

# EXHIBIT F.6



## Gross Reservoir Expansion Project

### MEETING AGENDA & MINUTES

<b>Meeting Title:</b>	Boulder County Floodplain Program and Denver Water Coordination Meeting	<b>Date/Time:</b>	02/08/2021 11 a.m.
<b>Prepared By:</b>	M. Brasfield/A. Denault	<b>Location:</b>	Online - Teams
<b>Reviewed By:</b>	Denver Water, Olsson Boulder County Floodplain Management Program review pending	<b>Project #/File #:</b>	Docket SI-20-0003 1041 Permit Application for GRE Project

#### Meeting Summary:

Boulder County Floodplain Management Program staff met with Denver Water staff and their Consultant, Olsson, to discuss Floodplain permitting and activities on site to facilitate a common understanding across stakeholders of expectations relating to floodplain mapping requirements and address questions raised in Denver Water's 1041 permit application to the County for the Gross Reservoir Expansion Project.

Attendees	
Travis Bray – Denver Water	Ron Flax – Boulder County
Ashley Denault – Denver Water	Kelly Watson – Boulder County
Doug Raitt – Denver Water	Rachel Badger – Denver Water
Casey Dick – Denver Water	Josh Shackelford - Olsson
Melissa Brasfield – Denver Water	Deb Ohlinger - Olsson
	Amy Gabor - Olsson

#### Notes:

##### Overview of 1041 permit application comments

- Doug reviewed the comments received in the 1041 permit application agency comments related to floodplain management and mapping.
- Denver Water would like to gain some understanding about the CLOMR process and would also like to discuss the permitting requirements for some on site facilities located close to the floodplain.

##### Review of current maps available

- Amy discussed the current understanding of the Preliminary FIRM. She noted the effective and preliminary analysis used HEC-HMS, HEC-RAS, and MIKE 11.
- Amy asked if Denver Water would be able to get those preliminary/effective models and corresponding reports.
  - Kelly agreed to provide the preliminary/effective models. She also noted the upstream part of the map is a part of the CHAMP model and the downstream portion is a part of the City of Boulder study from 2007/2010 that was done with the MIKE-11 flood model.

### Discussion of operational changes and impacts

- Kelly noted the CHAMP model did include some flood storage and that volumes coming out of the spillway would be less than inflows to the reservoir.
- Kelly asked how much Denver Water is expecting the discharge to change. That will help identify those impacts downstream.
  - Amy answered that Denver Water is anticipating additional runoff attenuation as a result of the expansion project.
- Amy asked if there is a threshold for how far Denver Water will need to go downstream in modeling and how far downstream this needs to be tracked down.
  - Kelly answered that the upstream model should be updated, then depending on how well that ties into the MIKE-11 flood model downstream Denver Water will see if they need to investigate that model as well.
  - Amy noted that Olsson is starting the modeling and will work with Boulder County to see if they need to get into those downstream models. She also noted that if there is a need to go into those downstream models, it may be good to meet again to discuss those details.
    - Kelly agrees with that plan.
- Amy asked if the hydrology change is only a decrease downstream of the reservoir, is the CLOMR required for that reach, or would it either not be included in the CLOMR submittal or submitted as a LOMR later depending on the amount of the decrease in water surface elevation.
  - Kelly answered that Denver Water will need to do the CLOMR for the changes upstream. Boulder County would want to see that CLOMR include some downstream modeling so FEMA has a chance to review that modeling and the approach. She added that it makes the LOMR easier, so there would be no disagreement about the approach used.
- Doug noted that his first impression is that the project will not likely result in increased flood levels of the reservoir because of the higher storage capacity.
  - Kelly agreed that this statement made sense for downstream of the reservoir.

