

March 24, 2017

Project No. 2035-099

Secretary of the Commission  
Federal Energy Regulatory Commission  
888 First Street, NE  
Washington, DC 20426

Subject: Gross Reservoir Hydroelectric Project, FERC Project No. 2035. Denver Water's response to FERC's February 1, 2017 letter requesting additional information on its License Amendment Application filed on November 25, 2016.

Dear Secretary of the Commission:

On February 1, 2017, Denver Water received a letter from the Commission requesting additional information necessary to complete its review of Denver Water's License Amendment Application filed on November 25, 2016. The Commission's questions are shown below in **boldface**; Denver Water's responses are provided on the following pages, including the enclosed attachments.

## Engineering

- 1. Facilities included in Exhibit A. The Exhibit A included in your application does not conform to the Commission's requirements. Please revise the Exhibit A to include only proposed permanent project facilities. The Exhibit A should not include a description of temporary facilities used only during construction (i.e., quarries, staging areas, temporary roads, or concrete production facilities). Additionally, the Exhibit A should not describe recreation sites or include a narrative description or justification for the amount of federal land included within the project boundary. Exhibit A should conform to section 4.41(b) of the Commission's regulations.**

Per this request, Denver Water has revised Exhibit A, removing the following descriptions:

- On-Site Quarry for Borrow/Aggregate Materials, Temporary Stockpile Areas, Concrete Batch Plant, and Temporary Spoil Areas;

- Temporary Support Facilities/Staging Areas;
- Temporary Construction Roadways;
- Recreational Facilities and Public Access; and
- Item (6) on page A-8 was revised to remove the narrative description and justification for adjusting the FERC Project Boundary.

Because of these revisions, Denver Water is attaching the following documents (see **Attachments 1 and 2**):

- 1) Exhibit A, revised to reflect the deleted materials described above
- 2) Initial Statement page IS-1, paragraph 5(a), revised (paragraph 5(a) now includes the narrative description and justification supporting the proposed adjustments to the FERC Project Boundary that was removed from Exhibit A)
- 3) Initial Statement page IS-3, paragraph 5, revised (paragraph 5 previously referenced Attachment A-1 Addendum to Recreation Management Plan, which now references Attachment IS-5)
- 4) Attachment IS-5 (Addendum to the Recreation Management Plan) (previously included as Attachment A-1 to Exhibit A, this document will now become an attachment to the Initial Statement)

## **Recreation and Visual Resources**

2. **Description of flow changes. Changes in monthly flows resulting from the proposed amendment described in Exhibit E (p. E-277, Recreation; p. E-293 - E-294, Visual Resources) differ from changes described in the Final Environmental Impact Statement (FEIS) for the Moffat Collection System Project (p. 5-441, Recreation; p. 5-467, Visual Resources; and p. 4-569 - 4-570, Visual Resources). Please clarify which figures are accurate and why they are different.**

The differences in flow values as described in Exhibit E are due to the Environmental Pool. In the U.S. Army Corps of Engineers' (Corps) FEIS the Environmental Pool was not included in the evaluation of the Proposed Project (Enlargement of Gross Reservoir). Instead, the Corps evaluated the impacts of the Environmental Pool in a separate analysis that was included in Appendix M of the FEIS. The difference between the two documents is described on page E-24 of Exhibit E. In particular, "...the environmental effects discussed for Surface Water, Aquatic Biological Resources, and Recreation are based on the 77,000-AF expansion (including the Environmental Pool). In the Corps' FEIS, the environmental effects are based on the 72,000-AF enlargement, and the operations and effects associated with the 5,000-AF Environmental Pool (as mitigation) are evaluated separately in Appendix M-2 of the FEIS. The Corps concluded that the environmental effects of a 77,000-AF expansion are expected to be similar to the 72,000-AF expansion."

The excerpted statements shown below compare the change in flow percentages found in the License Amendment Application to those in the Corps' FEIS for both the Project with and without the Environmental Pool. To respond to this comment, Denver Water provides the following additional information to be included in the FERC License Amendment Application.

*As shown in **Table 1**, the following set of statements are accurate. The difference is that the Corps' FEIS includes only the Proposed Project while the FERC License Amendment Application includes the Proposed Project with the Environmental Pool. **Table 2** shows the actual estimated flow changes to Gross Reservoir outflow in cubic feet per second (cfs), for reference.*

**FERC License Amendment, page E-277.**

“Immediately below Gross Reservoir, flows would decrease by **11** to **27** percent during higher flow months of (May through July).”

**Corps FEIS page 5-441.**

“Immediately below Gross Reservoir, flows would decrease during high flow months (May through July) from **10** to **23%**.” *(Note: The 10% referenced on this page does not match the 11% in the Corps' Table H-3.39, which is shown in **Table 1** below. This is a typographical error. Since both of these values are from the Corps' FEIS, Denver Water did not edit the text here).*

**FERC License Amendment page E-293 to E-294.**

“Immediately below Gross Reservoir, there would be major increases in flows from October to February as a result of additional West Slope diversions (stored in Gross Reservoir) being released into South Boulder Creek under the Proposed Project with RFFAs. Increases would be most dramatic in January and February, with flow increases of **904** percent and **874** percent, respectively, in average years compared with Current Conditions.”

**Corps FEIS page 4-569 to 4-570.**

“When comparing Current Conditions (2006) to the Proposed Action with RFFAs immediately below Gross Reservoir, a high degree of change (increase) would occur in the months of October to February of all years as a result of additional West Slope diversions (stored in Gross Reservoir) being released into South Boulder Creek under the Proposed Action. The increase would be most dramatic in January and February of average years with flow increases of **865%** and **835%**, respectively.” *(Note: The change from Current to Full-Use for Gross Reservoir outflow is 0% in January and February. Thus, the flow change in January and February due to the Proposed Project remains the same when compared to Current or Full-Use).*

**Table 1. Percent Change in Gross Reservoir Outflow from Full-Use of the Existing System to Proposed Project.**

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Year
Proposed Project (w/ Environmental Pool) <sup>1</sup>	36%	125%	264%	<b>904%</b>	<b>874%</b>	-18%	36%	<b>-27%</b>	-15%	<b>-11%</b>	-2%	4%	9%
Proposed Project only <sup>2</sup>	34%	118%	250%	<b>865%</b>	<b>835%</b>	-21%	37%	<b>-23%</b>	-13%	<b>-11%</b> <sup>3</sup>	-3%	2%	9%

Source: Corps (2014)

<sup>1</sup>Table H-3.39 and Appendix M-2 of the FEIS

<sup>2</sup>Table H-3.39 FEIS

<sup>3</sup>Note: The 10% referenced on page 5-441 of the FEIS does not match the 11% change shown for July under the Proposed Project in the Corps' Table H-3.39, which is a typographical error. Since these values are both from the Corps FEIS, Denver Water did not edit the text in the table here).

**Table 2. Flow Change (cfs) in Gross Reservoir Outflow from Full-Use of the Existing System to Proposed Project.**

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Year
Proposed Project (w/ Environmental Pool) <sup>1</sup>	31.4	55.6	74.6	<b>92.0</b>	<b>89.5</b>	-21.8	34.9	<b>-76.3</b>	-69.7	<b>-41.5</b>	-4.2	5.1	13.6
Proposed Project only <sup>2</sup>	30.4	52.6	70.6	<b>88.0</b>	<b>85.5</b>	-25.8	35.9	<b>-64.3</b>	-60.7	<b>-42.5</b>	-6.2	3.1	13.9

Source: Corps (2014)

<sup>1</sup>Table H-3.39 and Appendix M-2 of the FEIS

<sup>2</sup>Table H-3.39 FEIS

3. **Estimates of recreational use.** Exhibit E does not provide estimates of existing or future overnight recreational use at the project. You provide estimates of annual visitation at the project for 2004 and 2005, though we note that more recent data is available in your Form 80 Recreation Report filed April 16, 2015. We also note your recreation monitoring plan, as approved in an order issued June 8, 2004, requires annual monitoring of visitor use and the filing of a monitoring report every six years concurrently with Form 80. However, we have no record that you have filed those recreation monitoring reports. To assist us in processing your application, please provide estimates of existing and future overnight recreational use at the project. Include with this information copies of your recreation monitoring reports or a plan and schedule for providing them. If you have not performed the monitoring required by the June 8, 2004 order, please provide an explanation along with a plan and schedule for monitoring and reporting in the future.

Overnight recreational use at Gross Reservoir is permitted only at the Winiger Ridge Recreation Area. Recreational use at Winiger Ridge Recreation Area occurs predominately during the summer months, with limited use in the spring and fall. This area is closed in the winter. Since no newly expanded facilities or additional parking is planned in the RMP Addendum, Denver Water predicts that future overnight camping usage will not substantially change.

Consistent with Article 417 of the FERC License regarding the Recreation Monitoring Plan, Denver Water has collected user data at Gross Reservoir for a number of years, primarily in the form of trail and vehicle counters. Denver Water has prepared Form 80 worksheets every six years, which it has submitted to FERC pursuant to its License. Unfortunately, much of the annual data not contained in the Form 80 worksheets was not retained in its entirety over the years. Denver Water has been working to improve its recreation user data collection program at Gross Reservoir over the past several months and has collected significant data from 2016. These data include a recreation user survey and user numbers from four of the Gross Recreation Areas (see **Attachment 3**).

Denver Water's future plans to collect and maintain recreational user data will include the installation of several more trail and vehicle counters. Denver Water will be installing two additional vehicle counters and five more trail counters to bring the total to 11 counters at Gross Reservoir. This will help Denver Water's recreation staff to monitor daily use numbers which can be compiled by season and/or annually. See **Attachment 3** for a map of the locations of the planned future counters.

In addition, Denver Water will monitor camping and boating usage at Gross Reservoir by performing regular site counts with Boulder County Sheriff personnel, who serve as the contracted agency for law enforcement at Gross Reservoir under the License.

Starting in the spring of 2017, Denver Water will also be administering a recreation user survey at Gross Reservoir on a regular basis. This survey will focus on collecting the data mentioned in the Recreation Monitoring Plan (Article 417). The survey will be administered in person at Gross Reservoir as well as be made available online.

4. **Boat launch and overlook at Peninsula Recreation Area. Exhibit E and as-built drawings filed August 30, 2016, indicate a hand boat launch is present at the Peninsula Recreation Area. The recreation plan addendum does not account for its inundation and relocation. Please clarify if you propose to relocate this boat launch in the recreation plan addendum. Also, the table in the recreation plan addendum (p. 4) lists one overlook at the Peninsula Recreation Area; this is not included in Table 3.3.15-1 in your Exhibit E or reflected on as-built drawings filed August 30, 2016. Please clarify which overlook the addendum is referring to.**

The Recreation Management Plan (RMP) Addendum has been updated to reflect the hand boat launch site that would be relocated from the Peninsula Recreation Area to the Northern Dam Viewpoint Area, as shown in the revised RMP Addendum Figure L2 and revised table “Existing Facilities to be Relocated” on page 4 of the RMP Addendum (see **Attachment 2**).

The RMP Addendum was prepared to address the necessary relocation of recreation sites or facilities in the RMP that would be impacted by the Proposed Project. Not all of the existing recreation sites or facilities are included in the RMP Addendum; rather, only those sites or facilities that would be impacted are addressed in the RMP Addendum. The table of “Existing Facilities to be Relocated” on page 4 of the RMP Addendum has been corrected to reflect that no overlook exists at the Peninsula Recreation Area (see **Attachment 2**). An overlook exists at the nearby North Shore Recreation Area, which is unaffected by the Proposed Project. Exhibit E and the as-built drawings filed on August 30, 2016 show this correctly and do not require revision.

5. **Access to proposed Scenic Ridge Trail. Please clarify whether and how recreationists would access the proposed Scenic Ridge Trail from the northern-most parking area of the proposed Dam Recreation Area Relocation (see sheet L-3 of the recreation plan addendum). A path at this site seems appropriate; otherwise, the parking area only appears to provide access to two individual picnic sites and a fishing access.**

The Scenic Ridge Trail Area was designed to accommodate the relocation of parking, picnic sites, restrooms, and an overlook from the Dam Recreation Area and Haul Road Recreation Areas (see **Attachment 2**). Denver Water personnel conducted a site visit to this area in March 2017 and observed that the land between the parking area and the proposed Scenic Ridge Trail contains steep, rocky slopes (see site photos in **Attachment 4**). Therefore, the existing

site topography makes it impractical to develop a safe trail connection between these two features. Moreover, the establishment of a trail connection between these two features was not recommended by stakeholders or evaluated during the development and consultation process for the RMP or during the consultation process for the License Amendment. Presently, fishing access is an allowable use in this area and the Scenic Ridge Trail will continue to accommodate fishing access in the future.

- 6. Recreation facilities on western side of reservoir. Project recreation facilities on the western side of the reservoir, excluding South Boulder Creek Inlet, are not included in the recreation plan addendum. Regarding these facilities, Exhibit E states, “While portions of Rocky Point, Winiger Gulch Inlet, Winiger Ridge, and South Boulder Creek Inlet recreation areas would also be inundated, relocation of facilities would be minor, consisting mainly of trail realignments, and, therefore, conceptual illustrations are not included.” (p. E-276). In addition to trails, Table 3.3.15-1 in Exhibit E lists other recreation facilities at these sites, including campsites, boat access areas, and fishing access areas. We also note Table 3.3.15-1 appears inconsistent with the as-built drawings filed August 30, 2016.**

**Please provide a detailed description of all recreation facilities at project recreation sites not addressed in the recreation plan addendum and identify all facilities at each of these sites that would be inundated and replaced due to the proposed reservoir expansion. You should revise Table 3.3.15-1 in Exhibit E to reflect this description and your description should be consistent with your August 30, 2016 as-built drawings. Please also confirm whether you intend to designate Rocky Point a project recreation site, as it appears this site is closed.**

Exhibit E has been updated to correct the sentence quoted above from page E-276. Denver Water added a new paragraph on this page to more clearly explain the changes to these recreation facilities (see revised page E-276, **Attachment 5**). Exhibit E Table 3.3.15-1 has also been revised to reflect the existing and planned facilities, which is consistent with the as-built drawings filed on August 30, 2016 (see revised Table 3.3.15-1, **Attachment 5**). As indicated in this table, Rocky Point would be inundated by the expanded reservoir and is planned for closure and relocation of the facilities.

The RMP Addendum has been revised to include all project recreation areas and facilities that will be inundated by the proposed reservoir expansion and explanations for the relocation of each inundated feature (refer to **Attachment 2**). The following description is provided for the existing recreation facilities that are not included in the RMP Addendum:

- North Shore Recreation Area – Existing facilities include picnic areas, parking, restrooms, interpretive signage, trash receptacles, trail signage, scenic overlook, and access to the Ridge Line Trail and

Boathouse Trail. These facilities are located above the new high water line of the expanded reservoir so they will remain in place unaffected by the Project.

- Winiger Ridge Access Area, South Boulder Creek Outlet Area, and Rocky Point Turnaround are other existing facilities in the vicinity of the Project but outside the FERC Project Boundary, which will not be affected by the proposed reservoir expansion. (Refer to the detailed response provided under Question 9).

7. **Trail to Forsythe Falls.** The recreation plan addendum states, “Some stakeholders also expressed concern that Forsythe Falls would be inundated. This addendum includes a proposed relocation of the trail.” (p. 3). It is unclear exactly how the addendum provides for the relocation of the trail to Forsythe Falls as it is not discussed elsewhere in the addendum or shown on any of the addendum’s drawings. Please provide a description of how the trail to Forsythe Falls would be relocated.

Page 3 of the RMP Addendum has been corrected as the statement about the relocation of Forsythe Falls trail was incorrect. While inundation of the Forsythe Falls feature cannot be avoided, the existing Forsythe Falls trail will remain in place and will provide access to the shoreline of the expanded reservoir (see **Attachment 2**).

8. **Clarification of recreation related to U.S. Forest Service Condition No. 24.** Please clarify, to the extent possible, the recreation sites that are the subject of U.S. Forest Service Condition No. 24, Dispersed Recreation Management at Winiger Ridge. For example, is the condition limited to the Winiger Ridge Recreation Area, or does it also apply to other sites on the western side of the reservoir (e.g., Winiger Gulch Inlet, Winiger Ridge Access, etc.)?

U.S. Forest Service Condition No. 24 will only apply to the Winiger Ridge Recreation Area for those campsites inside the FERC Project Boundary. This condition will not apply to Winiger Gulch Inlet or Winiger Ridge Access Area.

9. **Recreation sites and project boundary.** Two recreation sites for which you would continue to have license obligations under the proposed amendment, Winiger Ridge Access and South Boulder Creek Outlet, are not included in the project boundary. Your amendment application appears to indicate these recreation sites are required for project purposes. Please verify that you plan to include these sites in the revised project boundary and Exhibit G drawings, or provide justification why these sites are not needed for project purposes and should not be included in the project boundary.

Prior to Denver Water developing its 2002 RMP, pursuant to Article 416, the two recreation areas in question existed within the vicinity of the Project but



outside the FERC Project Boundary. Winiger Ridge Access (also known as Forsythe Trailhead) and South Boulder Creek Outlet became a part of discussions during the relicensing and development of the RMP. Specifically, on pages 7-8, under “Existing Conditions,” the RMP identifies sites that are not included in the FERC Project Boundary, including South Boulder Creek Outlet and Winiger Ridge Recreation access and parking lot. Sections 3.2.4 and 3.4.4 of the RMP describe the existing condition and use (prior to the RMP) of South Boulder Creek Outlet trail and parking, which allowed access to the river for kayaking. Similarly, Sections 3.2.8 and 3.4.8 of the RMP describe the existing conditions and use (again, prior to the development of the RMP) at the Winiger Ridge Access and Recreation Area. It should be noted that these are two distinct areas, one of which (the Winiger Ridge Recreation Area) is within the FERC Project Boundary, and the other (Winiger Ridge Access) is outside the FERC Project Boundary and on National Forest System land. Although improvements were requested and made to these sites outside the FERC Project Boundary during the re-licensing and the development of the RMP, Denver Water does not believe these areas are Project recreation areas. Rather, throughout the relicensing process and this amendment process, Denver Water has continued to show them outside the FERC Project Boundary as existing recreation facilities within the vicinity of the Project, per 18 CFR 4.41(f)(7).

Article 416 required the RMP to include an improvement to the existing South Boulder Creek Outlet. Per the RMP, Denver Water provided parking spaces and trail access to improve the existing kayak use of this area. Similarly, Denver Water also made an improvement to Winiger Ridge Access area by developing a parking area at this location. Because Winiger Ridge Access area is outside the FERC Project Boundary, it has been maintained by the U.S. Forest Service. During this license amendment consultation process, Denver Water and the U.S. Forest Service agreed to proposed new 4(e) condition No. 30, which requires cost sharing between Denver Water and the U.S. Forest Service through a separate collection agreement for this area outside the FERC Project Boundary.

Therefore, Denver Water maintains that these recreation areas, despite improvements made to them through the previous relicensing and RMP development process, are not Project recreation areas. They have never been within the FERC Project Boundary and Denver Water is not intending to include these sites in the revised FERC Project Boundary and Exhibit G drawings.

## **Consultation on Article Amendments**

- 10. Agency consultation on amendment of Article 403. Article 403 identifies specific ramping rates which cannot be exceeded when project flow releases are within certain ranges, and it indicates that you may temporarily vary from the ramping rates under certain conditions, or for short periods upon agreement with the U.S. Fish and Wildlife Service (FWS) and Colorado**

**Division of Wildlife (Colorado DOW).<sup>1</sup> In your application, you propose amending Article 403 to include a ramping rate tolerance of 5 cubic feet per second per hour. However, it's not clear from the information in your application whether you consulted with the FWS and Colorado DOW regarding this change. Please describe your consultation with these two agencies specific to your proposed amendment to Article 403, provide copies of any comments or recommendations these agencies provided, and explain how any agency responses were incorporated into your application.**

Denver Water recently consulted with U.S. Fish and Wildlife Service (USFWS) and Colorado Parks and Wildlife (CPW; formerly Colorado DOW), sending each agency information on the proposed ramping rate tolerance pursuant to Article 403. USFWS and CPW reviewed and approved Denver Water's proposed tolerance of 5 cfs per hour below Gross Reservoir. Copies of the consultation and the agencies' approvals are provided in the email correspondence from February 2017, included in **Attachment 6**.

## **Environmental Pool**

- 11. Clarification regarding Environmental Pool. In the introduction section of your application, you indicate that a 5,000 acre-feet Environmental Pool is included in the 77,000 acre-feet of additional storage that would be created by the dam raise. You explain that the water rights for the Environmental Pool are held by the City of Boulder and/or the City of Lafayette, not by Denver Water, and that the release of this water would be governed by the February 2010 Intergovernmental Agreement (Boulder- Lafayette IGA) to benefit aquatic resources in South Boulder Creek during times of low flow. You indicate that the Boulder-Lafayette IGA would supersede the current Denver- Boulder Agreement (which involves an Environmental Pool of 2,500 acre-feet that is released at the request of the City of Boulder). We note the current agreement is discussed under Other Issues in the project license. In that section, the Commission explains that the Denver-Boulder Agreement involves mitigation for Denver Water's water supply operations and therefore, is not included as a license requirement.**

**You explain in your application that the proposed Environmental Pool would be a mitigation component for impacts identified in the U.S. Army Corps of Engineers' Environmental Impact Statement which reviewed Denver Water's entire Moffat Collection System project, of which the enlargement of Gross Reservoir is one component. We note that the Colorado Department of Public Health and Environment, in its June 2016 Water Quality Certification (WQC) for the Moffat Collection System project, including the enlargement of Gross Reservoir, explains that the Environmental Pool is not the subject of any conditions in the WQC**

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<sup>1</sup> Colorado DOW merged with Colorado State Parks to form Colorado Parks and Wildlife in 2011.

**because other parties are responsible for securing water for the Environmental Pool and for managing its releases.**

**Based on the above, and on other information provided in the application, it appears the Environmental Pool and its management are not being included in your application for specific Commission approval as part of any amended license. Our concern is that in Table 5.1-1 of your Exhibit E on page E-342, the Commission’s jurisdiction is identified as one enforcement mechanism regarding the Environmental Pool: “The Environmental Pool will be mandated by FERC because it is included in the design of the Proposed Project for the amended FERC license.” This statement appears inconsistent with other information in your application. Please clarify whether you seek specific Commission approval of the Environmental Pool and its management in any amended license or whether the Environmental Pool is not for Commission approval - similar to the current license.**

With regard to the Commission’s enforcement of the Environmental Pool, Denver Water intends only that the Commission approve the total size of Gross Dam and Reservoir (118,811 AF), which includes the 5,000 AF storage space for the Environmental Pool. Denver Water does not intend for the Commission to approve the Environmental Pool management or operations.

### **ADDITIONAL MATTERS**


The two matters described below were not specifically requested by the Commission in its Additional Information Request. However, per Article 416 requirements, Denver Water has consulted with the U.S. Forest Service on the changes to the RMP Addendum described herein by sending a copy to them and requesting comments. Denver Water was also aware that the U.S. Forest Service had updated its Sensitive Species List, which Denver Water wants to have considered in Exhibit E of its License Amendment Application. Therefore, Denver Water includes information on these two matters as follows:

1. Denver Water shared the revised 2017 RMP Addendum with the U.S. Forest Service for consultation. **Attachment 7** includes the email correspondence between Denver Water and the U.S. Forest Service notifying the agency of the changes made by Denver Water responding to the Commission’s Additional Information Request. Denver Water will submit the U.S. Forest Service comments and Denver Water’s resolution of concerns, if any, once this consultation is complete.

2. **Attachment 5** contains updated information for inclusion in Exhibit E, specifically the species tables on revised pages E-175 to E-205, which reflect the most current U.S. Forest Service Sensitive Species List.

If you have any questions, please feel free to contact me at (303) 628-6318 or by email at [brian.gogas@denverwater.org](mailto:brian.gogas@denverwater.org).

Sincerely,



Brian Gogas  
Environmental Scientist

Enclosures:

Attachment 1 – Revised Exhibit A

Attachment 2 – Revised Initial Statement pages:

- Page IS-1, paragraph 5(a)
- Page IS-3, paragraph 5
- New cover page for Attachment IS-5 (Addendum to Recreation Management Plan) (previously Attachment A-1 to Exhibit A), including the Revised March 2017 version of the RMP Addendum

Attachment 3 – 2016 Existing Recreation Monitoring Data and Map of Future Recreation Monitoring per Article 417

Attachment 4 – 2017 Site Photos taken at the Proposed Scenic Ridge Trail Area.

Attachment 5 – Revised Exhibit E pages:

- Pages E-175 through E-205, which contains Table 3.3.10-1 Federal- and State-Listed Endangered or Threatened Species and Table 3.3.10-2 Other Special Status Species
- Pages E-271 through E-272, Table 3.3.15-1 Existing and Planned Recreation Facilities at Gross Reservoir
- Page E-276, paragraph 1

Attachment 6 – USFWS and CPW email correspondence approving Denver Water’s proposed variance to ramping rates under Article 403

Attachment 7 – Denver Water and USFS email correspondence on the Revised March 2017 version of the Addendum to Recreation Management Plan under Article 416

Attachment 1: Revised Exhibit A

# EXHIBIT A (REVISED)

## PROJECT DESCRIPTION

### Description of the Proposed Project for Amendment

Table A-1 *Gross Dam and Reservoir Features* provides a summary of the proposed changes to Gross Dam and Reservoir (Proposed Project) that are described in this Exhibit A. Other details are provided in Figure A-1 *Project Boundary Amendments*, Figure 2.2.1-3 *Gross Reservoir Components* of Exhibit E *Environmental Report*, and Attachment G-1 *Preliminary Project Boundary Map – 2016 Enlargement* in Exhibit G *Project Boundary*.

