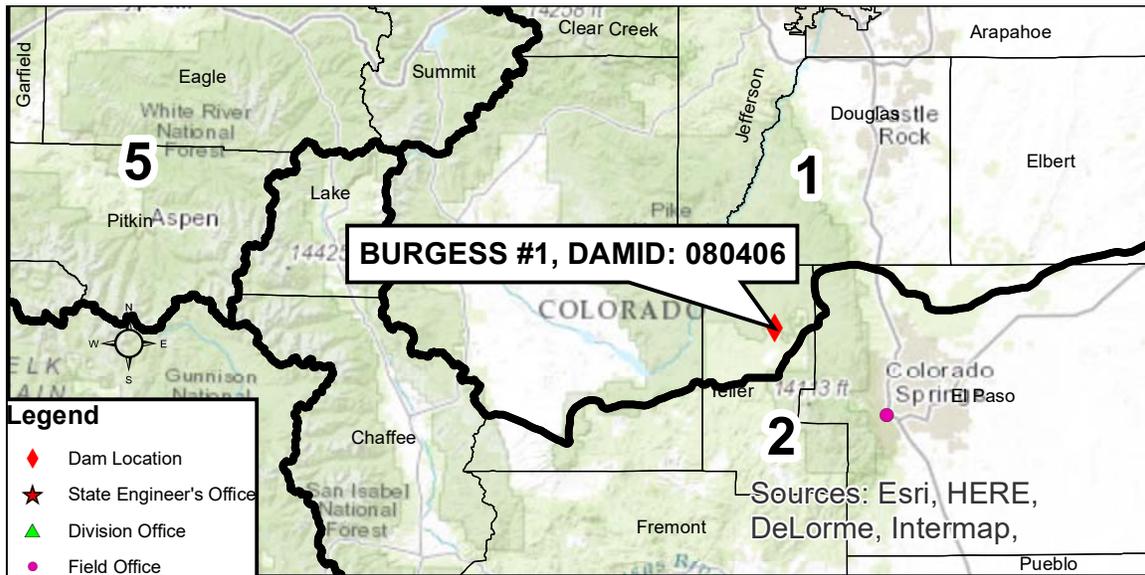


# EMERGENCY ACTION PLAN (EAP)

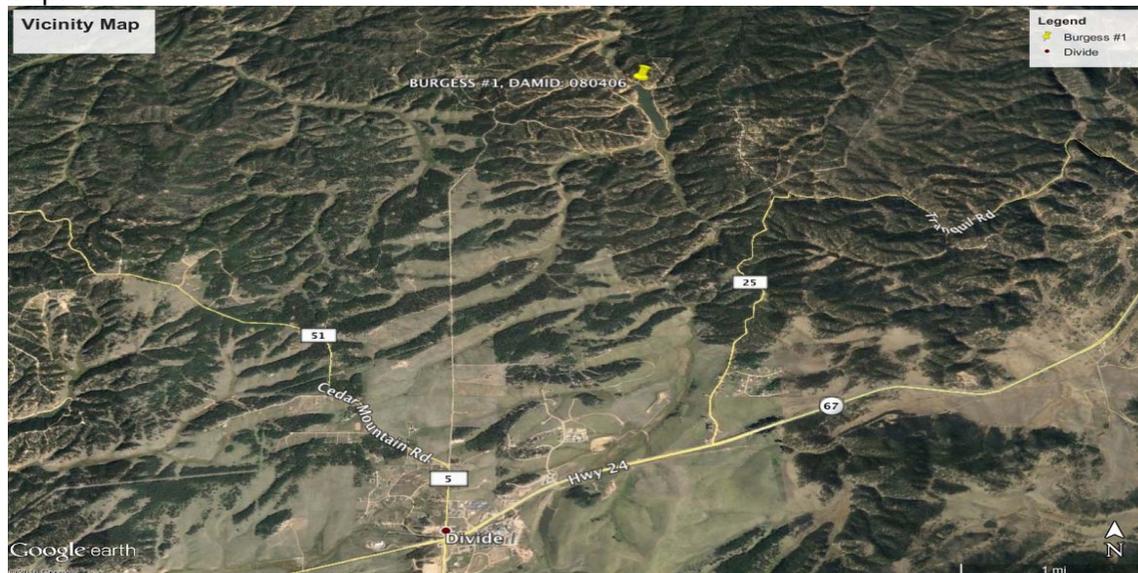
## *Notifications and Essential Information*

### BURGESS #1 DAM TELLER COUNTY, COLORADO HAZARD CLASSIFICATION: SIGNIFICANT State of Colorado DAMID: 080406

Location Map:



Vicinity Map:



EAP Date: 16 JUNE 2017

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## ESSENTIAL DAM INFORMATION

### *Dam Owner*

- Primary Contact: SHAUN GORDON
- Organization: SPRING VALLEY PROPERTY OWNERS & REC. CORP.
- Address: 570 RIDGE ROAD, DIVIDE, CO 80814
- Contact info: 719-439-5128 (cell)

### *Location of Dam*

- County: TELLER
- Nearest Downstream Town: DECKERS
- River/Drainage: RULE CREEK
- Coordinates: 38.997219°N, -105.13722°W
- Closest Physical Address: 1660 Spring Valley Dr, Divide, CO 80814

### *Description of the Dam*

#### Dam Type & Dimensions

- Type of Dam: Earthen
- Dam Height: 32 (feet)
- Crest Length: 332 (feet)
- Crest Width: 15 (feet)