### Additional mapping and process clarification

- Amy asked what the correct flood elevations and maps are.
  - Kelly noted that because this is a preliminary study right now Boulder County does not expect it will change through this area. They are currently in a 90-day approval period with FEMA. Once completed, this will become part of the effective FIRM which is expected next year. The preliminary study is considered best available information.
- Doug asked about the CLOMR process.
  - Kelly said Denver Water will need to complete the hydrologic and hydraulic modeling, and complete the CLOMR package, which includes work maps, annotated FIRM and FIS, narrative and MT-2 forms. This will be submitted to Boulder County. The County will sign an MT-2 form which is a County concurrence form. This will then be submitted to FEMA for review. She noted the review timeline can take a while depending on FEMA staffing and availability. It is usually 60-90 days to have FEMA review with comments with a 90-day response period. There may be multiple review timeframes. She added that the review with FEMA is the longest part of the process.
- Doug asked about interaction with adjacent property owners. He added that the property owners around the reservoir are Denver Water and the USFS. Downstream of the dam the property owners include Denver Water and Boulder County. Private property owners are downstream in Eldorado Springs area.
  - Kelly answered that if there are revisions downstream, those property owners would have to be notified. She added that Boulder County may only require notices for increases in the floodplain not decreases.

### On-site facilities and activities

- Doug discussed the timing of on-site activities. He noted there are areas below the dam that will have disturbances or be needed for staging areas. He also noted that County staff said in a

previous discussion the County may require permitting for structures or grading work within the floodway. For example, the stilling basin at the base of the dam may fall into the Flood Development Permit for the dam excavation process. There may be other areas that may touch the floodplain maps.

- Doug asked if there were any first impressions on work and the required permit processes.
  - Kelly explained that looking at where those areas are in relation to the floodplain map will be a good first step. Staging or minor grading in the floodplain would need a Flood Development Permit. She noted that this could be separate from the dam permits if Denver Water needed to get started on that work earlier. If there is a lot of grading impacting the floodplain then that might require modeling.
- Doug added Denver Water will be developing a key map that identifies areas of impact. Denver Water will include areas discussed today on that map and will bring to Kelly's attention as well.
  - Kelly agrees with that process.
- Amy asked if disturbance areas located within the floodplain can be wrapped into the same Flood Development Permit.
  - Kelly answered yes, it just depends on timing and if certain elements need to advance earlier.

**Project Schedule**

- Doug reviewed the project schedule developed by Denver Water.
- Doug asked what Boulder County departments are involved with the grading permits.
  - Ron said the building team takes in those permits, but they are shared with other departments for review.
- Doug suggested a global pre-application meeting to ensure Denver Water understands what the County is looking for.
  - Ron agrees.

**Closing discussion**

- Kelly noted this will go through the CLOMR process but was not sure if Denver Water will be able to include the modeling and additional information as a part of the 1041 responses since Olsson will get the models this week.
- She added that having some clarification that downstream flood elevations are not expected to increase as a result of the expansion project would be helpful. She noted the County's main concern is the impact to downstream properties.
  - Casey added that Denver Water does not believe the discharges will increase if there is a storm that runs into the full reservoir and over the spillway. He added that this doesn't include Denver Water's operational releases which can match the inflows to the reservoir. Because of these operational factors, it is surprising that the preliminary FIS modeling assumed so much flood attenuation through Gross Reservoir.