**Table A-1**  
**Gross Dam and Reservoir Features**

Gross Dam and Reservoir Features	Proposed Project (with an Environmental Pool)
Additional Storage Volume (acre-feet)	77,000 (72,000 + 5,000)
Approximate Storage Volume (acre-feet)	119,000
Normal Water Surface Elevation at Spillway Crest (feet msl*)	7,406
Surface Area (acres)	842
Dam Raise (feet)	131
Dam Height (feet)**	471
Dam Crest Length (feet)**	1,940
Dam Raise Volume, including Spillway (cubic yards)	930,000
Spillway Elevation (feet msl*)	7,406
Auxiliary Spillway (or Saddle Dam)	Added
Outlet Works	No major change
Inlet	No major change

\* msl – above mean sea level

\*\* The approximate dam height and dam crest length are based on preliminary design work and may change once the final design is approved by the FERC.

**(1) The physical composition, dimensions, and general configuration of any dams, spillways, penstocks, powerhouses, tailraces, or other structures proposed to be included as part of the project.**

Preliminary design drawings showing proposed changes to the dam and penstock for the Proposed Project are included in Attachment F-1 *Gross Dam Enlargement Concept Design Drawings* in Exhibit F *General Design Drawings of Principal Project Works* of this License

Amendment Application (Application). Preliminary engineering analyses, including a structural evaluation of the raised dam, have shown that the Proposed Project is technically feasible. All final Proposed Project design drawings and supporting reports will be developed in coordination with the Federal Energy Regulatory Commission (FERC) and an independent Board of Consultants and will be submitted for FERC approval prior to construction.

## **Dam**

The dam crest would be raised by 131 feet to a final height of approximately 471 feet. Based on preliminary design, the length of the dam crest would increase by approximately 790 feet to 1,940 feet. The actual dam crest length will be determined during final design. The raised dam would be constructed with Roller Compacted Concrete (RCC) and have approximately the same dam axis, arch radius, crest width, and downstream slope as the existing dam, subject to evaluations during final design.

## **Primary Spillway**

The spillway crest would be raised approximately 124 feet to elevation 7,406 feet msl and would be located near the center of the dam. The size and location of the primary spillway will be determined during final design.

## **Auxiliary Spillway**

An auxiliary spillway was assumed in the U.S. Army Corps of Engineers' Environmental Impact Statement (Corps EIS) for the Moffat Collection System Project (which includes the Proposed Project) but may be unnecessary. In the Corps EIS, the auxiliary spillway is located within a topographic saddle approximately 1 mile south of Gross Dam and is described as a concrete weir structure. The need for an auxiliary spillway will be determined during final design and in coordination with the FERC Division of Dam Safety and Inspections and the independent Board of Consultants. Regardless, there is a topographic saddle along the reservoir rim that requires a small water impounding structure (either the auxiliary spillway or a saddle dam). If the inflow design flood (IDF) can be accommodated within the primary spillway at the dam and an auxiliary spillway is not required, then a small saddle dam will be constructed in the topographic saddle in lieu of the spillway. The footprints of the auxiliary spillway and the saddle dam are similar in scope, size, and site disturbance limits.

## **Inlet and Outlet Works**

There would be no major change to the existing outlet works. Preliminary analyses show that the system is capable of the increased reservoir head. As part of the final design, Denver Water will evaluate the existing piping and discharge valves for the new hydrostatic conditions.

## **Penstock and Turbine Equipment**

The proposed dam raise would require modifications to the existing 66-inch-diameter penstock valve vault on the penstock upstream of the two turbines. Modifications would include replacing the 66-inch butterfly valve with a pressure reducing valve (PRV). Furthermore, because the generating capacity would increase due to the new hydrostatic conditions, the dam raise would also indirectly affect the hydroelectric equipment inside the powerhouse.

While the existing 66-inch-diameter penstock is suitable for the higher pressure conditions that would exist after the dam is raised, the turbine equipment was not originally designed for an increase in dam height greater than 60 feet. During final design, Denver Water will evaluate modifications that could extend the operating range of the turbine equipment at the proposed new higher head conditions to determine whether such efficiency improvements would be economical. Refer to item (5) below for details.

## **Roads and Access**

Numerous on-site road segments would need to be abandoned and relocated or would be newly constructed in order to facilitate construction operations at Gross Reservoir. Road segments would need to be relocated out of the proposed reservoir inundation boundary and out of the proposed footprints for the dam enlargement and spillway facilities. An updated *Erosion Control and Rehabilitation and Restoration Plan* will address requirements for road work, including activities on NFS lands (see Table 5.1-1 *Mitigation Measures for the Proposed Project* of Exhibit E *Environmental Report*). Access to the dam would be available using the existing Project Access Road. However, minor road relocations would be necessary at the north and south dam abutments. Anticipated new USFS Section 4(e) conditions address requirements for road work on NFS lands.

### ***Permanent Roadway Relocations:***

Project Access Road near the Proposed Auxiliary Spillway – Portions of the existing Project Access Road would be relocated in two locations near the proposed auxiliary spillway/saddle dam approximately 1 mile south of Gross Dam to support access to the relocated Haul Road Recreation Area (see Figure 2.2.1-3 *Gross Reservoir Components* of Exhibit E *Environmental Report*). The relocated road characteristics would be similar to the existing road, with a gravel surface and a disturbance area of approximately 30 to 50 feet wide by 500 feet long. Post-construction, abandoned road segments above the new normal water line would be reclaimed.

Project Access Road at the Dam – Access to the dam would be available using the existing Project Access Road. However, minor road relocations would be necessary at the north and south dam abutments due to future inundation. These two road segments would be abandoned and relocated: approximately 1,500 feet of the north abutment access road would be relocated to the east at an elevation 100 feet higher than the existing access road; and approximately 1,500 feet of the south abutment access road would be relocated south of the existing Project Access Road. These realigned sections are labeled Relocated Dam Access Road on Figure 2.2.1-3 *Gross Reservoir Components* of Exhibit E *Environmental Report*. Both relocated road segments would be gravel surfaced and approximately 30-50 feet wide.

Post-construction, abandoned road segments above the new normal water line would be restored using techniques such as re-grading and seeding. No other roads in the Proposed Project area would need permanent improvements.



**(2) The normal maximum surface area and normal maximum water surface elevation (mean sea level) [and] gross storage capacity of any impoundments to be included as part of the project.**

The existing Gross Reservoir stores 41,811 acre-feet of water and has a maximum surface area of 418 acres at its maximum water surface elevation of 7,282 feet msl (service spillway elevation with flashboards).

Gross Reservoir would be expanded to approximately 119,000 acre-feet of storage and would have a maximum surface area of approximately 842 acres at its maximum water surface elevation of 7,406 feet msl.

**(3) The number, type, and rated capacity of any proposed turbines or generators to be included as part of the project.**

The two existing horizontal Francis turbines and two synchronous generators together have an authorized rated hydraulic capacity of 7,598 kilowatts (kW). The new rated hydraulic capacity would be 8,100 kW.

**(4) The number, length, voltage, and interconnections of any primary transmission lines proposed to be included as part of the project.**

Denver Water is proposing no changes to the existing primary transmission lines.

**(5) The description of any additional mechanical, electrical, and transmission equipment appurtenant to the project.**

A pressure regulating valve (PRV) would be installed where the existing isolation butterfly valve is located in the valve vault on the penstock upstream of the inlet piping to the two turbines. The valve vault would be modified to allow installation of the PRV. The PRV would be either a cone valve or a special type of valve such as a non-cavitating-type butterfly valve. Pressure reduction across the PRV would only occur when hydraulic conditions are outside the operating range of the turbine units, as could occur at the higher reservoir elevations made possible by raising the dam under the Proposed Project. The PRV would be used to lower the inlet pressure to the turbine units under head conditions that exceed 380 feet of net head. The expected maximum pressure reduction for the PRV is 71 feet of water (28 pounds per square inch [psig]) for the Proposed Project. Automatic controls would be designed and installed to regulate the inlet pressure to stay within the turbine operating range.

Preliminary review indicates that the existing hydroelectric turbine equipment is capable of operating at head conditions that exceed current conditions (320 feet rated head). The manufacturer's hill chart indicates that the units could possibly operate without modification to 380 feet of head. The extent of possible turbine modifications and the cost to perform the work will not be known until the manufacturer completes the analysis. For purposes of this License Amendment Application, no turbine modifications are proposed. The goal would be to increase energy production by implementing only the most cost-effective turbine modifications.

Denver Water will evaluate possible modifications to the existing hydroelectric turbine equipment that could extend the operating range of the turbine equipment at higher operating

heads. The original turbine equipment manufacturer, Alstom, will be asked to perform an analysis to determine what modifications can be made to extend the operating range for the conditions proposed under the Proposed Project. The analysis will include:

- Thorough analysis of all components to determine the higher stresses due to the higher operating head
- Recommendations for replacing or modifying the components to allow for operation at higher heads up to the maximum value
- Cost estimates for providing the new components
- A final recommended operating range for the modified units.

Regardless of what modifications are recommended by Alstom, the generators would have the same installed (nameplate) capacity of 8,100 kW.

Denver Water analyzed increasing generating capacity. However, a capacity increase above the existing generator nameplate rating would require major modifications to the powerhouse and complete replacement of the powerhouse equipment. The electrical switchyard equipment would also have to be modified or replaced. The cost to increase the capacity of the equipment above 8,100 kW would greatly exceed the cost of modifying the turbine equipment as described above.

**(6) All lands of the United States, including lands patented subject to the provisions of section 24 of the Act, 16 U.S.C. 818, that are enclosed within the project boundary described [under Exhibit G], identified and tabulated by legal subdivisions of a public land survey, by the best available legal description. The tabulation must show the total acreage of the lands of the United States within the project boundary.**

**Table A-2  
Land Ownership within the Proposed FERC Project Boundary**

<b>U.S. Forest Service Lands (Roosevelt National Forest)</b>	
<b>Location</b>	<b>Acres</b>
<b>Section 18, T1S, R71W</b>	
SE ¼ Lot 15	1.64
S ½ Lot 16	3.87
S ½, SE ¼, SW ¼	9.16
S ½, SW ¼, SE ¼	1.20
<b>Section 19, T1S, R71W</b>	
N ½, NE ¼, NW ¼	6.82
SE ¼, NE ¼, NW ¼	1.50
W ½, E ½	76.01
Lot 5	32.21
Lot 8	32.08
Lot 9	38.22
SE ¼, SW ¼	13.45
S ½ Lot 10	5.98
Lot 11	15.58
Lot 12	19.58
Lot 13	8.95
<b>Section 30, T1S, R71W</b>	
Lot 10	18.39
Lot 11	9.64
Lot 12	27.75
Lot 13	24.17
Lot 14	26.78
Lot 15	44.93
Lot 16	42.75
Lot 17	26.85
Lot 18	33.22
<b>Tracts in T1S, R71W</b>	
Tract 62	39.39
Tract 63	38.94
Tract 64	40.07
<b>Section 24, T1S, R72W</b>	
SE ¼, Lot 8	2.10
N½ Lot 8*	1.06
NE ¼ Lot 11	0.55
<b>Section 25, T1S, R72W</b>	
Lot 7	16.12

**Table A-2  
Land Ownership within the Proposed FERC Project Boundary**

<b>U.S. Forest Service Lands (Roosevelt National Forest)</b>	
Lot 8	27.68
SE ¼*	1.82
<b>USFS Lands Total Acreage</b>	<b>688.46</b>
<b>Denver Water Property</b>	
<b>Location</b>	<b>Acres</b>
Tracts in T1S, R71W	
Tract 49	32.27
Ellis Lode Survey No. 18788	39.77
Resumption Placer Survey No. 480 am	47.25
NE ¼ Tract 109	9.22
NW Corner Tract 108	2.86
N ½ Tract 107	39.78
Tract 44	145.14
Tract 47	113.14
Tract 45	171.32
Tract 48	85.69
NE ¼ Tract 110**	7.96
N ¼ Tract 109**	3.56
NE ¼, S ½ Tract 107**	0.55
N ½ Tract 65*	15.91
N ½ Tract 104*	2.96
SW Corner Tract 103*	17.33
NW ¼ Tract 54*	3.34
<b>Denver Water Property Total Acreage</b>	<b>738.05</b>
<b>TOTAL ACREAGE WITHIN THE PROPOSED FERC PROJECT BOUNDARY</b>	<b>1,426.51</b>

\* Property to be added to the existing FERC Project Boundary.

\*\* Privately owned property to be acquired by Denver Water and added to the existing FERC Project Boundary.

Attachment 2: Revised Initial Statement pages

Attachment 2 – Revised Initial Statement page IS-1, paragraph 5(a).

Please replace paragraph 5(a) on this page with the following:

“Gross Reservoir was originally designed in the 1950s as a 114,000 acre-foot reservoir. In past relicensing or amendment of the Project, Denver Water never proposed a reduction in the FERC Project Boundary because it has been Denver Water’s plan to expand the reservoir to the size originally designed. Now that the Proposed Project is being designed for its full reservoir capacity, Denver Water is able to propose adjustments to the FERC Project Boundary so that only the lands and facilities required for the Proposed Project are included. Following FERC regulations, Denver Water is proposing to amend the FERC Project Boundary, which would result in the addition, but mostly the removal, of lands from the existing FERC Project Boundary. Figure A-1 *Project Boundary Amendments* shows the proposed FERC Project Boundary and the proposed land additions and deletions by current property ownership. Parcels proposed to be included in the new FERC Project Boundary, including both federal and non-federal lands, are identified by land ownership and tabulated by legal subdivision in Table A-2 *Land Ownership within the Proposed FERC Project Boundary*. The parcels identified in Table A-2 are labeled on the map provided Attachment G-1 *Preliminary Project Boundary Map – 2016 Enlargement* in Exhibit G *Project Boundary*.

Project boundaries are used to designate the geographic extent of the lands, waters, works, and facilities that the license identifies as comprising the licensed project. The current regulations provide a project boundary no more than 200 feet from the exterior margin of reservoirs, but make an exception where additional lands are “necessary for project purposes, such as recreation, shoreline control, or protection of environmental resources” (18 CFR 4.4.1[h][2]).

In proposing adjustments to the FERC Project Boundary to remove excess lands, a licensee “must include substantial evidence demonstrating why the public interest no longer requires that those lands remain within the boundary” (104 FERC 61,295, p.15 [2003]). In proposing this amendment to the FERC Project Boundary, Denver Water considered whether the lands proposed to be removed are needed for Project operations (including reservoir elevations and flowage), environmental protection (buffer zones), and public recreation, including public access to the reservoir shoreline.

Denver Water evaluated the amount of land necessary for construction-related and post-construction activities and operation and maintenance of the Proposed Project and determined that the existing FERC Project Boundary is still unnecessarily expansive, with excess Denver Water and NFS lands that are not needed for the Proposed Project.

The proposed FERC Project Boundary removes approximately 324 acres of NFS lands, thereby reducing the total amount of federal lands within the proposed FERC Project Boundary to approximately 688 acres. This net amount includes the addition of approximately 3 acres of NFS lands to the area within the proposed FERC Project Boundary, which are necessary to accommodate the South Boulder Creek Inlet Access Trail along the southwestern portion of the FERC Project Boundary and reservoir expansion along the western portion. These additional 3 acres of NFS lands will incur temporary disturbance during the tree removal phase of the project and permanent impacts due to inundation associated with the reservoir expansion under the Proposed Project.

The proposed FERC Project Boundary also includes approximately 12 acres of undeveloped, privately owned property along the southwestern edge of the FERC Project Boundary that is currently owned by the Miramonte Land Corporation (Miramonte). Denver Water has been working in cooperation with Miramonte to acquire this property through a land transfer and anticipates having a settlement agreement prior to construction. Inclusion of these lands is necessary because of temporary impacts from tree removal and construction-related activities, as well as permanent impacts from inundation. The proposed FERC Project Boundary also adds approximately 40 acres of Denver Water land and removes approximately 68 acres of Denver Water land for a total of approximately 738 acres.

The excess NFS and Denver Water lands proposed for removal contain no Project-related facilities, nor will any Project facilities be affected by the removal of these lands.”

Attachment 2 – Revised Initial Statement page IS-3, paragraph 5.

Please replace paragraph 5 on this page with the following paragraph:

“Denver Water is proposing an Addendum to the Recreation Management Plan (Attachment IS-5 Addendum to Recreation Management Plan of this Application), which was developed and reviewed pursuant to License Article 416, as its final amendment to the Recreation Management Plan (RMP). With the exception of the North Shore Recreation Area, the South Boulder Creek Outlet, and the Winiger Ridge Access and Recreation Area, all other recreation sites and facilities under the existing RMP would be inundated by the new reservoir. These recreation facilities would need to be relocated to sites above the proposed high water line. Denver Water engaged consultant services to analyze the relocation of the recreation facilities prescribed in the current FERC License. Denver Water’s consultants developed a plan that demonstrates where the facilities would be relocated to provide the same recreational opportunities that exist at Gross Reservoir under the current FERC License. Based on comments related to recreation at Gross Reservoir from stakeholders, the May 2008 Gross Reservoir Recreation Relocation Plan (Attachment E-7 Gross Reservoir Recreation Management Plan – May 2008 of this Application) was modified to include additional information in the Addendum.”



Attachment 2 – New Attachment IS-5 (Addendum to Recreation Management Plan), which was previously included as Attachment A-1 to Exhibit A.

Please add the following new attachment cover page to the Initial Statement, including the Revised March 2017 version of the Addendum (enclosed on the following pages):

# **ATTACHMENT IS-5**

## **Addendum to Recreation Management Plan – March 2017**

**\* Please note that any further reference to Attachment A-1 throughout the remaining exhibits should be replaced with “Attachment IS-5” (i.e. Exhibit E pages E-xxi, E-18, and E-283).**

*Revised Version: March 16, 2017*

## **ADDENDUM TO RECREATION MANAGEMENT PLAN (ARTICLE 416)**

### **Introduction**

This addendum to Section 4.2 Site Specific Recommendations in the Recreation Management Plan (RMP) (2004) per Article 416 is being prepared to address changes to several recreation sites that will be required as a result of the planned expansion of Gross Reservoir. This proposal was developed using the current RMP, the stakeholder comments and input during the development of the current RMP, and comments during consultation on the draft License Amendment Application (Draft Application) as described below. When the dam raise has been constructed, the reservoir storage capacity will be increased from approximately 42,000 acre-feet (AF) to approximately 119,000 AF. This inundation will result in the necessary relocation of the facilities at the Peninsula Recreation Area, the Dam Recreation Area, and the Haul Road Recreation Area to a point above a newly defined high water line. In addition, the existing trail to the South Boulder Creek Inlet will be relocated. Denver Water is proposing to raise the normal high water elevation line from 7,282 to 7,406 feet. In order to accommodate the raised water level, recreation facilities will be moved to an elevation above 7,410 feet for an additional buffer. Facilities at the three existing recreation areas are proposed to be located at five recreation areas (refer to Maps L0 and L1):

- Northern Dam Viewpoint (relocated Peninsula Recreation Area)
- Relocated Haul Road Recreation Area
- Relocated Dam Recreation Area
- Scenic Ridge Trail (new/ additional area)
- Upper Viewshed Trail (new/ additional area)

Although there will be two new recreation areas, the number of recreation facilities at Gross Reservoir will remain the same as the current RMP. A summary of existing facilities to be relocated is provided below.

Prior to any ground-disturbing activities associated with the relocation of the recreation facilities, Denver Water will conduct surveys of the sites for the presence of special status species, raptor nests, and cultural resources in accordance with the governing FERC article and 4(e) condition. If cultural resources are discovered prior to or during ground-disturbing activities, Denver Water will implement the steps specified in the Memorandum of Agreement between Denver Water, FERC and the State Historical Preservation Officer and applicable license articles. If such sensitive resources are identified, Denver Water will relocate the facility as near as possible to the proposed location to avoid sensitive resources.

For facilities that are proposed on National Forest System (NFS) land, if suitable relocation cannot be accomplished due to resource conflicts, Denver Water will find a location on Denver Water property that will best meet the recreation needs.

Denver Water will add and/or relocate appropriate signage for all relocated facilities. All signage related to recreational facilities and approved activities at the relocated sites, including interpretative

signage for educational purposes, will be consistent with Denver Water's design standards for signage for the purposes of consistency and to aid in emergency response and law enforcement. Signage on NFS land will be consistent with Forest Service 4(e) conditions signage requirements and Forest Service standards. All signage will be maintained to show current recreational facility names and information.

### **Consultation on Proposed Amendment to RMP**

Pursuant to Article 416, Denver Water developed a final RMP in 2004 after consulting with the necessary parties. Through the consultation process for this License Amendment Application for the Gross Reservoir Hydroelectric Project now being filed with the Commission, Denver Water's stakeholder list included and engaged the parties required under Article 416 (Boulder County Sheriff's Office, Cherryvale and Coal Creek Fire Districts, U.S. Fish and Wildlife Service, U.S. Forest Service (Forest Service), Colorado Division of Wildlife, Bureau of Land Management, Colorado State Parks, Boulder County Parks and Open Space Department, City of Boulder Open Space Department, Preserve Unique Magnolia Association) to receive comments on the changes to the RMP being proposed. The proposed changes to the RMP were identified in the following documents that went to all stakeholders in the consultation process:

#### 1. Initial Consultation Document (2008):

Denver Water hired a contractor to study the relocation of recreation facilities that would be inundated. Denver Water proposed to adhere to the types of facilities and level of management desired by the stakeholders for the existing RMP. Denver Water's consultant analyzed relocation of the recreation facilities that would be inundated by the Proposed Project and found suitable locations for the same number and types of recreation facilities required under the RMP. Denver Water included this relocation plan (*Gross Reservoir Recreation Relocation Plan – May 2008*) in the Initial Consultation Document.

The comments received at this stage of consultation coincided with Denver Water's proposal to not change facilities or recreation experiences when it relocates facilities that are in the inundation area. Numerous stakeholders asked that there not be an increase in recreation by way of the license amendment. Denver Water agreed that no additional facilities would be included in this addendum. Some stakeholders asked that the area remain a "car-top" boating experience and continue to restrict motorized boating. Denver Water agrees. Stakeholders also expressed an interest in knowing whether there will be closures during construction. Because this comment is about the construction phase, this addendum does not describe temporary closures of existing areas. Instead, Denver Water will provide notices during construction of temporary recreation closures.

#### 2. Draft Application (2009):

Denver Water also included the same recreation relocation plan (*Gross Reservoir Recreation Relocation Plan – May 2008*) in the Draft Application as the Initial Consultation Document.

The comments received on the Draft Application regarding Denver Water's proposal to relocate recreation facilities reiterated the desire to not allow for increased recreation but to maintain the facilities and opportunities that currently exist. Denver Water agrees and will continue to contract with the local sheriff's department to patrol the area of an expanded Gross Reservoir. The Corps'

third party consultant developing the Environmental Impact Statement for the associated Moffat Collection System Project determined that although there will be an increased water surface area and additional shoreline, a major increase in visitation is not expected. Denver Water will continue to have the area patrolled and agrees to maintain the current number of parking spaces, the seasons and hours of operation, and the same types of recreation opportunities at the site in an effort to maintain current visitor levels, all in accordance with the existing RMP.

Again, stakeholders wanted to know about temporary closures during construction. Because this is a temporary impact, Denver Water does not include temporary construction closures in this addendum. Instead, Denver Water will provide notice of temporary closures during construction but intends to keep recreational facilities open as much as possible without compromising public safety or construction progress.

During this stage of consultation Denver Water heard opposing views from stakeholders to allow or not allow motorized boating. Because Denver Water does not want to allow bodily contact with the water and because of the important interest among most stakeholders to have no net increase in recreation and no change in facilities, Denver Water is not proposing to allow motorized boating but will instead continue to offer the facilities under the RMP that accommodate car-top boating.

Some stakeholders also expressed concern that Forsythe Falls would be inundated. While inundation of the falls could not be avoided, the existing Forsythe trail will remain in place and will provide access to the shoreline of the expanded reservoir.

Throughout the consultation process, and with the exception of the comment about Forsythe Falls, Denver Water did not receive comments specifically about relocation of the existing facilities. Therefore, following the second stage of consultation, Denver Water's contractor developed with more detail the information in this addendum to propose specific locations for each relocated recreation facility in light of the comments during the development of the RMP and the comments on this consultation effort (*Addendum to Recreation Management Plan – February 15, 2013*).

Additionally, Denver Water had the opportunity to share the addendum with Boulder County and with the Forest Service during discussions on 4(e) conditions. These agencies did not have comments specific to the information in this addendum (the proposed location of existing facilities) other than the recognition that Forest Service conditions regarding sensitive species, cultural resources and other similar land clearing prescriptions will apply to the construction of relocated facilities on NFS lands. In addition, the Forest Service requested clarification on signage at the relocated facilities. Denver Water agrees.

