Amended Application for New License
Major Project – Existing Dam

Exhibit A
Project Description

Security Level: Public

Yuba River Development Project
FERC Project No. 2246

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None.

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EXHIBIT A

PROJECT DESCRIPTION

1.0 Introduction

The Yuba County Water Agency (YCWA or Licensee) has prepared this Exhibit A, Project Description, as part of its Amended Application for a New License Major Project – Existing Dam – (Amended FLA)[1] from the Federal Energy Regulatory Commission (FERC) for the Yuba River Development Project (Project), FERC Project No. 2246. This Exhibit is prepared in conformance with Title 18 of the Code of Federal Regulations (C.F.R.), Subchapter B (Regulations under the Federal Power Act), Part 5 (Integrated Licensing Process). In particular, this exhibit conforms to the regulations in 18 C.F.R. Section (§) 5.18(a)(5)(iii), which require in part that an application include an Exhibit A, Project Description, in conformance with 18 C.F.R. Section 4.51(b). This Exhibit A describes, in detail, all existing and proposed Project Facilities. As a reference, 18 C.F.R. Section 4.51(b) states:

> Exhibit A is a description of the project. This exhibit need not include information on project works maintained and operated by the U.S. Army Corps of Engineers, the Bureau of Reclamation, or any other department or agency of the United States, except for any project works that are proposed to be altered or modified. If the project includes more than one dam with associated facilities, each dam and the associated component parts must be described together as a discrete development. The description for each development must contain:
>
> (1) The physical composition, dimensions, and general configuration of any dams, spillways, penstocks, powerhouses, tailraces, or other structures, whether existing or proposed, to be included as part of the project;
>
> (2) The normal maximum surface area and normal maximum surface elevation (mean sea level), gross storage capacity, and usable storage capacity of any impoundments to be included as part of the project;
>
> (3) The number, type, and rated capacity of any turbines or generators, whether existing or proposed, to be included as part of the project;
>
> (4) The number, length, voltage, and interconnections of any primary transmission lines, whether existing or proposed, to be included as part of the project (see 16 U.S.C. 796(11));
>
> (5) The specifications of any additional mechanical, electrical, and transmission equipment appurtenant to the project; and
>
> (6) All lands of the United States that are enclosed within the project boundary described under paragraph (h) of this section (Exhibit G), identified and tabulated by legal subdivisions of a public land survey of the affected area or, in the absence 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.

Besides introductory material, this exhibit includes five sections. The Project's location is described in Section 2.0. Section 3.0 provides details of the existing Project Facilities, including dimensions, physical features, and other pertinent information, arranged by Project development.

[1] YCWA filed with FERC an Application for a New License Major Project – Existing Dam – (Final License Application, or FLA) for the Project on April 27, 2014.

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Section 4.0 describes the area within the existing and proposed FERC Project Boundary, including the legal description and total acreage for all parcels owned by the United States. Section 5.0 describes YCWA's proposed changes to existing Project Facilities and the Project Boundary, including changes to total acreage of land within the Project Boundary owned by the United States. Section 6.0 provides a bibliography of the references listed in this exhibit.

See Exhibit B for a description of Project operations, Exhibit C for a construction schedule for any proposed new facilities, Exhibit D for costs and financing information, and Exhibit E for a discussion of potential environmental effects and YCWA's proposed resource management measures. Project design drawings and maps are included in Exhibits F and G, respectively. Exhibit H contains a detailed description of the need for the electricity provided by the Project, availability of electrical energy alternatives, and other miscellaneous information.

All elevation data in this exhibit is in National Geodetic Vertical Datum of 1929 (NGVD 29) unless otherwise specified.

2.0 Project Location

The Yuba River Development Project is located in northern California in Yuba, Nevada and Sierra counties in the western foothills of the Sierra Nevada. A portion of the Project is on federal land managed by the United States Department of Agriculture, Forest Service (Forest Service) as part of the Plumas and Tahoe national forests (PNF and TNF, respectively), and a portion is on federal land administered by the United States Army Corps of Engineers (USACE) as part of Englebright Reservoir and Dam.

The existing Project ranges in elevation from approximately 2,030 feet (ft) at the upstream end of the Our House Diversion Dam impoundment to approximately 290 ft at the base of the Narrows 2 Powerhouse.

Project facilities are located on the main stem of the Yuba River, Middle Yuba River and North Yuba River; and Oregon Creek, a tributary to the Middle Yuba River. The Yuba River is a tributary to the Feather River and is part of the Sacramento River Basin, which drains into the San Francisco Bay. Figure 2.0-1 illustrates the general regional location of the Project. The map does not display the FERC Project Boundary, which could not be shown at the scale of the map, but highlights the general region of the Project for contextual purposes. Figure 2.0-2 shows the Project Vicinity,[2] proposed Project, and proposed FERC Project Boundary.

[2] For the purpose of this Exhibit A, "Project Vicinity" refers to the area surrounding the Project on the order of United States Geological Survey (USGS) 1:24,000 quadrangles.

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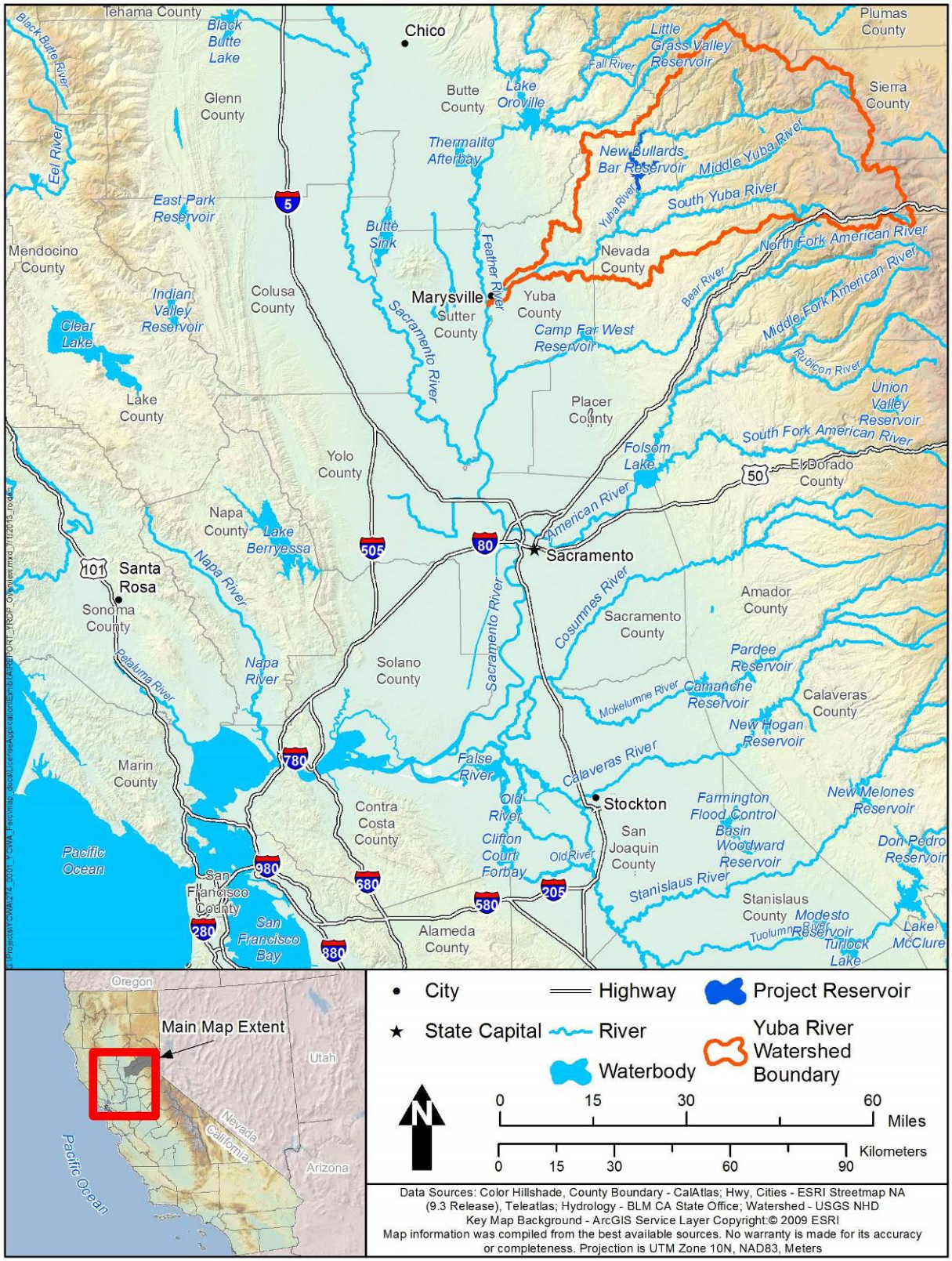

Figure 2.0-1. Yuba River watershed in relation to the Feather River and other tributaries to the Sacramento River.

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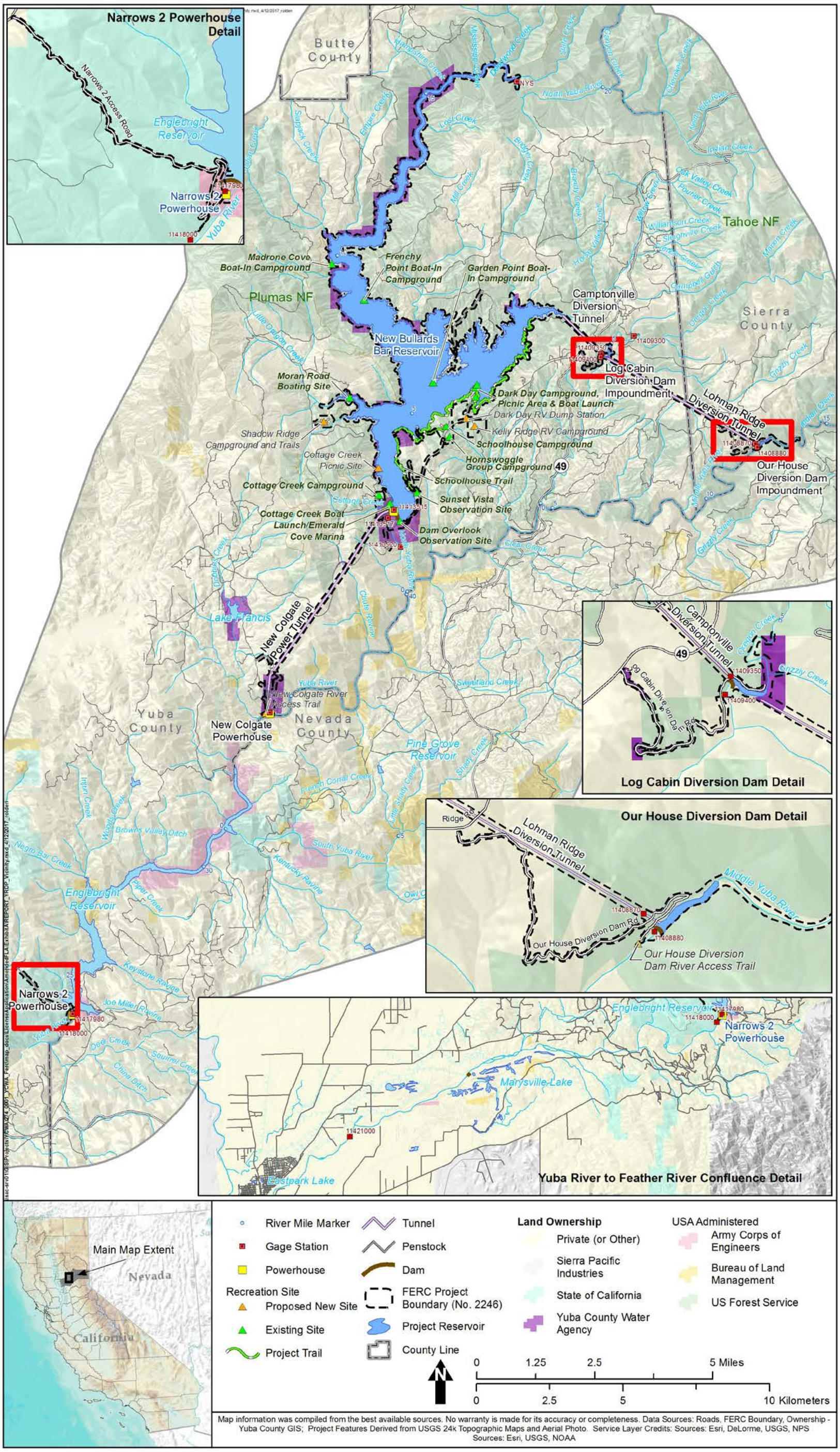

Figure 2.0-2. Yuba County Water Agency's Yuba River Development Project and Project Vicinity.

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3.0 Project Facilities and Features

The initial license for the Yuba River Development Project was issued by the Federal Power Commission, FERC's predecessor, to YCWA on May 16, 1963, effective on May 1, 1963. The Federal Power Commission's May 6, 1966, Order Amending License changed the license's effective date to May 1, 1966, for a term ending on April 30, 2016.

The existing Project can store approximately 966,473 acre-feet (ac-ft) of water (gross storage), and from 2008 through 2016, generated an average of 1,089,106 megawatt-hours (MWh) of power annually. The existing Project's FERC total installed capacity is 361.9 megawatts (MW) and YCWA's calculated dependable capacity is 247,331 kilowatts (kW). Table 3.0-1 and Table 3.0-2 summarize key information for Project powerhouses and reservoirs, respectively.

Table 3.0-1. Key information regarding Yuba River Development Project powerhouses.

Powerhouse	Unit	Turbine Type	Rated Head (ft)	Rated Hydraulic Capacity (cfs)		Generation Capacity (kW)		Average Annual Energy (MWh/yr)[3]
				Minimum	Maximum	Nameplate Rating[1]	Dependable[2]	
New Colgate	1	Pelton	1,306	0	1,715	157,500	247,261	942,278
New Colgate	2	Pelton	1,306	0	1,715	157,500		
New Bullards Minimum Flow	1	Pelton	561	0	5	150	0	1,054
Narrows 2	1	Francis	236	600	3,400	46,750	70	145,773
Total	**4**	--	--	--	--	**361,900**	**247,331**	**1,089,106**

Notes: cfs = cubic feet per second; kW = kilowatt; MWh/yr = megawatt-hours/year

1 From Table 5.2-6 in Exhibit D.

2 From Table 5.2-7 in Exhibit D (i.e., historic dependable capacity). Using it Water Balance/Operations Model, YCWA estimates dependable capacity to be 230,309 kW (Table 5.2-8 in Exhibit D).

3 From Table 5.2-1 in Exhibit D (i.e., historic generation from 2008 through 2016). Using it Water Balance/Operations Model, YCWA estimates average annual energy generation to be 1,418,045 MWh (Table 5.2-2 in Exhibit D for WY 2070 through WY 2010).

Table 3.0-2. Key information regarding Yuba River Development Project reservoirs and impoundments.