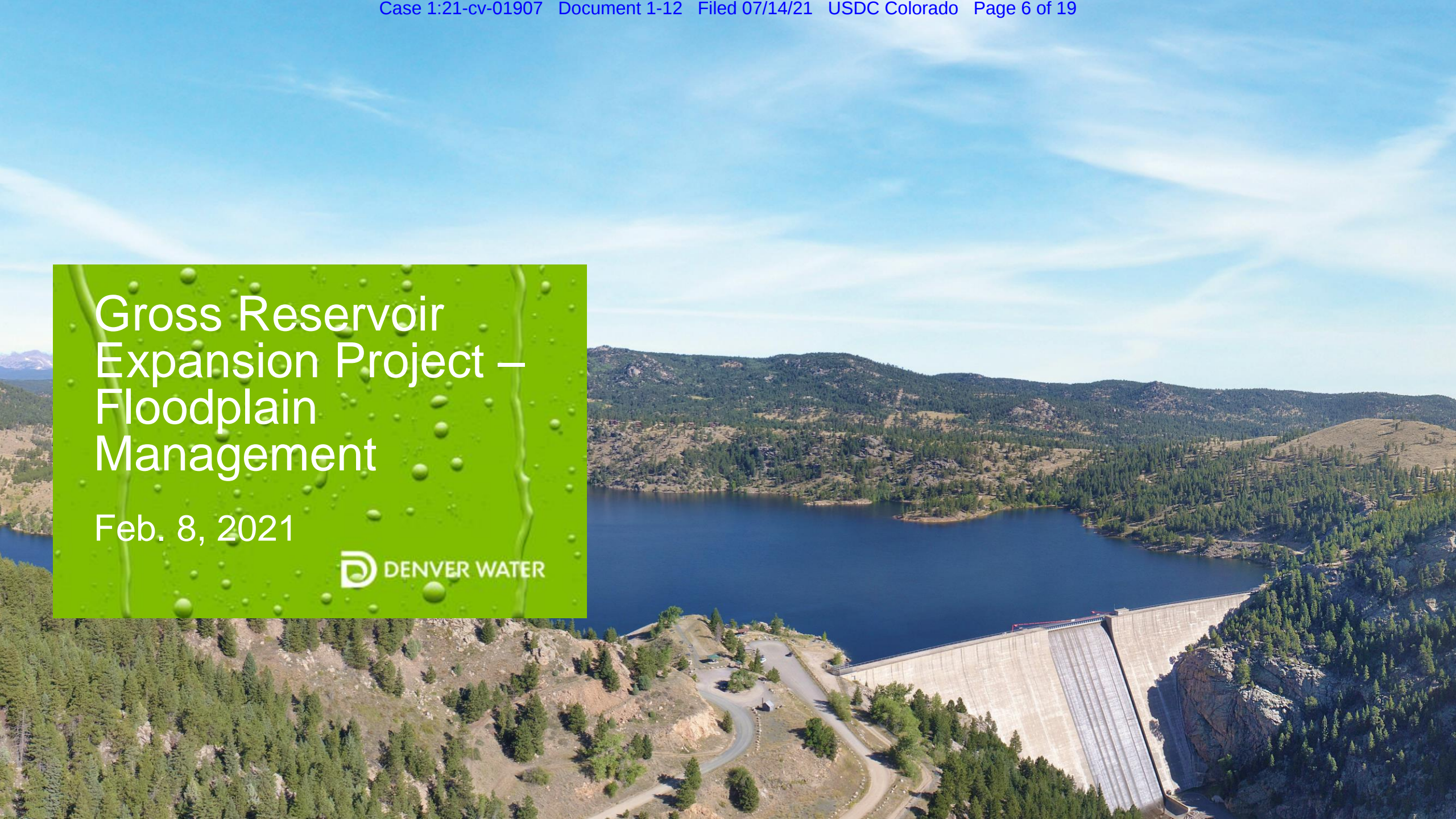
Major Action Items		
Action Item	Responsible Party	Completed
Denver Water will make a request for additional model information from Boulder County	Melissa Brasfield	2/10/21: Amy Gabor sent an email request to Kelly Watson at Boulder County to obtain the HEC-HMS model for the upper reach of South Boulder Creek. If Boulder County does not have the model, she will request the model through FEMA.

		<p>2/9/21: Amy Gabor sent an email request to Terri Fead at CWCB to obtain the Mike Flood model that was used for the downstream, effective reach</p>
<p>Boulder County to provide requested models and reports to Denver Water</p>	<p>Kelly Watson</p>	<p>2/8/21: Kelly Watson supplied data, reports, and mapping:</p> <ul style="list-style-type: none"> <li>• HEC-RAS models for South Boulder Creek upstream of Eldorado Springs (SBC_5)</li> <li>• CDOT hydrology report</li> <li>• Mike Flood cross sections and discharges for South Boulder Creek downstream of CHAMP (output, not actual model files)</li> <li>• The CHAMP shapefiles (labeled as “BC Regulated” or “Boulder County”)</li> <li>• Effective FEMA FIRM</li> </ul>



# Gross Reservoir Expansion Project – Floodplain Management

Feb. 8, 2021





# Safety Moment – Look for Mobile Equipment Blind Spots

A blind spot is the area around a vehicle or piece of construction equipment that is not visible to operators, either by direct line-of sight or indirectly by use of internal and external mirrors.

- Always try to walk on the driver side of equipment as the passenger side has a larger blind spot.
- Wear high visibility clothing and Personal Protective Equipment
- Many times when workers think they can be seen by the operators of heavy equipment they can't. You may be in a blind spot or the operator has been driving in a designated travel path for a period of time and the only thing that has changed is you!!!! Make eye contact with operators



# Purpose of the Meeting

To facilitate a common understanding across stakeholders of expectations relating to floodplain mapping requirements.

