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# 12.0 AESTHETIC RESOURCES

This section describes the aesthetic resources in the vicinity of the Middle Fork American River Project (MFP or Project). The Federal Energy Regulatory Commission (FERC or Commission) content requirements for this section are specified in Title 18 of the Code of Federal Regulations (CFR) Chapter I § 5.6(d)(3)(ix).

This section describes the MFP facilities and surrounding landscape with respect to the United States Department of Agriculture Forest Service's (USDA-FS) Visual Management System (VMS). The VMS provides a framework for systematically evaluating scenic resources and the effects of land management activities on those resources. Use of the VMS is relevant because most of the Project facilities are located on land managed by the USDA-FS.

The information presented in this section focuses on describing the above-ground Project facilities and the USDA-FS Visual Quality Objectives (VQOs) associated with those facilities. The VQO data used in this section was obtained from the USDA-FS Region 5 website, which can be accessed at www.fs.fed.us/r5/rsl/clearinghouse/gis-download.shtml. The Eldorado National Forest (ENF) has verbally indicated that the VQO data available on the Region 5 website should be used for general planning purposes only. PCWA will continue to coordinate with the ENF and the Tahoe National Forest (TNF) to obtain current and more specific VQO information and any other information pertinent to the visual assessment.

A visual quality assessment will be performed later in the relicensing process as outlined in the REC 5 – Visual Quality Assessment Technical Study Plan (TSP), which is contained in Supporting Document H (SD H) for reference. As part of the visual quality assessment, PCWA will inventory and assess the existing Project facilities and features, and proposed Project betterments with respect to current VQOs, variety classes, sensitivity levels, and distance zones.

## 12.1 INFORMATION SOURCES

The information presented in this section was developed using the following six information sources:

- Visual Resource Management Guides - Visual Quality Standard Determination and Application. Region 5. (USDA-FS 1973)
- National Forest Landscape Management, *Volume 1*. Agriculture Handbook Number 434 (USDA-FS 1973)
- National Forest Landscape Management, *Volume 2*. Agricultural Handbook Number 462 (USDA-FS 1974)
- Landscape Aesthetics - A Handbook for Scenery Management. Agricultural Handbook Number 701 (USDA-FS 1995)
- Tahoe National Forest Land and Resource Management Plan (USDA-FS 1990)

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- Eldorado National Forest Land and Resource Management Plan (USDA-FS 1988)

## 12.2 OVERVIEW OF THE USDA-FS VISUAL MANAGEMENT SYSTEM

The USDA-FS developed a VMS to inventory, classify, analyze, and manage visual resources in National Forests. The central goals of the VMS are to maintain and enhance the natural appearance and visual characteristics of the landscape while actively managing for various resource benefits such as timber, grazing, wildlife, and recreation. The VMS considers existing visual conditions, physical and human-made features, viewer sensitivity to scenic quality, and distance zones to determine the goals for visual resource management. In addition, the VMS provides the methodology to assess the visual landscape as a basic resource. It is designed to function at any level of the land planning process and is flexible enough to incorporate the extreme variability of various landscapes.

The VMS organizes forest landscapes into three categories, as follows:

1) Character type or "Variety Class" - Describes the physical features of the land.
2) Sensitivity Level - Describes people's concern for scenic quality.
3) Visual Quality Objectives (VQOs) - Defines the degree of acceptable alteration to the natural landscape.

The VMS combines the landscape character type and sensitivity levels to determine the VQOs on all National Forest lands. The VQOs are documented in the Land and Resource Management Plans (LRMPs) for each of the individual National Forests. In addition to designating VQOs, the LRMPs designate management areas and describe the desired future condition for visual resources within the National Forest.

The VQOs that are pertinent to the MFP are identified in the Tahoe National Forest (TNF) LRMP and the Eldorado National Forest (ENF) LRMPs. The USDA-FS recognizes five VQOs. Four of these are pertinent to the MFP, as follows:

- Preservation: This standard allows ecological changes only with some exceptions for recreation facilities. This objective applies to Wilderness areas, primitive areas, other special classified areas, areas awaiting classification, and some unique management units which do not justify special classification.

- Retention: This standard requires management activities to be designed and located to blend into the natural landscape and not be visually apparent to the casual forest visitor. A management activity may repeat the visual elements and principles common in the characteristic landscape only if this repetition does not evidently change the essential quality of the existing dominance factors.

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- Partial Retention: This standard provides that management activities may be evident to the casual forest visitor; however, the activity should remain subordinate to the visual strength and natural character of the landscape.

- Modification: This standard provides that management activities may be visually apparent to the casual observer and may also become dominant in the landscape.

Table 12-1 identifies all of the above-ground MFP facilities by area, and their designated VQOs. Map 12-1, which consists of five sheets, shows the designated USDA-FS VQOs with respect to all of the MFP facilities. The table and map set were created using Geographic Information System (GIS) data available on the USDA-FS Region 5 website, which can be accessed at www.fs.fed.us/r5/rsl/clearinghouse/gis-download.shtml. The ENF has verbally indicated that the VQO data available on the Region 5 website should be used for general planning purposes only. PCWA will update the VQO information presented on Table 12-1 and in the map set in coordination with the ENF and TNF. In addition, PCWA will work with the USDA-FS to establish Key Observation Points (KOPs) and to assess the visual effect of Project features in terms of the VMS designations for variety class, sensitivity levels, distance zones, and VQOs.

## 12.3 DESCRIPTION OF EXISTING CONDITIONS

The MFP facilities are situated in the foothills and mountainous uplands of the western slope of the central Sierra Nevada, within the TNF and the ENF. The bypass streams located downstream of MFP facilities, flow from elevations ranging from a high of approximately 5,300 feet (ft) above mean sea level (msl) at the French Meadows Reservoir and Duncan Creek Diversion to approximately 1,100 ft msl at the Ralston Afterbay. The surrounding ridges reach elevations as high as 7,000 ft msl.