EXISTING FACILITIES TO BE RELOCATED

EXISTING FACILITIES	RELOCATED FACILITIES				
<b>Peninsula Recreation Area To Be Relocated</b>					
	Northern Dam Viewpoint	Relocated Haul Road Rec. Area	Relocated Dam Rec. Area	Scenic Ridge Trail	Upper Viewshed Trail
Parking (0)					
Individual Picnic Sites (10)	4	1			5
Group Picnic Sites (2)	2				
Restrooms (1)	1				
Hand Boat Launch (1)	1				
Fishing Access (3)	1	2			
<b>Dam Recreation Area To Be Relocated</b>					
	Northern Dam Viewpoint	Relocated Haul Road Rec. Area	Relocated Dam Rec. Area	Scenic Ridge Trail	Upper Viewshed Trail
Parking (38)	8	8	8	14	
Individual Picnic Sites (20)		2	2	16	
Group Picnic Sites (3)				3	
Restrooms (2)			1	1	
Overlook (1)				1	
Fishing Access (1)			1		
<b>Haul Road Recreation Area To Be Relocated</b>					
	Northern Dam Viewpoint	Relocated Haul Road Rec. Area	Relocated Dam Rec. Area	Scenic Ridge Trail	Upper Viewshed Trail
Parking (20)		20			
Individual Picnic Sites (10)		10			
Group Picnic Sites (2)		2			
Restrooms (2)		1		1	
Boat Access (1)		1			
Fishing Access (0)					

#### **4.2.2 Peninsula Recreation Area- Relocated to Proposed Northern Dam Viewpoint (Addendum) (see Map L2)**

The existing Peninsula Recreation Area will be completely inundated when the reservoir is expanded. All existing facilities will be relocated to other recreation areas. Many facilities will be relocated to the newly established Northern Dam Viewpoint: an area to be built north of the expanded dam construction. The existing Rocky Point Trail to the shoreline near the Peninsula Recreation Area will be inundated and replaced by the Upper Viewshed Trail. See Section 4.2.12.

- **Parking:** There is no parking at the existing Peninsula Recreation Area to be relocated. However, parking spaces for eight cars, including two accessible spaces per the Americans with Disabilities Act (ADA) will be provided at the Northern Dam Viewpoint. These parking spaces will be relocated here from the existing Dam Recreation Area. All parking spaces will be delineated with parking bumpers.
- **Individual Picnic Sites:** Ten existing individual picnic sites will be relocated from their existing Peninsula locations. Four will be moved to the Northern Dam Viewpoint and will be situated along a trail to the scenic overlook. The picnic sites sit within widely spaced Ponderosa Pine tree plantings. Each of the sites will have a picnic table and pedestal grill on a crusher-fine base. Five picnic sites will be relocated to the Upper Viewshed Trail and one will be moved to the relocated Haul Road Recreation Area. See Sections 4.2.5 and 4.2.12 for more detail.
- **Group Picnic Sites:** Two existing group picnic sites will be relocated to the Northern Dam Viewpoint. Only one of the two relocated group sites will have a shelter, as this is currently the case at the Peninsula Recreation Area.
- **Restrooms:** The existing restroom facility will be relocated to the Northern Dam Viewpoint, adjacent to the parking.
- **Fishing Access and Hand Boat Launch:** The trail to the Northern Dam Viewpoint will continue to the reservoir shoreline, where it will serve as the relocated fishing and boating access point, which were formerly provided at the Peninsula Recreation Area. A 36-inch wide natural surface trail will route visitors from the parking area to the relocated fishing and boating access point. Four individual and two group picnic sites are also situated along this trail.

#### **4.2.3 Dam Recreation Area Relocation (Addendum) (see Maps L3, L4 and L5)**

With the expansion of Gross Reservoir, the current Dam Recreation Area will be inundated. This will require the complete relocation of all Dam Recreation Area facilities. A relocated Dam Recreation Area will be constructed at a point along the Dam Access Road just above the new high water elevation. This area is benched out of a rock outcropping on the upslope side. The grade slopes steeply to the reservoir on the downslope side of the road. Due to the more severe spatial constraints at this location, the relocated Dam Recreation Area will be much smaller. In

order to provide the same recreation facilities as the current RMP, all parking and amenities that cannot be accommodated here will be relocated elsewhere.

- **Parking:** The existing 38 parking spaces will be relocated to four areas. A smaller parking area and turnaround will be sited at the relocated Dam Recreation Area. Eight spaces, including two ADA-accessible spaces, will be provided. All parking spaces will be delineated with parking bumpers. The reservoir side of the parking area will be lined with boulders, spaced to provide a vehicular safety barrier. The thirty remaining parking spaces will be accommodated at the Northern Dam Viewpoint (8 spaces), the Relocated Haul Road Recreation Area (8 spaces) and the Scenic Ridge Trail (14 spaces). See Sections 4.2.2, 4.2.5 and 4.2.11 for more detail.
- **Individual Picnic Sites:** Two picnic sites will be located at the Relocated Dam Recreation Area off the parking area, in close proximity to the shore of the reservoir at the newly defined high water line. Each of the sites will have a picnic table and pedestal grill on a crusher-fine base. The eighteen remaining picnic sites will be replaced at the Relocated Haul Road Recreation Area (2 spaces) and the Scenic Ridge Trail (16 spaces). See Sections 4.2.5 and 4.2.11 for more detail.
- **Group Picnic Sites:** The three existing group sites will be relocated to the Scenic Ridge Trail. See Section 4.2.11 for more detail.
- **Restrooms:** One existing restroom at the Dam Recreation Area will be moved to the new Dam Recreation Area, adjacent to the parking. The second existing restroom will be relocated to the Scenic Ridge Trail. See Section 4.2.11 for more detail.
- **Scenic Overlook:** The existing overlook at the Dam Recreation Area will be relocated to the Scenic Ridge Trail. See Section 4.2.11 for more detail.
- **Fishing Access:** The existing fishing access point at the Dam Recreation Area will be replaced at the Relocated Dam Recreation Area.

#### **4.2.5 Haul Road Recreation Area Relocation (Addendum) (*see Map L7*)**

The Haul Road Recreation Area will be relocated from the existing shoreline at the end of the Haul Road to the intersection of the Haul Road and the Dam Access Road at a point above the new high water elevation. Existing facilities will be relocated to this new site, enabling all of the FERC recreation requirements to be met. A new auxiliary spillway will also be constructed at the relocated Haul Road site.

##### ***Auxiliary Spillway or Saddle Dam at Haul Road Recreation Area Option (*see Map L7*)***

The alternative option for the Relocated Haul Road Recreation Area accommodates the provision of either an auxiliary spillway or saddle dam at this location. An auxiliary spillway or saddle dam at this location would necessitate moving the parking and turnaround farther to the north of the intersection of the Dam Access Road and the Haul Road. The existing knoll would be removed



and re-graded during construction of the auxiliary spillway or saddle dam and parking/turnaround.

- **Parking:** A parking area and 50-foot radius turnaround will be placed to the north of the new auxiliary spillway or saddle dam construction. Twenty-eight parking spaces, including 2 ADA-accessible spaces, will be provided. Twenty of these parking spaces will be relocated from the inundated Haul Road Recreation Area, with eight additional spaces relocated from the existing Dam Recreation Area. Each parking space will be designated with a parking bumper. Due to grading constraints, a pass-through vehicular circulation route connecting the parking area to the Dam Access Road won't be possible. A turnaround at the northern end of the parking area has been incorporated instead.

Realignment of the existing Dam Access Road and the existing Miramonte Access Road will be required to provide vehicular access around the south side of the auxiliary spillway or saddle dam. Conceptual layouts of the road realignments are shown in Map L7. Approximately 1,900 feet of the existing two-lane gravel Dam Access Road will be relocated to the east of the current location and will cross the spillway channel downstream of the spillway crest. The existing Dam Access Road gate will be relocated to a point immediately north of the proposed parking lot. Approximately 1,500 feet of the existing single-lane gravel Miramonte Access Road will be relocated to the south of the current location. The existing Miramonte Access Road gate will also be relocated to the new intersection with the Dam Access Road.

- **Individual Picnic Sites:** A total of 13 individual picnic sites will be developed. Along the northern water's edge, to the northwest of the spillway, ten individual picnic sites are provided. Three additional individual picnic sites are located just above these ten, along the trail spur leading to the Upper Viewshed Trail. Ten of these individual picnic sites will be relocated from the inundated Haul Road Recreation Area, one will be relocated from the Peninsula Recreation Area and two will be relocated from the Dam Recreation Area. Each of the sites will have a picnic table and pedestal grill on a crusher-fine base and all of the facilities will be linked with a 36-inch wide crusher-fine trail network.
- **Group Picnic Sites:** The two existing group sites will be relocated north of the spillway, near the parking area.
- **Restrooms:** One relocated restroom facility will be located adjacent to the parking area. The other relocated restroom facility will be moved to the relocated Scenic Ridge Trail. See Section 4.2.11 for more detail.
- **Boat Access:** A boat put-in will be relocated along the western edge of the turnaround, north of the proposed auxiliary spillway or saddle dam, at the high-water elevation. Low-water boat access will be along existing bank slopes of approximately 20%.
- **Fishing Access:** Two fishing access points will be provided along the reservoir's edge, which will be relocated from the Peninsula Recreation Area to the Relocated Haul Road Recreation Area. A natural surface trail will connect these sites with nearby picnic facilities.

Along the southern edge of the shoreline, and to the west of the auxiliary spillway or saddle dam, is the trailhead for the relocated South Boulder Creek Inlet Access trail that will connect the Haul Road Recreation Area with the South Boulder Creek Inlet fishing access. See Section 4.2.6 for more detail. A trail spur will connect the parking area to the north of the spillway with this trailhead.

#### **4.2.6 South Boulder Creek Inlet Relocation (Addendum)** (see Maps L7, L8 and L9)

All of the facilities under the current RMP for the South Boulder Creek Inlet will remain at this relocated site.

Due to the expansion of Gross Reservoir, the existing hiking and fishing access trail connecting the Haul Road Recreation Area to the South Boulder Creek Inlet will be inundated. The trail will be relocated to an elevation above the high water line. The trail alignment will begin at the relocated Haul Road Recreation Area and follow along the newly defined water's edge, when possible, to the raised South Boulder Creek Inlet. The new trail is approximately 2.6 miles long. The majority of the new trail segment gradients are anticipated to be 15% or less, providing sustainable access to the South Boulder Creek Inlet.

The expanded reservoir will extend onto undeveloped private land in two locations along the southwestern edge of the FERC Project Boundary, consequently the inlet trail will also extend onto these parcels. Denver Water intends to acquire these lands and adjust the FERC Project Boundary accordingly.

Fishing access will be possible at various places along the trail's traverse (Maps L8 and L9). These fishing areas will provide angler access to the reservoir.

A new South Boulder Creek Inlet Access trailhead will be placed to the west of the Relocated Haul Road Recreation Area parking area (Map L7). This trailhead is comprised of directional and regulatory signage and a trash receptacle. Denver Water will involve the Forest Service in trail layout, design and construction. Denver Water will adhere to Forest Service Handbook (FSH) 2309.18, Chapter 20 for planning, management, construction, and maintenance of the South Boulder Creek Inlet Trail. Denver Water will obtain and adhere to the Trail Management Objective from the Forest Service that outlines specific management intent of the trail.

In 2015, Denver Water recreation staff walked the proposed Inlet Trail alignment as shown in the May 2008 *Gross Reservoir Recreation Relocation Plan* and encountered very steep/rocky terrain along the western third of the proposed alignment. Denver Water determined the proposed trail could not be constructed to provide safe passage for the users. Denver Water adjusted the trail alignment in collaboration with the Forest Service to a location that would provide a more gentle/passable slope. Consequently, this rerouting of the proposed trail shifts the proposed FERC Project Boundary resulting in the addition of approximately 2 acres of NFS lands within the boundary (Map L-8).

Denver Water and the Forest Service met on September 11, 2015 to discuss the new alignment of the Inlet Trail. Denver Water explained the desire to create recreational access (hiking and fishing) to the new inlet area following the reservoir expansion to be similar to those recreational experiences and opportunities currently available at Gross Reservoir. Denver Water and the Forest Service discussed the following recreation concerns during this site visit: proposed relocation of the Inlet Trail, challenges with terrain and constructability of the new trail, identifying an alignment that meets Forest Service trail standards and guidelines, and the potential need to extend a portion of the FERC Project Boundary onto NFS lands to accommodate the relocated trail alignment.

During the site visit Denver Water and the Forest Service hiked a portion of the proposed Inlet Trail alignment to get a sense for the general terrain conditions, which generally navigated between an elevation of 7,421 and 7,500 feet above sea level. Along the way, the Forest Service noted several rocky “outcrops” that could serve as good control points for trail construction and could also provide good scenic overlook opportunities associated with the reservoir expansion. The Forest Service concurred with Denver Water’s assessment that it was not feasible to keep the trail within the footprint of the existing FERC Project Boundary. Therefore, the Forest Service agreed that the new alignment would require the trail to extend outside the existing FERC Project Boundary onto NFS lands, where the terrain would allow for a more constructible and manageable trail. Prior to any trail-related construction activities Denver Water will coordinate with the Forest Service on final trail design, alignment, and construction schedule.

#### **4.2.11 Scenic Ridge Trail (Addition)** (see Maps L3, L4 and L5)

To accommodate the remaining RMP facilities at sites that will be inundated during the reservoir expansion, a trail and amenities will be developed along a ridge overlooking the reservoir to the southwest of the existing dam. This approximately half-mile long trail will follow along an existing, abandoned roadway bench that was used during the original construction of the dam. The relatively flat existing grades will enable the trail to be ADA-accessible.

- **Parking:** A parking area will be located at the southern end of the trail (Map L5). This parking area is sited off the Dam Access Road, midway between its intersection with the Haul Road and the newly Relocated Dam Recreation Area. Fourteen parking spaces, including two ADA-accessible spaces, will be relocated here from the inundated Dam Recreation Area. This parking area will accommodate Scenic Ridge Trail users as well as those who wish to hike or picnic on the Upper Viewshed Trail, across the Dam Access Road.
- **Individual Picnic Sites:** Individual picnic sites are located along the Scenic Ridge Trail, as well as in an area to the east of the parking area. All of these picnic sites will be relocated from the inundated Dam Recreation Area in order to meet FERC requirements. Along the Scenic Ridge Trail, eight individual picnic sites are interspersed within the trees adjoining the trail (Maps L3 and L4). Many sites have excellent views of the reservoir below and the Continental Divide beyond. The remaining eight individual picnic sites are situated to the east of the parking area on an existing knoll and secondary trail (Maps L5). Each of the sites

will have a picnic table and pedestal grill on a crusher-fine base and all of the facilities will be linked with a 36-inch wide crusher-fine trail network.

- **Group Picnic Sites:** Two group picnic shelters are sited at the southern end of the trail adjacent to the parking area (Map L5), while the third group picnic shelter is located at the northern end of the trail near the scenic overlook (Map L3).
- **Restrooms:** Two restrooms will be relocated to the Scenic Ridge Trail: one from the inundated Dam Recreation Area and one from the Haul Road Recreation Area. One will be sited just to the east of the parking area (Map L5) and the other will be located at the northern end of the Scenic Ridge Trail, adjacent to the scenic overlook (Map L3).
- **Scenic Overlook:** The northern extent of the trail terminates at a scenic overlook that will be relocated from the Dam Recreation Area (Map L3). This overlook will include interpretive signage and also provide an excellent vantage point from which to get a closer look at the remnants of historic concrete structures and other infrastructure used to construct the original dam.

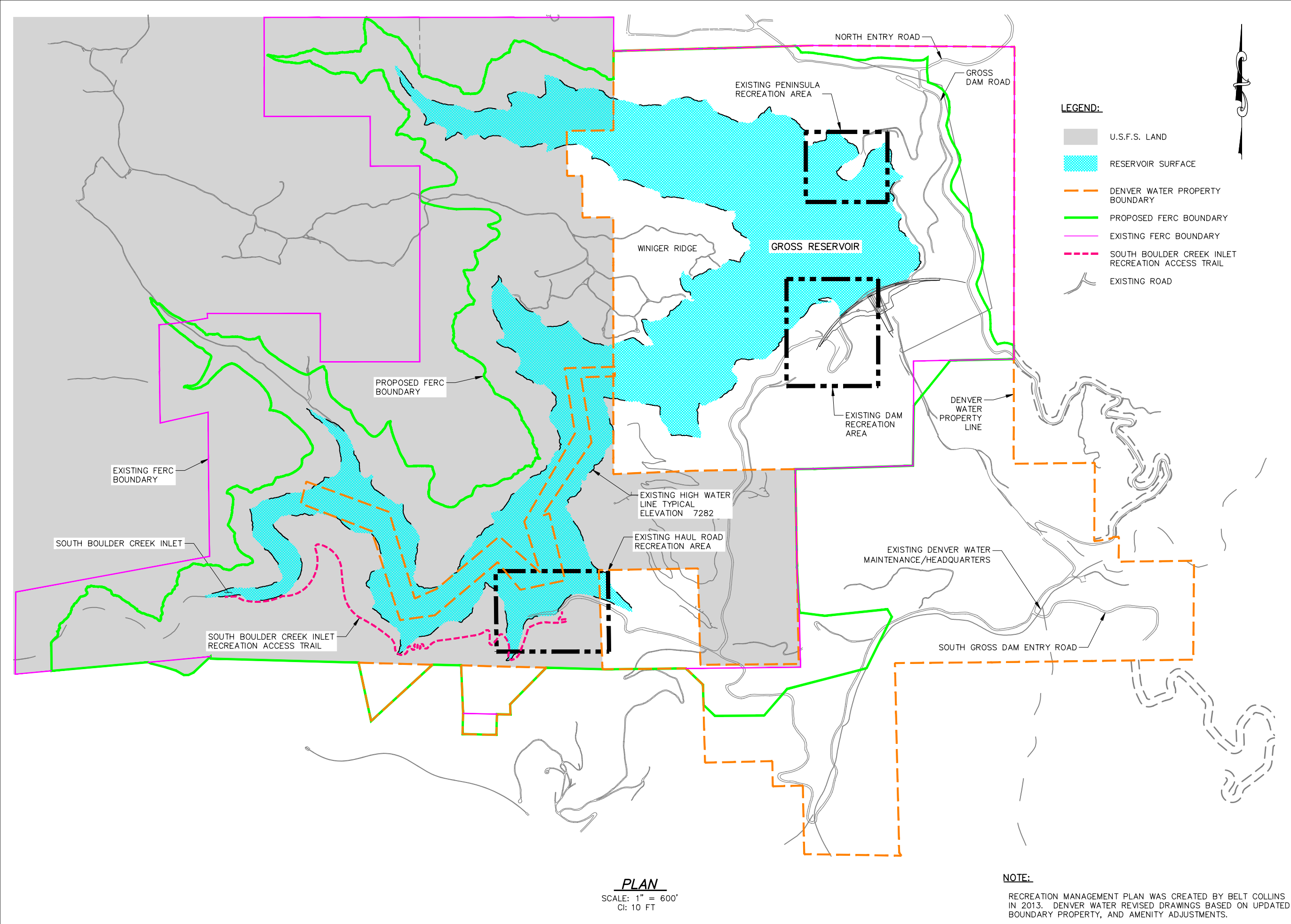
#### **4.2.12 Upper Viewshed Trail (Addition) (see Map L6)**

The remaining facilities under the current RMP for the inundated Peninsula Recreation Area which are not accommodated at the Northern Dam Viewpoint will be met at the Upper Viewshed Trail. The loop trail and picnic sites will be constructed on the west side of the Dam Access Road and will traverse the hillside across from the Scenic Ridge Trail parking area. The approximately 0.7 mile loop climbs to the crest of the hill and continues down the other side to a point with spectacular views of the reservoir. Fishing access will be possible at the terminus of the Upper Viewshed Trail. This trail replaces the Rocky Point Trail that will be inundated near the Peninsula Recreation Area. See Section 4.2.2.

- **Individual Picnic Sites:** Five individual picnic sites will be relocated from the Peninsula Recreation Area and are situated along the trail in locations that are screened from neighbors to the south. Each of the sites will have a picnic table and pedestal grill on a crusher-fine base.

Trail connections to two parking areas feed into the Upper Viewshed loop trail. An approximately 0.5 mile long spur connects the loop to the Relocated Haul Road parking area, while an approximately 0.2 mile long spur leads down to a point directly across the Dam Access Road from the parking area at the Scenic Ridge Trail.

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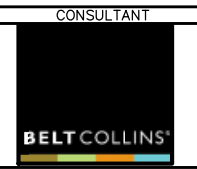
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EXISTING CONDITIONS  
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**PLAN**  
 SCALE: 1" = 600'  
 Cl: 10 FT

**NOTE:**  
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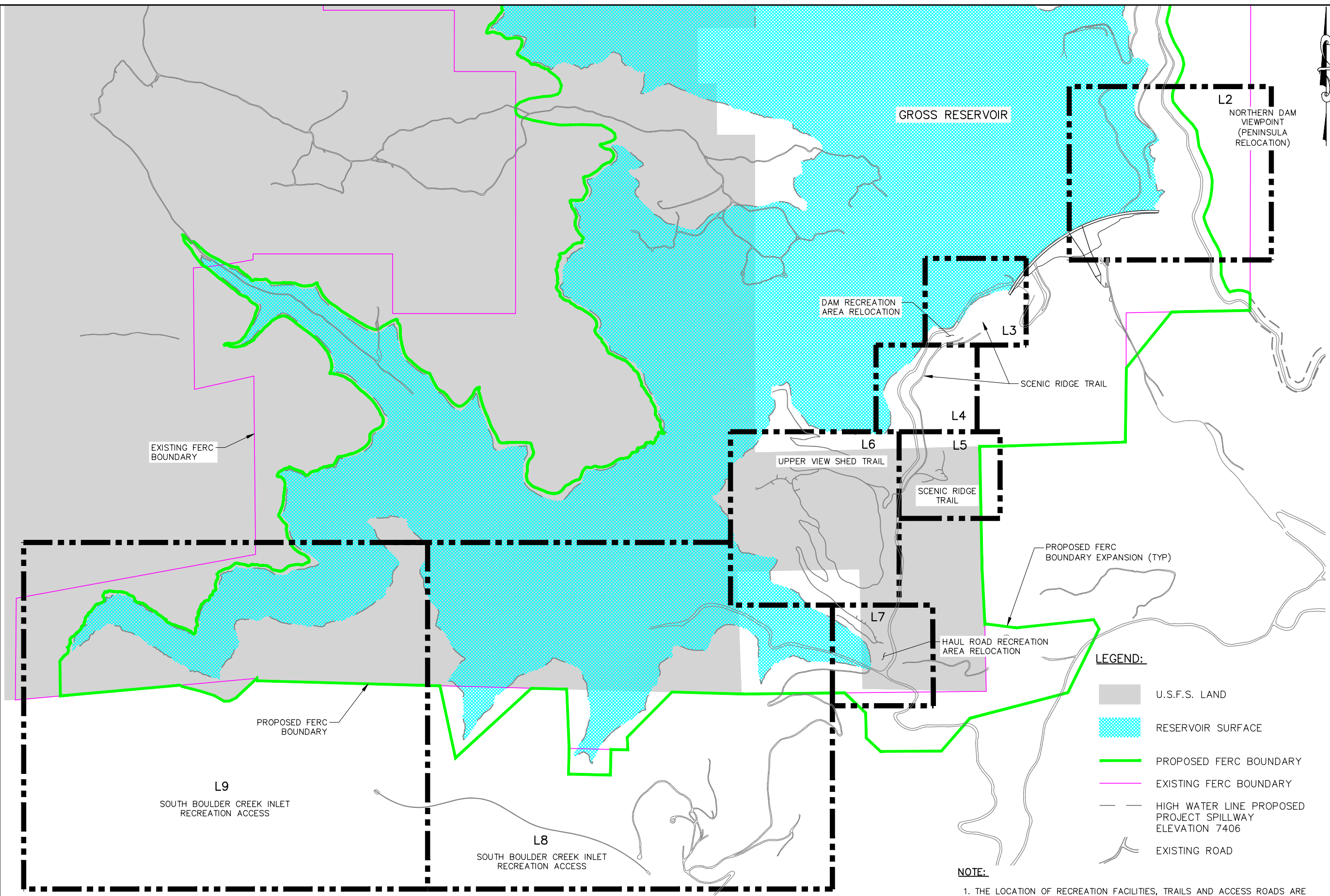
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OVERALL STUDY AREA



**LEGEND:**

- U.S.F.S. LAND
- RESERVOIR SURFACE
- PROPOSED FERC BOUNDARY
- EXISTING FERC BOUNDARY
- HIGH WATER LINE PROPOSED PROJECT SPILLWAY ELEVATION 7406
- EXISTING ROAD

- NOTE:**
1. THE LOCATION OF RECREATION FACILITIES, TRAILS AND ACCESS ROADS ARE CONCEPTUAL. THE FINAL EXACT LOCATION WILL BE DETERMINED IN ACCORDANCE WITH THE FINAL DESIGN OF THE DAM AND ADJUNCT FACILITIES.
  2. RECREATION MANAGEMENT PLAN WAS CREATED BY BELT COLLINS IN 2013. DENVER WATER REVISED DRAWINGS BASED ON UPDATED BOUNDARY PROPERTY, AND AMENITY ADJUSTMENTS.