Project Reservoir	NMWSE[1] (ft)	Gross Storage[2] (ac-ft)	Usable Storage[2] (ac-ft)	Surface Area[2] (ac)	Maximum Depth[2] (ft)	Shoreline Length[2] (mi)	Drainage Area[3] (sq mi)
Our House Diversion Dam Impoundment	2,030	280	None	14	65	0.7	144.8
Log Cabin Diversion Dam Impoundment	1,970	90	None	5	40	0.4	29.1
New Bullards Bar Reservoir	1,956	966,103	961,103	4,790	636	71.9	466.6
Total	--	**966,473**	**961,103**	**4,809**	--	--	--

1 NMWSE = Normal Maximum Water Surface Elevation

2 Storage between NMWSE and the invert of the 72-inch hollow jet low level outlet.

3 At the dam, and drainage areas are not additive.

Project facilities and features are described below by development.

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3.1 New Colgate Development

3.1.1 Developmental Facilities

The New Colgate Development is located on the main stems of the North Yuba River, Middle Yuba River, Yuba River, and Oregon Creek, a tributary to the Middle Yuba River. The development includes two diversion dams (Our House and Log Cabin), two diversion tunnels (Lohman Ridge and Camptonville), one storage reservoir (New Bullards Bar), one power tunnel and penstock (New Colgate) and one powerhouse (New Colgate). Table 3.1-1 summarizes the dimensions, physical features, and other pertinent information for each facility or feature, excluding recreation Facilities associated with the New Colgate Development, which are described in Section 3.1-2. Representative photographs of the non-recreation facilities and features are provided in Figures 3.1-1 through 3.1-4.

Table 3.1-1. Description of Yuba River Development Project facilities and features – New Colgate Development.

OUR HOUSE DIVERSION DAM	
Location/Legal Description	Latitude 39.411910, Longitude -120.997427
River Mile	Middle Yuba River RM 12.6
Construction Period	1968
Hazard Classification	High
Type	130 ft-radius double curvature concrete arch
Height	70 ft
Crest Elevation	2,030 ft
Crest Length	368 ft
Spillway Type	Central, ungated overpour with six bays
Spillway Capacity	60,000 cfs to top of thrust blocks
Closest Upstream Facility	Nevada Irrigation District's Milton Diversion Dam, 32.2 miles upstream on the Middle Yuba River
Closest Downstream Facility	YCWA's New Colgate Powerhouse, 18.5 miles downstream on the Yuba River
OUR HOUSE DIVERSION DAM FISH RELEASE OUTLET	
Number, Size & Control	One, 24-inch diameter steel pipe
Outlet Invert Elevation	1,999 ft
Maximum Design Capacity (Engineer's Estimate)	59 cfs, when the pool is at the Lohman Ridge Diversion Tunnel intake invert elevation of 2,015 ft
Control	Hand-operated 24-inch valve on the outlet
OUR HOUSE DIVERSION DAM LOW LEVEL OUTLET	
Number, Size & Control	One 5-foot diameter steel pipe, slide gate controlled
Outlet Invert Elevation	1,987 ft
Maximum Design Capacity (Engineer's Estimate)	463 cfs, when the pool is at the Lohman Ridge Diversion Tunnel intake invert elevation of 2,015 ft
Control	Two-person portable gasoline powered engine-operated slide gate on upstream end of dam
Trash Rack	12.375 inch spacing between steel bars

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Table 3.1-1. (continued)

OUR HOUSE DIVERSION IMPOUNDMENT	
Normal Maximum Water Surface Elevation	2,030 ft
Drainage Area	144.8 square miles
Storage Capacity	None (280 ac-ft capacity, but no storage)
Surface Area	14 acres
OUR HOUSE DIVERSION DAM ACCESS ROAD	
Access Roads Within FERC Project Boundary	Our House Dam Road
LOHMAN RIDGE DIVERSION TUNNEL	
Number & Type	One rock horseshoe-shaped tunnel (partially lined)
Construction Period	1968
Size	Unlined Horseshoe Tunnel: width = 12 ft 6 in, height = 12 ft 6 in
	Lined Horseshoe Tunnel: width = 9 ft 8 in, height = 10 ft 8.5 in
Length	19,395 ft total (90% unlined tunnel, 10% lined tunnel)
Tunnel Intake Invert Elevation	2,015 ft
Maximum Flow Capacity	860 cfs
Trash Rack	8.75 inch spacing between steel bars
LOG CABIN DIVERSION DAM	
Location/Legal Description	Latitude 39.440491, Longitude -121.058746
River Mile	Oregon Creek RM 4.3
Construction Period	1968
Hazard Classification	High
Type	105 ft-radius concrete arch
Height	42.5 ft
Crest Elevation	1,970 ft
Crest Length	300 ft
Spillway Type	Central ungated overpour with six bays
Spillway Capacity	12,000 cfs
Closest Upstream Facility	No upstream Facilities
Closest Downstream Facility	YCWA's New Colgate Powerhouse, 14.9 miles downstream on the Yuba River
LOG CABIN DIVERSION DAM FISH RELEASE OUTLET	
Number, Size & Control	One, 18-inch diameter steel pipe
Outlet Invert Elevation	1,947 ft
Maximum Design Capacity (Engineer's Estimate)	18 cfs, when the pool is at the Camptonville Diversion Tunnel intake invert elevation of 1,952 ft
Control	Hand-operated 18-inch valve on the outlet
LOG CABIN DIVERSION DAM LOW LEVEL OUTLET	
Number, Size & Control	One, 5-foot diameter steel pipe, slide gate controlled
Outlet Invert Elevation	1,935 ft
Maximum Design Capacity (Engineer's Estimate)	348 cfs, when the pool is at the at the Camptonville Diversion Tunnel intake invert elevation of 1,952 ft
Control	Two-person portable gasoline powered engine-operated slide gate on upstream end of dam
Trash Rack	12.375 inch spacing between steel bars

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Table 3.1-1. (continued)

LOG CABIN DIVERSION IMPOUNDMENT	
Normal Maximum Water Surface Elevation	1,970 ft
Drainage Area	29.1 square miles
Storage Capacity	None (90 ac-ft capacity, but no storage)
Surface Area	5 acres
LOG CABIN DIVERSION DAM ACCESS ROAD	
Access Roads Within FERC Project Boundary	Log Cabin Diversion Dam Road
CAMPTONVILLE DIVERSION TUNNEL	
Number & Type	One rock horseshoe-shaped tunnel (partially lined)
Construction Period	1968
Size	Unlined Horseshoe Tunnel: width = 14 ft 6 in, height = 14 ft 6 in
	Lined Horseshoe Tunnel: width = 11 ft 7 in, height = 12 ft 7½ in
Length	6,121 ft total (70% unlined horseshoe, 30% lined horseshoe)
Tunnel Intake Invert Elevation	1,952 ft
Maximum Flow Capacity	1,100 cfs
Trash Rack	8.75 inch spacing between steel bars
NEW BULLARDS BAR DAM	
Location/Legal Description	Latitude 39.392569 Longitude -121.14140 in Sec 25, T 18 N, R 7 E in Yuba and Nevada Counties, 2.6 miles northwest of North San Juan
River Mile	North Yuba River RM 2.4
Construction Period	1966-1969
Hazard Classification	High
Type	1,110 ft-radius double curvature concrete arch
Height	645 ft
Crest	--
Elevation	1,965 ft
Width	25 ft
Length	2,323 ft
Base	--
Elevation	1,320 ft
Width	185 ft
Slope	--
Upstream Face	Variable
Downstream Face	Variable
Closest Upstream Facility	YCWA's Log Cabin Diversion, 14.9 miles upstream on the Yuba River
Closest Downstream Facility	New Bullards Minimum Flow Powerhouse at base of dam
NEW BULLARDS BAR DAM SPILLWAY	
Type	Concrete ogee with 3 radial gates
Crest Elevation	1,902 ft
Top of Gates Elevation	1,956 ft
Width	106 ft
Length	1,000 ft
Control	Three 30 ft X 53 ft Tainter Gates
Hoist Type	10 hp drum hoist
Maximum Discharge	160,000 cfs to dam crest; 185,000 cfs to top of parapet wall

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Table 3.1-1. (continued)

NEW BULLARDS BAR DAM LOW LEVEL OUTLET	
Number, Size & Control	One, 72-inch diameter steel pipe
Intake Invert Elevation	1,444.5 ft
Storage Below Intake	~5,000 ac-ft
Maximum Design Capacity	3,500, but actual release capacity is limited to 1,250 cfs because of vibrations at higher release rates
Control	72 inch Hollow Jet Valve, manual control
NEW BULLARDS BAR RESERVOIR	
Normal Maximum Water Surface Elevation	1,956 ft
Normal Minimum Water Surface Elevation	1,730 ft
Drainage Area	488.6 square miles
Gross Storage	966,103 ac-ft
Usable Storage	961,103 ac-ft
Surface Area	4,790 acres
Length	15.3 miles
Width	0.5 mile
Maximum Depth	636 ft
Shoreline Length	71.9 miles
Minimum Pool in Existing License	El. 1,730 ft
NEW BULLARDS BAR POWER INTAKE	
Type	Submerged tower attached to New Bullards Bar Dam near the center of the dam
Number of Intakes	Two, but Upper Intake not used per direction of Cal Fish and Wildlife
Centerline Elevations of Intakes	1,627.5 ft and 1,808 ft[3]
Storage Below Lower Intake	~88,000 ac-ft
NEW COLGATE POWER TUNNEL	
Number & Type	One rock tunnel comprised of horseshoe-shaped (partially lined) and circular (lined) sections and steel penstock
Construction Period	1968-1969
Size	Unlined Horseshoe Dimensions: width = 26 ft, height = 26 ft
	Lined Horseshoe Dimensions: width = 22.75 ft, height = 14.5 ft
	Lined Circular: Diameter = 14 ft
	Steel penstock: Diameter = 9 ft – 14.5 ft
Length	5.2 miles
Maximum Design Flow Capacity	3,400 cfs

[3] In 1993, YCWA convened a Temperature Advisory Committee to obtain more refined recommendations for the operation of New Bullards Bar Reservoir's multi-port power intake. The committee was composed of YCWA, United States Department of Interior, Fish and Wildlife Service (USFWS), and California Department of Fish and Game (CDFG, which is now California Department of Fish and Wildlife). After reviewing temperature model data and the operating options, USFWS and CDFG recommended that water releases from New Bullards Bar Reservoir be as cold as possible at all times. YCWA immediately implemented this recommendation and, since 1993, all controlled releases of water from New Bullards Bar Reservoir through New Bullards Bar Minimum Flow Powerhouse into the North Yuba River and through New Colgate Powerhouse into the Yuba River have been from the deeper port (El. 1,627.5 ft) of the New Bullards Bar Power Intake.

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Table 3.1-1. (continued)

NEW COLGATE POWERHOUSE	
Location/Legal Description	Latitude 39° 19' 51" Longitude 121° 11' 30" in Sec 16, T 17 N, R 7 E in Yuba County, 2.4 miles west of Birchville
Controls	SCADA – ISO,[1] PG&E – AGC[2]
Normal Type of Operation	Peaking (baseline during runoff in high runoff seasons)
Closest Upstream Facility	YCWA's New Bullards Minimum Flow Powerhouse, 8.1 miles upstream on North Yuba River
Closest Downstream Facility	USACE's Englebright Reservoir, 1.7 miles downstream on Yuba River
Structure	--
Type	Steel Frame, reinforced concrete
Approximate Size	Floor plan 98 ft 6 in x 144 ft 0 in, height 60 ft
Turbine	--
Number of Units	Two
Type	Pelton (vertical shaft)
Manufacturer	Voith Siemens
Nameplate Output	212,000 hp
Nameplate Capability	315 MW
Nameplate Rated Head	1,391 ft
Design Head	1,306 ft
Speed	180 RPM
Nameplate Rated Flow	3,220 cfs
Maximum Rated Flow	3,430 cfs
Turbine Centerline Elevation	565 ft
Generator	--
Type	Synchronous
Manufacturer	Toshiba
Upgrades	Unit 1 rewind 2006, Unit 2 rewind 2013
Nameplate Output	175,000 kVA
Nameplate Capability	315 MW
Power Factor	0.9
Voltage	13,800 Volts
Speed	180 RPM
Governor	--
Type	Cabinet Type
Manufacturer	Voith Siemens
NEW COLGATE SWITCHYARD	
Location	Latitude 39° 19' 51" Longitude 121° 11' 30" in Sec 16, T 17 N, R 7 E in Yuba County, 2.4 miles west of Birchville
Size	144 ft x 45 ft Approx.
Transformer Type	ABB, Toshiba
Transformer Nameplate Rating	187,000 kVA, 158,000 kVA
Voltage Rating	230 kV

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Table 3.1-1. (continued)

NEW COLGATE SWITCHYARD (continued)	
High Voltage Breakers	SF-6
Associated Transmission Line within FERC License	None

[1] SCADA – ISO = Supervisory Control and Data Acquisition – California Independent System Operator
[2] PG&E – AGC = Pacific Gas and Electric Company – Automatic Generation Control

Figure 3.1-1. Our House Diversion Dam.

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Figure 3.1-2. Log Cabin Diversion Dam.

Figure 3.1-3. New Bullards Bar Dam and New Bullards Bar Minimum Flow Powerhouse.

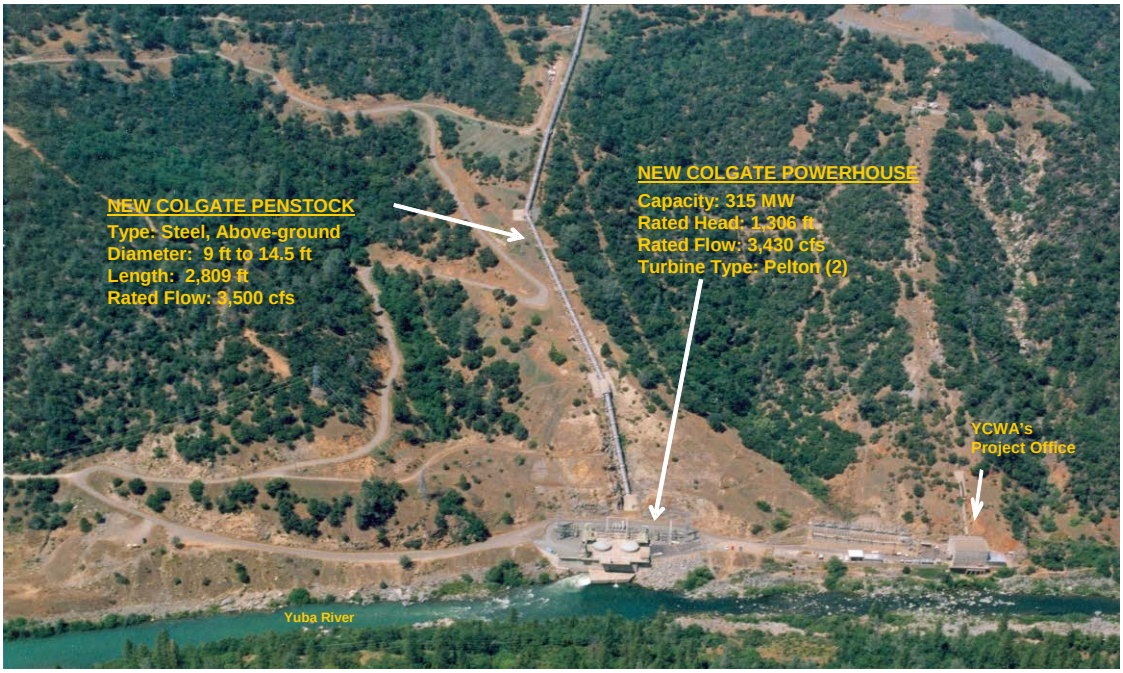

Figure 3.1-4. Views of New Colgate Development facilities and features.