The Middle Fork American River Watershed (Watershed) is characterized by steep canyons and rugged terrain with dense forests and woodlands. Aesthetic resources in the Watershed include alpine lakes, rivers, streams, general forested areas, Wilderness areas, and scenic trails and roadways. The Watershed is primarily managed for timber, grazing, fish and wildlife habitat, recreation, and hydropower generation.

The land encompassing the MFP facilities and bypass streams is considered rural in nature. There are no residential or commercial developments in the immediate vicinity of the Project. The nearest population center is Foresthill (population 1,791), located approximately four miles west-northwest of Ralston Afterbay. Several paved roads provide the primary access to the MFP vicinity. These include: Mosquito Ridge Road, Ralston Ridge Road, Blacksmith Flat Road and Soda Springs Riverton Road. Access to more remote locations in the Watershed is possible using ancillary roads and trails associated with either the Forest Service Transportation System or the Auburn State Recreation Area (ASRA), located downstream of Ralston Afterbay.

The following describes the above-ground Project facilities, organized by area, and their associated VQOs. Additional detailed information regarding the Project facilities is included in the Project Description, which is contained in SD B, for reference. The MFP

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includes a system of tunnels. However, the tunnels are not discussed because they are located underground and are therefore not visible.

### 12.3.1 Duncan Creek Area

The primary Project facilities in the Duncan Creek area are the Duncan Creek Diversion Dam and Duncan Creek Diversion Pool. These facilities are located on Duncan Creek, a tributary to the Middle Fork American River. The Duncan Creek Diversion Dam is a 32 foot-high, 165 foot-long, concrete gravity structure with a crest elevation of 5,275 ft msl. The dam impounds Duncan Creek and forms the Duncan Creek Diversion Pool, which has a gross storage capacity of approximately 20 acre-feet (ac-ft) and a maximum surface area of approximately 3 acres. Other Project facilities located in the Duncan Creek are identified on Table 12-1 and shown on Map 12-1 (Sheet 1 of 5).

The topography in the Duncan Creek area is moderately steep. Predominant aspects are northwest and southeast. The Duncan Creek watershed is dominated by mixed conifer and pine species, including Douglas-fir and ponderosa pine, annual grasses and forbs, and California black oak, particularly near the confluence with the Middle Fork American River. Riparian species are found along the stream channel. The stream valley and side slopes are comprised of Paleozoic marine deposits and andesite, respectively. Rock outcrops can be seen along the immediate perimeter of the Duncan Creek Diversion Pool.

In 2001, the Red Star Fire consumed 17,500 acres of forest on the ENF and TNF and private lands. Large portions of the burned area resulted in greater than 75% stand mortality (USDA-FS 2004; USDA-FS 2003). This fire burned in the immediate vicinity of the Duncan Creek Diversion Dam destroying many of the trees and vegetation on the side slopes near the dam and altering the visual character of the landscape.

Access to the Duncan Creek area is extremely limited due to the steep terrain and dense vegetation. The Duncan Creek Diversion Dam can be accessed by taking Mosquito Ridge Road and then Duncan Creek Diversion Road. None of the Project facilities in the Duncan Creek area are visible from any primary travel routes.

The Duncan Creek Diversion Dam and associated Project facilities are situated on land managed by the TNF. As shown on Map 12-1 (Sheet 1 of 5), all of the above-ground Project facilities in the Duncan Creek area lie within an area with a designated VQO of Modification.

The Project facilities in the Duncan Creek area lie within a Management Area (MA) identified in the TNF-LRMP as “Sunflower”. Additional standards and guidelines regarding VQOs in this management area are contained in the TNF-LRMP, as follows:

- Retention in foreground as viewed from the Western States Trail between Robinson Flat and the junction with Duncan Creek. This includes the portion of the trail through Little Robinson Valley and Little Duncan Canyon.

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- Partial Retention in the immediate foreground of the Western State Trail from the junction with Duncan Creek to the boundary with MA089 (French Meadows MA).
- Partial Retention for the foreground as viewed from the Tevis Cup Trail.
- Retention in semi-primitive non-motorized area south of Little Robinson Valley and in the Duncan Creek Stream Management Zone upstream from the Western States Trail.
- Modification in all other areas.

The Western States Trail and Tevis Cup Trail are the same trail in the Duncan Creek area. This trail crosses Duncan Creek about one mile upstream of the Duncan Creek Diversion Dam. None of the above-ground Project facilities in the Duncan Creek area are visible in the foreground of the Western States Trail/Tevis Cup trail. Similarly, none of the Project facilities in the Duncan Creek area are visible from the Duncan Creek Stream Management Zone upstream from the trail.

### 12.3.2 French Meadows Area

The primary Project facilities in the French Meadows area are the French Meadows Dam and Reservoir, located on the Middle Fork American River. French Meadows Dam (also referred to as LL Anderson Dam) is a 231 foot-high, 2,700 foot-long rock and gravel filled structure with a crest elevation of 5,273 ft msl. The French Meadows Dam impounds the Middle Fork American River forming the French Meadows Reservoir, which provides 134,993 ac-ft of gross storage. The maximum surface area is about 5,262 ft and the minimum operating surface area is about 5,125 ft. Other Project facilities located in the French Meadows area are identified on Table 12-1 and shown on Map 12-1 (Sheet 1 of 5).