**PLAN**  
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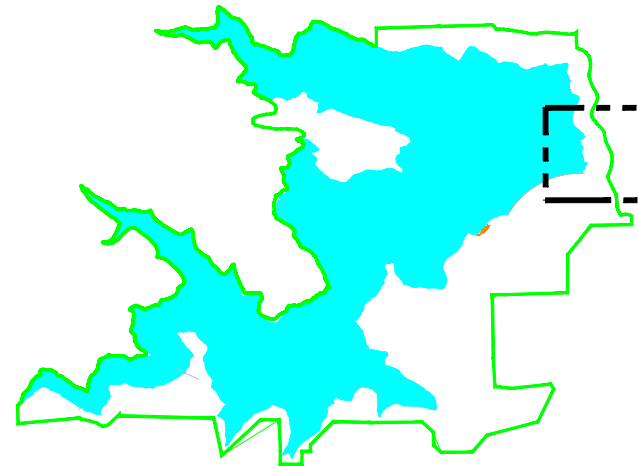
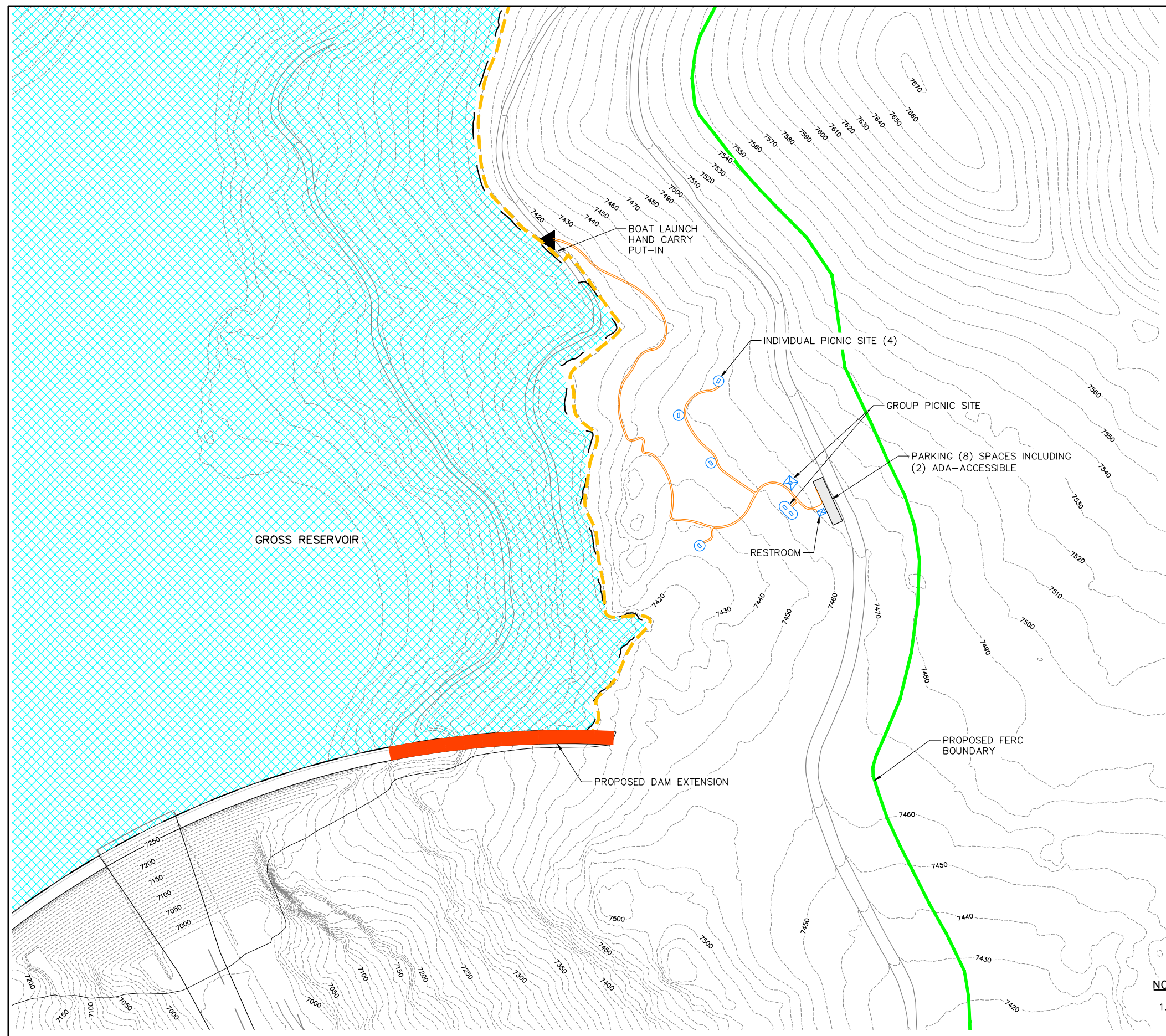
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**NORTHERN DAM VIEWPOINT (PENINSULA RELOCATION)**



**KEY MAP**  
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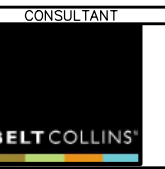
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- NEW HIGH WATER LINE ELEVATION 7406'
- PROPOSED FERC BOUNDARY
- RECREATION PLANNING LINE ELEVATION 7410'
- PROPOSED FISHING ACCESS
- GROUP PICNIC/SHELTER SITES
- INDIVIDUAL PICNIC SITE
- HIKING TRAIL
- RESTROOM
- SCENIC OVERLOOK
- EXISTING ROAD
- RESERVOIR SURFACE

**NOTES:**

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**PLAN**  
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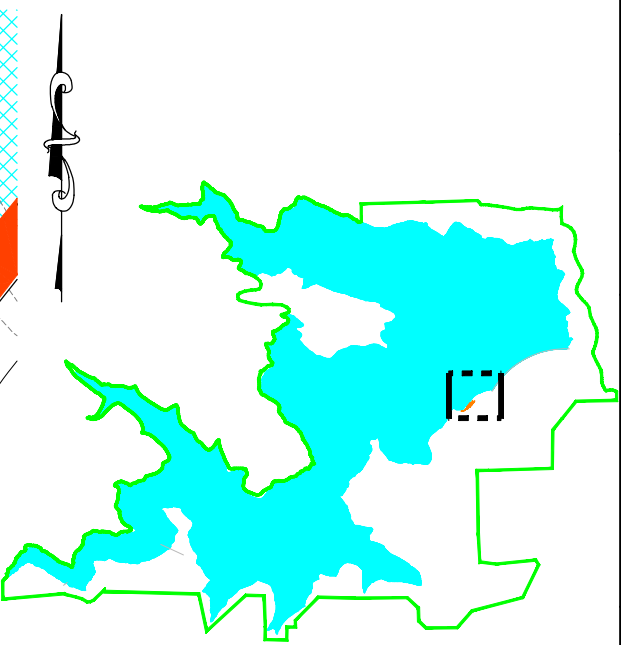
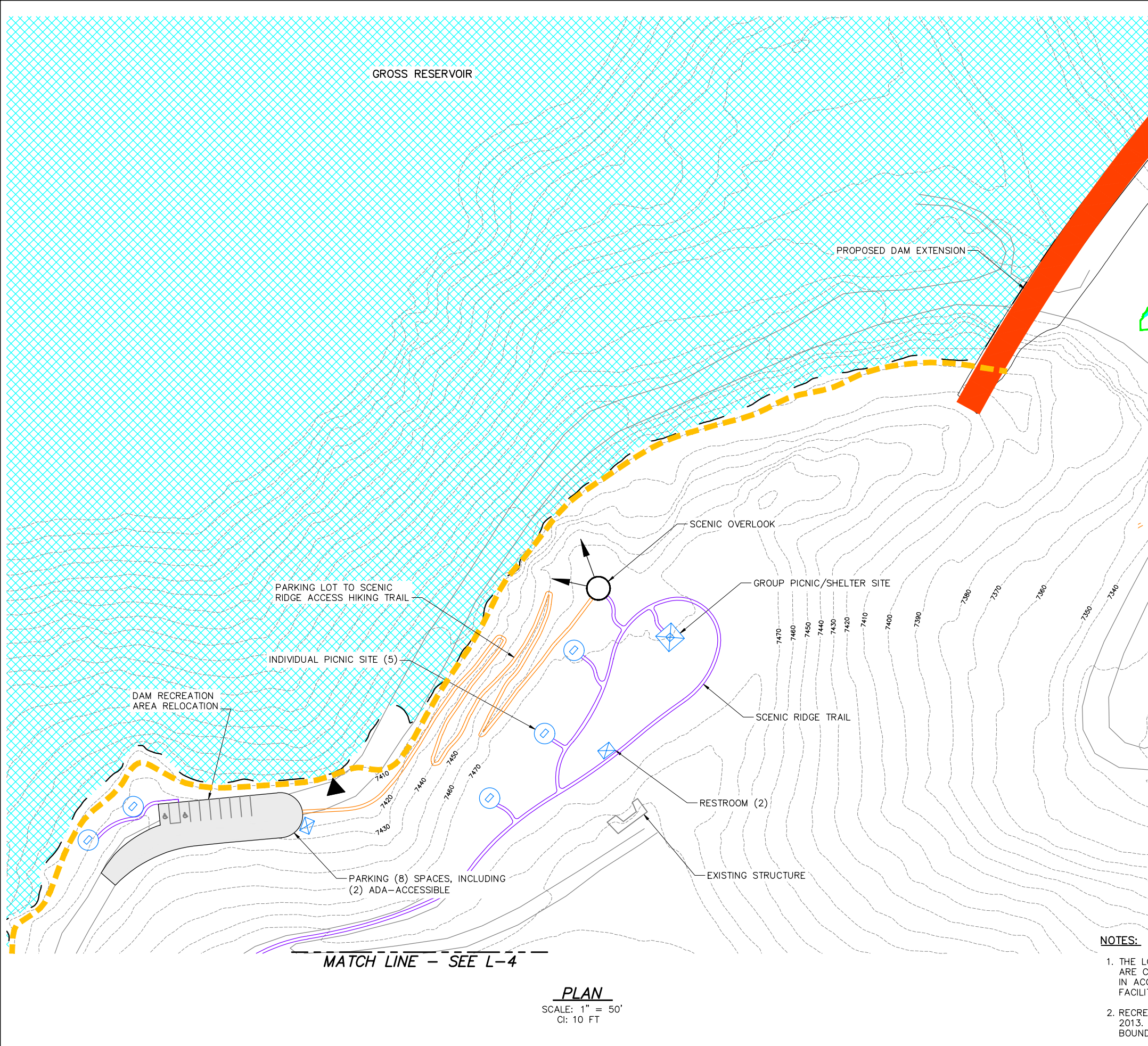
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**DAM RECREATION AREA RELOCATION SCENIC RIDGE TRAIL-A**  
 L-3



**KEY MAP**  
 NO SCALE

**LEGEND:**

- NEW HIGH WATER LINE ELEVATION 7406'
- RECREATION PLANNING LINE ELEVATION 7410'
- PROPOSED FISHING ACCESS
- GROUP PICNIC/SHELTER SITES
- INDIVIDUAL PICNIC SITE
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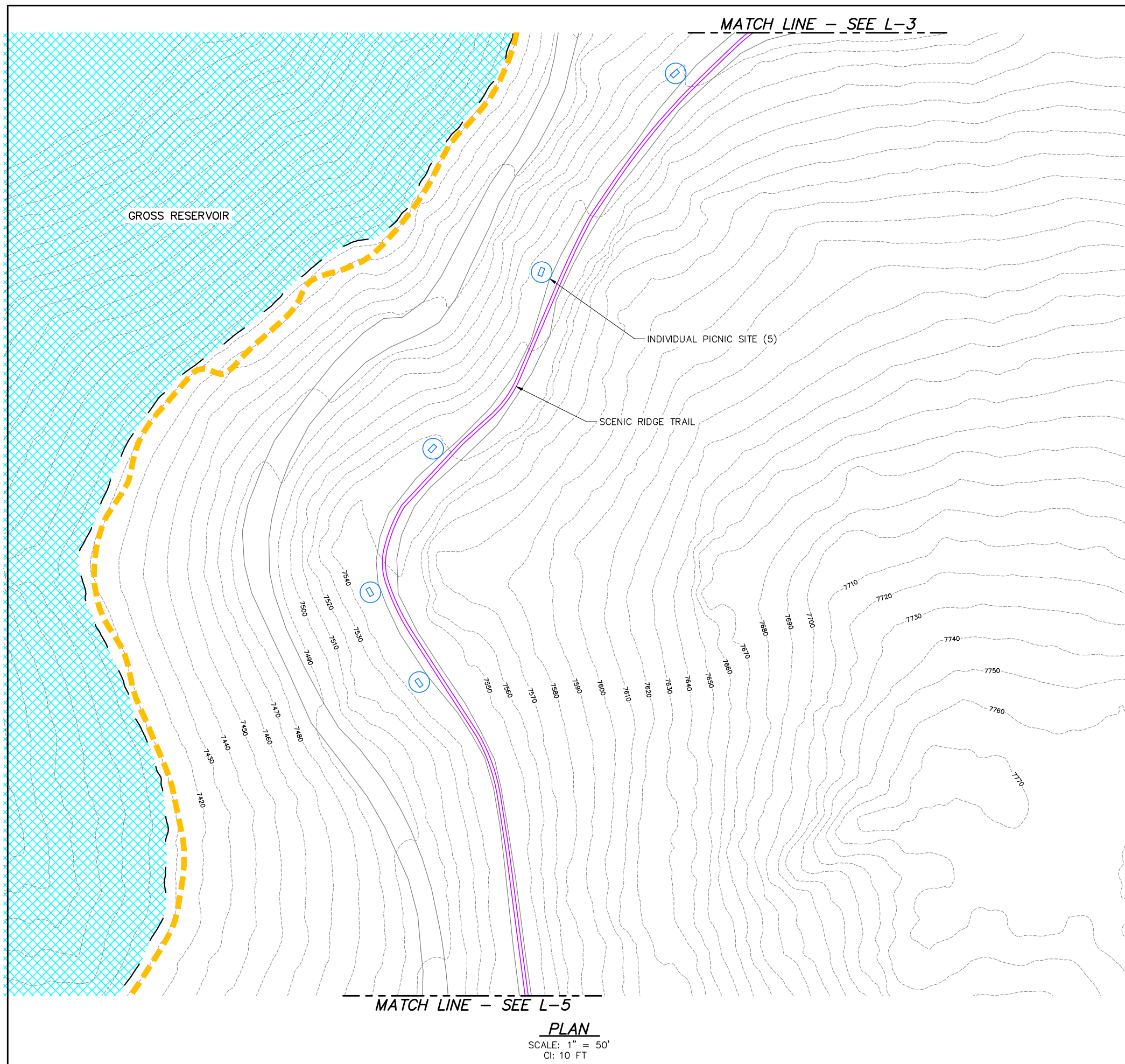
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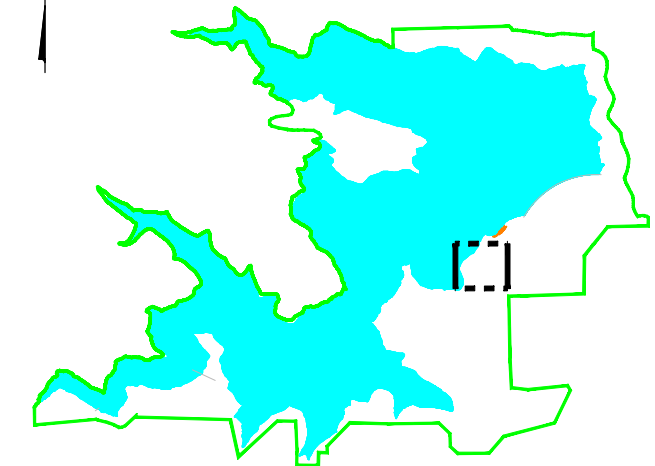
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**PLAN**  
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**KEY MAP**  
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- LEGEND:**
- NEW HIGH WATER LINE ELEVATION 7406'
  - RECREATION PLANNING LINE ELEVATION 7410'
  - INDIVIDUAL PICNIC SITE
  - ADA ACCESSIBLE TRAIL
  - EXISTING ROAD
  - RESERVOIR SURFACE

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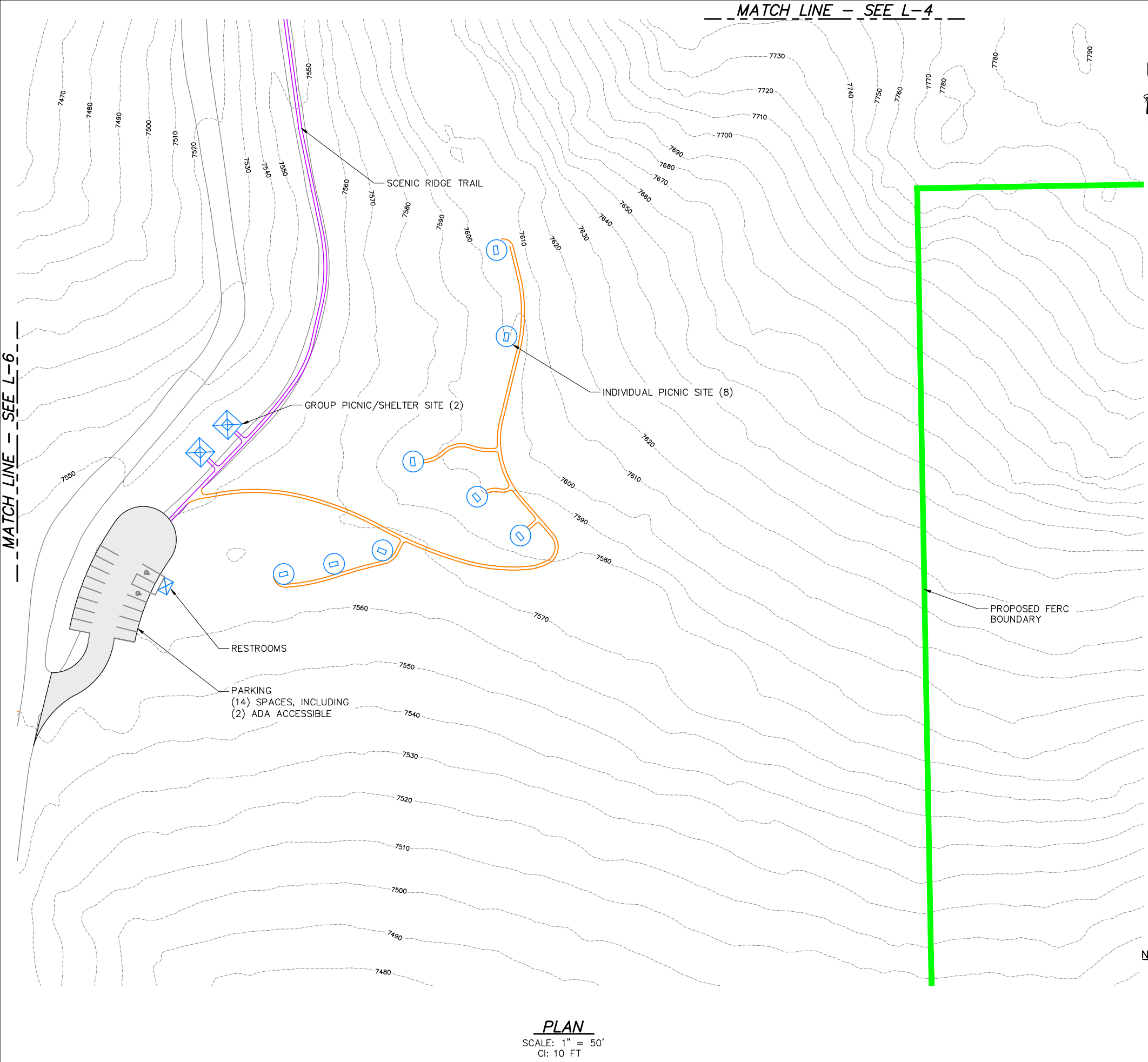
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**SCENIC RIDGE TRAIL B**  
L-4

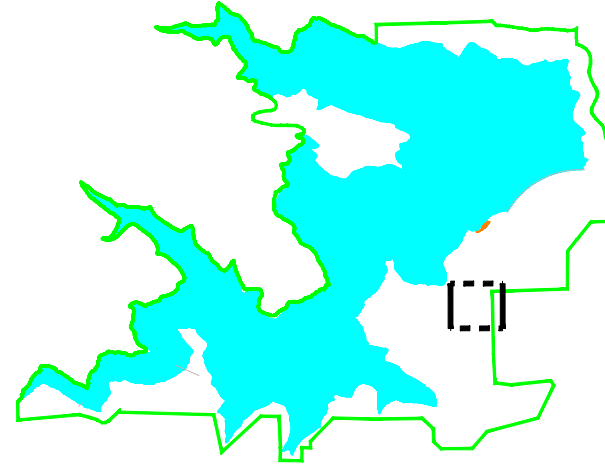
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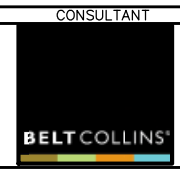


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- LEGEND:**
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  - GROUP PICNIC/SHELTER SITE
  - INDIVIDUAL PICNIC SITE
  - RESTROOM
  - ADA ACCESSIBLE TRAIL
  - HIKING TRAIL
  - EXISTING ROAD

**NOTES:**

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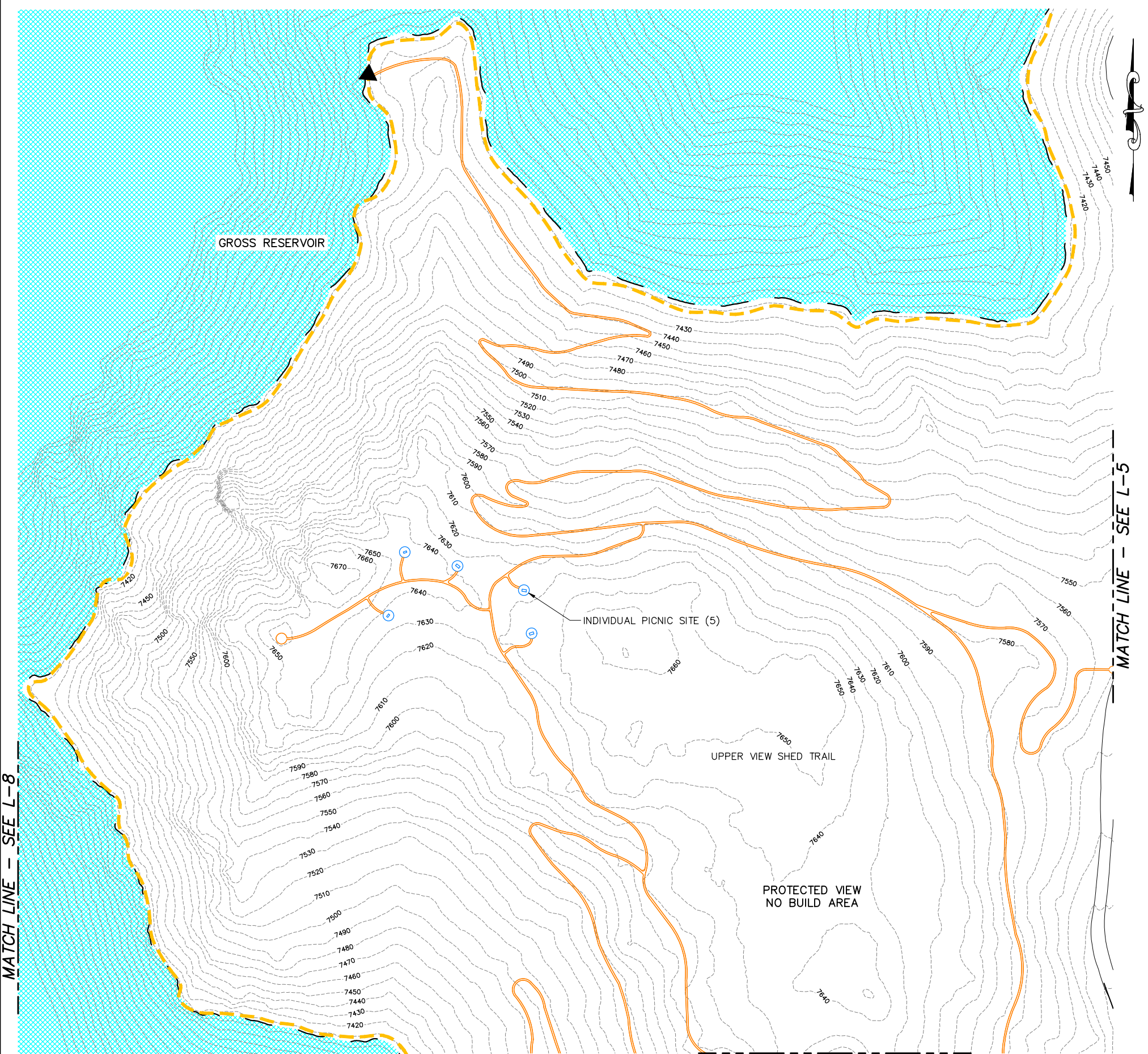
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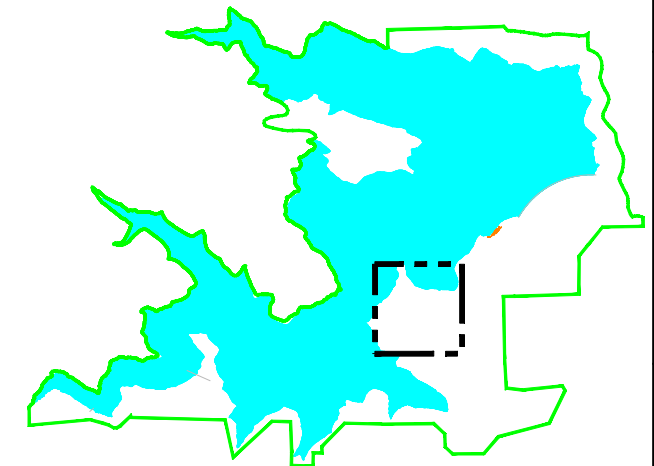
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**SCENIC RIDGE TRAIL B**  
  