#### Spillway Characteristics

- Drainage Basin Area: 8160 (acres)
- Reservoir Normal Capacity: 210 (acre-feet)
- Principal Spillway Type: Overflow Pipe - CMP
- Emergency Spillway Type: Unlined earthen channel
- Emergency Spillway Width: 120 (feet)
- Spillway Freeboard: 5 (feet)
- Total Spillway Capacity: 3660 (cfs)
- *Pass 100 year Flood?:* Y

#### Outlet Characteristics

- Size: 18" CMP upstream of principal spillway, 42" CMP downstream
- Maximum Capacity: 29 (cfs)

## EVENT LEVEL DETERMINATION & EXPECTED ACTIONS

### *Level Determination*

An unusual event or potential emergency situation should be characterized as one of the following:

- High Flow Below Dam - Non-Failure
- Unusual Condition at Dam - Non-Failure
- Potential Dam Failure - Immediate Action Required
- Evacuation Required - Dam Failure in Progress or Unavoidable

This EAP will be activated upon detection of conditions events that are not within the realm of normal operations at the dam.

### *Expected Actions*

The Expected Actions of each responsible party, for each event level are described below:

<i>High Flow Below Dam - Non-Failure</i>	
<i>Dam Owner</i>	Report conditions, monitor, report on reservoir and spillway stage and outlet releases and plan for adjustments to maintain integrity of the dam.
<i>Dam Safety Engineer</i>	Maintain communication with owner for current status and changes, interpret conditions above and below the dam that might impact future flows and dam safety; the value of a site visit to observe conditions first hand should be considered.
<i>Regional Field Manager</i>	Discuss conditions to obtain situational awareness, assess life-safety issues and potential infrastructure impacts, internal notifications within EM community
<i>Local EM</i>	Contact local floodplain managers to assess the flooding impacts based on the releases being made. (Reference Spillway and outlet works discharge rating information)
<i>NWS</i>	Provide forecasts for future impacts to conditions that aid the above entities in planning and preparedness, public notifications as necessary, issue a watch or a warning depending on the level of discharge and flow downstream.
<i>Other</i>	(fill in as necessary)

<i>Unusual Condition at Dam - Non-Failure</i>	
<i>Dam Owner</i>	Report conditions, monitor, assess need for resources to prevent escalation of incident, assess capabilities, engage their engineer.
<i>Dam Safety Engineer</i>	Assess reports of conditions; assist dam owner with direction/actions/assessments to prevent escalation of incident, coordinate with RFM's; the value of a site visit to observe conditions first hand should be considered.
<i>Regional Field Manager</i>	Discuss conditions with DSE to obtain situational awareness, assess life-safety issues and potential infrastructure impacts, internal notifications within EM community.
<i>Local EM</i>	Evaluate conditions relative to their area of authority and or responsibility; assess impacts and resource needs as necessary.
<i>NWS</i>	Provide forecasts, public notifications (watches and warnings) as necessary.
<i>Other</i>	(fill in as necessary)

<b>Potential Dam Failure - Immediate Action Required</b>	
<i>Dam Owner</i>	Report conditions, monitor, assess need for resources to prevent escalation of incident, assess capabilities, engage their engineer.
<i>Dam Safety Engineer</i>	Assess reports of conditions, site visit immediately if possible, assist dam owner with direction/actions/assessments to prevent escalation of incident, coordinate with RFM's, mobilize to EOC if one is activated.
<i>Regional Field Manager</i>	Discuss conditions with DSE to obtain situational awareness, assess life-safety issues and potential infrastructure impacts, internal notifications within EM community, consideration of and preparation for pre-evacuations, assess need for and facilitate with local disaster declarations.
<i>Local EM</i>	Evaluate conditions relative to their area of authority and or responsibility; assess impacts and resource needs as necessary, consideration of and preparation for pre-evacuations.
<i>NWS</i>	Provide forecasts, assist with public notifications, watches would be appropriate at this event level as actions are taken, prepare other public messaging as appropriate.
<i>Other</i>	(fill in as necessary)

<b>Evacuation Required - Dam Failure in Progress or Unavoidable</b>	
<i>Dam Owner</i>	Report reservoir conditions as breach occurs, provide timing and situational awareness of on-site conditions to emergency managers.
<i>Dam Safety Engineer</i>	Assess reports of conditions, site visit if possible, assist dam owner with direction/actions/assessments to prevent escalation of incident, coordinate with RFM's, mobilize to EOC.
<i>Regional Field Manager</i>	Discuss conditions with DSE to obtain situational awareness, assess life-safety issues and potential infrastructure impacts, internal notifications within EM community, assess need for and assist with disaster declarations.
<i>Local EM</i>	Evaluate conditions relative to their area of authority and/or responsibility; activate all available resources as necessary to affect evacuation of inundation zone.
<i>NWS</i>	Provide public notifications for flash flooding along inundated zone and call for immediate evacuation, a flash flood warning will be issued with appropriate other information.
<i>Other</i>	(fill in as necessary)

## NOTIFICATIONS and COMMUNICATION

In order for all responsible parties to be able to prepare a response to a given emergency, notification to at least one individual from each of the agencies/entities shown in the table below should be made. Please keep the following in mind:

- These responsible parties should communicate within their appropriate chain of command.
- It is expected that Regional Field Managers (RFM) from CDHSEM will alert affected state infrastructure as necessary (i.e. Colorado Department of Transportation, Colorado State Patrol).
- It is expected that Local Emergency Managers will alert all pertinent emergency service contacts within their jurisdictions (i.e. Sheriff's Office, Fire Departments, etc.)