The landscape surrounding French Meadows Reservoir is characterized by moderately steep hillsides which are densely vegetated with mixed conifer forest, interspersed with small areas dominated by white fir and huckleberry oak. Upper montane chaparral species are also present on the surrounding side slopes. The reservoir and surrounding side slopes include intermittent exposure of granitic bedrock.

Hundreds of acres of forest west of the dam were consumed in the Red Star Fire in 2001, leaving the area burned and scarred. Most of the burned area consists of a few patches of forest with large areas of exposed bedrock and soil. The burned area is clearly visible from the French Meadows Dam and Mosquito Ridge Road.

The French Meadows area is accessible via Mosquito Ridge Road (FS Road 96), a two-lane paved access road. The dam and reservoir are clearly visible from Mosquito Ridge Road.

The French Meadows Dam, Reservoir and associated Project facilities are situated within the boundaries of the TNF. As shown on Map 12-1 (Sheet 1 of 5), all of the above-ground Project facilities in the French Meadows area lie within an area with a designated VQO of Retention.

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The Project facilities in the French Meadows area lie within a MA identified in the TNF-LRMP as "French". Additional standards and guidelines regarding VQOs in this management area are contained in the TNF-LRMP, as follows:

- Foreground Retention is established from the following viewpoints;
  - Western States Trail;
  - Middle Fork American River;
  - Forest Highway 96 to Junction of Road 51, Road 51 to Talbot Campground; and
  - Campgrounds viewing out.
- Partial Retention within the developed sites.
- Partial Retention of developed sites when viewed as middleground from travel routes and other occupancy sites.

French Meadows Reservoir and associated Project facilities are visible from portions of the Western States Trail, the Middle Fork American River, Forest Route 96, and from the campgrounds and day use areas surrounding French Meadows Reservoir.

### 12.3.3 Hell Hole Area

The primary Project facilities in the Hell Hole area include the Hell Hole Dam and Reservoir, located on the Rubicon River. The Hell Hole Dam is a 410 foot-high, 1,570 foot-long rock fill structure with a crest elevation of 4,650 ft msl. The dam impounds the Rubicon River and Five Lakes Creek to form Hell Hole Reservoir. Hell Hole Reservoir has a gross storage capacity of 207,590 ac-ft and a maximum surface area of 4,630 ft, and a minimum operating surface area of 4,340 ft. Other above-ground Project facilities in the vicinity of Hell Hole Dam and Reservoir are identified on Table 12-1 and shown on Map 12-1 (Sheet 2 of 5).

The Hell Hole Reservoir is located in the rugged Rubicon River Canyon. The surrounding landscape is characterized by steep and rocky slopes, which are covered with brush and mixed-conifer forest. The vegetation is sparse compared to the French Meadows area, consisting of California black oak and various conifers, pines, and firs. Vegetation near Hell Hole Dam is comprised of upper montane chaparral species, huckleberry oak, and annual grasses and forbs. The upper hillsides are dominated by red fir and white fir, with upper montane mixed shrub species and huckleberry oaks interspersed. Willow species also occur along side drainages. The reservoir and surrounding side slopes are primarily composed of granite with areas of glacial deposits on the surrounding side slopes. The upper reaches of the reservoir transition into a river canyon environment.

Several developed recreational facilities are located along the perimeter of the southwest end of the reservoir. A gravel road leading to a boat ramp is located at the south end of the reservoir, near Hell Hole Dam. The Hell Hole area can be accessed from the north by USDA-FS Road 24 (Chipmunk Ridge Road) or from the west via

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USDA-FS Road 2 (also referred to as the Soda Springs Riverton Road). The dam and reservoir are clearly visible from the primary travel routes.

The Project facilities in the Hell Hole area lie within the boundaries of the ENF. As shown on Map 12-1 (Sheet 2 of 5), all of the above-ground Project facilities in the Hell Hole Reservoir area lie within an area with a designated VQO of Retention.

The ENF classified the USDA-FS lands surrounding the entire reservoir as Semiprimitive Motorized in the LRMP. These management areas are essentially undisturbed and land altering practices are limited in scope and duration. The ENF-LRMP provides directives specific to energy-related licenses and permits in Management Practice 98. The General Direction of Management Practice 98 recommends special design techniques for the construction and maintenance of project features so they are subdued in the landscape.

### 12.3.4 Long Canyon Area

The primary Project facilities in the Long Canyon area are the North Fork Long Canyon Diversion Dam and the South Fork Long Canyon Diversion Dam. The North Fork Long Canyon Diversion Dam is a 10 foot-high, 120 foot-wide concrete gravity structure with a crest elevation of 4,720 ft msl. The dam impounds the North Fork Long Canyon Creek and forms a small diversion pool with less than one ac-ft of storage. The South Fork Long Canyon Dam is a 27 foot-high, 145 foot-long concrete gravity structure with a crest elevation of 4,650 ft msl. The dam impounds the South Fork Long Canyon Creek and forms a diversion pool with less than 1 ac-ft of storage. Other above-ground Project facilities in the vicinity of these diversion dams are identified on Table 12-1 and shown on Map 12-1 (Sheet 3 of 5).

The landscape in the vicinity of the two diversion dams is characterized by U-shaped valleys created by glaciers. Vegetation along the North and South forks of Long Canyon Creek is dominated by mixed conifer, fir, and pine species, interspersed with small areas dominated by red fir, white fir, Jeffrey pine, mixed Douglas-fir and ponderosa pine, and California black oak. Riparian species are found along the stream channel. The North and South Forks of Long Canyon Creek are composed primarily of andesite, with granite within the stream valley near their confluence. The side slopes are comprised of andesite to the divides.