3.1.2 Recreation Facilities

The New Colgate Development has 16 developed recreation facilities at New Bullards Bar Reservoir, which include[4]: 1) Hornswoggle Group Campground; 2) Schoolhouse Campground; 3) Dark Day Campground; 4) Cottage Creek Picnic Area;[5] 5) Garden Point Boat-in Campground; 6) Madrone Cove Boat-in Campground; 7) Frenchy Point Boat-in Campground; 8) Dark Day Picnic Area; 9) Sunset Vista Point; 10) Dam Overlook; 11) Moran Road Day Use Area; 12) Cottage Creek Boat Launch;[6] 13) Dark Day Boat Launch, including the Overflow Parking Area;

[4] Notably, the names of the Project developed recreation facilities will be slightly different under YCWA's proposed Condition RR1, Implement Recreation Facilities Plan, in Appendix E2 of this Amended FLA in order to make the naming of the facilities consistent with the Forest Service's current facility naming guidelines based on the amenities provided at each facility. For example, in the new license, the existing Dark Day Picnic Area will be Dark Day Picnic Site and Sunset Vista Point will be Sunset Vista Observation Site.

[5] The Cottage Creek Picnic Area was burned in 2010. Following extensive consultation, YCWA and the PNF determined that the area would be better utilized to meet current recreational demand for small groups (i.e., double and triple campsites). YCWA and the PNF agreed on a conceptual layout for small group campsites, to be known as the Cottage Creek Campground. The campground would be constructed in two phases: Phase 1 is planned for construction in September-December 2017, and Phase 2 would be constructed approximately 10 to 15 years later. YCWA has requested FERC's approval for the replacement of the burned Cottage Creek Picnic Area with the proposed Cottage Creek Campground.

[6] Emerald Cove Marina provides visitor services at Cottage Creek Boat Launch, including houseboat and boat rentals, boat slips and moorings, fuel and a general store. The marina is operated under a lease from YCWA by a private company.

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14) Schoolhouse Trail; 15) Bullards Bar Trail;[7] and 16) floating comfort stations. All of the recreation facilities are located on National Forest System (NFS) land, with the exception of the Dam Overlook, Cottage Creek Boat Launch and small portions of the Bullards Bar Trail, which are located on land owned by YCWA. All of the developed recreation facilities are located within the existing FERC Project Boundary, except for a few short segments of the Bullards Bar Trail to the east of the Dark Day Boat Launch.

The New Colgate Development also includes two undeveloped recreation sites at Our House and Log Cabin diversion dams located on NFS land within the existing FERC Project Boundary.

A summary of these facilities and sites including their associated amenities is provided in Table 3.1-2. A detailed description of the developed recreation facilities and undeveloped recreation sites are provided in Section 3.1.2.1 and 3.1.2.2.

[7] The Project recreation facilities included one campground that is no longer part of the Project. Burnt Bridge Campground was closed initially by the Forest Service in 1979 due to low use levels. FERC, in an August 19, 1993 Order, which approved YCWA's Revised Recreation Plan, directed YCWA to remove all improvements and restore the Burnt Bridge Campground to the condition it was in prior to development of the facility. YCWA consulted with the Forest Service and all that remains of Burnt Bridge Campground today is the circulation road and vehicle spurs; all other facilities were removed. Of note, the Forest Service Administration Site was removed from the Project per the 1993 Revised Recreation Plan (Exhibit R) that was approved by FERC on August 29, 1993.

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Table 3.1-2. Developed recreation facilities and undeveloped recreation sites at the Yuba River Development Project.

Recreation Facility		Fee	Manager	Land Ownership	Campsites						Picnic Sites	Boat Ramp		Parking Spaces			Restrooms			Trailhead
					Type	Total	Single	Double	Triple	Group		No.	Lanes	Total	Single	Double	Total	Vault	Flush	
NEW BULLARDS BAR RESERVOIR																				
Schoolhouse Campground		Yes	USFS	NFS	tent/RV	57[1]	44	13	0	0	0	0	0	20[2]	20[2]	0	5	1	4	Yes
Hornswoggle Group Campground		Yes	USFS	NFS	tent/RV	6	0	0	0	6	0	0	0	0	0	0	4	2	2	No
Dark Day Campground		Yes	USFS	NFS	tent	10	6	3	1	0	0	0	0	0	0	0	2	2	0	Yes
Cottage Creek Picnic Area[3]		Yes	USFS	NFS	--	0	0	0	0	0	0	0	0	0	0	0	1	1	0	No
Garden Point Boat-In Campground		Yes	USFS	NFS	tent	16	12	4	0	0	0	0	0	0	0	0	3	3	0	No
Madrone Cove Boat-In Campground		Yes	USFS	NFS	tent	10	10	0	0	0	0	0	0	0	0	0	1	1	0	No
Frenchy Point Boat-In Campground[4]		No	USFS	NFS	tent	7	6	1	0	0	0	0	0	0	0	0	0	0	0	No
Dark Day Boat Launch	Main	No	USFS	NFS	--	0	0	0	0	0	0	1	2-3	103	39	64	1	1	0	Yes
	Overflow	No	USFS	NFS	--	0	0	0	0	0	0	0	0	73	18	55	1	1	0	No
Cottage Creek Boat Launch		No	YCWA	YCWA	--	0	0	0	0	0	1	1	2	209	130	79	2	2	0	No
Dark Day Picnic Site		No	USFS	NFS	--	0	0	0	0	0	13	0	0	14	14	0	1	1	0	No
Sunset Vista Observation Site		No	USFS	NFS	--	0	0	0	0	0	1	0	0	60[2]	60[2]	0	1	1	0	Yes
Dam Overlook		No	USFS	YCWA	--	0	0	0	0	0	0	0	0	24[2]	24[2]	0	0	0	0	No
Moran Road Day Use Area		No	USFS	NFS	--	0	0	0	0	0	0	1	1	8[2]	8[2]	0	1	1	0	No
Bullards Bar Trail		No	USFS	NFS/ YCWA	--	0	0	0	0	0	0	0	0	N/A[5]	N/A[5]	N/A[5]	0	0	0	No
Schoolhouse Trail		No	USFS	NFS	--	0	0	0	0	0	0	0	0	N/A[5]	N/A[5]	N/A[5]	0	0	0	No
Floating Comfort Stations		No	YCWA	N/A	--	0	0	0	0	0	0	0	0	0	0	0	7	7	0	No
PROJECT IMPOUNDMENTS																				
Our House Diversion Dam		No	--	NFS	--	0	0	0	0	0	0	0	0	25[2]	25[2]	0	0	0	0	No
Log Cabin Diversion Dam		No	--	NFS	--	0	0	0	0	0	0	0	0	N/A[6]	N/A[6]	N/A[6]	0	0	0	No
Total		--	--	--	--	**106**	**78**	**21**	**1**	**6**	**15**	**3**	**5-6**	**536**	**338**	**198**	**30**	**24**	**6**	--

[1] Includes a host site.

[2] Parking area is not striped so the total number of spaces is estimated.

[3] Cottage Creek Picnic Area was used for overflow camping; however, the facility burned in a 2011 fire and has been closed since. All facilities were destroyed in the fire, except the vault restroom.

[4] Frenchy Point Boat-in Campground is no longer managed as a developed campground, but rather for dispersed shoreline camping. The restroom facility has been removed and only the campsite amenities remain, including the picnic tables, fire rings and Klondike stoves.

[5] Trailhead parking is available where the trail intersects other existing parking areas, including at the Schoolhouse Campground overflow parking area (20 spaces), Sunset Vista Observation Site (20 spaces), Dark Day Picnic Site (16 spaces) and Dark Day Boat Launch (39 single spaces).

[6] Parking at Log Cabin Diversion Dam impoundment is informal along the shoulder of Highway 49, which does not have a defined area to estimate the parking capacity.

N/A = not available

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3.1.2.1 New Bullards Bar Reservoir

3.1.2.1.1 Campgrounds

Schoolhouse Campground

Schoolhouse Campground is located between New Bullards Bar Reservoir and Marysville Road, across from the Hornswoggle Group Campground. The campground is approximately 0.5-mi from the reservoir shoreline on NFS lands. The facility consists of 57 campsites, including 43 single sites, 13 double sites and 1 host site. The single sites' amenities include a picnic table, cooking grill/fire ring, food locker, site marker and vehicle parking spur with a design capacity of five people[8] and one vehicle. The double sites' amenities include two picnic tables, a cooking grill/fire ring, two food lockers, site marker and vehicle parking spur with a design capacity of 10 people and two vehicles. The campground has five restrooms buildings ((4) four-unit flush and (1) two-unit vault), a potable water system and an undeveloped overflow parking area for 20 vehicles. The campground does not have any recreation vehicle (RV) hookups or a dump station. The campground has one facility identification sign at the entrance; five information boards (one 3-panel board at the entrance station and four 1-panel information boards at each restroom); 12 directional signs along the circulation roads; and 29 information/regulation signs throughout the facility.

The campground also has a trailhead for the 1.0 mi Schoolhouse Trail (Project trail), which connects to the 14.0 mi Bullards Bar Trail (Project trail); and includes two trail signs, where the trail intersects the campground. In addition, the 8 Ball Trail (non-Project trail) passes through the campground and leads to Dark Day Campground.

Representative photographs of the recreation facilities are provided in Figure 3.1-5.

[8] Forest Service design standards for single campground units specify five PAOT (Forest Service Handbook 2309.13, Recreation Site Handbook, Ch. 30, pages 6-9; December 2013). However, the Forest Service allows up to six PAOT at single units, 12 PAOT at double units and 18 PAOT at triple units.

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Typical Camp Site

Typical Comfort Station

Figure 3.1-5. Representative photographs of Schoolhouse Campground.

Dark Day Campground

Dark Day Campground is located approximately 4 mi from the New Bullards Bar Dam via Marysville Road and Dark Day Road on the southeast shoreline of the Willow Creek arm of the reservoir. The facility is approximately 0.2-mi from the reservoir shoreline. The facility consists of 10 campsites for tent camping only, including six single sites, three double sites and one triple site. The single sites' amenities include a picnic table, cooking grill/fire ring, food locker, and a vehicle parking spur with a design capacity of five people and one vehicle. The double sites' amenities include two picnic tables, a cooking grill/fire ring, two food lockers and a vehicle parking spur with a design capacity of 10 people and two vehicles. The triple sites' amenities

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include three picnic tables, a cooking grill/fire ring, three food lockers and a vehicle parking spur with a design capacity of 15 people and three vehicles. The campground has (2) two-unit vault restroom buildings and a potable water system. The campground has two information boards (a 3-panel and 1-panel board), nine information/regulation signs throughout the facility; and three campsite marker signs – one for each cluster of campsites (Sites 1-3, 4 and 5-10). Representative photographs of the recreation facilities are provided in Figure 3.1-6.

Typical Camp Site (Double Site)

Figure 3.1-6. Representative photograph of Dark Day Campground.

Hornswoggle Group Campground

Hornswoggle Group Campground is located on Marysville Road, 2.5 mi northeast of the New Bullards Bar Dam, and 3.3 mi southwest of the Highway 49 junction. The facility is approximately 0.6 mi from the southeast shoreline of the reservoir on NFS lands. The facility consists of six group campsites, including five campsites with a design capacity of 25 people-at-one-time (PAOT), and one campsite with a design capacity of 50 PAOT. The group site amenities include tables, food lockers, site marker and a group fire ring/grill. The campground has four restrooms (2 four-unit flush and 2 two-unit vault), a potable water system, and parking areas at each campsite. The campground has one facility identification sign at the entrance; six 1-panel information boards; three directional signs along the circulation road; and seven information/regulation signs throughout the facility. Representative photographs of the recreation facilities are provided in Figure 3.1-7.

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Typical Group Camp Site

Typical Restroom

Figure 3.1-7. Representative photographs of Hornswoggle Group Campground.

Cottage Creek Picnic Area

This facility is located off of County Road 169 approximately 0.5-mi from its intersection with Marysville Road near New Bullards Bar Dam. The facility consists of 30 sites each with a picnic table, fire ring and Klamath stove; a two-unit vault restroom building and an overflow parking area for 9 single vehicles. The facility is used for overflow camping and not picnicking. The

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initial facility was closed due to under use and vandalism per the 1993 Revised Exhibit R. However, to address the need for camping capacity when the reservoir level is above 1,945 ft and shoreline boat-in camping is not permitted, the facility is now used for overflow camping during high water conditions noted above.

Notably, in 2010, the facility was destroyed in a fire. The only site amenities that remain are the vault restroom building and the Klamath stoves. Following extensive consultation, YCWA and the PNF determined that the area would be better utilized to meet current recreational demand for small groups (i.e., double and triple campsites). YCWA and the PNF agreed on a conceptual layout for small group campsites, to be known as the Cottage Creek Campground. The campground would be constructed in two phases: Phase 1 is planned for construction in 2017 or 2018, and Phase 2 would be constructed approximately 10 to 15 years later following re-vegetation of the more severely burner portion of this area.

Garden Point Boat-In Campground

The Garden Point Boat-in Campground is accessed by boat only and is located on a peninsula on the north side of the reservoir, at the junction between the North Yuba River and Willow Creek arms of the reservoir on NFS lands. The campground is approximately 3.0 mi by boat from the Cottage Creek Boat Launch, and 1.5 mi from the Dark Day Boat Launch. The facility consists of 16 campsites, which includes 12 single sites and four double sites. The single sites amenities include a picnic table, a fire ring, Klamath stove and site marker with a design capacity of five people. The double site amenities include two picnic tables, a fire ring, Klamath stove and site marker with a design capacity of 10 people. The campground has three vault restroom buildings (2 one-unit and 1 two-unit vault) and does not have a potable water system. The campground has one facility identification sign; one 2-panel information board; one information/regulation sign and 16 campsite marker signs. A representative photograph of the recreation facilities is provided in Figure 3.1-8.

Typical Camp Site

Figure 3.1-8. Representative photograph of Garden Point Boat-in Campground.

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Madrone Cove Boat-In Campground

The Madrone Cove Campground is accessed by boat only and is located along the west shore of the North Yuba River arm of the reservoir on NFS lands. By boat, the campground is approximately 7.5 mi from the Cottage Creek Boat Launch and 6.0 mi from the Dark Day Boat Launch. The facility consists of 10 single campsites. Each site's amenities include a picnic table, fire ring, Klamath stove and site marker with a design capacity of five people. The campground has 1 two-unit vault restroom building and does not have a potable water system. The campground has 1 facility identification sign; (1) 2-panel information board; 2 information/regulation signs and 10 campsite marker signs. A representative photograph of the recreation facilities is provided in Figure 3.1-9.