What we have heard:

- Project location is within the county's Floodplain Overlay District.
- An Individual Floodplain Development Permit (FDP) is required prior to construction.





# Agenda

- Introductions
- Topics:
  - Preliminary FIRM
  - Preliminary FIS
  - On-site activities
- Discussion

# Housekeeping

- Please turn on your cameras.
- We will go topic by topic with time for larger discussion between each...
- But let us know if you have a question:
  - Drop them in the chat.
  - Use the “Raise Hand” function.
  - Jump in!

# Introductions

**HELLO**  
my name is

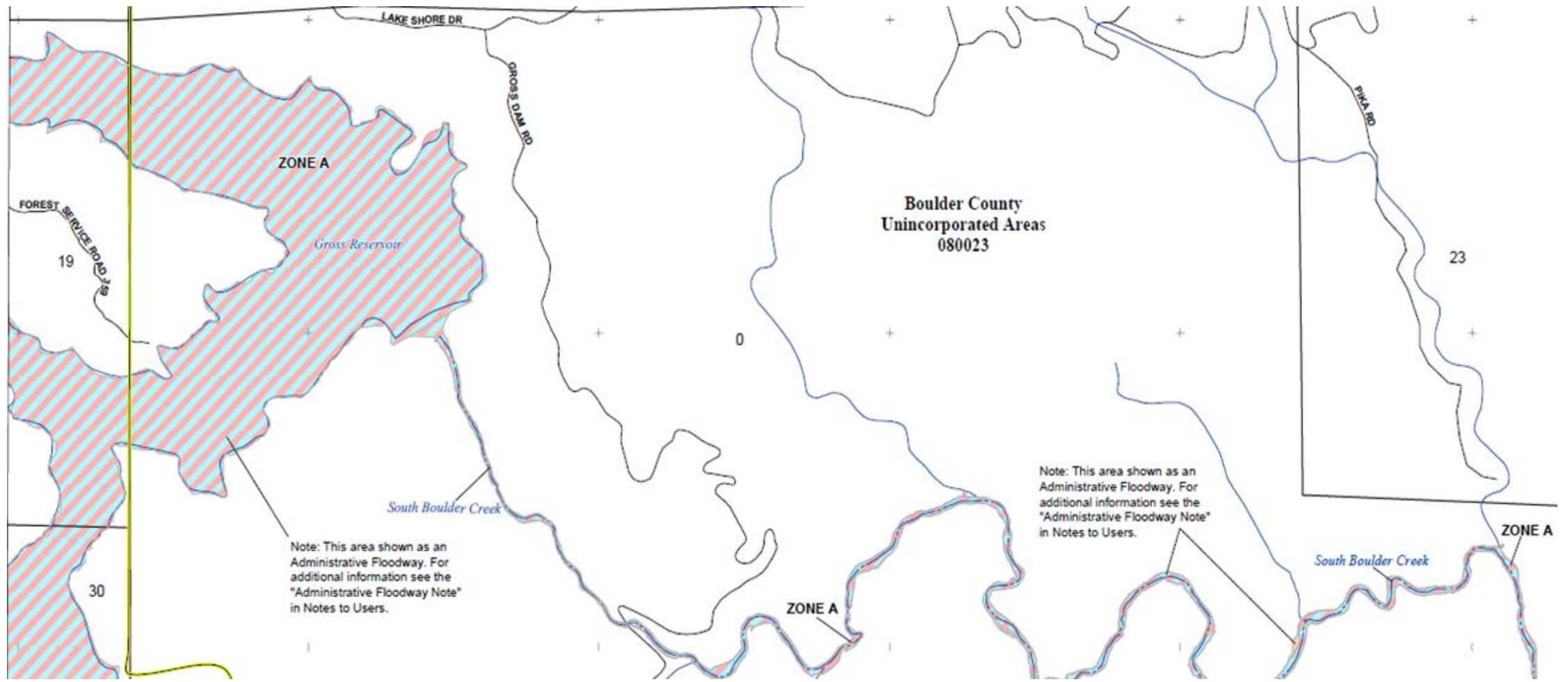
## 1041 Permit Application Comments

- The proposed project is located within the county's Floodplain Overlay District. An Individual Floodplain Development Permit (FDP) is required prior to construction.
- In addition, because the proposed project would require substantial revisions to the Preliminary Flood Insurance Study (FIS) and Flood Insurance Rate Maps (FIRMs), a Conditional Letter of Map Revision (CLOMR) must be approved by FEMA before an FDP may be issued.
- Upon project completion, a Letter of Map Revision (LOMR) must be approved by FEMA to revise the regulatory floodplain.