The North Fork Long Canyon Diversion Dam is accessible via a spur road that extends off Mosquito Ridge Road or from North Fork Long Canyon Access Road, a Project access road. The North Fork Long Canyon Diversion Dam is not visible from the primary travel route, Mosquito Ridge Road. The South Fork Long Canyon Diversion Dam is accessible via a short access road off Mosquito Ridge Road, and is somewhat visible from Mosquito Ridge Road. The South Fork Diversion Dam is not visible from Middle Meadows Campground.

The Project facilities in the Long Canyon area lie within the boundaries of the ENF. As shown on Map 12-1 (Sheet 3 of 5), all of the above-ground Project facilities associated

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with the North Fork and South Fork Long Canyon diversions lie within an area with a designated VQO of Partial Retention.

The diversion dams are within the boundaries of the ENF in a management area classified as wildlife/spotted owl. Specific management direction for these areas was updated as part of the Sierra Nevada Forest Plan Amendment (USDA-FS 2004). In general, the management direction is designed to eliminate disturbance and protect old growth forests in these areas. The Standards and Guidelines included in Management Practice 98 designate this as an avoidance area for transportation-utility corridors.

### 12.3.5 Interbay Area

The primary Project facility in the Interbay area is the Interbay Dam, located on the Middle Fork American River. Interbay Dam is a 70.5 foot-high, 233 foot-long concrete gravity structure with a crest elevation of 2,536 ft msl. The dam impounds the Middle Fork American River forming the Middle Fork Interbay, where water is diverted into the Middle Fork-Ralston Tunnel. Middle Fork Interbay has a maximum operating surface area of about seven acres and a gross storage capacity of 175 ac-ft. Other above-ground facilities in the vicinity of the Interbay Dam are identified on Table 12-1 and shown on Map 12-1 (Sheet 4 of 5).

The landscape in the vicinity of Middle Fork Interbay is moderately steep, entrenched, and confined by narrow V-shaped valleys. The vegetation is comprised of communities dominated by mixed conifer and pine species, including Douglas-fir and ponderosa pine. Canyon live oak, lower montane chaparral species, and California black oak also occur on the surrounding hillsides. Riparian species occur along the stream channel. The valley and side slopes surrounding Middle Fork Interbay are underlain by Paleozoic marine deposits, with andesite rocks along the southern upper side slopes.

Middle Fork Interbay is situated within a remote area of the Middle Fork American River Canyon but can be accessed by taking Mosquito Ridge Road to Middle Fork Interbay Dam and Powerhouse Road, a Project access road. Middle Fork Interbay is not visible from any primary travel route.

The Middle Fork American River in the vicinity of Interbay Dam forms the boundary between the ENF and the TNF. The Project facilities on the north side of the river are located within the TNF and the facilities on the south side of the river are located in the ENF. As shown on Map 12-1 (Sheet 4 of 5), most of the above-ground Project facilities lie within an area with a designated VQO of Modification. The exceptions are two short segments of the Middle Fork Interbay Dam and Powerhouse Road, which cross areas with designated VQOs of Retention and Partial Retention.

In the ENF, the Project facilities lie within three management areas referred to as Visual Foreground Partial Retention, Visual Middleground Retention, and Visual Middleground Partial Retention. Management emphasis in this area is to “maintain a high level of visual quality.” The Standards and Guidelines included in Management Practice 98 call for minimal impacts on visual quality.

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In the TNF, the Project facilities lie within the "End of the World" MA. Additional standards and guidelines regarding VQOs in this management area are contained in the TNF-LRMP, as follows:

- Foreground Retention and middle ground Partial Retention as seen from French Meadows Dam.
- Partial Retention for the semi-primitive motorized (SPM) area along the Middle Fork of the American River and modification for remainder of the management area. Maximum modification will be permitted on a case-by-case basis.

### 12.3.6 Ralston Area

The primary Project facilities in the Ralston Area include the Ralston Afterbay and Ralston Afterbay Dam and Reservoir. Ralston Afterbay Dam is an 89 foot-high, 560 foot-long concrete gravity structure with a crest elevation of 1,189 ft msl. The dam is located on the Middle Fork American River, about three quarters of a mile downstream of the Rubicon River confluence. The dam impounds water from the Rubicon River and the Middle Fork American River to form Ralston Afterbay, which diverts water into the Middle Fork - Ralston Tunnel and re-regulates flows at the lower end of the MFP. Ralston Afterbay has a gross storage capacity of 2,782 ac-ft and a maximum surface area of approximately 68 acres. Other Project facilities in the Ralston area are identified in Table 12-1 and are shown on Map 12-1 (Sheet 5 of 5).

The landscape in the Ralston Area is characterized by sloping hillsides with vegetation comprised of mixed Douglas-fir and ponderosa pine, with areas dominated by ceanothus species and lower montane chaparral species. The valley and side slopes surrounding Ralston Afterbay are underlain by Paleozoic marine deposits.

Ralston Afterbay can be accessed by taking Mosquito Ridge Road to Ralston Ridge Road, which traverses the north side of the Afterbay. Except for a few instances, neither the Ralston Afterbay Dam nor Ralston Afterbay are visible from Mosquito Ridge Road until near its intersection with Ralston Ridge Road. The reservoir is visible from Ralston Ridge Road, as is the Ralston Powerhouse and Switchyard, which is located immediately adjacent to the road.

Ralston Dam and Afterbay are located within the boundaries of the TNF in the north and the ENF in the south. As shown on Map 12-1 (Sheet 5 of 5), all of the above-ground Project facilities lie within areas with designated VQOs of either Retention or Partial Retention. The Brushy Creek Adit and Brushy Creek Adit Road, which are situated along the Middle Fork - Ralston Tunnel, lie in an area with a designated VQO of Modification.