Typical Camp Site

Figure 3.1-9. Representative photograph of Madrone Cove Boat-in Campground.

Frenchy Point Boat-In Campground

Frenchy Point Boat-in Campground is a developed boat-in campground facility. Due to very low use due to a difficult access terrain, the facility is now alternatively used as a camping area through the dispersed shoreline camping permit system. The site is accessed by boat only and is located along the west facing shore of the North Yuba River arm of the reservoir on NFS lands. By boat, the campground is approximately 6.0 mi from the Cottage Creek Boat Launch and 4.5 mi from the Dark Day Boat Launch. The facilities include seven campsites (6 single and 1 double). The single site amenities each include a picnic table, fire ring, Klamath stove and site marker with a design capacity of five people; and the double site amenities include a picnic table, fire ring, two Klamath stoves and a site marker with a design capacity of 10 people. The site has

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1 site identification sign, (2) 1-panel information boards, and 1 information/regulation sign. The site does not have a restroom facility or potable water system. A FCS is usually moored in the cove near the access to the campground. A representative photograph of the recreation facilities is provided in Figure 3.1-10.

Typical Camp Site

Figure 3.1-10. Representative photograph of Frenchy Point Boat-in Campground.

3.1.2.1.2 Day Use Facilities

Dark Day Picnic Site

The Dark Day Picnic Site is located adjacent to Dark Day Campground on NFS lands. The facility consists of 13 picnic sites, each with a picnic table and cooking grill/fire ring. The picnic site also has (1) 4-unit vault restroom building, a potable water system, and a paved and striped parking area for 14 vehicles. Trailhead access for the Bullards Bar Trail is located near the parking area. The facility has one facility identification sign, two 1-panel information boards, 14 information/regulation signs, two directional signs on the road, and one trailhead sign. Representative photographs of the recreation facilities are provided in Figure 3.1-11.

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Typical Picnic Site

Parking Area and Typical Restroom

Figure 3.1-11. Representative photographs of Dark Day Picnic Site.

Sunset Vista Observation Site

This scenic overlook is located near the southeast corner of the reservoir, approximately 1.0 mi east of New Bullards Bar Dam via Marysville Road and Vista Point Road. The facility consists of (1) 4-unit vault restroom building, 1 picnic table, animal-resistant trash receptacle, and a gravel parking area for approximately 60 vehicles. The facility also serves as a trailhead parking area for the Bullards Bar Trail (Project trail). The facility has one facility identification sign, a single 1-panel information board, four information/regulation signs, and an interpretive panel. In addition, the Bullards Bar Trailhead also has three signs including a trailhead sign and two informational signs. Representative photographs of the recreation facilities are provided in Figure 3.1-12.

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Figure 3.1-12. Representative photographs of Sunset Vista Observation Site.

Dam Overlook

The Dam Overlook is located at the southeast corner of New Bullards Bar Dam on Marysville Road on YCWA-owned land. The facility provides a place to park a vehicle with an unobstructed view of the dam and reservoir and consists of a gravel parking area for approximately 24 vehicles and an interpretive plaque related to the construction of the New Bullards Bar Dam and the Project. The facility does not have any signs other than the interpretive plaque. Representative photographs of the recreation facilities are provided in Figure 3.1-13.

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Parking Area

Dedication Plaque

Figure 3.1-13. Representative photographs of the Dam Overlook.

Moran Road Day Use Area

The Moran Road Day Use Area is located on the west shoreline of the New Bullards Bar Reservoir at Moran Cove on NFS land. The day use area is accessible by vehicle 6.4 mi from the Town of Challenge via Oregon Hill Road and Moran Road. The facility consists of a gravel parking area for eight vehicles, (1) one-unit vault restroom and an informal car top boat ramp (gravel surface). The facility has a single one-panel information board and four information/regulation signs. Representative photographs of the recreation facilities are provided in Figure 3.1-14.

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Figure 3.1-14. Representative photographs of Moran Road Day Use Area.

3.1.2.1.3 Boat Launch Facilities

Cottage Creek Boat Launch[9]

Cottage Creek Boat Launch is located on YCWA-owned land along the southwest corner of the reservoir off County Road 169 approximately 0.1-mi from its intersection with Marysville Road. The launch ramp facility consists of a 900-ft long 2-lane concrete launch ramp, 2 restrooms (vault), 1 picnic site, and a paved and striped parking area for 209 vehicles (130 single spaces and 79 double spaces). The facility has 2 facility identification signs and 33 information/regulation signs. Representative photographs of the recreation facilities are provided in Figure 3.1-15.

Parking Area

Boat Ramp and Floating Dock

Figure 3.1-15. Representative photographs of Cottage Creek Boat Launch.

[9] As of the time of this filing, following extensive consultation, YCWA and the Forest Service have agreed on a re-organization of the existing parking areas to increase the parking capacity by 102 spaces (69 single-vehicle spaces and 33 vehicle-with-trailer spaces). Completion of this Project is expected by 2022.

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Dark Day Boat Launch[10]

The Dark Day Boat Launch Facility is located on Dark Day Road. The facility consists of a main facility (original construction) and an overflow parking area (constructed in 2003). The main facility has a 2-lane concrete boat ramp (3-lane concrete boat ramp at the top of the ramp) with a floating boat dock, a 4-unit restroom (vault) and a paved and striped parking area with 103 total spaces (39 spaces for single vehicles and 64 spaces for vehicles with trailers). Exterior, solar-powered lights are provided at the restroom and at the top of the boat ramp. The overflow parking area facility (named Dark Day Boat Launch Overflow Parking Area) has a paved and striped parking area for 73 vehicles (18 spaces for single vehicles and 55 spaces for vehicles with trailers), and a 2-unit restroom (vault). Overall, the facility has 2 facility identification signs; (1) two-panel information board; 45 information/regulation signs; and 5 directional signs on the access and circulation roads off Marysville Road. Representative photographs of the Project recreation facilities are provided in Figure 3.1-16.

Main Facility and Parking Area

Figure 3.1-16. Representative photographs of Dark Day Boat Launch.

[10] As of the time of this filing, following extensive consultation, YCWA and the Forest Service have agreed on a re-organization of the existing parking areas to increase the parking capacity by 34 spaces (14 single vehicle spaces and 20 vehicle with trailer spaces). Completion of this project is expected by 2022.

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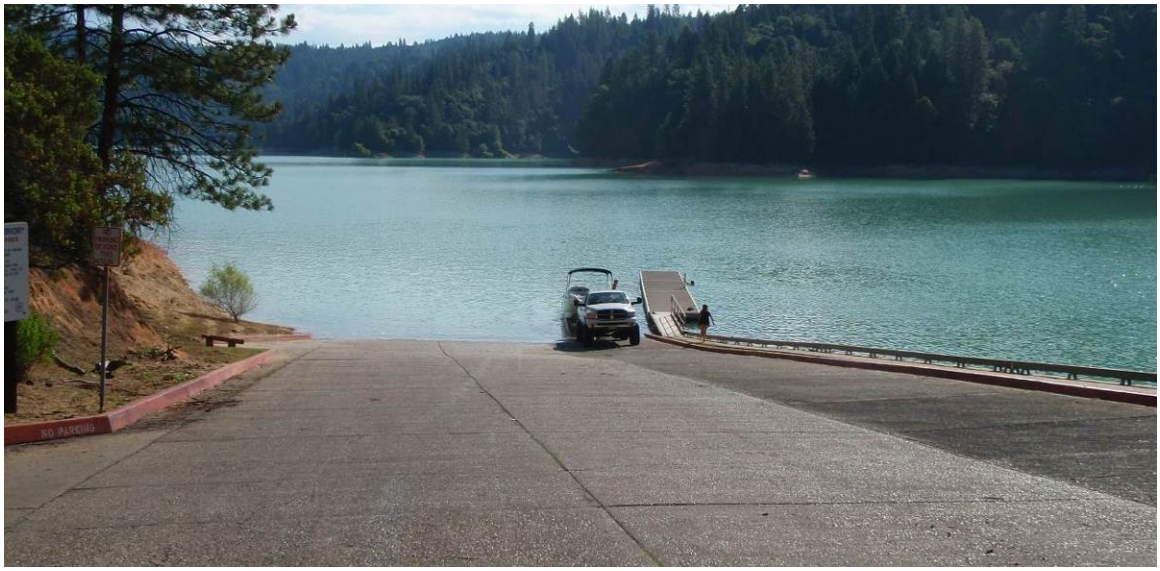

Boat Ramp and Floating Dock

Overflow Parking Area

Figure 3.1-16. (continued)

3.1.2.1.4 Recreational Trails

Bullards Bar Trail

The Bullards Bar Trail is a 14 mi non-motorized, multi-use trail offering an easy, relatively level, and scenic route along the shoreline of the reservoir from the Sunset Vista Point near the dam up to Old Camptonville Road near the Willow Creek arm of the reservoir. The non-motorized, multi-use trail is located within the existing FERC Project Boundary, except for the eastern end of the trail (approximately 1.5 mi) which extends beyond the FERC Project Boundary along Willow Creek, ending at Old Camptonville Road. The trailheads, including parking, are located at the Sunset Vista Point day use Facility, Dark Day Picnic Area and Dark Day Boat Launch.

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The trail is located on NFS and YCWA-owned land and is managed by the Forest Service.

Schoolhouse Trail

The Schoolhouse Trail is a 0.7-mi non-motorized, multi-use trail that descends steeply for approximately 250 ft from Schoolhouse Campground to the Bullards Bar Trail. The trailhead, including parking, is located at the Schoolhouse Campground with parking nearby in the campground overflow parking area. The entire trail is located on NFS land within the existing FERC Project Boundary land and is managed by the Forest Service.

3.1.2.1.5 Floating Comfort Stations

New Bullards Bar Reservoir has seven floating comfort stations dispersed throughout the reservoir. Each floating comfort station consists of two stalls on a floating dock with cleats for boats to approach and tie off to and informational signs. A representative photograph of the recreation facilities is provided in Figure 3.1-17.

Figure 3.1-17. Representative photograph of the floating comfort stations.

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3.1.2.1.6 Other Supporting Infrastructure

Recreational Water Supply System

Water Treatment Facility

The water treatment facility[11] is located on the north side of New Bullards Bar Dam at the west end of the Cottage Creek Boat Launch Facility on YCWA land. The water treatment facility consists of the following primary elements: 1) a water treatment building, containing filters, valves, gages, electronics, office, pumps and equipment; 2) two 10,000 gallon storage tanks; 3) concrete de-chlorination basin; and 4) extensive, separate piping for raw water and treated water. The facility has a storage capacity of 20,000 gallons and a filter rate of 30 gallons per minute or 43,200 gallons per day. Representative photographs of the water treatment facility are provided in Figure 3.1-18.

Figure 3.1-18. Representative photographs of the water treatment facility.

[11] The source for the recreational facility water system is raw water from New Bullards Bar Reservoir at the low level outlet of New Bullards Bar Dam. YCWA pumps and pipes the raw water up the downstream side of New Bullards Bar Dam (north side) and under Cottage Creek Campground Access Road at the entrance to the Cottage Creek Boat Launch facility, where the source water enters the water treatment facility.

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Figure 3.1-18. (continued)

Water Distribution System

Water Treatment Facility to Cottage Creek Boat Launch

The treated water leaves the water treatment facility and is piped underground directly to the Cottage Creek Boat Launch Facility along the northern boundary of the facility parking area. Roughly halfway along the parking area, there is a "T" junction in the piping, where the piping emerges aboveground and water may either be pumped up the hill to a storage tank near the marina storage/maintenance yard north of the boat launch parking area (off Cottage Creek Campground Access Road) or continue down to the marina. This segment is entirely on YCWA land. Representative photographs of these facilities are provided in Figure 3.1-19.

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Figure 3.1-19. Representative photograph of the water distribution system at Cottage Creek Boat Launch.

Water Treatment Facility to Sunset Vista Point/Water Storage Tanks

Treated water serving the recreation facilities on the south side of New Bullards Bar Reservoir along Marysville Road leaves the water treatment facility and is piped across New Bullards Bar Dam (upstream face near crest) and then underground across the entrance road to the upstream side of the dam, where a two-inch pipe carries it aboveground, across the upstream side, just below the crest of the dam to the south side of the dam. Here, the pipe goes underground near the Dam Overlook (no water facilities) along the north side of Marysville Road until it reaches the south side of the Forest Service administration site (non-Project) near Sunset Vista Point. It travels through the Forest Service's administrative site,[12] mostly between the administrative site road and the reservoir, until the two-inch pipe connects to the top of both water storage tanks at the north side of the Forest Service administrative site. This segment is on YCWA and NFS land. A representative photograph of the distribution system across the dam is provided in Figure 3.1-20.

[12] The Forest Service administrative site is a non-Project facility used by the Forest Service for a variety of Forest Service needs, and is not open to the public. It includes a Forest Service operational headquarters, barracks and residences for Forest Service fire response. FERC, in an August 19, 1993 Order that approved YCWA's Revised Recreation Plan, directed YCWA to remove the administrative site from the Project facilities, and redraw the FERC Project boundary to exclude the administrative site. This has been done in YCWA's Application for New License.

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Figure 3.1-20. Representative photograph of the water distribution system across New Bullards Bar Dam.

The primary storage of treated water occurs near the Forest Service's administrative site (non-Project on NFS land), where two storage tanks are located - a 28,000 gallon concrete tank and a newer 10,000 gallon polypropylene tank. A representative photograph of the water storage tanks is provided in Figure 3.1-21.

Figure 3.1-21. Representative photograph of the water storage tanks.

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Sunset Vista Point/Water Storage Tanks to Schoolhouse and Hornswoggle Group Campgrounds

The treated water leaves the storage tanks at the Forest Service administrative site via the underground delivery system (8-inch pipe) to the Project recreation facilities along Marysville Road (Hornswoggle Group Campground, Schoolhouse Campground, and the Dark Day complex). The 8-inch mainline pipe then turns and follows Marysville Road north, and delivers the water to the Project recreation facilities along Marysville Road.

The connection to Hornswoggle Group Campground occurs at a "T" junction in the main distribution line several hundred feet before the Schoolhouse Campground access road. The treated water is diverted off the main distribution line underneath Marysville Road to the south to Hornswoggle Group Campground, where water is piped underground to the campground water facilities (e.g., flush restrooms, water spigots and fire hydrant).

The connection to Schoolhouse Campground occurs at a "T" junction in the main distribution line several hundred feet past the Schoolhouse Campground access road, near the middle of the facility complex. The treated water is connected underground to the campground water facilities (e.g., flush restrooms and water spigots). This segment is on YCWA and NFS land.

All of these facilities are entirely below-ground and representative photographs are not available.