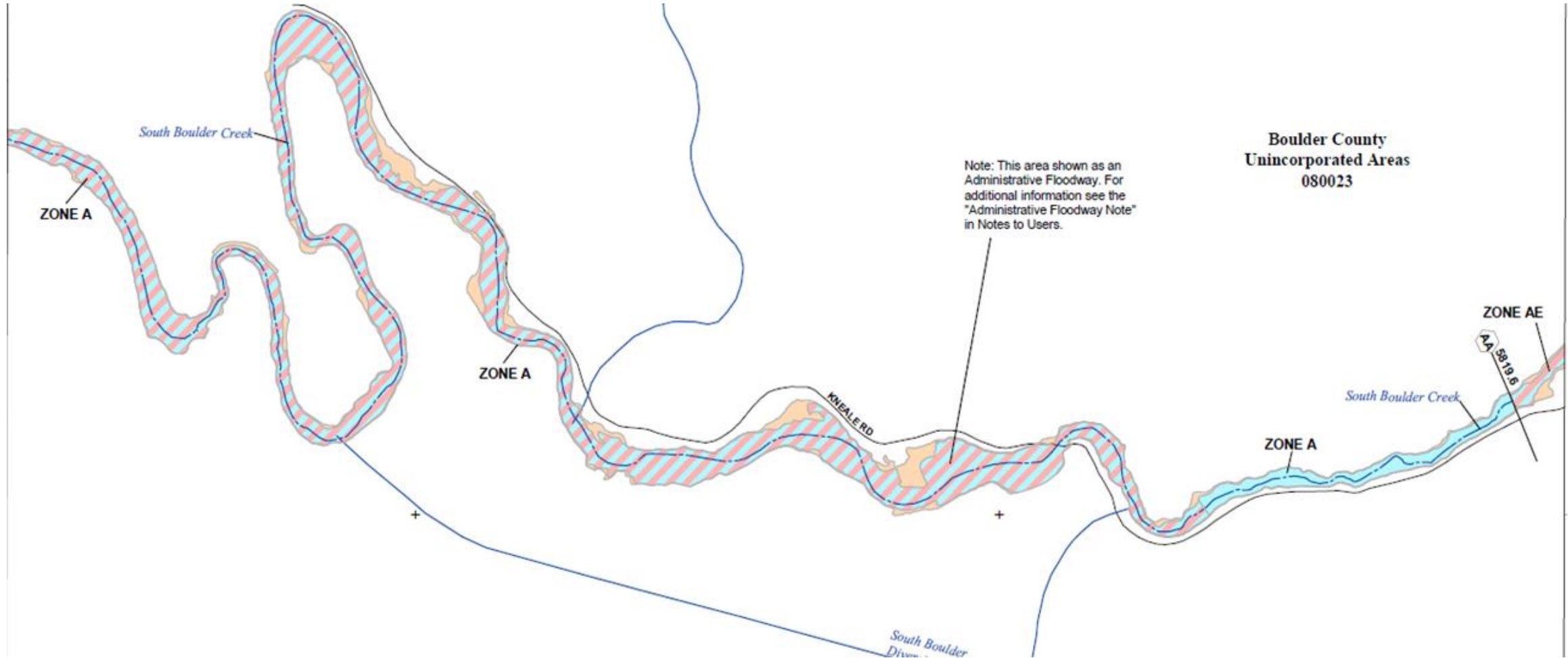
# Preliminary FIRM

## Zone A with Administrative Floodway: HEC-HMS and HEC-RAS models



# Preliminary FIRM

Zone AE – MIKE 11 or CUHP-B, HEC-1, Modified Puls Method? CHAMP HEC-RAS model



# Preliminary FIS

- Models Used for Effective Hydrology
- What is CUHP-B HEC-1

**Table 12: Summary of Hydrologic and Hydraulic Analyses**

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Skunk Creek	Confluence with Bear Canyon Creek	End of Bear Canyon Creek detailed study	CUHP-B, HEC-1, Modified Puls Method	HEC-RAS 4.0	09/16/2015	Zone AE with Floodway	Hydraulic updated with revision. Hydrology used from previous study. Incorporated LOMR 17-08-0797P.
Skunk Creek	Confluence with Bear Canyon Creek detailed study	Upstream approximately 0.3 miles	CUHP-B, HEC-1, Modified Puls Method	HEC-RAS 4.0	09/16/2015	Zone A	Hydraulic updated with revision. Hydrology used from previous study.
South Boulder Creek	Confluence with Boulder Creek - Valmont Split	Approximately 0.5 Miles West Of UDFCD Boundary	CUHP-B, HEC-1, Modified Puls Method	HEC-RAS 4.0	09/16/2015	Zone AE with Floodway	Hydraulic updated with revision. Hydrology used from previous study.
South Boulder Creek	Approximately 0.5 miles west of UDFCD boundary	Gross Reservoir	HEC-HMS 3.5	HEC-RAS 5.0.1	01/12/2018	Zone A	1-Pct-Annual-Chance Floodplain above 6,000 ft. is shown as Administrative Floodway on FIRM. Check with your local Floodplain Administrator to obtain more information.
South Boulder Creek	Gross Reservoir	Upstream approximately 7.5 miles of Boulder/Gilpin County line	HEC-HMS 3.5	HEC-RAS 5.0.1	01/12/2018	Zone A	1-Pct-Annual-Chance Floodplain above 6,000 ft. is shown as Administrative Floodway on FIRM. Check with your local Floodplain Administrator to obtain more information.
South St. Vrain Creek	Confluence with St. Vrain Creek	Approximately 1 mile upstream of confluence	HEC-HMS 3.5	HEC-RAS 5.0.1 and HEC-RAS 4.1.0	01/12/2018	Zone AE with Floodway	

# Preliminary FIS

- Peak Flows from Preliminary Studies

**Table 9: Summary of Discharges**

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)					