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**KEY MAP**  
NO SCALE

- LEGEND:**
- NEW HIGH WATER LINE ELEVATION 7406'
  - RECREATION PLANNING LINE ELEVATION 7410'
  - PROPOSED FISHING ACCESS
  - INDIVIDUAL PICNIC SITE
  - HIKING TRAIL
  - EXISTING ROAD
  - RESERVOIR SURFACE

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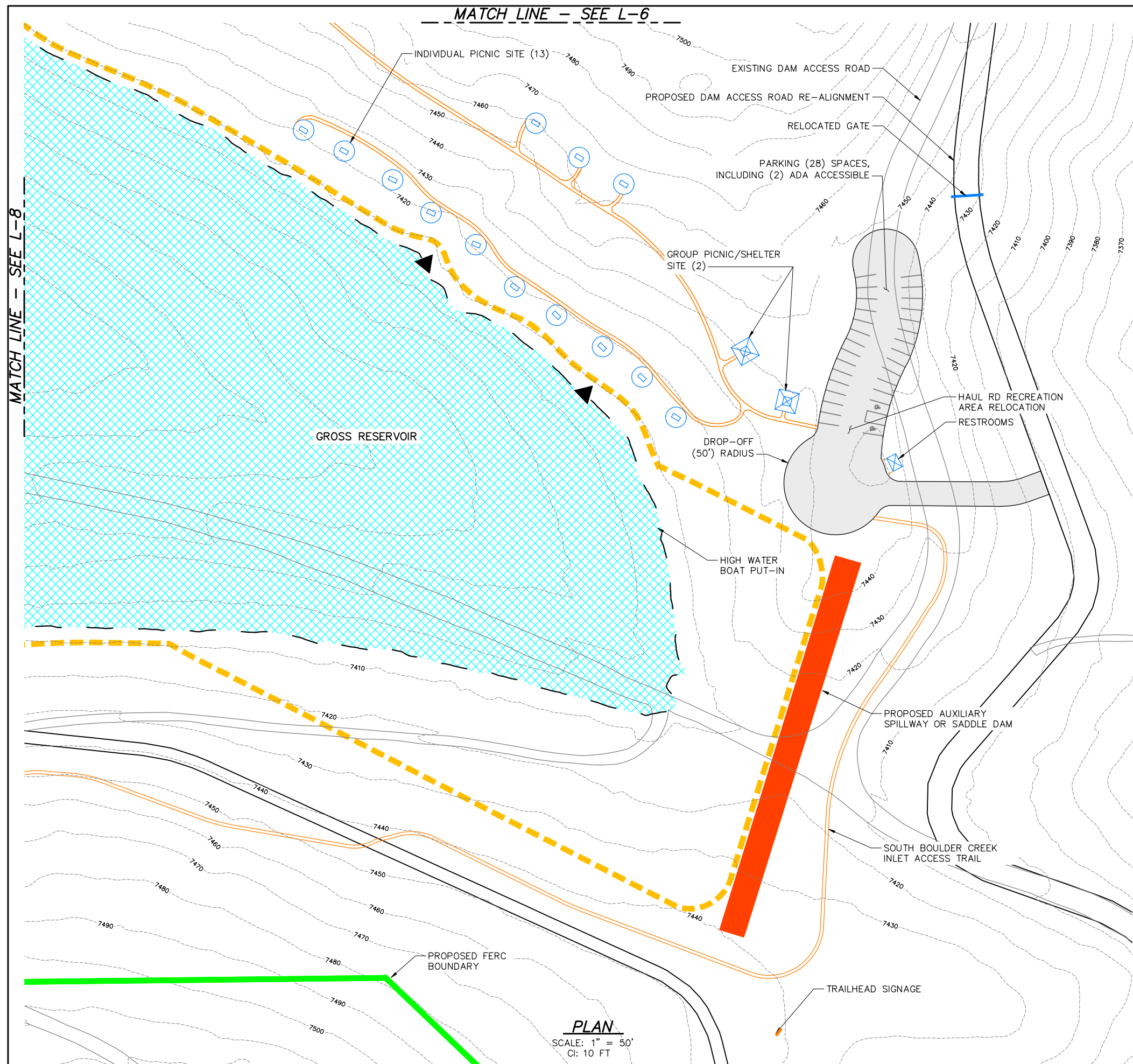
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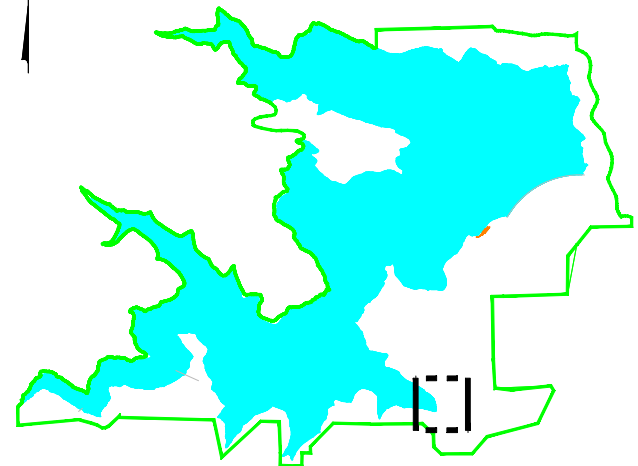
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**KEY MAP**  
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- LEGEND:**
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  - RECREATION PLANNING LINE ELEVATION 7410'
  - PROPOSED FERC BOUNDARY
  - GROUP PICNIC/SHELTER SITE
  - INDIVIDUAL PICNIC SITE
  - RESTROOM
  - HIKING TRAIL
  - PROPOSED FISHING ACCESS
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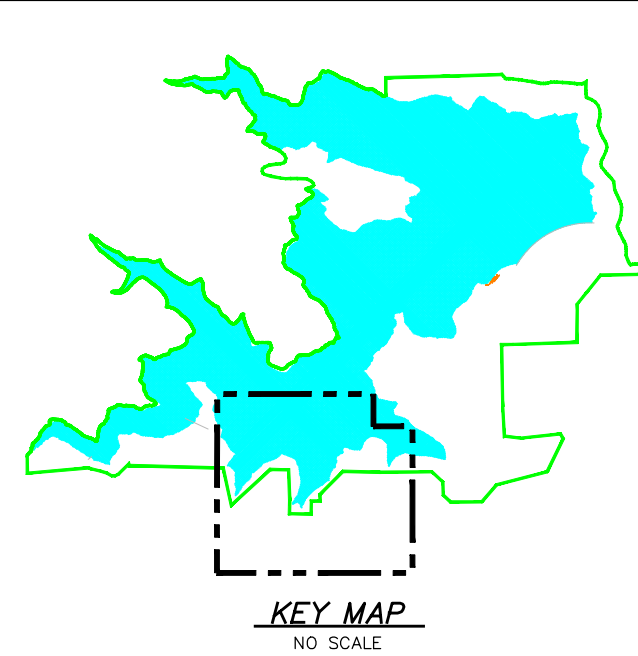
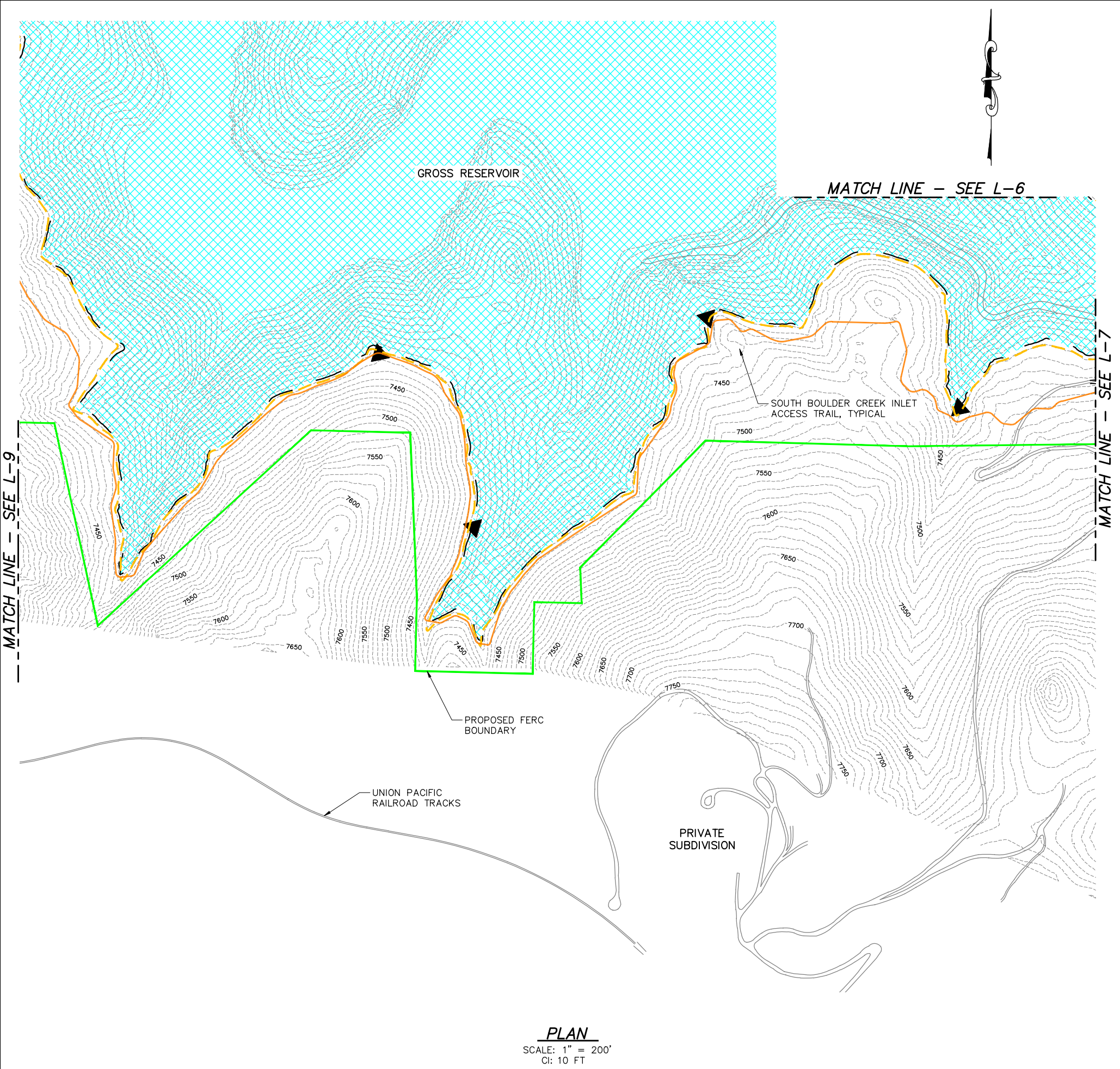
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 1600 West 12th Ave  
 Denver, Colorado 80204-3412  
 T: 303.628.6000  
 F: 303.628.6851  
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CONSULTANT  
**BELT COLLINS**

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 ADDENDUM TO RECREATION MANAGEMENT PLAN (RMP)

REFERENCE:  
 CAPITAL PROJECTS CONSTRUCTION STANDARDS 2014  
 www.denverwater.org  
 /DoingBusinesswithUs/EngineeringOverview/CPCS  
 THIS DRAWING IS BASED ON THE DW\_GROSS\_GRID COORDINATE SYSTEM

No	Date	Description

**REVISIONS**

**VERIFY SCALES**  
 BAR IS ONE INCH ON ORIGINAL DRAWING  
 0 1"  
 IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

PT NO: 17089
DRAWN BY: MCMILLEN
CHKD BY: MARTIN/
CHKD BY: PRICE/
APPD BY:
DATE: FEBRUARY 2016
CONTRACT:
AS-BUILT DATE:
AS-BUILT BY:
DRAWING TITLE

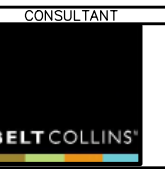
**S BOULDER CREEK INLET REC ACCESS**  
 L-8

- LEGEND:**
- NEW HIGH WATER LINE ELEVATION 7406'
  - PROPOSED FERC BOUNDARY
  - RECREATION PLANNING LINE ELEVATION 7410'
  - HIKING TRAIL
  - PROPOSED FISHING ACCESS
  - EXISTING ROAD
  - RESERVOIR SURFACE

- NOTES:**
- THE LOCATION OF RECREATION FACILITIES, TRAILS AND ACCESS ROADS ARE CONCEPTUAL. THE FINAL EXACT LOCATION WILL BE DETERMINED IN ACCORDANCE WITH THE FINAL DESIGN OF THE DAM AND ADJUNCT FACILITIES.
  - RECREATION MANAGEMENT PLAN WAS CREATED BY BELT COLLINS IN 2013. DENVER WATER REVISED DRAWINGS BASED ON UPDATED BOUNDARY PROPERTY, AND AMENITY ADJUSTMENTS.

**PLAN**  
 SCALE: 1" = 200'  
 CI: 10 FT

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**GROSS RESERVOIR ENLARGEMENT**  
 ADDENDUM TO RECREATION MANAGEMENT PLAN (RMP)

REFERENCE:  
 CAPITAL PROJECTS CONSTRUCTION STANDARDS 2014  
 www.denverwater.org/DoingBusinesswithUs/EngineeringOverview/CPCS  
 THIS DRAWING IS BASED ON THE DW\_GROSS\_GRID COORDINATE SYSTEM

No	Date	Description

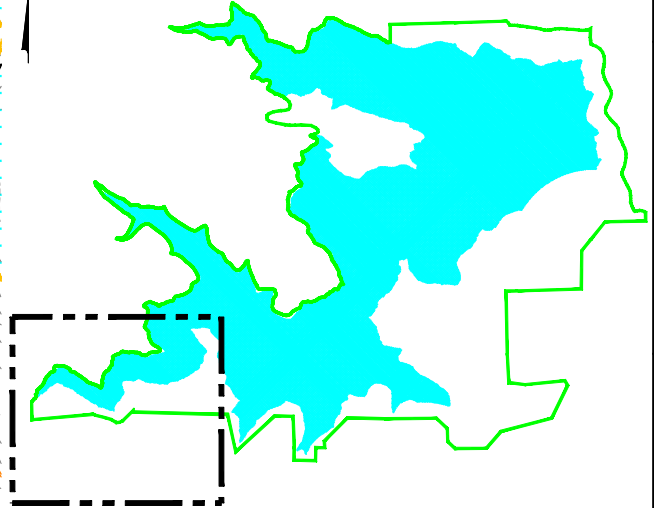
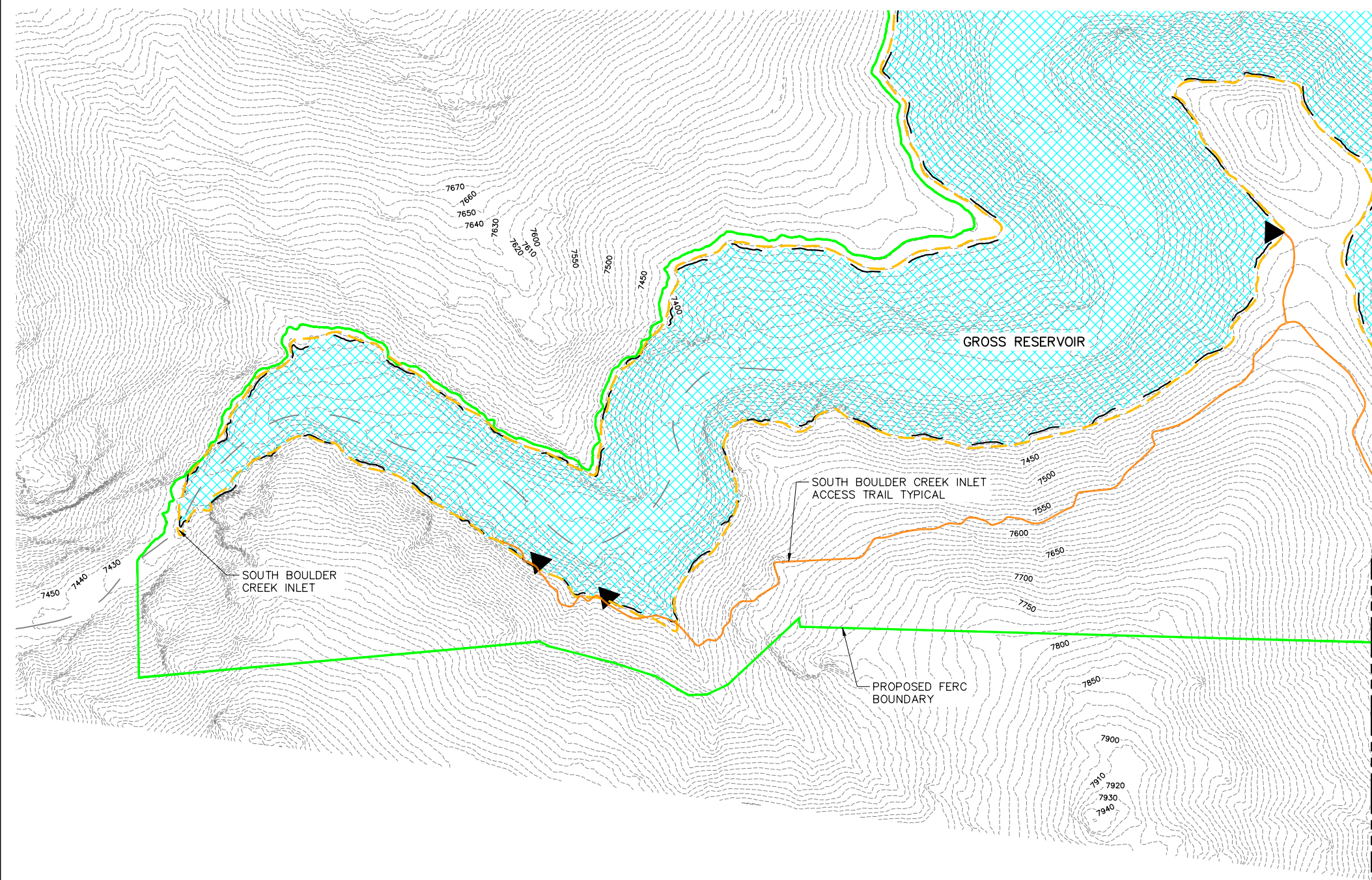
**REVISIONS**

No	Date	Description

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DRAWING TITLE

**S BOULDER CREEK INLET REC ACCESS**  
 L-9



**KEY MAP**  
 NO SCALE

**LEGEND:**

- NEW HIGH WATER LINE ELEVATION 7406'
- PROPOSED FERC BOUNDARY
- RECREATION PLANNING LINE ELEVATION 7410'
- HIKING TRAIL
- PROPOSED FISHING ACCESS
- EXISTING ROAD
- RESERVOIR SURFACE

**NOTES:**

1. THE LOCATION OF RECREATION FACILITIES, TRAILS AND ACCESS ROADS ARE CONCEPTUAL. THE FINAL EXACT LOCATION WILL BE DETERMINED IN ACCORDANCE WITH THE FINAL DESIGN OF THE DAM AND ADJUNCT FACILITIES.
2. RECREATION MANAGEMENT PLAN WAS CREATED BY BELT COLLINS IN 2013. DENVER WATER REVISED DRAWINGS BASED ON UPDATED BOUNDARY PROPERTY, AND AMENITY ADJUSTMENTS.

**PLAN**  
 SCALE: 1" = 200'  
 CI: 10 FT

Attachment 3: 2016 Existing Recreation Monitoring Data and  
Map of Future Recreation Monitoring per Article 417

## Gross Reservoir Estimated Annual Recreation Use 2016

Site	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Counts	Estimate number of recreation users	Comments
North Shore Parking (Vehicle Counter)	2,995	3,437	2,790	1,887	2,981	5,723	8,723	1,849	950	875	1,573	1,380	35,163	94,940	Annual visitors estimate at North Shore Lot
Boat House Trail (Trail Counter)	986	1,015	957	1,051	1,462	2,410	2,840	2,030	1,220	1,230	1,241	1,113	17,555	17,555	Estimated annual visitor use to Peninsula Recreation Area from Boat House trail
South Side Dam Recreation Area (Vehicle Counter)	1,579	1,076	1,658	1,736	3,093	5,670	5,916	5,344	5,172	3,723	1,807	1,560	38,334	103,502	Estimated Annual recreation visitors to South Side Dam Recreation Area
Osprey Point (Vehicle Counter)	1,779	1,412	1,373	1,859	3,721	7,336	8,155	5,010	3,194	1,454	1,426	855	35,795	96,647	Estimated Annual recreation visitors to Osprey Point from So. Side Dam Road
															North Shore Parking
															South Side Dam Count
															Total
Annual use at North Shore Lot, South Shore road and Osprey Point were estimated by multiplying the annual vehicle count by 2.7; the estimates number of people per vehicle.															
Boat House Trail recreation use count were determined by using a trail counter, counts people on trail.															



## Public Outreach Survey

### Memorial Day Weekend 2016

The following survey questions were posed to visitors at Gross Reservoir from May 27<sup>th</sup> through 30<sup>th</sup> to investigate average recreational uses and habits of reservoir attendees. The survey outreach team received a total of 219 responses via in-person surveys.

#### Major takeaways:

1. Memorial Day weekend saw a significant turnout from first time and infrequent visitors preferring to visit during the warmer months of the year.
2. Respondents mostly favored electronic sources for information regarding Gross Reservoir but reported feeling overwhelmingly uninformed about the Expansion Project.
3. Gross Reservoir attracts visitors from a wide geographic area, with the majority coming from areas in Colorado.

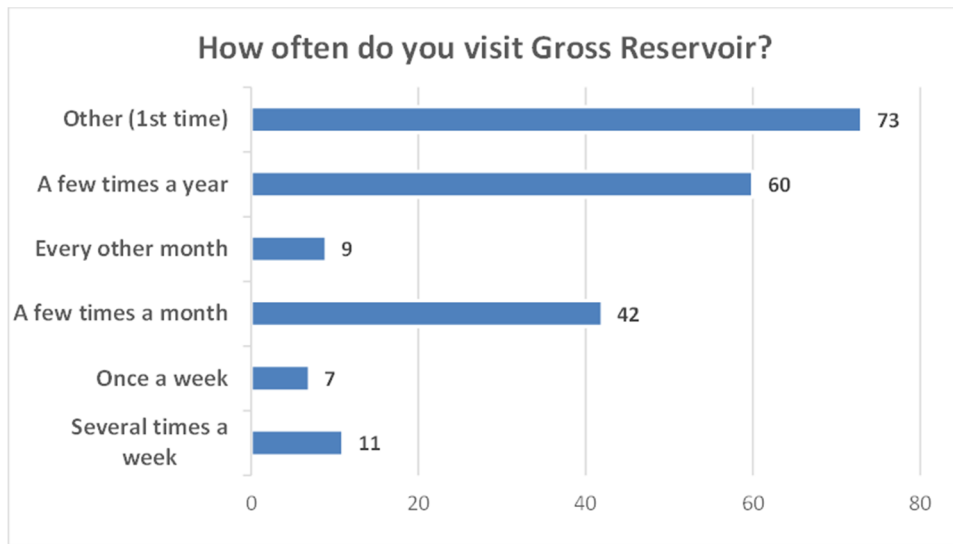
#### Survey response analysis:

1. Respondents most commonly visit for hiking, fishing and boating activities.

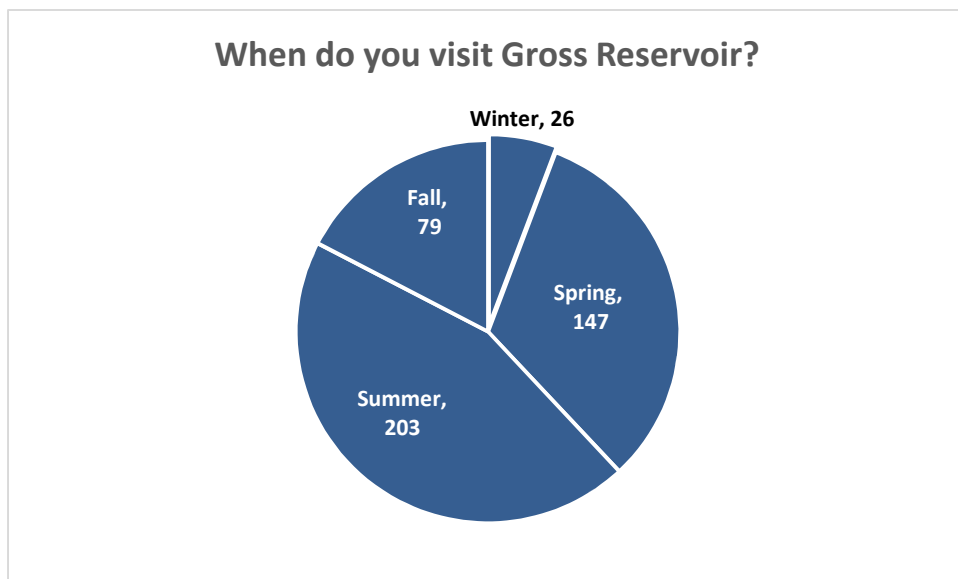


The most popular responses for 'Other' activities included sightseeing, photography and grilling.