The Project facilities in the Ralston area that are located on the TNF are within a MA identified as "Little Oak". Additional standards and guidelines regarding VQOs in this MA are contained in the TNF-LRMP, as follows:

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- Partial Retention for foreground as viewed from Ralston Recreation Site and Oxbow Reservoir (Ralston Afterbay) and Retention for the semi-primitive nonmotorized area. Modification for remainder of area.
- Maximum Modification will be allowed on a case-by-case basis in areas that have a Modification or Maximum Modification initial VQO and have been assigned the Modification VQO.

The Project facilities in the Ralston area that are located on the ENF are within a MA identified as "Wild and Scenic River". According to the ENF-LRMP this is a preliminary administrative recommendation for the Rubicon River that will receive further review and possible modification. Management practices 14 through 19 provide additional direction, standards and guidelines regarding VQOs in this MA. The Standards and Guidelines included in Management Practice 98 states that this is an exclusion area for transportation-utility corridors.

## 12.4 REFERENCES

United States Department of Agriculture Forest Service (USDA-FS). 1973. Visual Resource Management Guides: Visual Quality Standard Determination and Application. Region 5.

USDA-FS. 1973. National Forest Landscape Management, *Volume 1*. Agriculture Handbook Number 434 (USDA-FS 1973).

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USDA-FS. 2003. Middle Fork American River Watershed Assessment, Tahoe National Forest (TNF), Foresthill Ranger District.

USDA-FS. 2004. Sierra National Forest Plan Amendment (SNFPA) - Final Supplemental Environmental Impact Statement - Record of Decision. Pacific Southwest Region. R5-MB-046.

# TABLES

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## Table 12-1. Middle Fork Project Facilities and Associated Visual Quality Objectives (VQOs).

| | Facility Type | VQO* | | | Comments |
|---|---|---|---|---|---|
| | | M | PR | R | |
| **Duncan Creek Area** | | | | | |
| Duncan Creek Diversion Dam | Small Dam | X | | | |
| Duncan Creek Diversion Pool | Small Diversion Pool | X | | | |
| Duncan Creek – Middle Fork Tunnel Intake | Water Conveyance | X | | | |
| Duncan Creek Gage and Weir below Diversion Dam (USGS Gage and Weir No. 11427750) | Stream Gage and Weir | X | | | |
| Duncan Creek Gage and Weir above Diversion Dam (USGS Gage and Weir No. 11427700) | Stream Gage and Weir | X | | | |
| Duncan Diversion Dam Sediment Disposal Area | Disposal Site | X | | | |
| Photovoltaic Poles and Powerline to Duncan Creek Gage above Diversion Dam | Photovoltaic Pole and Powerline | X | | | |
| Photovoltaic Pole and Powerline at Duncan Creek Gage below Diversion Dam | Photovoltaic Pole and Powerline | X | | | |
| Duncan Creek Diversion Dam Road | Project Road | X | | | |
| Duncan Creek Diversion Intake Road and Diversion Pool Access Point | Project Road/Access Point | X | | | |
| Duncan Creek Diversion Pool Road and Access Point | Project Road/Access Point | X | | | |
| Duncan Creek Diversion Dam North Trail | Project Trail | X | | | |
| Duncan Creek Diversion Dam South Trail | Project Trail | X | | | |
| Duncan Creek Gage and Weir above Diversion Trail | Project Trail | X | | | |
| Duncan Creek Gage and Weir below Diversion Trail | Project Trail | X | | | |
| Photovoltaic Poles and Powerline to Duncan Creek Gage above Diversion Dam Trail | Project Trail | X | | | |
| **French Meadows Area** | | | | | |
| French Meadows Dam and Outlet Works | Large Dam | | | X | |
| French Meadows Reservoir | Large Reservoir | | | X | |
| French Meadows-Hell Hole Tunnel Gatehouse | Water Conveyance | | | X | |
| Duncan Creek – Middle Fork Tunnel Portal | Water Conveyance | | | X | |
| French Meadows – Hell Hole Tunnel Intake | Water Conveyance | | | X | Located in reservoir. |
| Middle Fork American River Gage and Weir below French Meadows Dam (USGS Gage and Weir No. 11427500) | Stream Gage and Weir | | | X | |

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## Table 12-1. Middle Fork Project Facilities and Associated Visual Quality Objectives (VQOs) (continued).

| | Facility Type | VQO* | | | Comments |
|---|---|---|---|---|---|
| | | M | PR | R | |
| **French Meadows Area (continued)** | | | | | |
| French Meadows Reservoir Staff Gage | Reservoir Gage | | | X | Located in reservoir. |
| French Meadows Reservoir Gage (USGS Gage No. 11427400) | Reservoir Gage | | | X | |
| French Meadows Dam Leakage Weir Nos. 1-6 | Leakage Weir | | | X | |
| French Meadows Dam Generator Building | Ancillary Facility | | | X | |
| French Meadows Dam Staging Area | Ancillary Facility | | | X | |
| French Meadows Dam Generator Building to French Meadows Dam Outlet Works Powerline | Powerline | | | X | |
| French Meadows Dam Generator Building to French Meadows Dam Spillway Gates Powerline | Powerline | | | X | |
| Photovoltaic Pole and Powerline at Middle Fork American River Gage below French Meadows Dam | Photovoltaic Pole and Powerline | | | X | |
| Radio Communications Tower near French Meadows – Hell Hole Tunnel Gatehouse | Radio Tower | | | X | |
| Duncan Creek – Middle Fork Tunnel Portal Road and Spillway Access Point | Project Road/Access Point | | | X | |
| French Meadows – Hell Hole Tunnel Gatehouse Road | Project Road | | | X | |
| French Meadows Dam Outlet Works and Leakage Weirs Road | Project Road | | | X | |
| French Meadows Dam Staging Area Access Road | Project Road | | | X | |
| Middle Fork American River Gage and Weir below French Meadows Dam Road | Project Road | | | X | |
| Middle Fork American River Gage and Weir below French Meadows Dam Trail | Project Trail | | | X | |
| Ahart Campground | Recreation Facility | | | X | |
| Coyote Group Campground | Recreation Facility | | | X | |
| French Meadows Boat Ramp | Recreation Facility | | | X | |
| French Meadows Campground | Recreation Facility | | | X | |
| French Meadows Picnic Area | Recreation Facility | | | X | |
| Gates Group Campground | Recreation Facility | | | X | |
| Lewis Campground | Recreation Facility | | | X | |
| McGuire Boat Ramp | Recreation Facility | | | X | |
| McGuire Picnic Area | Recreation Facility | | | X | |
| Poppy Campground | Recreation Facility | | | X | |