Schoolhouse and Hornswoggle Group Campgrounds to Dark Day Complex

The connection to the Dark Day recreation complex occurs at a "T" junction in the main distribution line just before the Dark Day access road. The main distribution line then follows the west side of Dark Day Road, where it connects to the Dark Day Overflow Boat Ramp Parking Area, Dark Day Campground, Dark Day Picnic Area and Dark Day Boat Launch. The main distribution line runs along the western edge of the road that accesses Dark Day Campground and Picnic Area with several "T" junctions to run treated water to the campsites and picnic area along the road; as well as east to the water spigot at Dark Day Boat Launch Facility. All of these facilities are entirely belowground and representative photographs are not available.

<u>Marina Services (YCWA Lease)</u>

The marina, which is not part of the Project facilities, is provided as a service to Project visitors through a YCWA lease to a private concessionaire and is located entirely on YCWA-owned lands. Currently, the marina is called Emerald Cove Marina. The facility is located on New Bullards Bar Reservoir at the end of Cottage Creek Boat Ramp, and consists of a marina, a floating general store and a floating restroom building. The Emerald Cove Marina provides overnight boat slips and mooring buoys, gasoline pumps, and a floating dump station for houseboat sanitation systems. In addition, the marina provides marine-related repair and maintenance services for nearly any watercraft from complete engine overhauls to cosmetic repairs, including 24-hour emergency watercraft calls/service. The marina has a variety of boat rentals including luxury houseboats, powerboats, pontoon boats, and personal watercraft/wave

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runners. The general store provides groceries and general supplies to the public. The marina operates a reservation system for overnight camping permits at New Bullards Bar Reservoir Facilities, including shoreline camping permits and portable chemical toilet rentals. A representative photograph is provided in Figure 3.1-22.

Figure 3.1-22. Representative photograph of the Emerald Cove Marina.

3.1.2.2 Project Diversion Dam Impoundments

3.1.2.2.1 Our House Diversion Dam

The Our House Diversion Dam impoundment provides undeveloped day use recreation opportunities. The site is located on NFS land along the Middle Yuba River (river mile or RM 12.6) and does not have any developed recreation facilities. Vehicle access to the diversion dam occurs via Highway 49 to Ridge Road and then 1.8 mi along the paved Our House Dam Road. Informal parking for approximately 25 vehicles is available at the end of the Our House Dam Road, where visitors have foot access to the shoreline. Representative photographs are provided in Figure 3.1-23.

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Figure 3.1-23. Representative photographs of Our House Diversion Dam undeveloped recreation site.

3.1.2.2.2 Log Cabin Diversion Dam

The Log Cabin Diversion Dam impoundment provides undeveloped day use recreation opportunities. The site is located on NFS land along Oregon Creek (RM 4.3) and does not have any developed recreation facilities. YCWA, with the permission of the Forest Service, has installed and keeps a locked vehicular gate on NFS land at the start of Log Cabin Road at Highway 49. Vehicle access to the diversion dam is restricted. Visitors may park their vehicles along the shoulder of Highway 49 and hike into the diversion dam. A representative photograph is provided in Figure 3.1-24.

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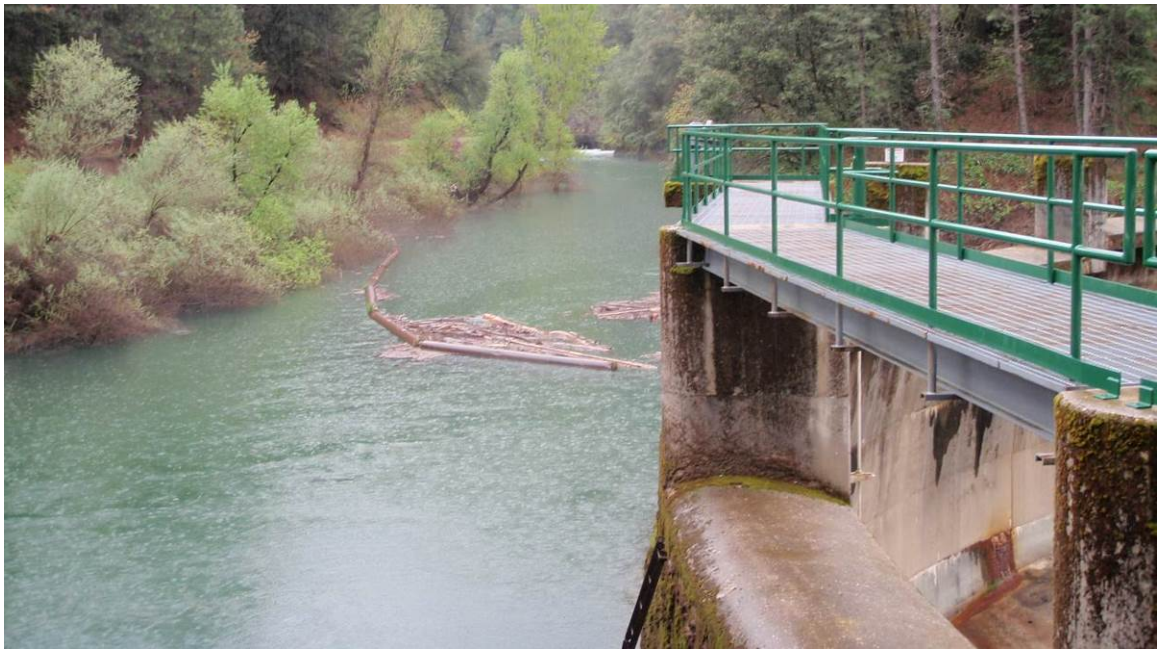

Figure 3.1-24. Representative photograph of Log Cabin Diversion Dam undeveloped recreation site.

3.1.3 Streamflow Gages

The New Colgate Development includes the two streamflow gages listed in Table 3.1-3 that YCWA uses to monitor compliance with existing minimum streamflow requirements.

Table 3.1-3. Existing streamflow gages used by YCWA to monitor compliance with existing minimum streamflow requirements associated with the New Colgate Development.

Location	USGS Gage No.	YCWA's Gage No.	Gage Name	Location (Latitude and Longitude)		Elevation (ft)
Middle Yuba River downstream from Our House Diversion Dam[1]	11408880	YC5	Middle Yuba River Below Our House Dam, Near Camptonville	39°24'42"	120°59'49"	1,957.51
Oregon Creek downstream from Log Cabin Diversion Dam[1]	11409400	YC3	Oregon Creek Below Log Cabin Dam, Near Camptonville	39°26'22"	121°03'29"	1,912.73

[1] United States Geological Survey (USGS) rates this gage for full range in stage/flow.

3.1.4 Roads

Tables 3.1-4 and 3.1-5 list Primary Project Roads (non-recreation roads) and recreation-related roads, respectively, associated with the New Colgate Development.

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Table 3.1-4. Existing Primary Project Roads and Trails (non-recreation roads and trails) included in Yuba River Development Project that are associated with the New Colgate Development.

Road Name	Begin	End	Land Ownership	Mile Marker-Start	Mile Marker-End	Total Length (mi)
Our House Diversion Dam Road (TNF Rd 0180-Our House)	Ridge Road	Our House Diversion Dam	Private	0	0.79	0.79
	Forest Service	--	Forest Service	0.79	0.85	0.06
	Private	--	Private	0.85	1.12	0.27
	Forest Service	--	Forest Service	1.12	1.93	0.81
Our House Diversion Dam Road Spur	Our House Diversion Dam Road	Our House Diversion Dam	Forest Service	0	0.03	0.03
Log Cabin Diversion Dam Road	Highway 49	Log Cabin Diversion Dam	Private	0	0.15	0.15
	Forest Service	--	Forest Service	0.15	0.42	0.27
	Private	--	Private	0.42	0.50	0.08
	Forest Service	--	Forest Service	0.50	0.85	0.35
	Private	--	Private	0.85	1.09	0.24
	Forest Service	--	Forest Service	1.09	1.33	0.24
	Private	--	Private	1.33	1.37	0.04
Cottage Creek Shoreline Access Road	Cottage Creek Campground Access Road	New Bullards Bar Reservoir	Forest Service	0	0.08	0.08
New Bullards Bar Dam Road	County Road 8	New Bullards Bar Dam	Private	0	1.09	1.09
New Bullards Bar Dam Road Spur	New Bullards Bar Dam Road	New Bullards Bar Dam	Private	0	0.11	0.11
Total	**15 road segments**					**4.61 mi**

Table 3.1-5. Existing Recreation Roads included in Yuba River Development Project that are associated with the New Colgate Development.

Road Name	Associated Recreation Facility	Begin	End	Land Ownership (FS Road #, if applicable)	Mile Marker-Start	Mile Marker-End	Total Length (mi)
Dark Day Boat Launch Road	Dark Day Boat Launch	Forest Service	New Bullards Bar Reservoir	Forest Service	0	0.28	0.28
Dark Day Campground and Picnic Area Road	Dark Day Campground and Picnic Area	Forest Service	Campground	TNF Rd 0008-004	0	0.44	0.44
Schoolhouse Campground Loop Road	Schoolhouse Campground	County Road 8	Campground	TNF Rd 0008-005, 0008-005-001, 0008-005-002 and 0008-003	0	0.97	0.97
Hornswoggle Group Campground Road	Hornswoggle Group Campground	County Road 8	Campground	TNF Rd 0008-006	0	0.33	0.33
Moran Boat Launch Access Road	Moran Boat Launch	Moran Road	New Bullards Bar Reservoir	Forest Service	0	0.20	0.20
				YCWA	0.20	0.29	0.09

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Table 3.1-5. (continued)

Road Name	Associated Recreation Facility	Begin	End	Land Ownership (FS Road #, if applicable)	Mile Marker-Start	Mile Marker-End	Total Length (mi)
Cottage Creek Campground Road	Cottage Creek Campground	Cottage Creek Campground Access Road	Campground	Forest Service	0	0.14	0.14
Cottage Creek Campground Access Road	Cottage Creek Campground	County Road 8	Cottage Creek Campground	YCWA	0	0.47	0.47
				Forest Service	0.47	0.82	0.35
				YCWA	0.82	1.16	0.34
				Forest Service	1.16	1.24	0.08
Cottage Creek Boat Launch Road	Cottage Creek Boat Launch	Cottage Creek Campground Access Road	New Bullards Bar Reservoir	YCWA	0	0.15	0.15
Total		**12 road segments**					**3.84 mi**

3.2 New Bullards Minimum Flow Development

3.2.1 Developmental Facilities

The New Bullards Minimum Flow Development is located on the North Yuba River and includes one powerhouse (New Bullards Minimum Flow). Table 3.2-1 summarizes the dimensions, physical features, and other pertinent information for each facility or feature. The New Bullards Minimum Flow Development does not include any recreation facilities. A representative photograph of New Bullards Minimum Flow Development Facilities and features is provided in Figure 3.1-3.

Table 3.2-1. Description of Yuba River Development Project facilities and features – New Bullards Minimum Flow Development.

NEW BULLARDS MINIMUM FLOW POWERHOUSE PENSTOCK	
Number and Type	One steel penstock that bifurcates off the New Bullards Bar Dam low level outlet pipe
Construction Period	1986
Size	12 inches diameter
Length	70 ft
NEW BULLARDS MINIMUM FLOW POWERHOUSE	
Maximum Design Capacity	5 cfs
Location/Legal Description	Latitude 39° 23' 33" Longitude 121° 08' 31" in Sec 25, T 18 N, R 7 E in Yuba County, 2.6 miles northwest of North San Juan
Placed in Service (Began Commercial Operation)	1986
Closest Upstream Facility	New Bullards Bar Reservoir, immediately upstream
Closest Downstream Facility	New Colgate Powerhouse, 8.1-miles downstream on Yuba River
Normal Type of Operation	Base loaded
Structure	--
Type	Prefabricated steel building
Approximate Size	Floor plan: 16 ft x 16 ft

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Table 3.2-1. (continued)

NEW BULLARDS MINIMUM FLOW POWERHOUSE (cont'd)	
Turbine	--
Number of Units	One
Type	Pelton
Manufacturer	Canyon Industries
Nameplate Output	201 hp
Nameplate Capability	150 kW
Nameplate Rated Head	344 ft – 560 ft
Design Head	560 ft
Speed	900 RPM
Nameplate Rated Flow	5 cfs
Turbine Centerline Elevation	1,391 ft
Generator	--
Type	Synchronous
Manufacturer	Kato
Upgrades	None
Nameplate Output	187.5 kVA
Nameplate Capability	150 kW
Power Factor	0.9
Voltage	480 Volts
Speed	900 RPM
Governor	--
Manufacturer	Kato
NEW BULLARDS MINIMUM FLOW TRANSFORMER	
Location	Latitude 39° 23' 33" Longitude 121° 08' 31" in Sec 25, T 18 N, R 7 E in Yuba County, 2.6 miles northwest of North San Juan
Size	225 kVA
Transformer Nameplate Rating	225 kVA
Voltage Rating	480/12,000 Volts
High Voltage Breakers	12,000 Volts
Associated Transmission Line within FERC License	None

3.2.2 Recreation Facilities

The New Bullards Bar Minimum Flow Development does not include any recreation facilities.

3.2.3 Gages

The New Bullards Bar Minimum Flow Development includes the streamflow gage in Table 3.2-2 used by YCWA to monitor compliance with existing minimum streamflow requirements. YCWA uses United States Geological Survey (USGS) Gage 11413517, North Yuba River Downstream from New Bullards Bar Dam, to measure releases from the New Bullards Bar Minimum Flow Powerhouse.

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Table 3.2-2. Existing streamflow gage used by YCWA to monitor compliance with existing minimum streamflow requirements associated with the New Bullards Bar Minimum Flow Development.

Location	USGS Gage No.	YCWA's Gage No.	Gage Name	Location (Latitude and Longitude)		Elevation (ft)
North Yuba River downstream from New Bullards Bar Dam[1]	11413517	YC7	North Yuba River Low Flow Release Below New Bullards Bar Dam	39°23'26"	121°08'36"	1,280

[1] USGS rates this gage for partial range in stage/flow (up to 10.0 cubic feet per second).

3.2.4 Roads

The New Bullards Bar Minimum Flow Development does not include any roads.

3.3 Narrows 2 Development

3.3.1 Developmental Facilities

The Narrows 2 Development is located on the main stem of the Yuba River. The development includes one power tunnel and penstock (Narrows 2), and one powerhouse (Narrows 2). Table 3.3-1 summarizes the dimensions, physical features and other pertinent information for each facility or feature. The Narrows 2 Development does not include any recreation facilities. A representative photograph of Narrows 2 Development Facilities and features is provided in Figure 3.3-1.

Table 3.3-1. Description of Yuba River Development Project facilities and features – Narrows 2 Development.