### *Emergency Notifications List -Contact to be made with an individual with each organization*

Agency/Organization	Contact Name	Email Address	Cell Phone #	Alternate #
<b>Dam Owner</b>				
<i>Primary</i>	Shaun Gordon	shaun.gordon@state.co.us	(719) 439-5128	(719) 227-5257
<i>Secondary</i>	Andre Kilik	vmcdivide@gmail.com		719-687-1887
<b>Local Emergency Manager</b>				
<i>County EM</i>	911 and/or Local Emergency Manager (if 911, instruct to contact local EM)			
<i>Teller County EM</i>	Steve Steed	steeds@co.teller.co.us	(719) 687-9652	(719) 686-7990
<i>Teller Sheriff's Office</i>	Jason Mikesell	mikesellj@co.teller.co.us		(719) 687-9652
<i>Douglas County EM</i>	Tim Johnson	tmjohnso@dcsheriff.net	303-660-7500	303-660-7589
<b>Div. Water Resources</b>				
<i>Primary - DSE</i>	John Hunyadi	john.hunyadi@state.co.us	(719) 258-0859	(719) 227-5294
<i>Secondary - Chief</i>	Bill McCormick	bill.mccormick@state.co.us	(719) 338-6124	(719) 530-5536
<i>Alternate - Water Commissioner</i>	James Swank	james.swank@state.co.us	(303) 489-3003	
<b>CO Dept. Homeland Security &amp; Emergency Management</b>				
<i>Primary - RFM</i>	Mark Boley	mark.boleystate.co.us	720-415-4502	720-852-6600
<i>Secondary -</i>		24 hr		(303) 279-8855
<i>Alternate - Plan Coordinator</i>	Jody Horn	jody.horn@state.co.us	303-915-6519	(720) 852-6716
<i>CDOT - Region 2</i>	Chad Ray	Chad.Ray@state.co.us	(719) 240-1531	(719) 546-5407
<i>CO State Patrol - District 2</i>	Scott Copley	scott.copleystate.co.us	719-544-2424	719-288-2650
<b>NWS Regional Office</b>				
Hydrologist	Tony Anderson	tony.anderson@noaa.gov	(719) 948-9429	(800) 884-1540
Warning Meteorologist	Tom Magnuson	thomas.magnuson@noaa.gov	7199489429	(800) 884-1540

### **Event Communication**

The Local Emergency Manager (LEM) or Regional Field Manager (RFM) from CDHSEM will coordinate text message groups and conference calls to facilitate situational awareness among all participants, as appropriate throughout the event.

## LOCALLY AVAILABLE RESOURCES

*The table below should be pre-populated by the dam owner, with consideration to how an emergency situation at the dam may be averted, mitigated, etc. (i.e. what resources would be needed to arrest a given situation and prevent failure of the dam)*

- Location/availability of resources should be pre-planned.
- It is recommended that owner call resources before including in list to ensure contact names/resource availability.
- Consideration for an on-call type contract between owner/provider to expedite services should be given.

### *Locally Available Resources List - Contacts made by Dam Owner*

<i>Locally Available Resources Table</i>				
Resource Type	Contact Name	Address	Primary #	Alternate #
<b>Heavy Equipment Contractor/Rental</b>				
1. <i>Spaccamonti Excavating</i>	Roger Hafer	1805 Aspen Circle Pueblo, CO 81006	719-544-8943	719-250-3353
2. <i>Bills Tool Rental</i>		125 Chestnut St. CS, CO 80905	719-634-4190	
<b>Sand &amp; Gravel Supply</b>				
1. <i>Ute Pass Sand and Gravel</i>		20575 US Hwy 24 Woodland Park	719-687-3111	
2. <i>Pioneer S&amp;G</i>		5000 Northpark Dr. CS, CO 80918	719-725-6550	
<b>Ready Mix Concrete Supply</b>				
1. <i>Transit Mix</i>		444 E. Costillia St. CS, CO 80903	719-475-0700	
2. <i>Martin Marietta</i>		3895 Wabash St. CS, CO 80906	719-638-8000	
<b>Pumps</b>				
1. <i>Bills Tool Rental</i>		125 Chestnut St. CS, CO 80905	719-634-4190	
2. <i>Sunstate Equipment</i>		1211 E. Cheyenne R CS, CO 80905	719-297-7265	
<b>Diving Contractor</b>				
1. <i>Dive West Services</i>	Kyle McCormack	5485 Bryant St. Denver, 80221	720-323-1066	
2. <i>Marine Diving Solutions</i>	Ian Stephens		303.309.0091	
<b>Sand Bags/Plastic Sheeting</b>				
1. <i>Pioneer S&amp;G</i>		5000 Northpark Dr. CS, CO 80918	719-725-6550	
2. <i>C&amp;C Sand &amp; Stone</i>		2635 Steel Dr. CS, CO 80907	719-577-9900	