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## Table 12-1. Middle Fork Project Facilities and Associated Visual Quality Objectives (VQOs) (continued).

| | Facility Type | VQO* | | | Comments |
|---|---|---|---|---|---|
| | | M | PR | R | |
| **French Meadows Area (continued)** | | | | | |
| Dolly Creek Water Supply | Recreation Facility Water Supply | | | X | |
| French Meadows Campground Water Supply and Trail | Recreation Facility Water Supply/Trail | X | | X | |
| **Hell Hole Area** | | | | | |
| Hell Hole Dam and Outlet Works | Large Dam | | | X | |
| Hell Hole Reservoir | Large Reservoir | | | X | |
| Hell Hole – Middle Fork Tunnel Gatehouse | Water Conveyance | | | X | |
| French Meadows Powerhouse Penstock and Butterfly Valve House | Water Conveyance | | | X | |
| Hell Hole – Middle Fork Tunnel Intake | Water Conveyance | | | X | Located in reservoir. |
| French Meadows – Hell Hole Tunnel Removable Section | Water Conveyance | | | X | |
| French Meadows Powerhouse and Switchyard | Powerhouse/Switchyard | | | X | |
| Hell Hole Powerhouse | Powerhouse | | | X | |
| Dormitory and Cottages Water Supply Tank | Ancillary Facility | | | X | |
| Hell Hole Staging Areas | Ancillary Facility | | | X | |
| Rubicon River Gage and Weir below Hell Hole Dam (USGS Gage and Weir No. 11428800) | Stream Gage and Weir | | | X | |
| French Meadows Powerhouse Gage (USGS Gage No. 11427200) | Powerhouse Gage | | | X | |
| Hell Hole Reservoir Staff Gage | Reservoir Gage | | | X | Located in reservoir. |
| Hell Hole Reservoir Gage (USGS Gage No. 11428700) | Reservoir Gage | | | X | Located in reservoir. |
| Hell Hole Dam Leakage Weir | Leakage Weir | | | X | |
| Dormitory and Cottages Water Supply Tank Powerline | Powerline | | | X | |
| French Meadows Powerhouse to French Meadows Powerhouse Penstock and Butterfly Valve House Communication Line/Powerline | Communication and Powerline | | | X | |
| French Meadows Powerhouse and Switchyard to Hell Hole — Middle Fork Tunnel Gatehouse, Dormitory Facility, Operator's Cottages, and Hell Hole Powerhouse Communication Line/Powerline | Communication and Powerline | | | X | |
| Hell Hole Powerhouse to Rubicon River Gage and Weir below Hell Hole Dam Communication Line/Powerline | Communication and Powerline | | | X | |
| Hell Hole Substation | Substation | | | X | |

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## Table 12-1. Middle Fork Project Facilities and Associated Visual Quality Objectives (VQOs) (continued).

| | Facility Type | VQO* | | | Comments |
|---|---|---|---|---|---|
| | | M | PR | R | |
| **Hell Hole Area (continued)** | | | | | |
| Operator Cottages and Shop | Ancillary Facility | | | X | |
| Dormitory Facility | Ancillary Facility | | | X | |
| Dormitory Facility Barrier Fence | Fence | | | X | |
| Hell Hole Dam General Parking Area Barrier Fence | Fence | | | X | |
| French Meadows Powerhouse Penstock Rock Fence | Fence | | | X | |
| French Meadows Powerhouse Slope Fence | Fence | | | X | |
| French Meadows-Hell Hole Tunnel Portal Road | Project Road | | | X | |
| French Meadows Powerhouse Road | Project Road | | | X | |
| Hell Hole Dam Leakage Weir Road | Project Road | | | X | |
| Hell Hole Dam Spillway Discharge Channel Road | Project Road | | | X | |
| Hell Hole-Middle Fork Tunnel Gatehouse Road | Project Road | | | X | |
| Dormitory Facility Road | Project Road | | | X | |
| Rubicon River Gage and Weir below Hell Hole Dam Road | Project Road | | | X | |
| Hell Hole Dam and Powerhouse Road and Spillway Southern Access Point | Project Road/Access Point | | | X | |
| Hell Hole Dam Spillway Northern Access Point | Project Road/Access Point | | | X | |
| Big Meadows Campground | Recreation Facility | | | X | |
| Hell Hole Boat Ramp | Recreation Facility | | | X | |
| Hell Hole Campground | Recreation Facility | | | X | |
| Hell Hole Boat Ramp Parking Area | Recreation Facility | | | X | |
| Hell Hole General Parking Area | Recreation Facility | | | X | |
| Hell Hole Vista | Recreation Facility | | | X | |
| Upper Hell Hole Campground | Recreation Facility | | | X | |
| Big Meadows Campground Water Supply and Trail | Recreation Facility Water Supply/Trail | | | X | |
| **Long Canyon Area** | | | | | |
| North Fork Long Canyon Diversion Dam | Small Dam | | X | | |
| South Fork Long Canyon Diversion Dam | Small Dam | | X | | |
| North Fork Long Canyon Diversion Pool | Small Diversion Pool | | X | | |
| South Fork Long Canyon Diversion Pool | Small Diversion Pool | | X | | |
| North Fork Long Canyon Crossing Removable Section | Water Conveyance | | X | | |
| North Fork Long Canyon Diversion Pipe and Drop Inlet | Water Conveyance | | X | | |