NARROWS 2 POWERHOUSE PENSTOCK	
Number and Type	One rock tunnel, concrete lined horseshoe shaped tunnel at upper end, steel lined tunnel near powerhouse
Construction Period	1968-69
Size	Concrete lined tunnel section approx. 18'-4" diameter, steel lined section 14'-0" diameter
Length	737 ft (349 ft concrete lined horseshoe tunnel, 368 ft steel lined tunnel and 20 ft transition)
Maximum Flow Capacity	3,400 cfs
NARROWS 2 POWERHOUSE	
Location/Legal Description	Latitude 39° 14' 11" Longitude 121° 16' 17" in Sec 23, T 16 N, R 6 E, 1.6 miles north of Mooney Flat
Closest Upstream Facility	USACE's Englebright Dam, immediately upstream
Closest Downstream Facility	PG&E's Narrows 1 Powerhouse, immediately downstream
Controls	SCADA
Normal Type of Operation	Base loaded
Structure	--
Type	Concrete structure keyed into rock.
Approximate Size	Floor plan approx. 100 ft x 60 ft. Height of structure (from bottom of draft tube to roof deck) approx. 85 ft.

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Table 3.3-1. (continued)

NARROWS 2 POWERHOUSE (cont'd)	
Turbine	--
Number of Units	One
Type	Vertical Francis Type
Manufacturer	Voith Siemens
Nameplate Output	70,000 hp
Nameplate Capability	46.7 MW
Maximum Capability	55 MW
Nameplate Rated Head	236 ft
Design Head	236 ft
Gross Head	235 ft at NMWSE. 183 ft at normal min WSE
Speed	163.6 RPM
Nameplate Rated Flow	3,400 cfs
Turbine Centerline Elevation	292.00 ft
Generator	--
Type	Vertical Indoor
Manufacturer	Toshiba
Upgrades	Rewind 1999
Nameplate Output	55,000 kVA
Nameplate Capability	46.7 MW
Power Factor	0.85
Speed	163.6 RPM
Governor	--
Type	Cabinet type
Manufacturer	Voith Siemens
NARROWS 2 PARTIAL BYPASS	
Maximum Capacity	650 cfs, but usually no higher than 230 cfs due to Facility safety
Partial Bypass Hood	In 2016, with FERC's approval, YCWA installed on the downstream face of the Narrows 2 Powerhouse a hood over the Partial Bypass to assure the release sprayed onto the surface of the river and not on the right bank.
ACCESS ROAD	
Access roads within FERC Project Boundary	Unnamed road off of Scott Forbes Road
NARROWS 2 FULL BYPASS	
Location	Immediately upstream of Narrows 2 Powerhouse
Maximum Capacity	3,000 cfs
Control	72-in. diameter fixed-cone valve
NARROWS 2 POWERHOUSE SWITCHYARD	
Location	Latitude 39° 14' 11" Longitude 121° 16' 17" in Sec 23, T 16 N, R 6 E, 1.6 miles north of Mooney Flat
Maximum Capacity	55,000 kVA
Voltage Rating	60/13.8 kV
High Voltage Breakers	SF-6
Associated Transmission Line within FERC License	None

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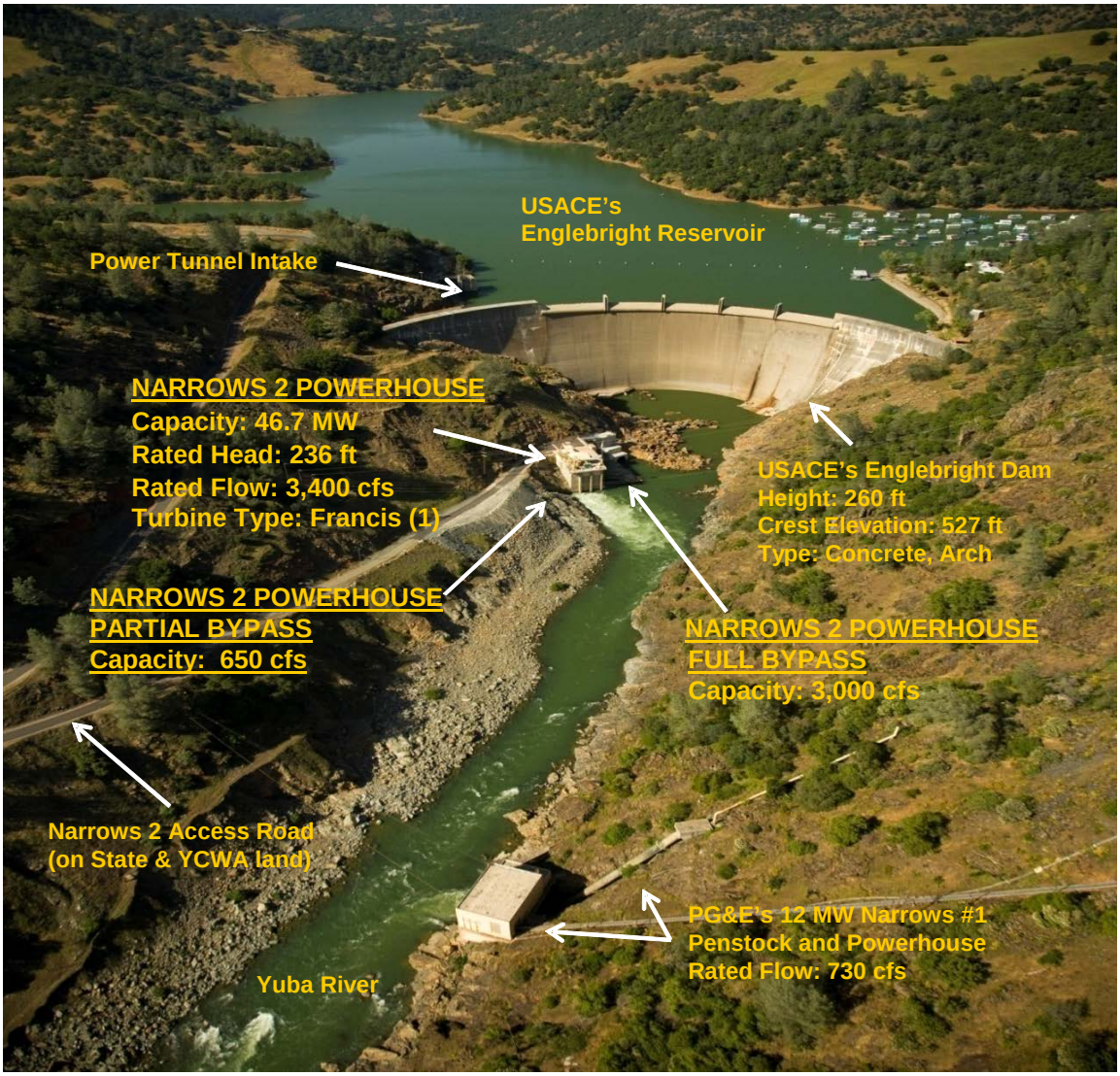

Figure 3.3-1. Views of Narrows 2 Development facilities and features.

3.3.2 Narrows 2 Development Recreation Facilities

The Narrows 2 Development does not include any recreation facilities.

3.3.3 Streamflow Gages

The Narrows 2 Development does not include any streamflow gages. YCWA uses two non-Project gages to monitor compliance with streamflow requirements. These gages are: USGS Gage 11418000, Yuba River Below Englebright Dam, Near Smartsville, and USGS Gage 1142100, Yuba River Near Marysville. The Smartsville gage is owned, operated, and maintained by PG&E. The Marysville gage is owned by YCWA and operated by USGS (Table 3.3-2).

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Table 3.3-2. Non-Project existing streamflow gages used by YCWA to monitor compliance with existing minimum streamflow requirements associated with the Narrows 2 Development.

Location	USGS Gage No.	YCWA's Gage No.	Gage Name	Location (Latitude and Longitude)		Elevation (ft)
Yuba River downstream of Narrows 2 Powerhouse[1]	11418000[1]	NY28	Yuba River Below Englebright Dam, Near Smartsville	39°14'07"	121°16'23"	278.68
Yuba River near Marysville[1]	11421000[1]	--	Yuba River Near Marysville	39°10'33"	121°31'26"	-2.95

[1] USGS rates this gage for full range in stage/flow.

3.3.4 Roads

Table 3.3-3 lists Primary Project Roads (non-recreation roads) associated with the Narrows 2 Development. The development does not include any recreational roads.

Table 3.3-3. Existing Primary Project Roads and Trails (non-recreation roads and trails) included in Yuba River Development Project that are associated with the Narrows 2 Development.

Road Name	Begin	End	Land Ownership	Mile Marker-Start	Mile Marker-End	Total Length (mi)
Narrows 2 Powerhouse Road	County Road 222	Narrows 2 Powerhouse	State of California	0	1.50	1.50
	USACE	--	USACE	1.50	2.07	0.57
Narrows 2 Intake Spur	Narrows 2 Powerhouse Road	Narrows 2 Intake	State of California	0	0.14	0.14
	USACE	--	USACE	0.14	0.20	0.06
Total		**4 road segments**				**2.27 mi**

4.0 Area Within the Existing FERC Project Boundary

The existing FERC Project Boundary, consisting of lands necessary for the safe operations and maintenance (O&M) of the Project and other purposes, such as recreation, shoreline control, and protection of environmental resources, encompasses 7,815.2 acres (ac) of land in Yuba, Nevada and Sierra counties, California.

Within the FERC Project Boundary, the United States is the major landholder with 4,432.8 ac (56.7% of the area within the FERC Project Boundary). NFS land includes 4,416.7 ac and USACE land includes 16.1 ac. The FERC Project Boundary also includes 23.2 ac of State of California land. YCWA is the largest non-federal landowner within the Project Boundary, owning 3,149.3 ac (40.3%). The remainder (209.9 ac) of the land is private. Land ownership is summarized for the existing Project Boundary below in Table 4.0-1.[13] Land ownership parcel Geographic Information System (GIS) data used to develop this and all other land ownership tables was obtained from the Yuba County GIS Department (K. Atkinson, pers. comm., 2013) and was then modified per the Forest Service's request.

[13] Refer to Exhibit G, Section 1.1, for a detailed description of the data sources used to calculate land ownership within the FERC Project Boundary.

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Table 4.0-1. Summary of land ownership within the existing FERC Project Boundary by Project Development based on information provided by the County Assessor.

Development	Forest Service (ac)	USACE (ac)	State of California (ac)	YCWA (ac)	Other Private (ac)	Total	
						Area (ac)	Percent of Total
New Colgate	4,416.7	0.0	0.0	3,148.1	209.9	7,774.7	99.5%
New Bullards Minimum Flow	0.0	0.0	0.0	<0.1	0.0	<0.1	0.0%
Narrows 2	0.0	16.1	23.2	1.2	0.0	40.5	0.5%
Total	**4,416.7**	**16.1**	**23.2**	**3,149.3**	**209.9**	**7,815.2**	**100.0%**
Percent	**56.5%**	**0.2%**	**0.3%**	**40.3%**	**2.7%**	**--**	**100.0%**

Source: Yuba County GIS Parcel Base, Obtained August 2013, modified per the Forest Service's request.

4.1 Lands of the United States within the Existing FERC Project Boundary

Table 4.1-1 identifies by Public Land Survey System each section, or portion thereof, within the existing FERC Project Boundary that is federal land.

Table 4.1-1. Lands of the United States enclosed within the existing FERC Project Boundary by Project Development and managing federal agency.

Administered by	Township	Range	Section	Acres
NEW COLGATE DEVELOPMENT				
Forest Service	18N	7E	1	163.4
			2	71.9
			11	62.9
			12	202.2
			13	130.4
			14	274.9
			15	55.6
			24	291.9
			25	17.1
			26	24.8
			34	5.2
			35	0.1
		8E	3	39.7
			4	173.9
			5	12.3
			6	96.5
			7	209
			8	397.6
			9	123.3
			10	20.5
			11	29.4
			13	0.1
			14	7.1
			16	15.8

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Table 4.1-1. (continued)

Administered by	Township	Range	Section	Acres
NEW COLGATE DEVELOPMENT (cont'd)				
Forest Service (cont.)	18N (cont.)	8E (cont.)	17	372.3
			18	450.6
			19	143.9
		9E	18	0.1
			19	8.1
			20	69.8
	19N	7E	13	1.9
			24	35.3
			25	46.4
			26	202
			34	0.1
			35	276.2
			36	44.8
		8E	7	15.3
			8	136.8
			9	101.9
			16	16.3
			18	69.3
			New Colgate Development Total	**4,416.7**
NEW BULLARDS BAR MINIMUM FLOW				
No Federal Lands				
NARROWS 2 DEVELOPMENT				
USACE	16N	6E	14	16.1
			Narrows 2 Development Total	**16.1**
			Grand Total	**4,432.8**

Source: Yuba County GIS Parcel Base, obtained August 2013, modified per the Forest Service's request.

5.0 Proposed Changes to Existing Project

5.1 Changes to Project Facilities

YCWA proposes seven general changes to existing Project facilities: 1) addition of a tailwater depression system (TDS) at New Colgate Powerhouse; 2) addition of a new Auxiliary Flood Control Outlet at New Bullards Bar Reservoir; 3) modification to the Our House Diversion Dam fish release outlet; 4) modification to the Log Cabin Diversion Dam fish release outlet; 5) modification to the Lohman Ridge Diversion Tunnel Intake; 6) modifications to recreation facilities at New Bullards Bar Reservoir; and 7) modifications to Project roads. These proposed changes are described below. In addition, YCWA proposes to modify the existing FERC Project Boundary, which is described in Section 5.2.

5.1.1 Generation Facilities

YCWA does not propose to add to the Project any previously constructed, unlicensed water power structures or facilities.

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5.1.1.1 New Colgate Powerhouse Tailwater Depression System

YCWA proposes to add to the Project a new TDS at the New Colgate Powerhouse.

The New Colgate Powerhouse generators are driven by six-jet, vertical-shaft Pelton wheel turbines. The turbine runners rotate in the air of the turbine discharge chambers where water can fall freely off the turbine buckets. When the water level in the turbine discharge chamber rises, the foam and backsplash cause uneven resistance to free rotation with resulting vibration. Consequently, the rate of water release must be reduced and, at high stages, the operation of the turbines must cease.

The water level in the turbine discharge chambers rises as the water level in the Yuba River rises during flood events. The flood runoff can come from spillway releases at New Bullards Bar Dam, unregulated flow downstream of the dam and the Middle Yuba River. Above certain water levels at the powerhouse, when Yuba River flow upstream of the New Colgate Powerhouse reaches approximately 17,000 cfs, which corresponds to a water surface elevation of about 558.5 ft, the New Colgate Powerhouse must be shutdown, and at flows as low as 11,000 cfs the New Colgate Powerhouse releases must be reduced to prevent excessive vibration. Besides affecting generation, this reduces the ability to move water, which could encroach upon the available flood storage space in the reservoir. For example, if the New Colgate Powerhouse were totally shut down for 72 hours prior to and during a period of peak flood inflow to New Bullards Bar Reservoir, there would be a loss of over 20,000 ac-ft of useable storage.[14]

The New Colgate Powerhouse TDS will introduce compressed air into the turbine discharge chamber to lower the tailwater elevation to a level that does not interfere with turbine operation, thereby allowing continued turbine operation during high flows. The TDS will thus enhance the ability to regulate flood releases from New Bullards Bar Reservoir and increase the production of energy.