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	1% Annual Chance Plus	0.2% Annual Chance
South Boulder Creek	2000 feet upstream of the confluence of Tom Davis Gulch	96.2	671	744	776	878	1,001	1,425
South Boulder Creek	4000 feet upstream of the confluence of Tom Davis Gulch	95.8	670	693	713	790	901	1,276
South Boulder Creek	At Gross Dam Road	93.4	668	692	711	768	852	1,149
South Boulder Creek	2800 feet upstream of Gross Dam Road	93.1	692	692	711	767	851	1,139
South Boulder Creek	At upstream limit of Gross Reservoir	80.5	271	716	1,375	2,398	2,662	6,646
South Boulder Creek	Downstream of the confluence of Black Gulch	78.1	2,248	249	661	1,262	2,205	6,171
South Boulder Creek	Downstream of the confluence of Beaver Creek	71.4	2,127	194	541	1,067	1,916	5,561
South St. Vrain Creek	At Little Narrows	83.1	1,464	2,890	4,496	6,598	7,720	13,435
South St. Vrain Creek	Downstream of the confluence of Central Gulch	78.2	1,376	2,712	4,220	6,189	7,241	12,597
South St. Vrain Creek	Downstream of the confluence of Central Gulch	70.9	1,234	2,447	3,802	5,599	6,551	11,412



## On-site activities and facilities

- Early Construction required below the dam Q2 2022
- Staging areas are required adjacent to South Boulder Creek



# Anticipated Schedule

2020	2021	2022	2022-2028
FERC Order received	FERC plans finalized and submitted	FERC Order mandates construction begin	<ul style="list-style-type: none"> <li>• Site mobilization</li> <li>• Dam surface prep, Materials Lab, early site grading</li> <li>• Site development, road improvements, temp rec facilities</li> <li>• Quarrying operations</li> <li>• Dam foundation excavation, grouting, plant setup</li> <li>• Dam raise</li> <li>• Forestry activities/tree clearing</li> <li>• First fill</li> </ul>
1041 application submitted to Boulder County	1041 application review and decision (anticipate Aug.)	Receive Boulder County building permits (prior to July 2022 FERC deadline)	
	Begin Boulder County building permit process (Anticipate Aug.)		

# Discussion

- Did we answer the questions you had?
- Is there any other feedback you have for us?

## Future Discussion Topics:

- Tree Removal and Haul Routes Planning - 2/10/21 at 2 p.m.