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## Table 12-1. Middle Fork Project Facilities and Associated Visual Quality Objectives (VQOs) (continued).

| | Facility Type | VQO* | | | Comments |
|---|---|---|---|---|---|
| | | M | PR | R | |
| **Long Canyon Area (continued)** | | | | | |
| South Fork Long Canyon Diversion Pipe and Drop Inlet | Water Conveyance | | X | | |
| North Fork Long Canyon Gage and Weir at Diversion Dam (USGS Gage and Weir No. 11433085) | Stream Gage/Wier | | X | | |
| South Fork Long Canyon Gage and Weir at Diversion Dam (USGS Gage and Weir No. 11433065) | Stream Gage/Wier | | X | | |
| North Fork Long Canyon Gage at Diversion Dam (USGS Gage No. 11433080) | Diversion Gage | | X | | |
| South Fork Long Canyon Gage at Diversion Dam (USGS Gage No. 11433060) | Diversion Gage | | X | | |
| Photovoltaic Pole and Powerline at North Fork Long Canyon Gage at Diversion Dam | Photovoltaic Pole and Powerline | | X | | |
| Photovoltaic Pole and Powerline at South Fork Long Canyon Gage at Diversion Dam | Photovoltaic Pole and Powerline | | X | | |
| Long Canyon Crossing Slope Fence | Fence | | X | | |
| North Fork Long Canyon Crossing Removable Section Barrier Fence | Fence | | X | | |
| North Fork Long Canyon Crossing Sediment Disposal Area | Disposal Site | | | X | |
| North Fork Long Canyon Diversion South Road | Project Road | | X | | |
| North Fork Long Canyon Diversion North Road | Project Road | | X | | |
| North Fork Long Canyon Diversion Drop Inlet Road | Project Road | | X | | |
| South Fork Long Canyon Diversion and Drop Inlet Road | Project Road | | X | | |
| North Fork Long Canyon Crossing Removable Section North Road and Parking Area | Project Road | | X | | |
| North Fork Long Canyon Crossing Removable Section South Road | Project Road | | X | | |
| Middle Meadows Group Campground | Recreation Facility | | X | | |
| Middle Meadows Group Campground Water Supply and Trail | Recreation Facility Water Supply/Trail | X | X | | |
| **Interbay Area** | | | | | |
| Middle Fork Interbay Dam | Medium Dam | X | | | |
| Middle Fork Interbay | Medium Reservoir | X | | | |
| Middle Fork Powerhouse and Upper and Lower Switchyards | Powerhouse/Switchyards | X | | | |
| Hell Hole-Middle Fork Tunnel Surge Shaft and Tank | Water Conveyance | X | | | |

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## Table 12-1. Middle Fork Project Facilities and Associated Visual Quality Objectives (VQOs) (continued).

| | Facility Type | VQO* | | | Comments |
|---|---|---|---|---|---|
| | | M | PR | R | |
| **Interbay Area (continued)** | | | | | |
| Middle Fork-Ralston Tunnel Intake and Gatehouse | Water Conveyance | X | | | |
| Middle Fork Powerhouse Penstock and Butterfly Valve House | Water Conveyance | X | | | |
| Hell Hole – Middle Fork Tunnel Removable Section | Water Conveyance | X | | | |
| Middle Fork Interbay Reservoir Gage | Reservoir Gage | X | | | |
| Middle Fork American River Gage at Interbay Dam (USGS Gage No. 11427770) | Stream Gage | X | | | |
| Middle Fork American River Gage above Middle Fork Powerhouse (USGS Gage No. 11427760) | Stream Gage | X | | | |
| Middle Fork Powerhouse Gage (USGS Gage No. 11428600) | Powerhouse Gage | X | | | |
| Middle Fork Powerhouse to Middle Fork Powerhouse Butterfly Valve House Communication Line/Powerline | Communication and Powerline | X | | | |
| Middle Fork Powerhouse to Middle Fork American River Gage above Middle Fork Powerhouse Communication Line/Powerline | Communication and Powerline | X | | | |
| Middle Fork Powerhouse Butterfly Valve House to Radio Repeater near Hell Hole – Middle Fork Tunnel Surge Tank (underground) Communication Line/Powerline | Communication and Powerline | X | | | |
| Middle Fork Powerhouse to Middle Fork – Ralston Tunnel Intake and Gatehouse Communication Line/Powerline | Communication and Powerline | X | | | |
| Photovoltaic Pole and Powerline at Middle Fork American River Gage above Middle Fork Powerhouse | Photovoltaic Pole and Powerline | X | | | |
| Passive Microwave Reflector Station above Middle Fork Interbay | Microwave Reflector | | X | | |
| Radio Communications Tower and Repeater near Hell Hole – Middle Fork Tunnel Surge Shaft and Tank | Radio Tower | X | | | |
| Middle Fork Interbay Sediment Disposal Area | Disposal Site | X | | | |
| Middle Fork Powerhouse Upper Switchyard Slope Fence | Fence | X | | | |
| Middle Fork Interbay Dam Slope Fence | Fence | X | | | |
| Middle Fork Powerhouse Penstock and Butterfly Valve House Road | Project Road | X | | | |
| Middle Fork Powerhouse Butterfly Valve House Road | Project Road | X | | | |
| Middle Fork Powerhouse Upper Switchyard Road | Project Road | X | | | |
| Middle Fork Interbay Dam and Powerhouse Road and Interbay Access Points | Project Road/Access Point | X | X | X | |
| Middle Fork American River Gage above Middle Fork PowerhouseTrail | Project Trail | X | | | |