Figures 5.1-1 through 5.1-3 are conceptual-level plan and profile drawings of the New Colgate Powerhouse TDS. Construction is described in Exhibit C. If approved, detailed drawings would be provided to the Commission as appropriate for FERC approval. After construction is completed, detailed as-built drawings would be filed with the Commission as Project Exhibit Drawings. Refer to Exhibit B for a description regarding the anticipated operations of the New Colgate Powerhouse new TDS.

[14] The outlet into New Colgate Tunnel is below the level of the spillway lip, which allows for releases in advance of any limits in flood operation regulations.

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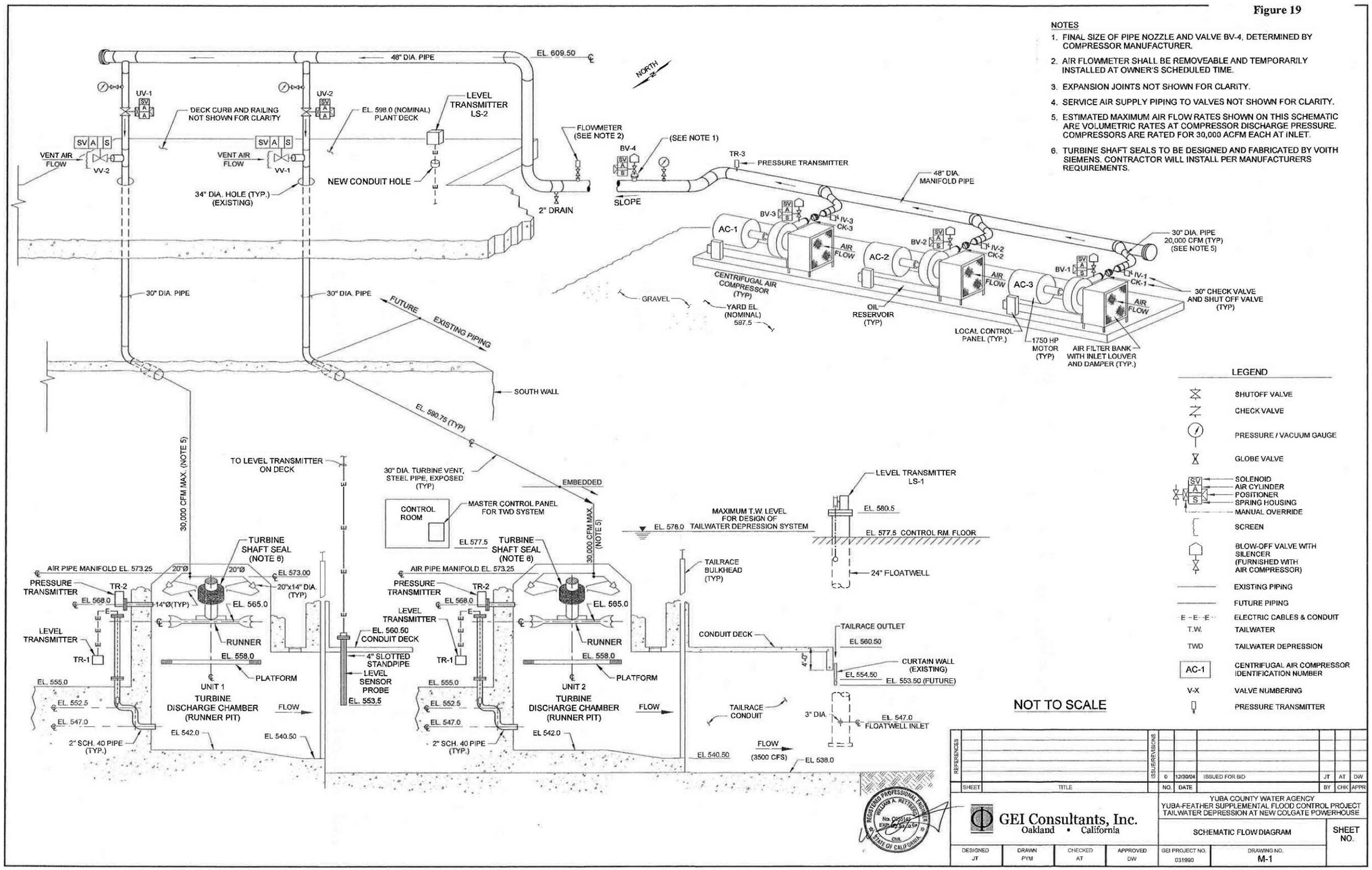

Figure 5.1-1. Conceptual level schematic flow diagram of YCWA's proposed New Colgate Powerhouse Tailwater Depression System.

Figure 20

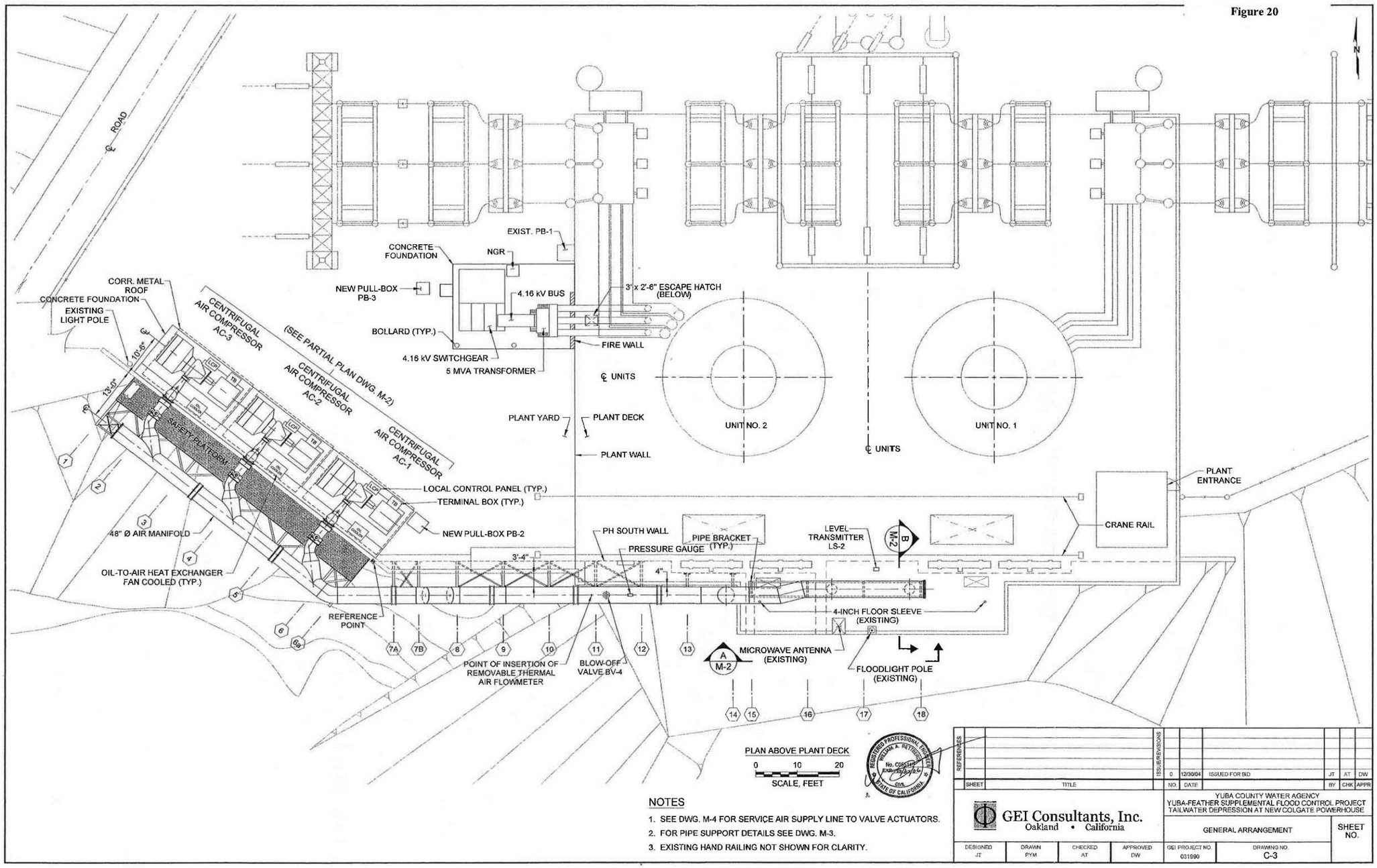

Figure 5.1-2. Conceptual level general arrangement of YCWA's proposed New Colgate Powerhouse Tailwater Depression System.

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Figure 21

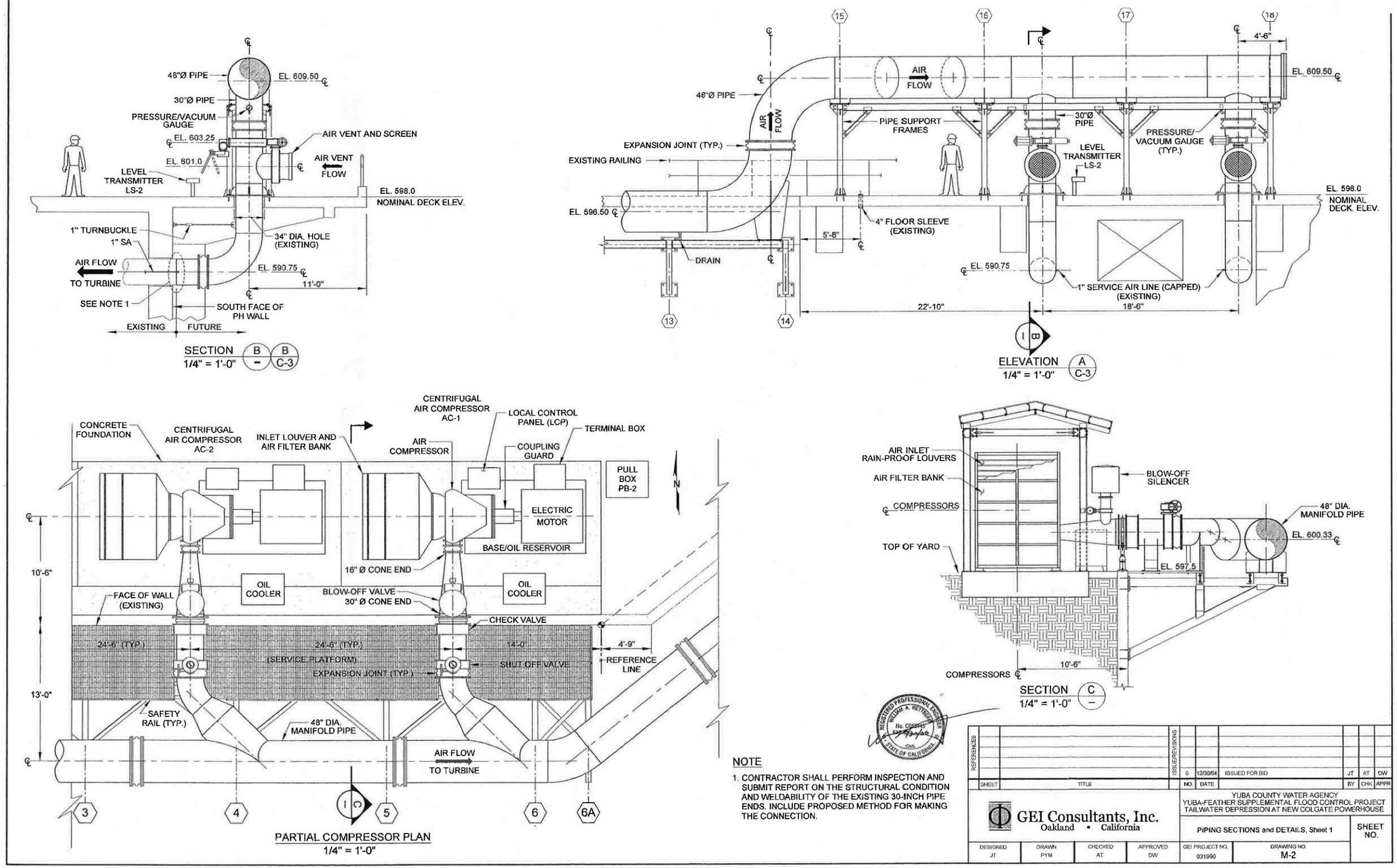

Figure 5.1-3. Conceptual level plan for piping section and details of YCWA's proposed New Colgate Powerhouse Tailwater Depression System.

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5.1.2 Non-Generating Facilities

5.1.2.1 New Bullards Bar Dam Auxiliary Flood Control Outlet

YCWA proposes to construct a new Auxiliary Flood Control Outlet on New Bullards Bar Dam, to be located south of the existing New Bullards Bar Dam spillway in the upper left abutment area of the dam. The primary benefit of the new Auxiliary Flood Control Outlet is increased flood management. This increased flexibility in flood management would allow a significant reduction in flood flows and reduced flood stage at Marysville and the Feather River confluence. It would also anticipate potential FERC requirements for increased spillway capacity at New Bullards Bar Dam in response to Potential Maximum Flood (PMF) calculation revisions or climate change modeling. As configured at this time, the new outlet would have a discharge capacity at the bottom of the New Bullards Bar flood pool (elevation 1,918 ft) and at the NMWSE (1,956 ft) of approximately 45,000 cfs and 66,000 cfs, respectively. The outlet would include:

- An excavated approach channel to the intake structure, with right and left wing walls.
- A reinforced-concrete intake control structure at the end of the approach channel containing intake gates and hydraulic hoists. The intake would be a 70-ft-wide reinforced-concrete structure extending from the approach channel invert at elevation 1,865 ft to a deck at elevation 1,970 ft. It would be located in a rock excavation at the downstream end of the approach channel. The intake structure would have three 17-ft-wide, 30-ft-high gate openings separated by 4.5-ft wide concrete piers. The gates would be roller-type gates operated by hydraulic cylinders. The gates would be operated using hydraulic cylinders installed on the top deck.
- Intake area site works including a fenced, paved parking area adjacent to the intake structure deck, access to Marysville Road, and riprap erosion protection of the finished slopes.
- A 540-ft-long concrete-lined conveyance tunnel. The tunnel would be concrete-lined and horseshoe-shaped, with net opening dimensions of 25 ft in height by 26 ft in width.
- A concrete outlet structure including the tunnel outlet portal, a 60-ft-long open channel and 27-ft-long flip-bucket energy dissipater at the end of the open channel, which would deflect the discharging water jet away from the foundation area and toward the river canyon. The flip-bucket structure would be founded and bolted to rock to resist the hydrodynamic forces and vibrations. A cutoff would be provided to protect the flip bucket foundation from scour. The area between the flip bucket and the river would be cleared of all vegetation, overburden and loose weathered rock down to sound rock.
- A 2,900-ft-long construction access road from an existing forest road to the outlet structure.
- Power supply to the intake for operation and control of the gates.

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Figure 5.1-4 shows conceptual-level plan and profile drawings of the new Auxiliary Flood Control Outlet. Construction is described in Exhibit C. If approved, detailed drawings would be provided to the Commission as appropriate for FERC approval. After construction is completed, detailed as-built drawings would be filed with the Commission as Project Exhibit Drawings. Refer to Exhibit B for a description regarding the anticipated operations of the New Bullards Bar Dam Auxiliary Flood Control Outlet.