## EVACUATION INFORMATION

### *Critical Infrastructure List*

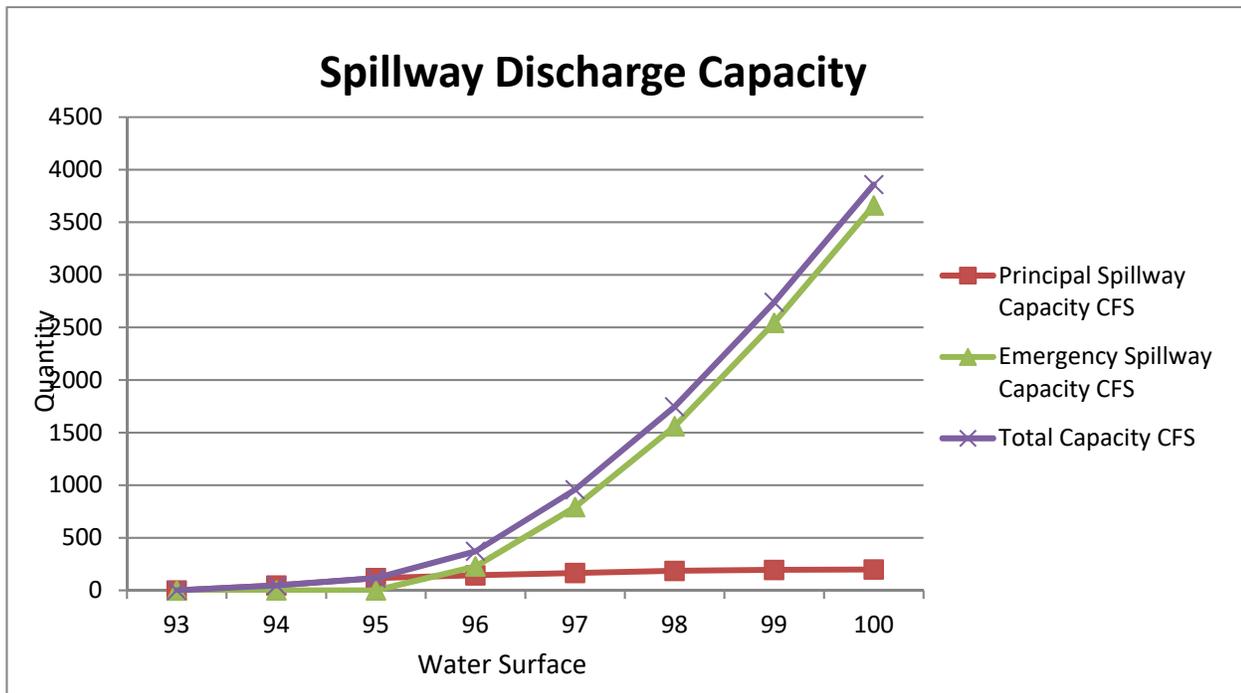
From examination and study of the inundation maps and consultation with local entities, a listing of critical infrastructure should be developed to aide an efficient emergency response. Structures described in the critical infrastructure list may include; population centers, roadways, schools, hospitals, police and fire stations, and utilities (water, sewer, gas, electric providers). Special attention should be paid to documenting means of contact/notification with inhabited structures with the shortest warning time.

This list should be developed in conjunction with your engineer, regional field manager and local emergency managers.

<i>Critical Infrastructure List - Contacts to be made by Local EM's (Sheriff's office)</i>		
Critical Inhabited Structures/Infrastructure	Distance From Dam (miles)	Flood Arrival Time (hrs)
Ute Lake	1.3	25 min
FR 339 - access to homes	6.0	1 hr 20 min
Atwell Road Homes near Rule Creek	7.6 to 7.8	1 hr 50 min
Hwy 67	8.0	1 hr 55 min
Manitou Lake	8.4	2 hr 18 min

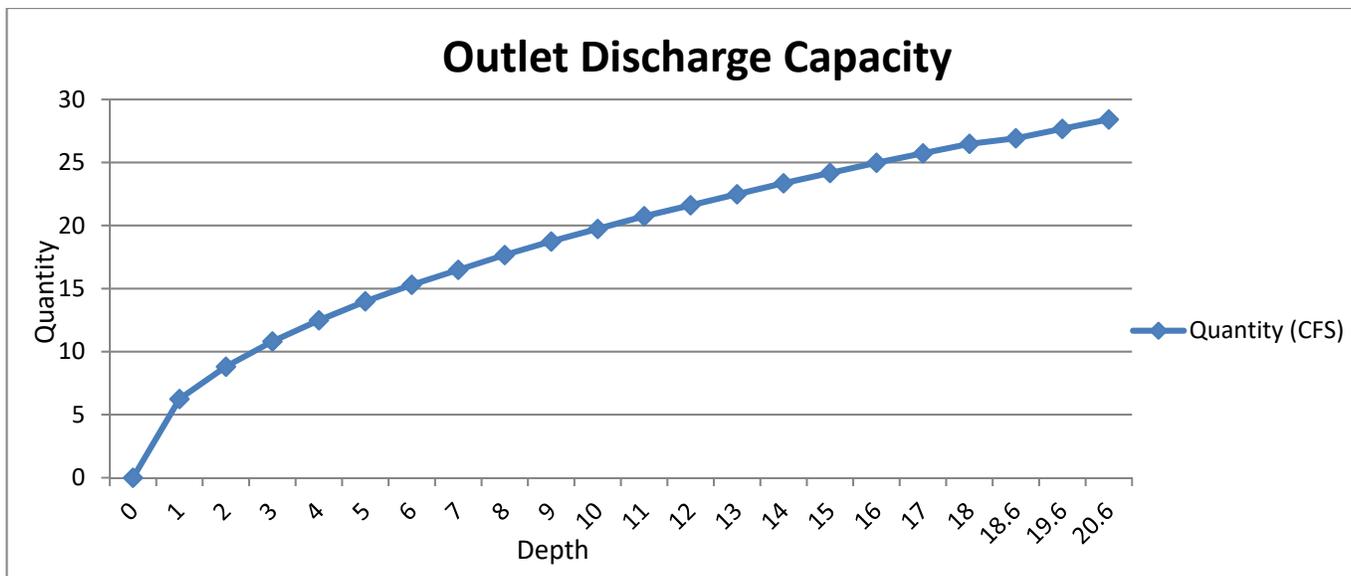
### *Spillway Discharge Rating Tables/Curves*