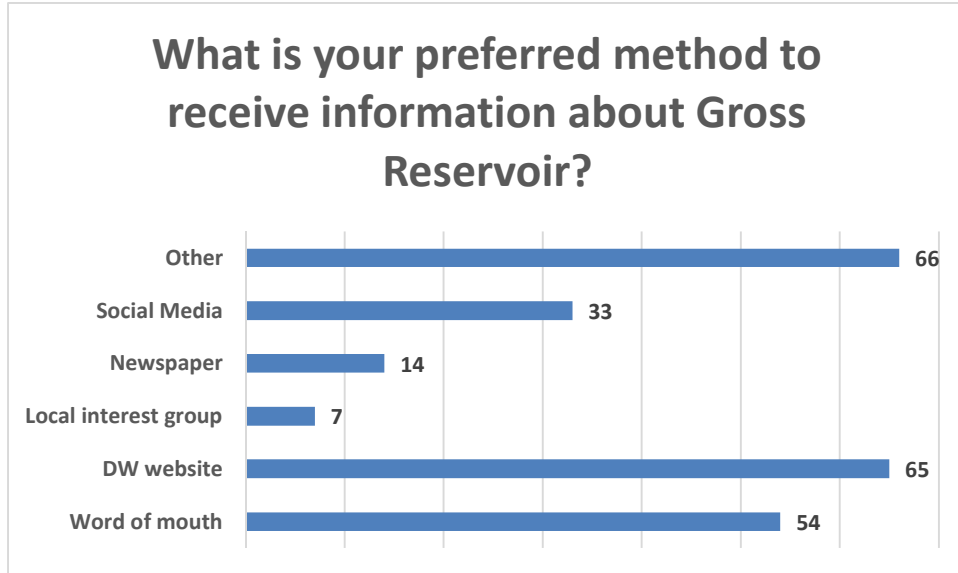
2. Memorial Day weekend saw a large turnout of first time visitors. Most other respondents come to the site a few times a year or a few times a month.



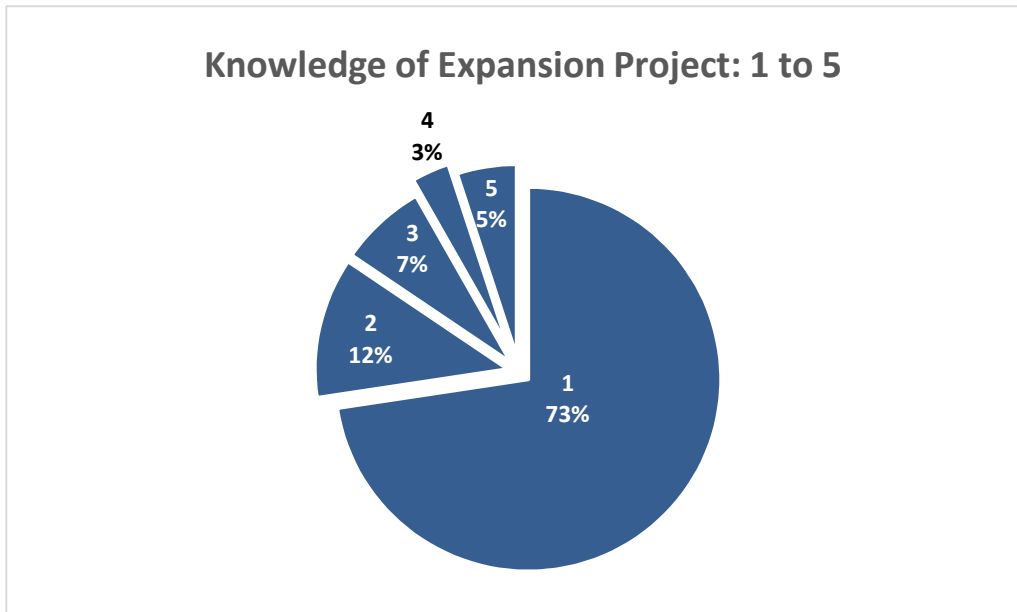
3. Summer and spring are the most popular seasons to visit Gross Reservoir for visitors during Memorial Day weekend.



4. Denver Water’s website and word-of-mouth sources are popular sources of information regarding Gross Reservoir. Of the respondents that chose ‘Other,’ most listed another form of electronic information. Most common among these were internet search engines and news or other applications on their smartphones.



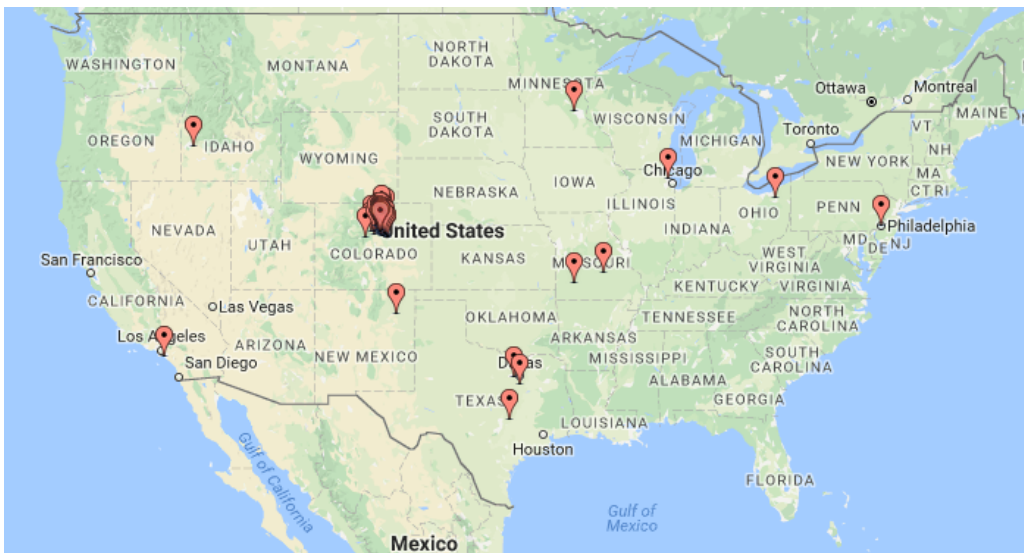
5. When asked to rank their knowledge of the project from a low of 1 to high of 5, visitors reported being largely uninformed about the Gross Reservoir Expansion.



6. Respondents were asked to name any groups they belong to that might be interested in receiving a presentation about the project. While responses to this question were infrequent, the groups named are summarized below:

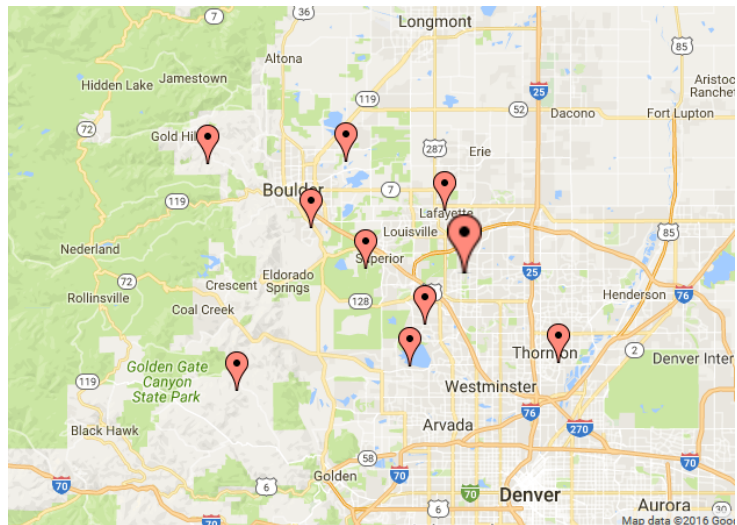
- Cold Creek Canyon Community Association (3)
- Sierra Club (3)
- Rocky Mountain Sea Kayak Club (3)
- The Environmental Group (2)
- Colorado Kayak Fishermen (2)
- Highland City Club of Boulder
- Bureau of Reclamation
- Rotary
- EPA
- Colorado Mountain Club

7. When asked to provide their home Zip code, visitors revealed 82 diverse geographic locations. The majority of respondents reported visiting from areas in the Boulder area.

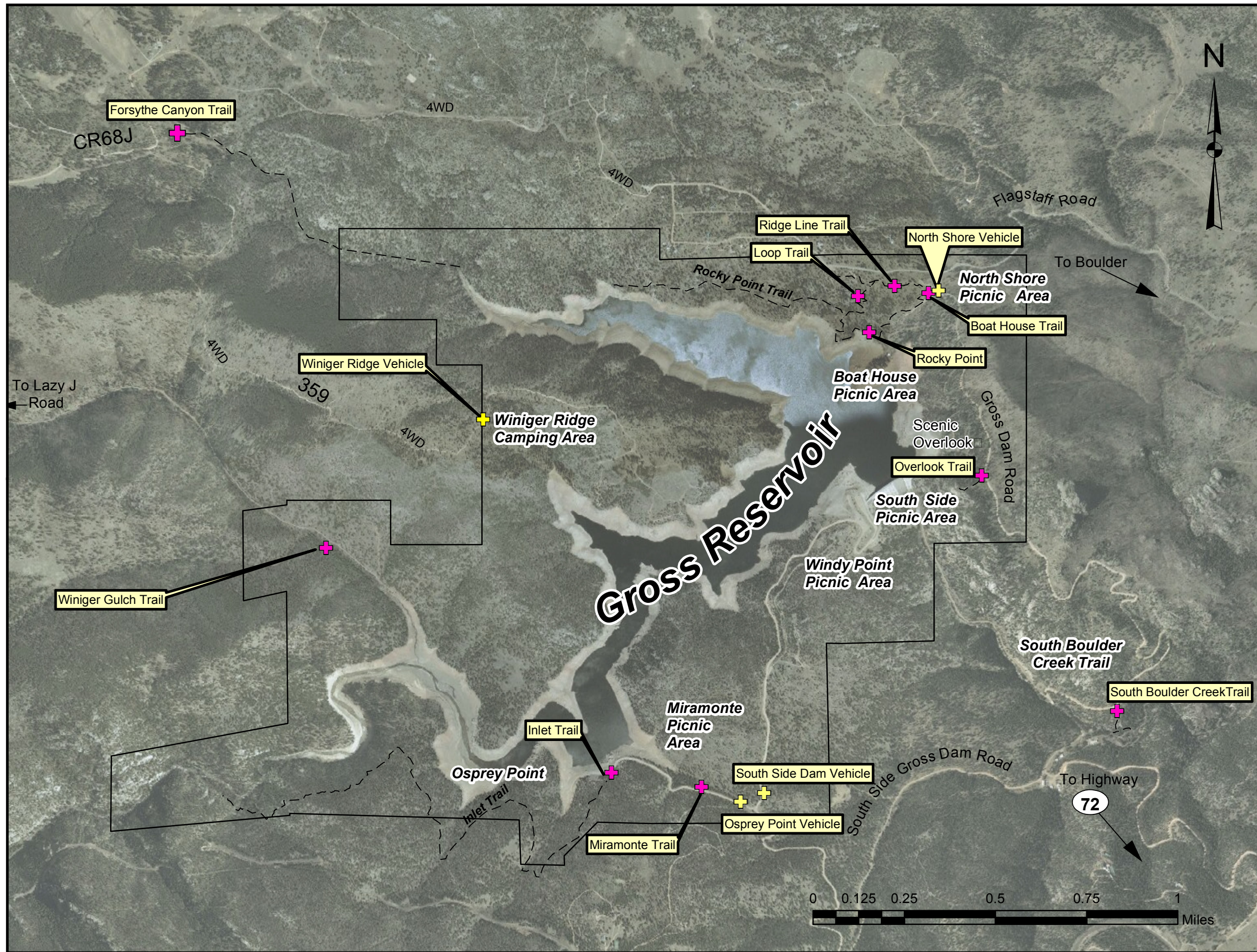


Most frequently occurring zip codes (5 or more occurrences).

- 80403
- 80302
- 80021
- 80005
- 80027
- 80305
- 80020
- 80026
- 80229
- 80004
- 80301



# Gross Reservoir Recreation Facility Usage Counters Proposed Summer 2017



### Legend

- + Trail Counter
- + Vehicle Counter
- Hiking Trail
- FERC Boundary

This Geographic Information Systems (GIS) map and information shown is provided "AS IS" with no claim by the Denver Water Board as to the completeness, usefulness or accuracy of its contents. 2013 Denver Water

Sources: Denver Water IT- Gross Reservoir FERC Boundary, Service Layer Credits: Copyright:© 2013 ESRI, i-cubed, GeoEye



Attachment 4: 2017 Site Photos taken at  
the Proposed Scenic Ridge Trail Area

Attachment 4 – 2017 Site Photos taken at the Proposed Scenic Ridge Trail Area.



Photos taken on March 3, 2017 showing the steep, rocky slopes that pose unsuitable conditions for a trail connection between the northern-most parking area proposed for the Relocated Dam Recreation Area and the Proposed Scenic Ridge Trail.

Attachment 5: Revised Exhibit E pages



Attachment 5 – Revised Exhibit E pages E-175 through E-205, Table 3.3.10-1 Federal- and State-Listed Endangered or Threatened Species and Table 3.3.10-2 Other Special Status Species

Please replace the two tables on these pages with the following revised tables:

**Table 3.3.10-1 (REVISED)**  
**Federal- and State-Listed Endangered or Threatened Species**

Name	Status*	Habitat	Potential for Occurrence in the Study Area**		
			Gross Reservoir	South Boulder Creek above Gross Reservoir	South Boulder Creek below Gross Reservoir
<b>Birds</b>					
Burrowing owl <i>Athene cunicularia</i>	ST, BLM, USFS Tier 1, BCC	Nests in abandoned prairie dog burrows in summer	1		
Least tern <i>Sterna antillarum athalassos</i>	FE, SE, Tier 2	Migrants occur at reservoirs, lakes, and rivers with bare, sandy shorelines	1	1	1
Mexican spotted owl <i>Strix occidentalis lucida</i>	FT, ST, Tier 2	Mixed conifer forests and pinyon-juniper woodland with narrow, shady, sandstone canyons at 4,400-6,800 feet	1		
Piping plover <i>Charadrius melodus</i>	FT, ST, Tier 2	Wetlands, lakeshores, and marshes. Rare migrant on eastern plains to foothills between April and May	1	1	1
Whooping crane <i>Grus americana</i>	FE, SE, Tier 2	Rare migrant in wetlands, wet meadows, broad drainage bottoms, and reservoir edges; in areas with minimal human disturbance	1	1	1

**Table 3.3.10-1 (REVISED)**

**Federal- and State-Listed Endangered or Threatened Species**

Name	Status*	Habitat	Potential for Occurrence in the Study Area**		
			Gross Reservoir	South Boulder Creek above Gross Reservoir	South Boulder Creek below Gross Reservoir
Yellow-billed cuckoo <i>Coccyzus americanus</i> (Western Distinct Population Segment)	FT, SC, Tier 1	Riparian forest		1	1
<b>Mammals</b>					
Canada lynx <i>Lynx canadensis</i>	FT, SE, Tier 1	Contiguous old-growth spruce, fir, and lodgepole pine forests with deep snow and snowshoe hare	1	3	1
North American wolverine <i>Gulo gulo luscus</i>	PT, SE, USFS	Rare inhabitant of alpine and subalpine habitats	1		
Preble's meadow jumping mouse <i>Zapus hudsonius preblei</i>	FT, ST, Tier 1	Front Range up to 7,600 feet in well-developed plains riparian vegetation with adjacent, undisturbed upland grassland near water	2	1	5
River otter <i>Lontra canadensis</i>	ST, USFS, Tier 2	Riparian habitats with permanent water	1	1	1
<b>Amphibians</b>					
Boreal toad <i>Anaxyrus boreas boreas</i>	SE, BLM, USFS, Tier 1	Damp areas dominated by lodgepole pine, aspen, or Englemann spruce-subalpine fir forests	1	2	1
<b>Fishes</b>					
Bonytail chub <i>Gila elegans</i>	FE, SE, Tier 1	Historically occurred in Colorado River drainage; currently only near Grand Junction		1	1

**Table 3.3.10-1 (REVISED)**

**Federal- and State-Listed Endangered or Threatened Species**

Name	Status*	Habitat	Potential for Occurrence in the Study Area**		
			Gross Reservoir	South Boulder Creek above Gross Reservoir	South Boulder Creek below Gross Reservoir
Colorado pikeminnow <i>Ptychocheilus lucius</i>	FE, ST, Tier 1	Historically occurred in Colorado River; currently found on West Slope only		1	1
Common shiner <i>Luxilus cornutus</i>	ST, Tier 1	Rare in Colorado; records from early 1980s from mainstem South Platte in Denver but considered very rare	1	1	1
Greenback cutthroat trout <i>Oncorhynchus clarki stomias</i>	FT, ST, Tier 1	Prefers cold, clear, gravelly headwater streams in the Arkansas and South Platte river drainages	2	1	1
Humpback chub <i>Gila cypha</i>	FE, ST, Tier 1	Historically occurred in Colorado River; found on West Slope only		1	1
Lake chub <i>Couesius plumbeus</i>	SE, USFS, Tier 2	Lake habitats; spawn in streams. Occur in St. Vrain River and two reservoirs in Clear Creek County	1	1	1
Northern redbelly dace <i>Chrosomus eos</i>	SE, USFS, Tier 1	Remaining populations in West Plum Creek; in submerged vegetation in slow-moving streams	1	1	1
Pallid sturgeon <i>Scaphirhynchus albus</i>	FE	Known population in Mississippi River. Not present in Colorado.		1	1
Razorback sucker <i>Xyrauchen texanus</i>	FE, SE, Tier 1	Historically occurred in Colorado River; currently found on West Slope only		1	1
<b>Invertebrates</b>					

**Table 3.3.10-1 (REVISED)**

**Federal- and State-Listed Endangered or Threatened Species**

Name	Status*	Habitat	Potential for Occurrence in the Study Area**		
			Gross Reservoir	South Boulder Creek above Gross Reservoir	South Boulder Creek below Gross Reservoir
Arapahoe snowfly <i>Arsapnia arapahoe</i>	FC, USFS	Cold, clean, well-oxygenated streams and rivers in the northern Colorado Front Range. Has only been observed in two tributaries of the Cache la Poudre River in Larimer County.	1		
Pawnee montane skipper <i>Hesperia leonardus montana</i>	FT	Occurs in the South Platte Canyon, southwest of Denver	1		
<b>Plants</b>					
Ute ladies'-tresses orchid <i>Spiranthes diluvialis</i>	FT, Tier 1	Sub-irrigated alluvial soils along streams; open meadows on floodplains	1	1	5
Colorado butterfly plant <i>Gaura neomexicana</i> ssp. <i>coloradensis</i>	FT, Tier 1	Sub-irrigated alluvial soils of drainage bottoms within mixed grass prairie	1	1	1
Western prairie fringed orchid <i>Platanthera praeclara</i>	FT	Marshes and wet meadow communities in tallgrass prairie. Known population adjacent to Platte River in Nebraska		1	1

**Table 3.3.10-1 (REVISED)**  
**Federal- and State-Listed Endangered or Threatened Species**

Name	Status*	Habitat	Potential for Occurrence in the Study Area**		
			Gross Reservoir	South Boulder Creek above Gross Reservoir	South Boulder Creek below Gross Reservoir

Sources: Species List (Federal) obtained from USFWS 2017, State species obtained from CPW 2017.

\* Status: BCC = Birds of Conservation Concern, FT = Federally Threatened, FE = Federally Endangered, PT = Proposed for Listing as Threatened, FC = Candidate for Federal Listing, ST = State of Colorado Threatened, SE = State of Colorado Endangered,

USFS = U.S. Forest Service Region 2 Sensitive, BLM = Bureau of Land Management Sensitive

\*\* Codes to Occurrence in Study Area:

1 = Not present – Habitat is unsuitable or outside current known range.

2 = Unlikely – Based on marginal habitat, rarity of occurrence and/or range. Also includes areas where habitat is suitable, but not found during presence/absence surveys or considered unlikely to occur by detailed habitat evaluation.

3 = Potentially present – Habitat suitable or marginal. Wide-ranging species may occur occasionally during foraging or migration but Study Area does not have important habitat. No documentation of presence for sedentary species.

4 = Known or likely to occur: 4A – Habitat suitable, (animals) may occur regularly during foraging or migration; 4B – (animals) may breed in Study Area.

5 = Known or likely to occur, key habitat features present.

CPW’s 2015 State Wildlife Action Plan (SWAP) identifies Tier 1 and Tier 2 species of greatest conservation need.

-Tier 1 includes the 55 vertebrate species that CPW expects to focus on over the next decade.

-Tier 2 species are important for forestalling population trends or habitat conditions, but require less urgent action.

**Table 3.3.10-2 (REVISED)**  
**Other Special Status Species**

Name	Status*	Habitat	Potential for Occurrence in the Study Area**		
			Gross Reservoir	South Boulder Creek above Gross Reservoir	South Boulder Creek below Gross Reservoir
<b>Birds</b>					
American bittern <i>Botaurus lentiginosus</i>	USFS, Tier 2, BCC	Summer resident of eastern plains and mountain parks. Inhabits wetlands with tall emergent vegetation.	1	1	1
American peregrine falcon <i>Falco peregrinus anatum</i>	SC, BLM, USFS, Tier 2, BCC, G4T4/S2B	Nests on cliffs, forages over many habitats.	3	4	4
American white pelican <i>Pelecanus erythrorhynchos</i>	BLM, Tier 2 G3/S1B	Summers on large reservoirs. No breeding in Study Area.	2	1	1
Bald eagle <i>Haliaeetus leucocephalus</i>	Bald and Golden Eagle Protection Act, SC, BLM, USFS, Tier 2, BCC, G5/S1B,S3N	Large bodies of open water near tall trees and prairie dog colonies, especially in winter.	3	1	1
Band-tailed pigeon <i>Patagioenas fasciata</i>	Tier 2	Montane conifer and pine-oak forests.	4		
Barrow's goldeneye <i>Bucephala islandica</i>	Tier 2, BCC, G5/S2B	Winter on reservoirs and rivers; summer in mountain reservoirs and ponds in forested areas.	2	1	1

**Table 3.3.10-2 (REVISED)**  
**Other Special Status Species**

Name	Status*	Habitat	Potential for Occurrence in the Study Area**		
			Gross Reservoir	South Boulder Creek above Gross Reservoir	South Boulder Creek below Gross Reservoir
Black rosy-finch <i>Leucosticte atrata</i>	Tier 2, BCC	Winter visitor in lower mountains and mountain parks, to edge of foothills.	4		
Black tern <i>Chlidonias niger</i>	USFS, Tier 2	Associated with aquatic habitats containing emergent vegetation on the plains and in mountain parks.	1	1	1
Black swift <i>Cypseloides niger</i>	BLM, USFS, Tier 2, BCC, G4/S3B	Nests on cliffs or behind high waterfalls. Forage at high elevations.	3		
Boreal owl <i>Aegolius funereus</i>	USFS, Tier 2, BCC, G5/S2	Mature mixed spruce-fir forest interspersed with meadows at elevations above 9,000 feet.	1		
Brewer's sparrow <i>Spizella breweri</i>	BLM, USFS, Tier 2, BCC	Usually in sagebrush or other shrubs vegetation; on migration may occur in woody, brushy or weedy areas.	1		
Brown-capped rosy-finch <i>Leucosticte australis</i>	Tier 1, BCC	Winter visitor in lower mountains and mountain parks, to edge of foothills. Nests on cliffs above timberline.	4		
Cassin's finch <i>Haemorhous cassinii</i>	Tier 2, BCC	Montane and subalpine forests and woodlands.	5		

**Table 3.3.10-2 (REVISED)**  
**Other Special Status Species**

Name	Status*	Habitat	Potential for Occurrence in the Study Area**		
			Gross Reservoir	South Boulder Creek above Gross Reservoir	South Boulder Creek below Gross Reservoir
Cassin's sparrow <i>Aimorphilia cassini</i>	USFS, Tier 2, BCC, G5/S4B	Plains grasslands with cholla, yucca, rabbitbush, or sandsage.	1		
Chestnut-collared longspur <i>Calcarius ornatus</i>	USFS, Tier 2, BCC, G5/S1B	Mid-grass and tallgrass prairie.	1		
Columbian sharp-tailed grouse <i>Tympanuchus phasianellus columbianus</i>	SC, BLM, USFS, Tier 1, BCC, G4T3/S2	Grassland and shrub-stepped mixed with mountain shrub, riparian vegetation, and aspen. Does not occur on Colorado's eastern slope.	1		
Ferruginous hawk <i>Buteo regalis</i>	SC, BLM, USFS, Tier 2, BCC, G4/S3B,S4N	Grasslands with scattered trees; concentrate in prairie dog towns in winter.	1		
Flammulated owl <i>Psilosops (Otus) flammeolus</i>	USFS, Tier 2, BCC	Nest in tree cavities in old-growth ponderosa pine/Douglas fir; in Boulder County, roost in mixed conifer and dense shrubs along small streams in summer.	4		
Greater sandhill crane <i>Grus canadensis tabida</i>	SC, Tier 1, BCC, G5T4/S2B, S4N	May occur in migration on mudflats around reservoirs in moist meadows and agricultural areas.		1	1