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## Table 12-1. Middle Fork Project Facilities and Associated Visual Quality Objectives (VQOs) (continued).

| | Facility Type | VQO* | | | Comments |
|---|---|---|---|---|---|
| | | M | PR | R | |
| **Interbay Area (continued)** | | | | | |
| Passive Microwave Reflector Station above Middle Fork Interbay Trail | Project Trail | X | X | | |
| **Ralston Area** | | | | | |
| Ralston Afterbay Dam | Medium Dam | | X | X | North side in Partial Retention (TNF) and south side in Retention (ENF) |
| Ralston Afterbay | Medium Reservoir | | X | X | Northern half in Partial Retention (TNF) and southern half in Retention (ENF) |
| Middle Fork – Ralston Tunnel Removable Section | Water Conveyance | | X | | |
| Middle Fork – Ralston Tunnel Surge Shaft and Tank | Water Conveyance | | X | | |
| Ralston-Oxbow Tunnel Intake | Water Conveyance | | X | | |
| Ralston Powerhouse Penstock Butterfly Valve House | Water Conveyance | | X | | |
| Ralston Afterbay Dam Generator Building | Ancillary Facility | | X | | |
| Storage Building at Middle Fork – Ralston Tunnel Surge Shaft and Tank | Ancillary Facility | | X | | |
| Oxbow Powerhouse and Switchyard | Powerhouse/Switchyard | | X | | |
| Ralston Powerhouse and Switchyard | Powerhouse/Switchyard | | | X | |
| Ralston Afterbay Reservoir Gage | Reservoir Gage | | X | | Located in reservoir. |
| Middle Fork American River Gage below Oxbow Powerhouse (USGS Gage No. 11433300) | Stream Gage | | X | | |
| Ralston Powerhouse Gage (USGS Gage No. 11427765) | Powerhouse Gage | | | X | |
| Oxbow Powerhouse Gage (USGS Gage No. 11433212) | Powerhouse Gage | | X | | |
| Ralston Powerhouse to Ralston Powerhouse Butterfly Valve House Communication Line/Powerline | Communication and Powerline | | X | X | Southwest 325 ft in Retention |
| Ralston-Oxbow Tunnel Intake to Ralston Powerhouse Communication Line | Communication Line | | X | X | Eastern 1800 ft in Retention |
| Ralston Afterbay Dam Generator Building to Ralston-Oxbow Tunnel Intake Communication Line/Powerline | Communication and Powerline | | X | | |

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## Table 12-1. Middle Fork Project Facilities and Associated Visual Quality Objectives (VQOs) (continued).

| | Facility Type | VQO* | | | Comments |
|---|---|---|---|---|---|
| | | M | PR | R | |
| **Ralston Area (continued)** | | | | | |
| Oxbow Powerhouse to Ralston Afterbay Dam Generator Building Communication Line/Powerline | Communication and Powerline | | X | | |
| Passive Microwave Reflector Station above Ralston Afterbay | Microwave Reflector | | X | | |
| `Photovoltaic Pole at Middle Fork American River Gage below Oxbow Powerhouse | Photovoltaic Pole and Powerline | | X | | |
| Ralston Afterbay Ridge Sediment Disposal Area | Disposal Site | | X | | |
| Indian Bar Sediment Disposal Area | Disposal Site | | X | X | |
| Oxbow Powerhouse Slope Fence | Fence | | X | | |
| Ralston Powerhouse Penstock and Butterfly Valve House Slope Fences | Fence | | | X | |
| Ralston Powerhouse Slope Fence | Fence | | | X | |
| Brushy Canyon Adit | Water Conveyance | X | | | |
| Brushy Canyon Adit Road | Project Road | X | | | |
| Ralston Powerhouse Butterfly Valve House Road | Project Road | | X | | |
| Ralston-Oxbow Tunnel Intake Road | Project Road | | X | | |
| Oxbow Powerhouse Road | Project Road | | X | | |
| Ralston Afterbay Dam Road and Afterbay Access Point | Project Road | | | X | |
| Ralston Afterbay Road and Boat Ramp | Project Road | | X | | |
| Middle Fork American River Gage below Oxbow Powerhouse Trail | Project Trail | | X | | |
| Passive Microwave Reflector Station above Ralston Afterbay Trail | Project Trail | | X | | |
| Ralston Afterbay Sediment Removal Access Point | Project Road/Access Point | | X | | |
| Indian Bar Rafting Access and General Parking | Recreation Facility | | X | | |
| Ralston Picnic Area | Recreation Facility | | X | | |
| Ralston Picnic Area Cartop Boat Ramp | Recreation Facility | | X | | |

Notes:
ENF = Eldorado National Forest
TNF = Tahoe National Forest

*VQOs are based on information available on the USDA-FS Region 5 Website, which can be accessed at www.fs.fed.us/r5/rsl/clearinghouse/gis-download.shtml. VQOs are defined as follows:

M Modification: Management activities may visually dominate the original characteristic landscape while remaining compatible with the natural surroundings.
PR Partial Retention: Management activities remain visually subordinate to the characteristic landscape.
R Retention: Provides for management activities which are not visually evident.

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# MAPS

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