USGS Elevation	Water Surface Elevation	Principal Spillway Capacity CFS	Emergency Spillway Capacity CFS	Total Capacity CFS
8848	93	0	0	0
8849	94	47.1	0	47.1
8850	95	116.9	0	116.9
8851	96	143.4	228	371.4
8852	97	165.8	792	957.8
8853	98	185.7	1560	1745.7
8854	99	195.3	2544	2739.3
8855	100	198.7	3660	3858.7

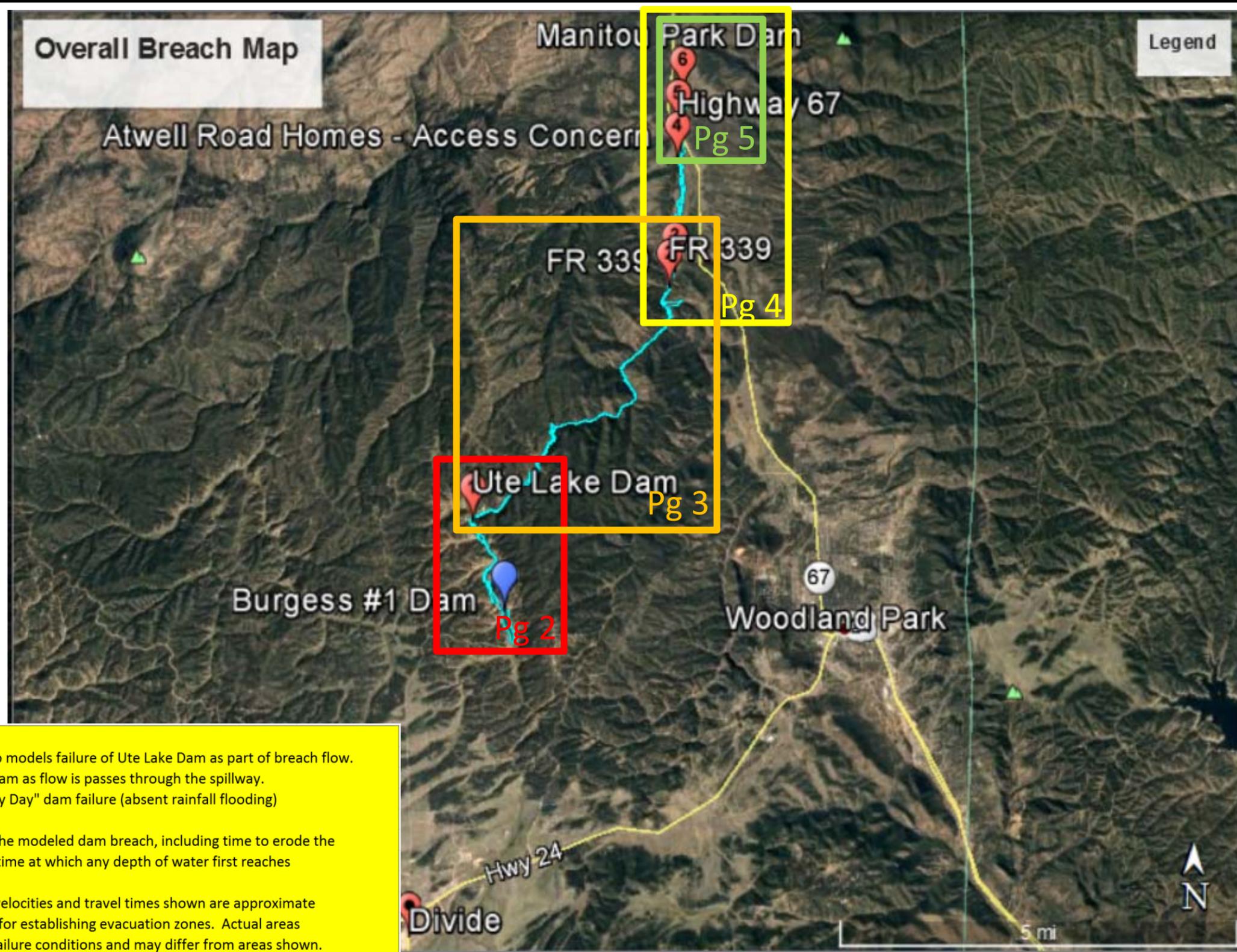


*Outlet Works Discharge Rating Tables/Curves*

USGS Elevation	Water Surface Elevation	Height (ft)	Quantity (CFS)
8829.4	74.4	0	0
8830.4	75.4	1	6.25
8831.4	76.4	2	8.81
8832.4	77.4	3	10.81
8833.4	78.4	4	12.49
8834.4	79.4	5	13.99
8835.4	80.4	6	15.3
8836.4	81.4	7	16.49
8837.4	82.4	8	17.67
8838.4	83.4	9	18.74
8839.4	84.4	10	19.74
8840.4	85.4	11	20.74
8841.4	86.4	12	21.61
8842.4	87.4	13	22.49
8843.4	88.4	14	23.36
8844.4	89.4	15	24.17
8845.4	90.4	16	24.98
8846.4	91.4	17	25.73
8847.4	92.4	18	26.48
8848	93	18.6	26.92
8849	94	19.6	27.67
8850	95	20.6	28.42