**Table 3.3.10-2 (REVISED)**  
**Other Special Status Species**

Name	Status*	Habitat	Potential for Occurrence in the Study Area**		
			Gross Reservoir	South Boulder Creek above Gross Reservoir	South Boulder Creek below Gross Reservoir
Golden eagle <i>Aquila chrysaetos</i>	Tier 1, BCC	Open and semi-open habitats, including grasslands, shrub-steppe, and woodlands. Primarily nest on cliffs.	5		
Grasshopper sparrow <i>Ammodromus savannarum</i>	USFS, Tier 2, BCC	Grasslands and prairie on the plains.	1		
Greater Sage-grouse <i>Centrocercus urophasianus</i>	SC, BLM, USFS, Tier 1, BCC, G3G4/S4	Sagebrush. Does not occur on Colorado's eastern slope	1		
Lazuli bunting <i>Passerina amoena</i>	Tier 2	Foothills and montane shrublands, montane forests, and woodlands with shrubby understories; riparian areas in lower mountains.	4		
Lewis' woodpecker <i>Melanerpes lewis</i>	USFS, Tier 2, BCC, G4/S4	Riparian cottonwood forest, open ponderosa pine forest.	2		
Loggerhead shrike <i>Lanius ludovicianus</i>	USFS, Tier 2, BCC	Grassland with scattered trees, rural areas with abandoned farmyards.	1		
Long-billed curlew <i>Numenius americanus</i>	SC, BLM, USFS, Tier 2, BCC G5/S2B	May occur in migration in shortgrass prairie.	1		

**Table 3.3.10-2 (REVISED)**  
**Other Special Status Species**

Name	Status*	Habitat	Potential for Occurrence in the Study Area**		
			Gross Reservoir	South Boulder Creek above Gross Reservoir	South Boulder Creek below Gross Reservoir
McCown's longspur <i>Rhynchophanes (Calcarius) mccownii</i>	USFS, Tier 2, BCC, G4/S2B	Shortgrass prairie.	1		
Mountain plover <i>Charadrius montanus</i>	SC, USFS, BLM, Tier 1, BCC, G3/S2B	Breeds in shortgrass prairie. Often associated with prairie dog colonies and heavy grazing.	1		
Northern goshawk <i>Accipiter gentilis</i>	BLM, USFS, Tier 2, G5/S3B	Nests in mature ponderosa pine, mixed-conifer, and spruce-fir forests with canopy closure greater than 60%.	4		
Northern harrier <i>Circus cyaneus</i>	USFS, Tier 2,	Grassland, agricultural areas, and marshes.	1		
Olive-sided flycatcher <i>Contopus borealis</i>	USFS, Tier 2,	Nests in mature spruce-fir and Douglas fir forests; dependent on riparian habitat.	3		
Ovenbird <i>Seiurus aurocapillus</i>	G5/S2B	Rare migrant in lowland riparian forest, shrublands, and wooded urban areas.	2	1	1
Prairie falcon <i>Falco mexicanus</i>	Tier 2, BCC	Grasslands, shrublands, and pinyon-juniper. Nests on cliffs.	3		

**Table 3.3.10-2 (REVISED)**  
**Other Special Status Species**

Name	Status*	Habitat	Potential for Occurrence in the Study Area**		
			Gross Reservoir	South Boulder Creek above Gross Reservoir	South Boulder Creek below Gross Reservoir
Purple martin <i>Progne subis</i>	USFS, Tier 2	In Colorado, nests mainly in old growth aspen on western slope, occurs over riparian areas, open agricultural areas and reservoirs during migration.	2		
Rufous hummingbird <i>Selasphorus rufus</i>	Tier 2	Summer and fall migrant in foothills, lower mountains, and mountain parks.	4		
Snowy egret <i>Egretta thula</i>	G5/S2B	Reservoirs, grassy marshes, wet meadows, and rivers. May occur during migration in Project sites.	1	1	1
Swainson's hawk <i>Buteo swainsonii</i>	Tier 2, BCC	Primarily grasslands and agricultural areas at lower elevations.	1		
Trumpeter swan <i>Cygnus buccinator</i>	USFS	Migrant or winter visitor at lakes or reservoirs.	2		
Virginia's warbler <i>Vermivora virginiae</i>	BCC	Montane and foothills shrub, brushy streams, oak, ponderosa pine, and pinyon-juniper	5		
White-faced ibis <i>Plegadis chihi</i>	BLM, Tier 2, G5/S2B	May occur in migration in wet meadows, marsh edges, and reservoir shorelines.	1	1	1

**Table 3.3.10-2 (REVISED)**  
**Other Special Status Species**

Name	Status*	Habitat	Potential for Occurrence in the Study Area**		
			Gross Reservoir	South Boulder Creek above Gross Reservoir	South Boulder Creek below Gross Reservoir
White-tailed ptarmigan <i>Lagopus leucurus</i>	USFS, Tier 1, G5/S4	Alpine tundra; may winter below tree line in areas with willows or alders near alpine habitats.	1		
Williamson's sapsucker <i>Sphyrapicus thyroideus</i>	BCC	Ponderosa, montane mixed conifer, and aspen forests.	5		
<b>Mammals</b>					
Abert's squirrel <i>Sciurus aberti</i>	Tier 2	Ponderosa pine forests and woodlands.	5		
American marten <i>Martes americana</i>	USFS, Tier 2	Old-growth lodgepole pine and spruce-fir forests.	1		
Black-tailed prairie dog <i>Cynomys ludovicianus</i>	SC, BLM, Tier 2, USFS, G4/S3	Short and mixed grass prairie along Front Range.	1		
Dwarf shrew <i>Sorex nanus</i>	Tier 2, G4/S2	Foothills, montane and subalpine habitats above 5,500 feet.	3		
Fringed myotis <i>Myotis thysanodes</i>	BLM, USFS, Tier 1, G4G5/S3	Ponderosa pine woodlands and oakbrush.	3		
Hoary bat <i>Lasiurus cinereus</i>	USFS, Tier 2	Solitary, wide-ranging species. In Colorado, roosts at margins of clearings, or windbreaks, or linear woodlands along canals on the plains.	3		

**Table 3.3.10-2 (REVISED)**  
**Other Special Status Species**

Name	Status*	Habitat	Potential for Occurrence in the Study Area**		
			Gross Reservoir	South Boulder Creek above Gross Reservoir	South Boulder Creek below Gross Reservoir
Little brown myotis <i>Myotis lucifugus</i>	Tier 1	Wide range of habitats, roosts during the day under bark, in trees, under rocks, in structures, and less frequently in caves and mines.	5		
Pygmy shrew <i>Sorex hoyi</i>	USFS, Tier 2, G5T2T3/S2	Subalpine, prefer areas interspersed with wetlands and dry upland forests.	1		
Bighorn sheep <i>Ovis canadensis</i>	BLM, USFS, Tier 2	Open areas with grass and low shrub, near escape terrain and topographic relief.	1		
Swift fox <i>Vulpes velox</i>	SC, BLM, Tier 2, USFS, G3/S3	Shortgrass prairie.	1		
Townsend's big-eared bat (pale subspecies) <i>Corynorhinus townsendii pallescens</i>	SC, BLM, Tier 1, USFS, G3T3/S2	Roosts in caves and abandoned mines in shrublands and open montane forests up to 9,500 feet.	4		
White-tailed jackrabbit <i>Lepus townsendii</i>	Tier 2	Open country including grasslands, parklands, and alpine tundra.	3		

**Table 3.3.10-2 (REVISED)**  
**Other Special Status Species**

Name	Status*	Habitat	Potential for Occurrence in the Study Area**		
			Gross Reservoir	South Boulder Creek above Gross Reservoir	South Boulder Creek below Gross Reservoir
White-tailed prairie dog <i>Cynomys leucurus</i>	BLM, USFS, Tier 1	Mostly in semi-desert shrublands in Colorado; also semi-desert grasslands, mountain valleys, and other open shrublands on the western slope.	1		
<b>Amphibians</b>					
Northern leopard frog <i>Lithobates pipiens</i>	SC, BLM, Tier 1, USFS, G5/S3	Usually under 9,500 feet near permanent water, including margins of ponds, lakes, streams, and in marshes.	2	3	3
Wood frog <i>Lithobates sylvatica</i>	SC, USFS, Tier 2, G5/S3	In Colorado, occurs in ponds, marshes, stream borders, willow thickets and forests bordering wet areas; in North Park and Middle Park.	1	1	1
<b>Reptiles</b>					

**Table 3.3.10-2 (REVISED)**  
**Other Special Status Species**

Name	Status*	Habitat	Potential for Occurrence in the Study Area**		
			Gross Reservoir	South Boulder Creek above Gross Reservoir	South Boulder Creek below Gross Reservoir
Common garter snake <i>Thamnophis sirtalis</i>	SC, Tier 2	Marshes, ponds, and stream edges.	1	1	1
Milksnake <i>Lampropeltis triangulum</i>	Tier 2	Wide variety of habitats at lower elevations including open ponderosa pine, shrubby hillsides, canyons, pinyon-juniper woodland, sandhills, and shortgrass prairie.	4		
<b>Fishes</b>					
Bluehead sucker <i>Catostomus discobolus</i>	Tier 1	Larger rivers with fast current and rocky substrates.		1	1
Colorado River cutthroat trout <i>Oncorhynchus clarki pleuriticus</i>	SC, BLM, USFS, Tier 1, G4T3/S3	Conservation populations primarily isolated in headwater streams and lakes in the mountains. Native range is the Colorado River Basin.	1	1	1

**Table 3.3.10-2 (REVISED)**  
**Other Special Status Species**

Name	Status*	Habitat	Potential for Occurrence in the Study Area**		
			Gross Reservoir	South Boulder Creek above Gross Reservoir	South Boulder Creek below Gross Reservoir
Flannelmouth sucker <i>Catostomus latipinnis</i>	BLM, USFS, Tier 1, G3G4/S3	Pools and deep runs of medium to large rivers within the Colorado River Basin.	1	1	1
Iowa darter <i>Etheostoma exile</i>	SC, Tier 2, G5/S3	Streams and ponds in northeast Colorado, as well as Elevenmile Canyon Reservoir and Plum Creek in Douglas County (NDIS 2011). Record from North Fork South Platte River.		1	1
Mountain sucker <i>Catostomus platyrhynchus</i>	SC, BLM, USFS, Tier 1, G5/S2?	Cool, clear mountain streams with a moderate gradient and rocky or gravelly bottoms. Not in Study Area (see FEIS Aquatic Resources sections).	1	1	1
Plains topminnow <i>Fundulus sciadicus</i>	USFS, Tier 1	Still, clear waters with abundant filamentous algal growth, including pools and ponds. In Colorado, in South Platte River and Republican River drainages.	1		
Roundtail chub <i>Gila robusta</i>	SC, BLM, USFS, Tier 1, G3/S2	Only in Colorado River Basin/Upper Colorado River in western Colorado.		1	1



**Table 3.3.10-2 (REVISED)**  
**Other Special Status Species**

Name	Status*	Habitat	Potential for Occurrence in the Study Area**		
			Gross Reservoir	South Boulder Creek above Gross Reservoir	South Boulder Creek below Gross Reservoir
<b>Invertebrates</b>					
Rocky Mountain capshell (mollusk) <i>Acroloxus coloradensis</i>	SC, USFS, Tier 2, G3/S1	Known in Colorado from a small number of mountain lakes between 8,000 and 9,800 feet.	1	1	1
Cylindrical papershell (mollusk) <i>Anodontoides ferussacianus</i>	SC, Tier 2, G5/S2	Mud or sandy substrates of lakes and quiet streams, hosts for larvae are warmwater fish.	1		
Swampy lymnaea (mollusk) <i>Lymnaea stagnalis</i>	G5/S2	Warm, shallow ponds, lakes and marshes in mountainous areas.	3		
Glass physa (mollusk) <i>Physa skinneri</i>	Tier 2, G5/S2	Shallow bodies of water, either perennial or seasonal, such as temporary ponds, and backwaters along streams.	1		
Banded physa (mollusk) <i>Physa utahensis</i>	G5T2/S1	No specific distribution available. In water.	3		
Umbilicate sprite (mollusk) <i>Promenetus umbilicatellus</i>	G4/S3	Occurs in lakes/reservoirs.	3		
Sandhill fritillary (butterfly) <i>Boloria selene sabulocollis</i>	G5T2/S1S2	Wet meadows, bogs, and marshes. Feed on nectar of <i>Solidago</i> sp. and black-eyed susan.	2		

**Table 3.3.10-2 (REVISED)**  
**Other Special Status Species**

Name	Status*	Habitat	Potential for Occurrence in the Study Area**		
			Gross Reservoir	South Boulder Creek above Gross Reservoir	South Boulder Creek below Gross Reservoir
Moss's elfin (butterfly) <i>Callophrys mossii schryveri</i>	G4T3/S2S3	Rocky outcrops, woody canyons, cliffs at elevations from 5,600 to 8,000 feet. Larval host plant is Sedum.	2		
Mottled dusky wing (butterfly) <i>Erynnis martialis</i>	G3/S2S3	Open woodland, prairie hills, open brushy fields. Larval host plant is <i>Ceanothus</i> .	2		
Painted damsel (damselfly) <i>Hesperagrion heterodoxum</i>	G5/S1	No specific habitat information available. Near water.	2		
Arogos skipper (butterfly) <i>Atrytone arogos</i>	G3/S2	Relatively undisturbed mixed and tallgrass prairies; larval host plants are big bluestem, little bluestem, and switchgrass. Primarily in foothill canyons and low ridges, not prairie.	2		
Ottoe skipper (butterfly) <i>Hesperia ottoe</i>	USFS, G3G4/S2	Unplowed, native mid and tall-grass prairie. Caterpillar food plant is little and big bluestems, or side-oats grama. Adults nectar at native thistles and other flowers.	1		

**Table 3.3.10-2 (REVISED)**  
**Other Special Status Species**

Name	Status*	Habitat	Potential for Occurrence in the Study Area**		
			Gross Reservoir	South Boulder Creek above Gross Reservoir	South Boulder Creek below Gross Reservoir
Cross-line skipper (butterfly) <i>Polites origenes</i>	G4G5/S3	Open grassy areas, prairies hills, powerline cuts, and forest openings. Larvae feed on little bluestem and other grasses.	2		
Hops feeding azure (butterfly) <i>Celastrina humulus</i>	G2G3/S2	Feeds on host plant, wild hops, in upland shrubland areas.	1		
Hudsonian emerald (dragonfly) <i>Somatochlora hudsonica</i>	USFS, G5/S2S3	Spring-fed mountain wetlands, ponds and lakes with boggy edges and sedge meadows.	1		
Rhesus skipper (butterfly) <i>Polites rhesus</i>	G4/S2S3	Short and mixed-grass prairie. Caterpillar host plant is blue grama; adults nectar on <i>Astragalus</i> sp. and yellow composites.	1		
Regal fritillary (butterfly) <i>Speyeria idalia</i>	USFS, G3/S1	Tall-grass prairie and other open sites including damp meadows, marshes, and wet fields. Caterpillar host plant is violet. Adults nectar on milkweeds and thistles.	1		

**Table 3.3.10-2 (REVISED)**  
**Other Special Status Species**

Name	Status*	Habitat	Potential for Occurrence in the Study Area**		
			Gross Reservoir	South Boulder Creek above Gross Reservoir	South Boulder Creek below Gross Reservoir
<b>Plants</b>					
Larimer aletes <i>Aletes humilis</i>	ARNF, Tier 2, G2G3/S2S3	Cracks and crevices of granite outcrops and on decomposed granite soils.	2		
Dwarf wild indigo <i>Amorpha nana</i>	G5/S2	Prairies and grasslands.	1		
Wild sarsaparilla <i>Aralia nudicaluis</i>	ARNF	Cool ravines, foothills and montane. Moist to dry wooded areas.	5		
Forktip three-awn <i>Aristida basiramea</i>	G5/S1	Dry, open, sandy soils in grassland and sandstone outcrops.	1		
Sea pink (Siberian sea thrift) <i>Armeria maritima</i> ssp. <i>sibirica</i> ( <i>Armeria scabra</i> spp. <i>sibirica</i> )	USFS, G5T5/S1	Alpine; tundra, grassy slopes; 11,900-13,000 feet. Nearest location is Hoosier Ridge in Park County.	1		
Dwarf milkweed <i>Asclepias uncialis</i> ssp. <i>uncialis</i>	BLM, USFS, Tier 2, G3G4T2T3/S2	Shortgrass prairie, on sandstone-derived soils and gravelly or rocky slopes. Elevation 4,000 to 6,500 feet.	1		
Park milkvetch <i>Astragalus leptaleus</i>	USFS, G4/S2	Montane sedge meadows, and grassy stream banks at 7,500 to 10,000 feet.	2	1	1

**Table 3.3.10-2 (REVISED)**  
**Other Special Status Species**

Name	Status*	Habitat	Potential for Occurrence in the Study Area**		
			Gross Reservoir	South Boulder Creek above Gross Reservoir	South Boulder Creek below Gross Reservoir
Paper birch <i>Betula papyrifera</i>	ARNF, G5/S1	Cool, north-facing ravines in foothills.	2		
Upswept moonwort <i>Botrychium ascendens</i>	USFS, G3/S1	Mesic montane coniferous forest.	2		
Prairie moonwort <i>Botrychium campestre</i>	USFS, G3G4/S1	Well-drained dry to mesic soils in sunny, non-forested habitats at low elevation.	1		
Reflected moonwort <i>Botrychium echo</i>	G4/S4	Gravelly soils near roads and trails, rocky hillsides, grassy slopes, and meadows at 8,200 to 12,140 feet.	1		
Triangle-leaved moonwort, green-stemmed phase <i>Botrychium lanceolatum</i> ssp. <i>viride</i>	ARNF	Mesic deciduous woodlands under closed canopy and mesic coniferous forests.	2		
Slender moonwort <i>Botrychium lineare</i>	Tier 2, G3/S2	Grassy slopes, in tall grasses, and stream edges in forests at 7,900 to 9,500 feet. Only three populations in Colorado (Elevation Paso and Lake counties).	2		

**Table 3.3.10-2 (REVISED)**  
**Other Special Status Species**

Name	Status*	Habitat	Potential for Occurrence in the Study Area**		
			Gross Reservoir	South Boulder Creek above Gross Reservoir	South Boulder Creek below Gross Reservoir
Leather leaf grapefern <i>Botrychium multifidum</i>	ARNF, G5/S2	Wet meadows, forest edges, and lake shores or margins. Typically at elevations between 6,750 to 11,500 feet.	2		
Paradox moonwort <i>Botrychium paradoxum</i>	USFS, G3G4/S1	Montane to subalpine grasslands or forb-dominated meadows.	1		
Northwestern moonwort <i>Botrychium pinnatum</i>	ARNF, G4?/S2	Moist grassy sites in open forests, meadows, near streams, and other sites where soil moisture is constant.	2		
“Redbank” moonwort <i>Botrychium “redbank”</i>	ARNF	Subalpine open upland areas in Colorado.	1		
Least moonwort <i>Botrychium simplex</i>	ARNF, G5/S2	Subacid or acid soils high in organic matter at 8,500 to 12,700 feet.	1	1	1
Rattlesnake fern <i>Botrychium virginianum</i> ( <i>Botrypus virginianus</i> )	ARNF, G5/S1	Cool, moist ravines and canyons in the foothills.	2		
Dewey sedge <i>Carex deweyana</i>	ARNF	Moist foothill and montane ravines.	5		
Lesser paniced sedge <i>Carex diandra</i>	USFS, G5/S1	Montane and subalpine fens at over 6,000 feet.	1	1	1
Woolyfruit sedge <i>Carex lasiocarpa</i>	ARNF, G5/S1	Subalpine fens.	1		

**Table 3.3.10-2 (REVISED)**  
**Other Special Status Species**

Name	Status*	Habitat	Potential for Occurrence in the Study Area**		
			Gross Reservoir	South Boulder Creek above Gross Reservoir	South Boulder Creek below Gross Reservoir
Mud sedge <i>Carex limosa</i>	ARNF, G5/S2	Fens; montane or subalpine peatlands; often as part of a floating mat community adjacent to an open water system.	1	1	1
Livid sedge <i>Carex livida</i>	USFS, G5/S1	Montane and subalpine fens over 6,400 feet.	1	1	1
Peck's sedge <i>Carex peckii</i>	ARNF, G4G5/S1	Cool shaded gulches; Front Range foothills.	2		
Sprengel's sedge <i>Carex sprengelii</i>	ARNF, G5/S2	Moist soil in cool ravines in the foothills.	5		
Torrey sedge <i>Carex torreyi</i>	G4/S1	Gulches in outer foothills near Boulder.	2		
Sandhill goosefoot <i>Chenopodium cycloides</i>	USFS, G3G4/S1	Sandy soils, often around the edges of blowouts in sand dunes, 3,800 to 5,700 feet elevation in Colorado.	1		
Enchantress's nightshade <i>Circaea alpina</i>	ARNF	Moist to wet woods and cool ravines.	5		
Purple cinquefoil <i>Comarum palustre</i>	ARNF	Grows in bogs, marshes, wet meadows, creek banks, and lake margins.	2		
Yellow coralroot <i>Corallorhiza trifida</i>	ARNF	Montane and subalpine forests; cool, moist habitats.	2		
Spring coralroot <i>Corallorhiza wisteriana</i>	ARNF	Semi-shade in montane aspen and pine.	2		

**Table 3.3.10-2 (REVISED)**  
**Other Special Status Species**

Name	Status*	Habitat	Potential for Occurrence in the Study Area**		
			Gross Reservoir	South Boulder Creek above Gross Reservoir	South Boulder Creek below Gross Reservoir
Bunchberry <i>Cornus canadensis</i>	ARNF	Subalpine forests.	1		
Hazelnut <i>Corylus cornuta</i>	ARNF	Cool ravines in the foothills.	2		
Yellow hawthorn <i>Crataegus chrysoarpa</i>	G5/S1	Thickets and rocky ground along streams.	1		
Willow hawthorn <i>Crataegus saligna</i>	G3G4/S3	Canyons and riparian corridors from 5,345 to 8,600 feet in western Colorado.		1	1
Yellow lady's slipper <i>Cypripedium parviflorum</i> ( <i>C. calceolus</i> ssp. <i>Parviflorum</i> )	USFS, G5/S2	Montane and subalpine, moist forest and aspen groves at 7,400 to 8,500 feet.	3	1	1
Clawless draba <i>Draba exunguiculata</i>	USFS, Tier 2, G2/S2	Alpine; talus slopes, fell fields; 11,500 to 14,000 feet.	1		
Gray's peak whitlow-grass <i>Draba grayana</i>	USFS, Tier 2, G2/S2	Alpine, subalpine; tundra, gravelly slopes; 11,000 to 14,000 feet.	1		
Roundleaf sundew <i>Drosera rotundifolia</i>	USFS, G5/S2	Subalpine; peatmats, fens; 9,100 to 9,800 feet.	1		



**Table 3.3.10-2 (REVISED)**  
**Other Special Status Species**

Name	Status*	Habitat	Potential for Occurrence in the Study Area**		
			Gross Reservoir	South Boulder Creek above Gross Reservoir	South Boulder Creek below Gross Reservoir
Stream orchid <i>Epipactus gigantea</i>	USFS, G4/S1S2	Mineral-rich environments with a constant supply of moisture; and it occurs at springs, seeps, and along creeks.	2		
Dropleaf buckwheat <i>Eriogonum exilifolium</i>	USFS, G3/S2	Flat to moderately sloping barren areas in shrub-steppe and open woodland at 6,090 to 8,800 feet.	1		
Slender cottongrass <i>Eriophorum gracile</i>	USFS, G5/S1S2	Montane, subalpine; fens, wet meadows; 8,100 to 12,000 feet.	1		
Hall's fescue <i>Festuca hallii</i>	USFS, G4/S2	Alpine, subalpine; tundra, dry grasslands; 11,000 to 12,000 feet.	1		
Rattlesnake-plantain <i>Goodyera repens</i>	ARNF, G5/S3S4	Shade-loving species found in cool, coniferous forests, usually with a mossy understory. Elevation 8,000 to 9,500 feet.	2		
Scarlet gilia <i>Ipomopsis aggregata</i> ssp. <i>weberi</i>	USFS, G5T2/S2	Open sites in sagebrush, snowberry, shrubby serviceberry, and chokecherry.	1		
Simple kobresia <i>Kobresia simpliciuscula</i>	USFS, G5/S2	Alpine; glacial outwash, fens, moist gravelly tundra; 9,600-12,800 feet.	1		