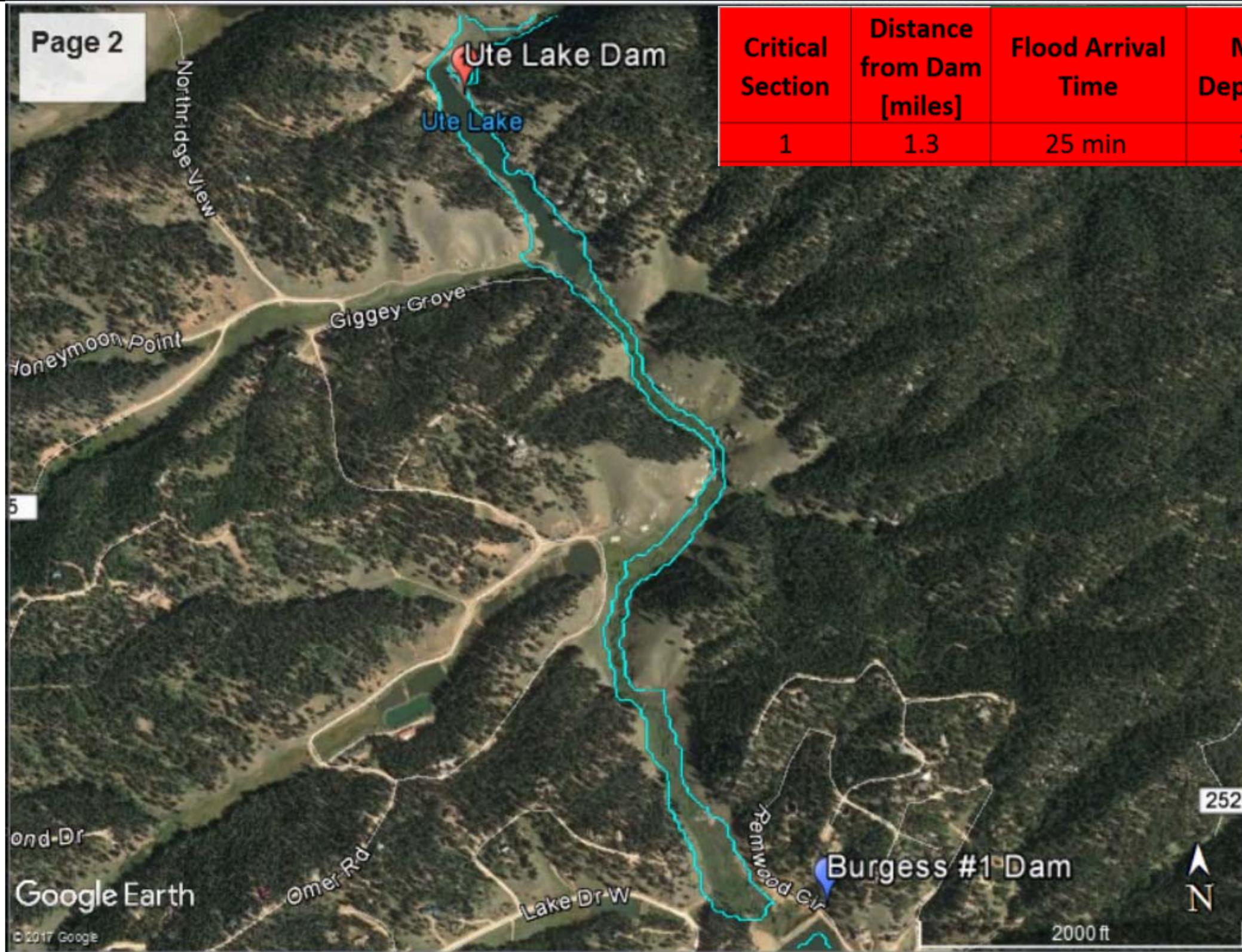


## *Inundation Maps*



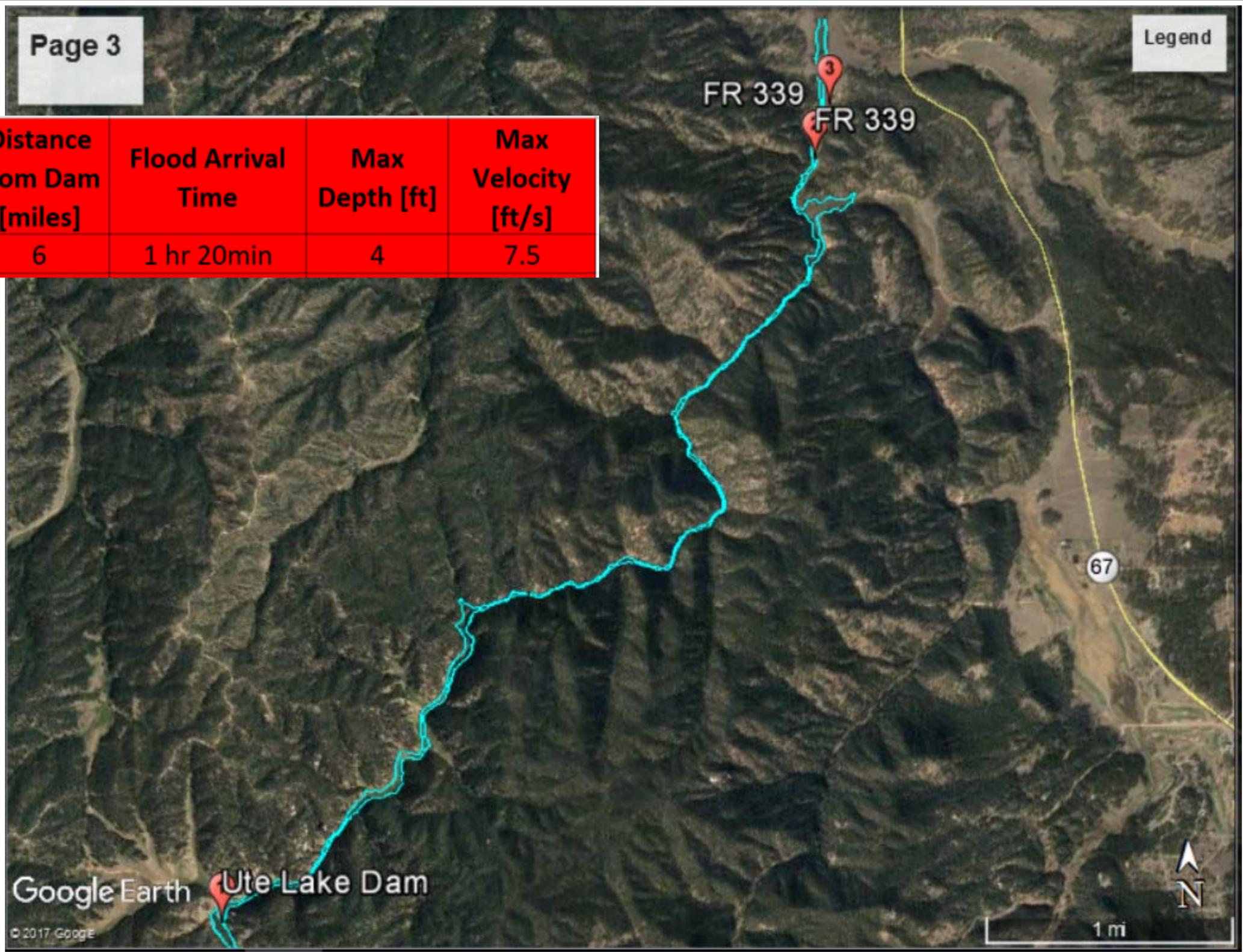
**Notes**

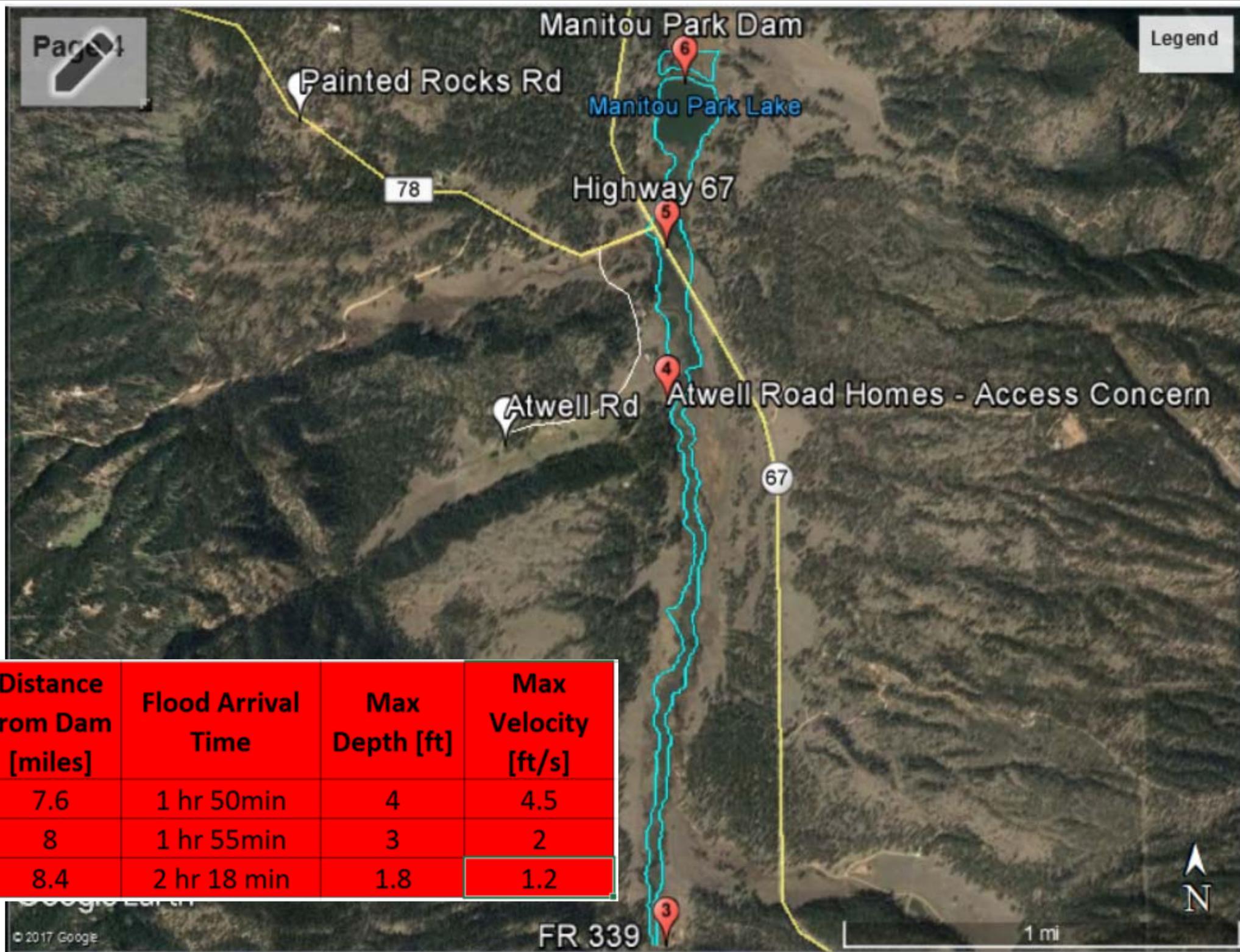
1. Peak Breach Discharge of 8,199 cfs. Also models failure of Ute Lake Dam as part of breach flow. Mapping terminated at Manitou Lake Dam as flow is passes through the spillway.
2. Inundation calculations assume a "Sunny Day" dam failure (absent rainfall flooding) of Burgess #1 Dam.
3. Flood arrival times start at initiation of the modeled dam breach, including time to erode the embankment. Flood arrival time is the time at which any depth of water first reaches a critical cross section.
4. The flooding limits, flood wave depths/velocities and travel times shown are approximate and should be used only as a guideline for establishing evacuation zones. Actual areas inundated will depend on actual dam failure conditions and may differ from areas shown.