**Table 3.3.10-2 (REVISED)**  
**Other Special Status Species**

Name	Status*	Habitat	Potential for Occurrence in the Study Area**		
			Gross Reservoir	South Boulder Creek above Gross Reservoir	South Boulder Creek below Gross Reservoir
Tall blue lettuce <i>Lactuca biennis</i>	ARNF	Clearings in the foothill canyons.	5		
Gayfeather, Rocky Mountain blazing star <i>Liatrix ligulistylis</i>	ARNF, G5?/S2	Wet meadows and moist swales, at lower elevations.	1		
Wood lily <i>Lilium philadelphicum</i>	ARNF, G5/S3S4	Moist woods, thickets, and wet meadows.	2		
Northern twayblade <i>Listera borealis</i>	ARNF, G4/S2	Moist shady spruce forests, elevations of 8,700 to 10,800 feet.	1		
Broad-leaved twayblade <i>Listera convallarioides</i>	ARNF, G5/S2	Moist, shady spruce forests, 8,700 to 10,800 feet.	1		
Heartleaved twayblade <i>Listera cordata</i>	ARNF	Found in peat-moss hummocks in forests or boggy areas. Also in upland forest humus and or needle duff.	2		
Utah lupine <i>Lupinus lepidus ssp. utahensis</i>	ARNF	Gravelly to sandy soils, sagebrush.	1		
Stiff club-moss <i>Lycopodium annotinum</i>	ARNF	Subalpine spruce thickets and willows.	1		
Fringed loosestrife <i>Lysimachia ciliata</i>	ARNF	Wetlands in the Front Range, 5,100 to 8,000 feet elevation.	1		

**Table 3.3.10-2 (REVISED)**  
**Other Special Status Species**

Name	Status*	Habitat	Potential for Occurrence in the Study Area**		
			Gross Reservoir	South Boulder Creek above Gross Reservoir	South Boulder Creek below Gross Reservoir
Colorado tansy-aster <i>Machaeranthera coloradoensis</i> ( <i>Xanthisma coloradense</i> )	USFS, G3/S3	Alpine, subalpine; park grasslands, scree slopes, and dry tundra; 7,600 to 13,000 feet.	1		
White adder's-mouth orchid <i>Malaxis brachypoda</i> ( <i>Malaxis monophyllos</i> ssp. <i>brachypoda</i> )	USFS, G4?/S1	Shaded streamsides, mossy wet areas. In Colorado, known from foothills near Boulder in Boulder and Jefferson counties.	2		
Leechleaf blazingstar <i>Mentzelia sinuata</i>	ARNF	Shale outcrops, Front Range foothills.	1		
Buckbean <i>Menyanthes trifoliata</i>	ARNF	Upper montane and subalpine ponds.	1	1	1
Budding monkeyflower <i>Mimulus gemmiparus</i>	USFS, Tier 1, G1/S1	Subalpine and montane; seepages and wet banks; 8,400 to 11,120 feet.	2		
Kotzebue's grass of Parnassus <i>Parnassia kotzebuei</i>	USFS, G5/S2	Alpine, subalpine; wet rocky areas, moss mats; 10,000 to 12,500 feet.	1		
Harrington's penstemon <i>Penstemon harringtonii</i>	BLM, USFS, G3/S3	Open sagebrush shrublands on gentle slopes, 6,400 to 9,400 feet.	1		

**Table 3.3.10-2 (REVISED)**  
**Other Special Status Species**

Name	Status*	Habitat	Potential for Occurrence in the Study Area**		
			Gross Reservoir	South Boulder Creek above Gross Reservoir	South Boulder Creek below Gross Reservoir
Sweet coltsfoot <i>Petasites sagittatus</i>	ARNF	Marshy meadows in intermountain parks and meadows.	1		
Bell's twinpod <i>Physaria bellii</i>	Tier 2, G2G3/S2S3	Shale outcrops from Fort Collins and Denver in shrub communities dominated by <i>Rhus trilobata</i> and <i>Cercocarpus montanus</i> .	1		
Rock cinquefoil <i>Potentilla rupicola</i>	USFS, Tier 2, G2/S2	Granite and schist outcrops and cliffs on coarse shallow soils, exposed sites, montane and subalpine zone.	3		
Greenland primrose <i>Primula egaliksensis</i>	USFS, G4/S2	Extreme rich fens, 9,000 to 10,000 feet in Colorado.	1		
Slivery primrose <i>Primula incana</i>	ARNF	Alkaline clay soil in floodplains and moist open meadows.	1		
Pictureleaf wintergreen <i>Pyrola picta</i>	ARNF, G4G5/S3S4	Cool, moist woods on north or northeast-facing slopes, 6,000 to 10,000 feet.	2		
Ice cold buttercup <i>Ranunculus karelinii</i> ( <i>R. gelidus</i> ssp. <i>Grayi</i> , <i>R. grayi</i> )	USFS, G4G5/S2	Alpine; scree slopes, dry rocky areas; 12,000-14,100 feet.	1		

**Table 3.3.10-2 (REVISED)**  
**Other Special Status Species**

Name	Status*	Habitat	Potential for Occurrence in the Study Area**		
			Gross Reservoir	South Boulder Creek above Gross Reservoir	South Boulder Creek below Gross Reservoir
American currant <i>Ribes americanum</i>	G5/S2	Riparian areas, lower elevations.	1	1	1
Dwarf raspberry <i>Rubus arcticus</i> ssp. <i>acaulis</i> ( <i>Cylactis arcticus</i> ssp. <i>acaulis</i> )	USFS, G5T5/S1	Montane and subalpine willows and wet meadows (fens), swampy conifer forest.	4	1	1
Silver willow <i>Salix candida</i>	USFS, G5/S2	Foothills, montane; rich fens, pond edges, and permanently saturated peatlands; 8,800 to 10,600 feet.	1	1	1
Autumn willow <i>Salix serissima</i>	USFS, G4/S1	Peatlands with saturated soils (fens, willow carrs), and stream banks.	1	2	2
Maryland sanicle <i>Sanicula marilandica</i>	ARNF	Along streams in cool canyons in foothills.	5		
False melic <i>Schizachne purpurascens</i>	ARNF	Deeply shaded forested slopes.	5		
Rocky Mountain bulrush <i>Schoenoplectus saximontanus</i>	G5/S1	Damp soils, ponds, ditches, vernal moist areas, and drying mudflats.	1	1	1
Peatmoss <i>Sphagnum angustifolium</i>	USFS, G5/S2	Subalpine iron fens and fens; nine locations in Colorado.	1		

**Table 3.3.10-2 (REVISED)**  
**Other Special Status Species**

Name	Status*	Habitat	Potential for Occurrence in the Study Area**		
			Gross Reservoir	South Boulder Creek above Gross Reservoir	South Boulder Creek below Gross Reservoir
Baltic sphagnum <i>Sphagnum balticum</i>	USFS, G4/S1	Subalpine iron fens; two locations in Colorado.	1		
Sphagnum, all species not listed as USFS sensitive	ARNF	Fens and seeps.	1		
Lesser bladderwort <i>Utricularia minor</i>	USFS, G5/S2	Montane fens and seeps; freshwater marshes.	1	2	2
Prairie violet <i>Viola pedatifida</i>	G5/S2	Prairies, open woodlands, and forest openings.	1		
Selkirk's violet <i>Viola selkirkii</i>	USFS, G5/S1	Cold, north-facing drainages in montane forests.	2		

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Source: Species lists and status from CPW 2015 and 2017, USFS 2016, BLM 2015, CNHP 2015, and USFWS 2017.

\*Status:

ARNF = Species of local concern for the Arapaho & Roosevelt National Forests and Pawnee National Grassland.

BCC = Birds of Conservation Concern

BLM = Listed as sensitive by Bureau of Land Management.

SC = Colorado Parks and Wildlife special concern.

USFS = U.S. Forest Service Region 2 – Threatened, Endangered and Sensitive Plants and Animals. Sensitive species are those for which population viability is a concern as evidenced by: a) significant current or predicted downward trends in population numbers or density; or b) significant current or predicted downward trends in habitat capability that would reduce a species' existing distribution. USFS Management Indicator Species (MIS) are discussed in Sections 3.9, 4.6.9, and 5.9 of the Moffat Collection System Project Final Environmental Impact Statement except where they are also special status species (e.g., boreal toad).

CNHP Rank Definition:

G1 = Critically Imperiled—At very high risk of extinction due to extreme rarity (often five or fewer populations), very steep declines, or other factors.

G2 = Imperiled—At high risk of extinction due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors.

G3 = Vulnerable—At moderate risk of extinction due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors.

G4 = Apparently Secure—Uncommon but not rare; some cause for long-term concern due to declines or other factors.

G5 = Secure—Common; widespread and abundant.

S1 = Critically Imperiled—Critically imperiled in the nation or State/province because of extreme rarity (often five or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the State/province.

S2 = Imperiled—Imperiled in the nation or State/province because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the nation or State/province.

S3 = Vulnerable—Vulnerable in the nation or State/province due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.

S4 = Apparently Secure—Uncommon but not rare; some cause for long-term concern due to declines or other factors.

S5 = Secure—Common, widespread, and abundant in the nation or State/province.

T = Status of intraspecific taxa (subspecies or varieties) are indicated by a “T-rank” following the species' global rank.

? = Uncertainty about rank; could be higher or lower.

\*\*Codes to Occurrence in Study Area:

1 = Not present – Habitat is unsuitable or outside current known range.

2 = Unlikely – Based on marginal habitat, rarity of occurrence and/or range. Also includes areas habitat is suitable, but not found during presence/absence surveys or considered unlikely to occur by detailed habitat evaluation.

3 = Potentially present – Habitat suitable or marginal. Wide-ranging species may occur occasionally during foraging or migration but Study Area do not have important habitat. No documentation of presence for sedentary species.

4 = Known or likely to occur.

5 = Known or likely to occur, key habitat features present.

N/A = not applicable

CPW's 2015 State Wildlife Action Plan (SWAP) identifies Tier 1 and Tier 2 species of greatest conservation need.

-Tier 1 includes the 55 vertebrate species that CPW expects to focus on over the next decade.

-Tier 2 species are important for forestalling population trends or habitat conditions, but require less urgent action.

Attachment 5 – Revised Exhibit E pages E-271 through E-272, Table 3.3.15-1 Existing and Planned Recreation Facilities at Gross Reservoir.

Please replace Table 3.3.15-1 on these pages with the following revised Table 3.3.15-1:

**Table 3.3.15-1 (REVISED)**  
**Existing and Planned Recreation Facilities at Gross Reservoir**

Site	Facility	
	Existing	Planned
North Shore Recreation Area	<ul style="list-style-type: none"> <li>• 40 parking spaces (2 ADA-accessible)</li> <li>• 19 dispersed formal and informal picnic sites</li> <li>• 2 group shelters</li> <li>• 2 permanent vault toilets, one single and one double</li> <li>• Trail from Ridge Line trail to Rocky Point trail</li> <li>• Gated emergency and service access road</li> <li>• Disabled access from parking lot to picnic shelter</li> <li>• Hiking access</li> <li>• Improved trail from parking area to peninsula area</li> <li>• Overlook</li> </ul>	No additional facilities
Peninsula Recreation Area	<ul style="list-style-type: none"> <li>• Day use picnic sites (10 developed sites and 2 group sites)</li> <li>• Fishing access</li> <li>• Boating access</li> <li>• Hiking access</li> <li>• Rocky Point Trail connection</li> <li>• 1 permanent double vault toilet</li> <li>• Revegetation</li> </ul>	No additional facilities
Dam Recreation Area	<ul style="list-style-type: none"> <li>• 38-car parking lot (with parking drop off and turn around and ADA access)</li> <li>• Trail connections</li> <li>• Revegetation</li> <li>• 2 permanent vault toilets, one single, one double</li> <li>• Overlook</li> <li>• Interpretive signage</li> <li>• 3 picnic shelters</li> <li>• Fishing and hiking access</li> <li>• Day use picnic sites (20 developed sites and 3 group sites)</li> </ul>	No additional facilities
South Boulder Creek Outlet	<ul style="list-style-type: none"> <li>• 15 parking spaces/ a picnic table</li> <li>• Trail access for kayak put-in and fishing</li> </ul>	No additional facilities



**Table 3.3.15-1 (REVISED)**

**Existing and Planned Recreation Facilities at Gross Reservoir**

Site	Facility	
	Existing	Planned
Haul Road Recreation Area	<ul style="list-style-type: none"> <li>• 20-car parking (with parking drop off and turn around and ADA access)</li> <li>• Day use picnic sites (5 developed sites and 2 group sites)</li> <li>• Fishing, boating, and hiking access</li> <li>• 2 permanent vault toilets; one single, one double</li> <li>• Trail connections</li> <li>• Revegetation</li> <li>• Signage</li> </ul>	No additional facilities
South Boulder Creek Inlet	<ul style="list-style-type: none"> <li>• Trail access from Haul Road Recreation Area</li> <li>• Parking (at Haul Road)</li> </ul>	No additional facilities
Winiger Gulch Area	<ul style="list-style-type: none"> <li>• 4 – car parking access point</li> <li>• Hiking, biking, fishing, and equestrian access</li> </ul>	No additional facilities
Winiger Ridge Access and Recreation Area	<ul style="list-style-type: none"> <li>• 4-wheel driving, hiking, biking, fishing, and equestrian access</li> <li>• 20 parking spaces, including 2 for horse trailers (at Winiger Ridge Access Area)</li> <li>• Trailhead and connection to Forsythe Creek</li> <li>• 12 camping sites</li> <li>• Boat access</li> <li>• Roads closed to motorized use</li> <li>• 20 parking spaces at terminus parking (at Winiger Ridge Recreation Area)</li> </ul>	No additional facilities
Rocky Point	<ul style="list-style-type: none"> <li>• Trail from Peninsula to Rocky Point</li> <li>• Hiking and fishing access</li> </ul>	Planned closure

Source: Denver Water 2004

Notes:

Existing conditions were verified during EDAW fieldwork on September 16 and September 28, 2005.

ADA = Americans with Disabilities Act

FERC = Federal Energy Regulatory Commission

Attachment 5 – Revised Exhibit E page E-276, paragraph 1.

Please replace the first paragraph on this page with the following paragraph:

“Rocky Point will be closed due to the expanded reservoir. Alternatively, public access will be provided through a new trail at the Upper Viewshed Area to replace the hiking and viewshed opportunities currently provided by this recreational feature at Rocky Point. Winiger Gulch Inlet will have a new public access point above the new high water line of the expanded reservoir. No changes will occur at Winiger Ridge Recreation Area, since all camping facilities have been positioned above the limits of the new high water line of the expanded reservoir. The inlet trail starting from the Haul Road Recreation Area will be relocated above the limits of the new high water line of the expanded reservoir.”

Attachment 6: USFWS and CPW email correspondence approving Denver Water's proposed variance to ramping rates under Article 403

**Alexander, Jessica A.**

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**From:** Alexander, Jessica A.  
**Sent:** Wednesday, March 01, 2017 4:07 PM  
**To:** Alexander, Jessica A.  
**Subject:** FW: Re: Proposed ramping rate change at Gross Reservoir / FERC Project No. 2035 (TAILS # 2017-TA-0552)

----- Forwarded message -----

From: "Vana-Miller, Sandy" <[sandy\\_vana-miller@fws.gov](mailto:sandy_vana-miller@fws.gov)>  
Date: Feb 22, 2017 4:45 PM  
Subject: Re: Proposed ramping rate change at Gross Reservoir / FERC Project No. 2035 (TAILS # 2017-TA-0552)  
To: "Bray, Travis J." <[Travis.Bray@denverwater.org](mailto:Travis.Bray@denverwater.org)>  
Cc: "Ken Kehmeier ([ken.kehmeier@state.co.us](mailto:ken.kehmeier@state.co.us))" <[ken.kehmeier@state.co.us](mailto:ken.kehmeier@state.co.us)>

Hi Travis;

I reviewed Denver Water's (DW) proposed modification to Article 403 (Ramping Rate Compliance) of its FERC Hydro Power license at Gross Reservoir; specifically, that DW be allowed a ramping rate tolerance of 5 cfs per hour. I am O.K. with the proposed 5 cfs variance at Gross Reservoir.

USFWS appreciates the opportunity to comment on this proposed action,

*Sandy Vana-Miller*

Fish and Wildlife Biologist/Platte River Program  
USFWS, ES, Colorado Field Office  
P.O. Box 25486, DFC (MS 65412)  
Denver, Colorado 80225-0486  
303-236-4748, fax 303-236-4005

On Thu, Feb 16, 2017 at 3:55 PM, Bray, Travis J. <[Travis.Bray@denverwater.org](mailto:Travis.Bray@denverwater.org)> wrote:

Ken and Sandy – Denver Water has proposed to modify Article 403 (Ramping Rates) (article 403 ramping rates at gross rez.pdf) of its FERC Hydro Power license at Gross Reservoir to allow a 5 cfs variance. FERC has requested Denver Water obtain concurrence from CPW and USFWS regarding the proposed 5 cfs variance (article 403 proposed change.pdf). Could you please respond to this email concurring with the proposed change? Since Denver Water is operating under a FERC deadline, would it be possible to have your answer by March 2, 2017?

Thank you and please let me know if you have any questions.

Travis

---

**From:** Bray, Travis J.  
**Sent:** Friday, February 10, 2017 3:31 PM  
**To:** [Sandy Vana-Miller@fws.gov](mailto:Sandy_Vana-Miller@fws.gov)  
**Cc:** Ken Kehmeier ([ken.kehmeier@state.co.us](mailto:ken.kehmeier@state.co.us)) <[ken.kehmeier@state.co.us](mailto:ken.kehmeier@state.co.us)>  
**Subject:** FW: Proposed ramping rate change at Gross Reservoir

Sandy – since we have not been able to talk on the phone, I am sending you the information I shared with Ken Kehmeier regarding DW’s proposed change to ramping rates at Gross Dam. Please let me know if you have any questions.

T

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**From:** Bray, Travis J.  
**Sent:** Friday, February 10, 2017 3:27 PM  
**To:** Ken Kehmeier ([ken.kehmeier@state.co.us](mailto:ken.kehmeier@state.co.us)) <[ken.kehmeier@state.co.us](mailto:ken.kehmeier@state.co.us)>  
**Subject:** Proposed ramping rate change at Gross Reservoir

Ken – as we discussed, DW is proposing a change to Article 403 (Ramping Rates) of its FERC license for Gross Dam. As shown in the attached document (article 403 proposed change.pdf), Denver Water is proposing a 5 cfs tolerance for ramping rate violations.

In the past, Denver Water has violated the existing ramping rates (article 403 ramping rates at gross rez.pdf) when making water changes due to the inexact nature of making valve adjustments. While DW does not intentionally intend to violate the existing ramping rates, large valves and high water pressure make flow adjustment an inexact science.

To give you an idea of what 5 cfs means in terms of stage (water depth), at a flow rate of 50 cfs (0.67 water depth) a 5 cfs buffer is approximately 0.04 water depth. At a flow rate of 200 cfs (1.59 water depth) a 5 cfs buffer is approximately 0.03 water depth. A copy of the rating table for Gross Dam outflow (Gross outflow rating cure.pdf) from the State’s website is attached for your reference.

If you have any questions, please do not hesitate to ask.

**Alexander, Jessica A.**

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**From:** Alexander, Jessica A.  
**Sent:** Wednesday, March 01, 2017 4:06 PM  
**To:** Alexander, Jessica A.  
**Subject:** FW: Proposed ramping rate change at Gross Reservoir

**From:** Kehmeier - DNR, Ken [<mailto:ken.kehmeier@state.co.us>]  
**Sent:** Tuesday, February 28, 2017 8:03 PM  
**To:** Bray, Travis J. <[Travis.Bray@denverwater.org](mailto:Travis.Bray@denverwater.org)>  
**Cc:** [Sandy Vana-Miller@fws.gov](mailto:Sandy.Vana-Miller@fws.gov); Leslie, Mark <[Mark.Leslie@state.co.us](mailto:Mark.Leslie@state.co.us)>; Krieger, Doug <[doug.krieger@state.co.us](mailto:doug.krieger@state.co.us)>; Rogstad, Larry <[larry.rogstad@state.co.us](mailto:larry.rogstad@state.co.us)>  
**Subject:** Re: Proposed ramping rate change at Gross Reservoir

Travis,

We at Colorado Parks and Wildlife have reviewed the documents that Denver Water provided concerning the Article 403 (Ramping Rate Compliance) of its FERC Hydro Power license at Gross Reservoir . Colorado Parks and Wildlife is OK with the specific variance of 5 cfs per hour ramping rate below Gross Reservoir.

Thanks for allowing us to review and comment on this variance.

Ken

Ken Kehmeier  
Sr. Aquatic Biologist  
Platte River Basin Aquatics



970-472-4350 | 970-472-4458(fax)  
317 West Prospect Road, Fort Collins, Colorado 80526  
[ken.kehmeier@state.co.us](mailto:ken.kehmeier@state.co.us) | [cpw.state.co.us](http://cpw.state.co.us)

On Thu, Feb 16, 2017 at 3:55 PM, Bray, Travis J. <[Travis.Bray@denverwater.org](mailto:Travis.Bray@denverwater.org)> wrote:

Ken and Sandy – Denver Water has proposed to modify Article 403 (Ramping Rates) (article 403 ramping rates at gross rez.pdf) of its FERC Hydro Power license at Gross Reservoir to allow a 5 cfs variance. FERC has requested Denver Water obtain concurrence from CPW and USFWS regarding the proposed 5 cfs variance (article 403 proposed change.pdf). Could you please respond to this email concurring with the proposed change? Since Denver Water is operating under a FERC deadline, would it be possible to have your answer by March 2, 2017?

Thank you and please let me know if you have any questions.

Travis

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**From:** Bray, Travis J.  
**Sent:** Friday, February 10, 2017 3:31 PM  
**To:** [Sandy Vana-Miller@fws.gov](mailto:Sandy_Vana-Miller@fws.gov)  
**Cc:** Ken Kehmeier ([ken.kehmeier@state.co.us](mailto:ken.kehmeier@state.co.us)) <[ken.kehmeier@state.co.us](mailto:ken.kehmeier@state.co.us)>  
**Subject:** FW: Proposed ramping rate change at Gross Reservoir

Sandy – since we have not been able to talk on the phone, I am sending you the information I shared with Ken Kehmeier regarding DW’s proposed change to ramping rates at Gross Dam. Please let me know if you have any questions.

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**From:** Bray, Travis J.  
**Sent:** Friday, February 10, 2017 3:27 PM  
**To:** Ken Kehmeier ([ken.kehmeier@state.co.us](mailto:ken.kehmeier@state.co.us)) <[ken.kehmeier@state.co.us](mailto:ken.kehmeier@state.co.us)>  
**Subject:** Proposed ramping rate change at Gross Reservoir

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In the past, Denver Water has violated the existing ramping rates (article 403 ramping rates at gross rez.pdf) when making water changes due to the inexact nature of making valve adjustments. While DW does not intentionally intend to violate the existing ramping rates, large valves and high water pressure make flow adjustment an inexact science.

To give you an idea of what 5 cfs means in terms of stage (water depth), at a flow rate of 50 cfs (0.67 water depth) a 5 cfs buffer is approximately 0.04 water depth. At a flow rate of 200 cfs (1.59 water depth) a 5 cfs buffer is approximately 0.03 water depth. A copy of the rating table for Gross Dam outflow (Gross outflow rating cure.pdf) from the State’s website is attached for your reference.

If you have any questions, please do not hesitate to ask.

T



Attachment 7: Denver Water and USFS email correspondence on the  
Revised March 2017 version of the Addendum to the Recreation  
Management Plan under Article 416

**From:** [Daukas, Paula](#)  
**To:** [Smith, Gregory D -FS](#)  
**Cc:** [Alexander, Jessica A.](#); [Gogas, Brian J.](#)  
**Subject:** REVISED Addendum to Recreation Management Plan - Gross Reservoir  
**Date:** Thursday, March 16, 2017 4:44:24 PM  
**Attachments:** [REV\\_GrossRecAddendum\\_3-16-17\\_trackchanges.pdf](#)  
[REV\\_GrossRecAddendum\\_3-16-17\\_clean.pdf](#)  
[RecAddendum\\_Figures\\_L2\\_L6\\_L7\\_L9\\_RevisedMarch2017.pdf](#)

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Greg,

Denver Water received a letter from FERC with some specific questions and comments on the License Amendment Application for the Gross Reservoir Hydroelectric Project (November 26, 2016). FERC stated in its letter that although it did not identify any deficiencies in the Application, FERC requested some additional information to complete its review. In particular, FERC asked Denver Water to clarify and/or correct descriptions of the existing and proposed recreational facilities in the *Addendum to Recreation Management Plan (Article 416)*. Denver Water addressed all of FERC's comments, which we believe are minor and result in no substantive changes to the *Addendum*.

Attached for your review are the following:

- *Addendum to Recreation Management Plan* – Revised March 16, 2017 – All of the revisions are shown in red-line/strike-out with comments explaining why the change was made. The comments also reference corresponding revisions made to the figures.
- *Addendum Figures* – The revised figures titled, L2, L-6, L-7 and L-9
- *Addendum to Recreation Management Plan* – Revised March 16, 2017 – Clean version that will be submitted to FERC

We would appreciate your review of these changes and request that you provide a return email stating any comments or concerns you might have, or that you find the revisions acceptable. If possible, we would appreciate your response by March 30, 2017 so we can provide FERC with documentation of your review and concurrence.

If you have any questions, please contact Jessica Alexander (303-628-6573) or me (303-628-6524).

Thank you for your assistance with this request.

Paula

**Paula Daukas** | Environmental Planning Manager  
**Denver Water** | t: 303-628-6524 | f: 303-628-6852  
1600 West 12th Ave | Denver, CO 80204-3412

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