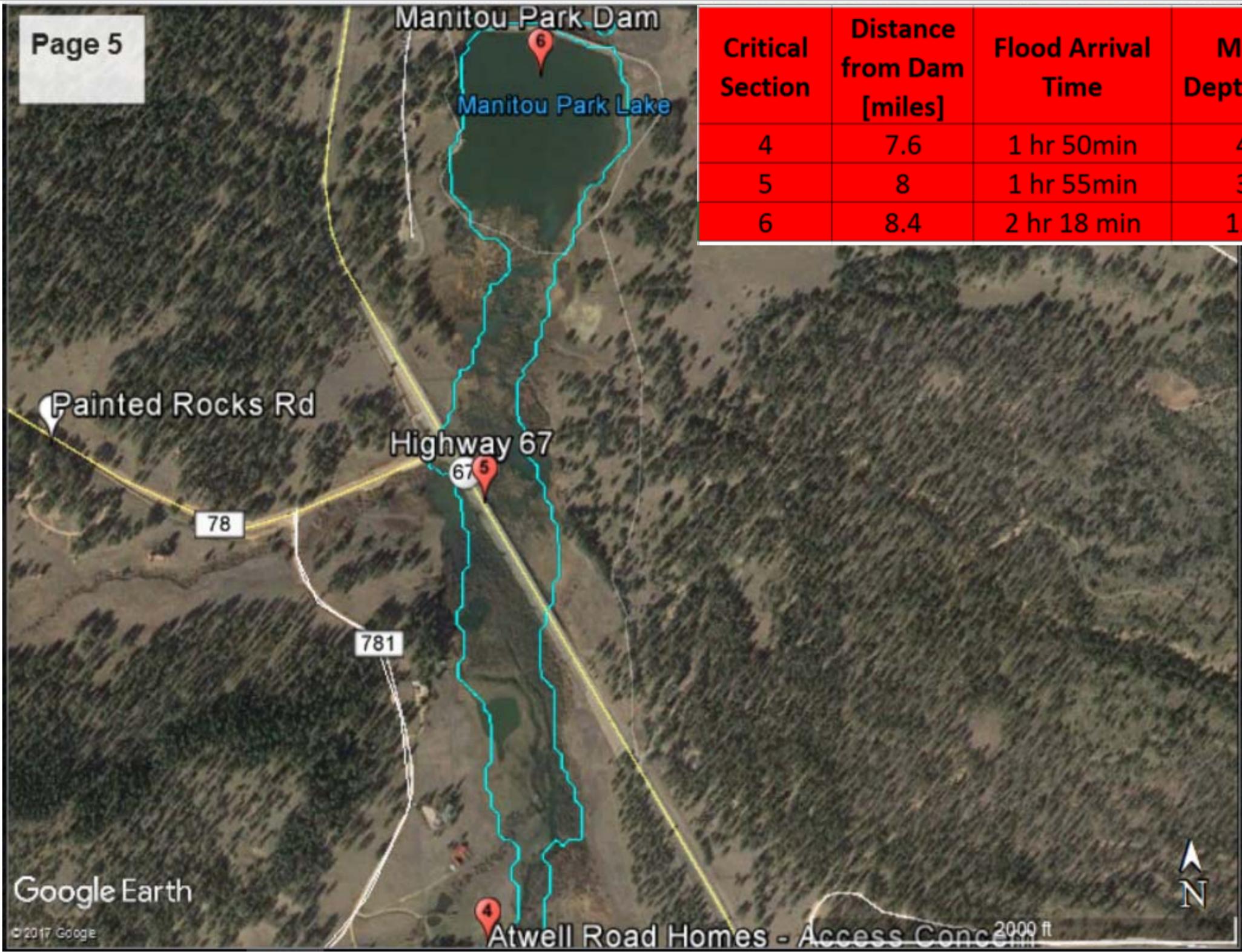
Critical Section	Distance from Dam [miles]	Flood Arrival Time	Max Depth [ft]	Max Velocity [ft/s]
1	1.3	25 min	3.5	5

Critical Section	Distance from Dam [miles]	Flood Arrival Time	Max Depth [ft]	Max Velocity [ft/s]
2 & 3	6	1 hr 20min	4	7.5





Critical Section	Distance from Dam [miles]	Flood Arrival Time	Max Depth [ft]	Max Velocity [ft/s]
4	7.6	1 hr 50min	4	4.5
5	8	1 hr 55min	3	2
6	8.4	2 hr 18 min	1.8	1.2



Critical Section	Distance from Dam [miles]	Flood Arrival Time	Max Depth [ft]	Max Velocity [ft/s]
4	7.6	1 hr 50min	4	4.5
5	8	1 hr 55min	3	2
6	8.4	2 hr 18 min	1.8	1.2