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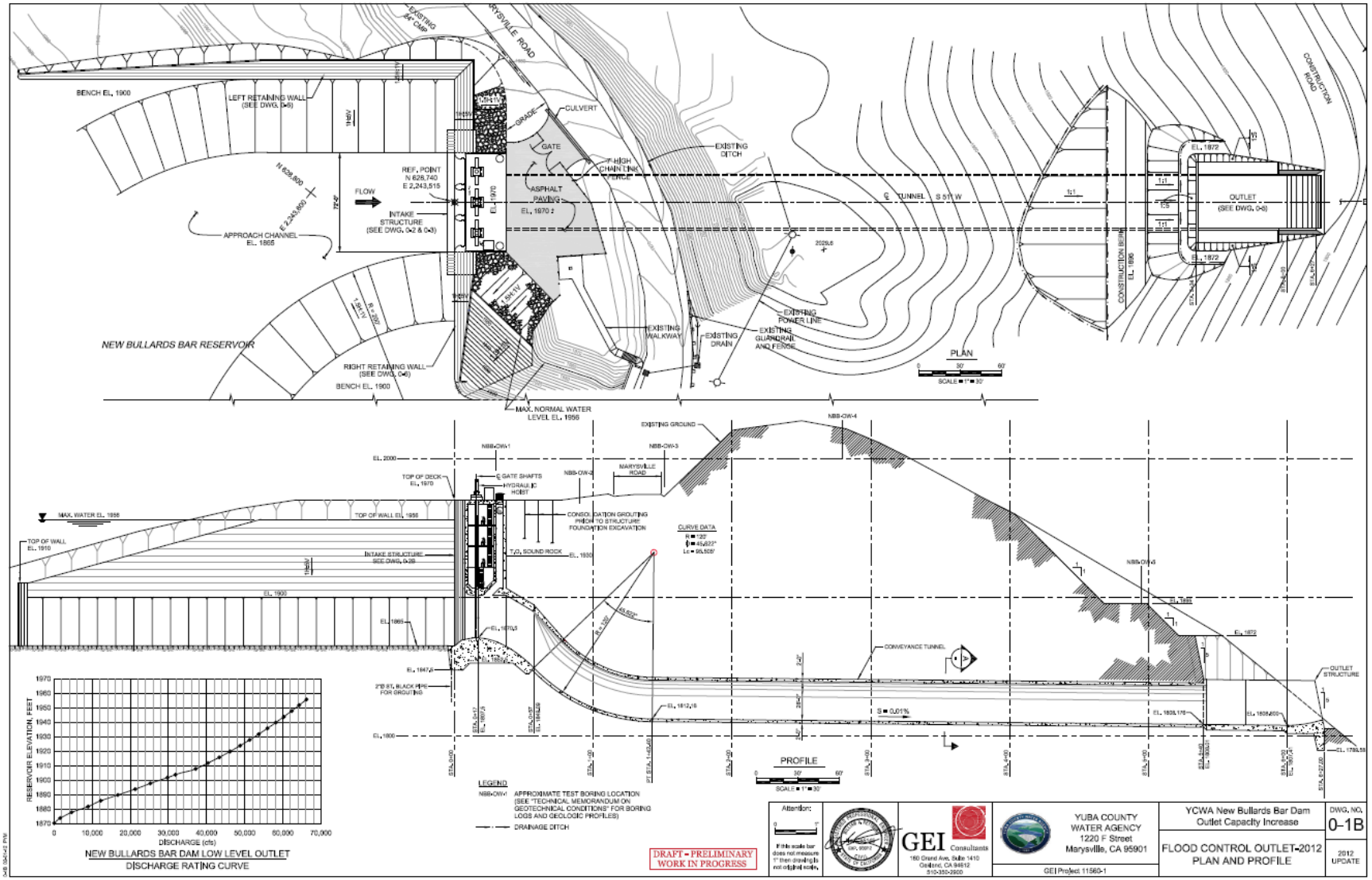

Figure 5.1-4. Conceptual level plan and profile of YCWA's proposed New Bullards Bar Dam new Auxiliary Flood Control Outlet.

5.1.2.2 Modifications to Lohman Ridge Diversion Tunnel Intake

YCWA proposes to periodically close the Lohman Ridge Diversion Tunnel on the Middle Yuba River (YCWA's proposed Condition AR11 in Appendix E2 of this Amended FLA). There is an existing gate on the tunnel intake, but it is not appropriate for closing and opening the tunnel during high flows. YCWA proposes to replace the gate with a more efficient gate structure.

Inlet modifications necessary to add a new regulating gate and relocate the existing bulkhead gate would require the following activities:

- Extending the deck and approach walls of the existing inlet upstream 4 to 5 feet
- Constructing a hoist deck to achieve gate and bulkhead lift clearances
- Modifying the existing bulkhead slot to accommodate a regulating gate
- Constructing a new bulkhead slot within the new inlet extension
- Constructing a new trashrack and debris rake at the front of the extended inlet

The inlet extension would be constructed much like the existing inlet (i.e., of concrete). Based on using a screw-drive for the regulating gate and a wire rope hoist for the bulkhead gate, both hoists would be located on a raised platform approximately 17 ft above the inlet deck elevation or approximately 5 to 6 ft above the current upper access road elevation. Locating the hoists at this elevation allows for both gates to be lifted fully above the current deck for maintenance and inspection. A debris rake would be added to the inlet deck just above the trashrack.

Figure 5.1-5 is a conceptual-level plan and profile drawing of the modification. Construction is described in Exhibit C. If approved, detailed drawings would be provided to the Commission as appropriate for FERC approval. After construction is completed, detailed as-built drawings would be filed with the Commission as Project Exhibit Drawings.

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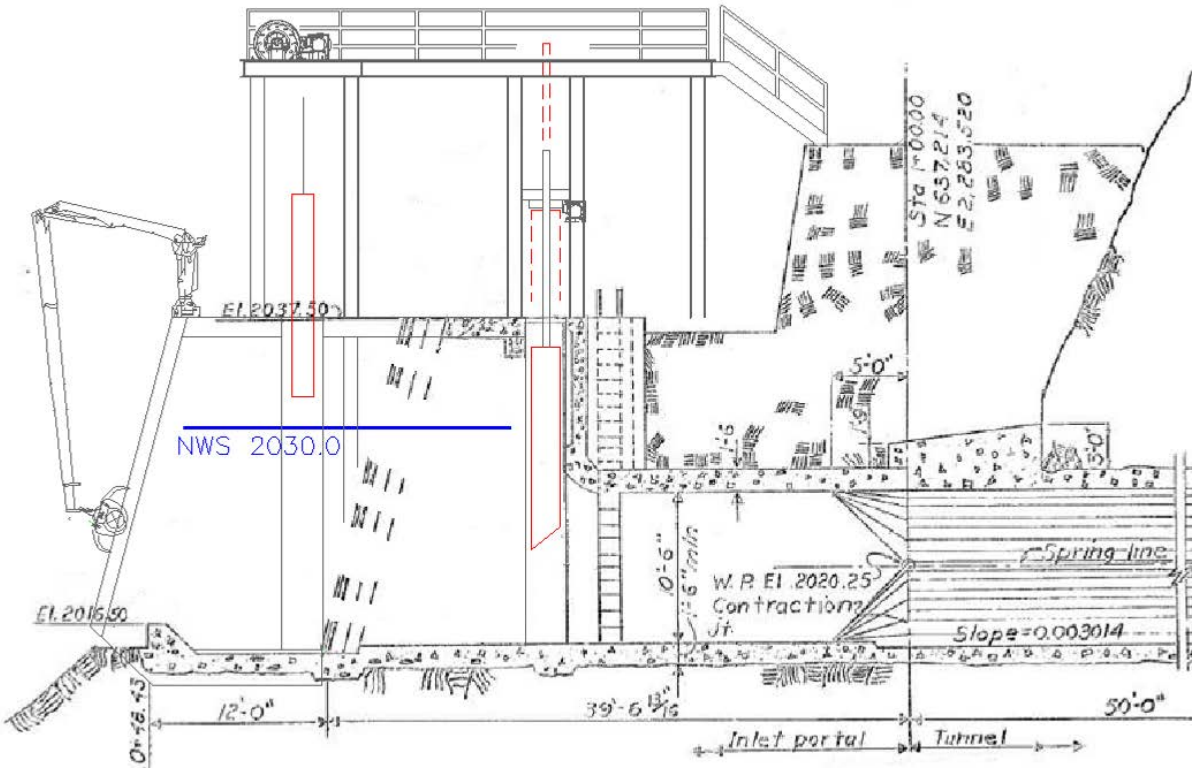

Figure 5.1-5. Conceptual level plan details of YCWA's proposed Lohman Ridge Inlet Control Gate and Debris Rake.

5.1.2.3 Modifications to Our House Diversion Dam and Log Cabin Diversion Dam Fish Release Outlets

YCWA proposes to change minimum flows on the Middle Yuba River downstream of Our House Diversion Dam from the requirement in the existing license of 30 - 50 cfs to 40 - 120 cfs, and to change minimum flows on Oregon Creek downstream of Log Cabin Diversion Dam from the requirement in the existing license of between 8 - 12 cfs to 6 - 43 cfs (YCWA proposed Condition AR1 in Appendix E2 of the Amended FLA). Further, YCWA proposes to include in the new license a requirement to control spill at Our House Diversion Dam by releasing up to 600 cfs (YCWA's proposed Condition AR2 in Appendix E2 of the Amended FLA), and to control spill at Log Cabin Diversion Dam by releasing up to 100 cfs (YCWA's proposed Condition AR12 in Appendix E2 of the Amended FLA). The proposed flows will exceed the capabilities of the existing fish release outlets (i.e., maximum existing valve capacities are 59 cfs at Our House Diversion Dam and 18 cfs at Log Cabin Diversion Dam). YCWA proposes to increase the capacity at each of these outlets to accommodate the new requirements.

At Our House Diversion Dam, a 68-inch diameter outlet pipe with control valve is proposed to be installed at the same invert elevation as the existing fish release outlet. At Log Cabin Diversion Dam, a 38-inch diameter outlet pipe with control valve is proposed to be installed at

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the same invert elevation as the existing fish release outlet. The new 68-inch diameter outlet at Our House Diversion Dam is expected to result in an outlet capacity of 611 cfs at minimum head (i.e. upstream water level at tunnel invert elevation of 2015.0 ft); the new 38-inch diameter outlet at Log Cabin Diversion Dam is expected to result in an outlet capacity of 106 cfs at minimum head (i.e. upstream water level at tunnel invert elevation of 1952.0 ft). The existing fish release outlets at Our House and Log Cabin diversion dams will remain in place and be able to release at the their existing capacities (i.e., 59 and 18 cfs, respectively). Nor will the new fish release outlets at the dams affect the existing low level outlets at the dams.

Figures 5.1-6 and 5.1-7 are conceptual-level plan and profile drawings of the modifications to the existing Our House Diversion Dam and Log Cabin Diversion Dam fish release outlets, respectively. Construction is described in Exhibit C. If approved, detailed drawings would be provided to the Commission as appropriate for FERC approval. After construction is completed, detailed as-built drawings would be filed with the Commission as Project Exhibit Drawings.

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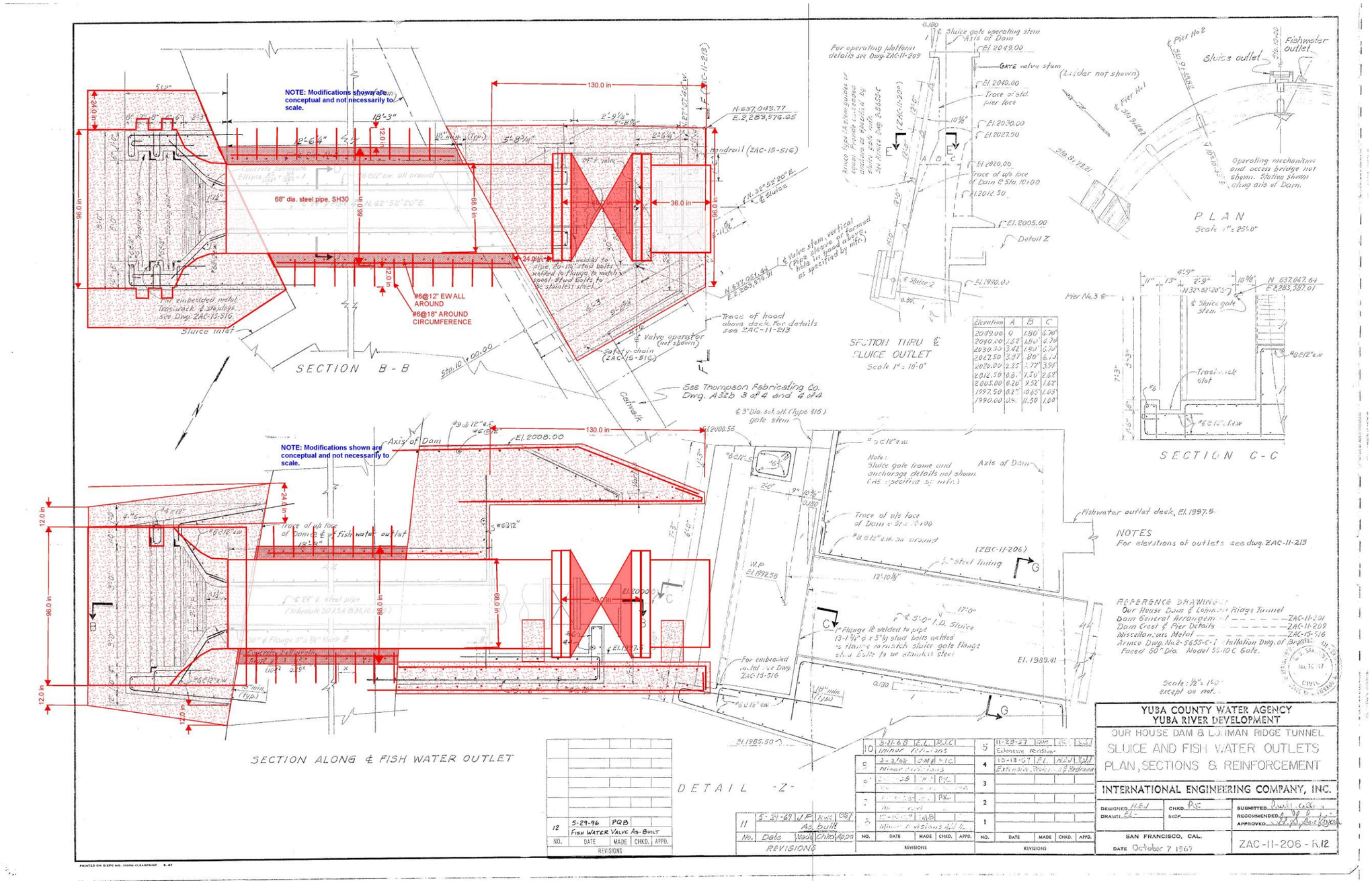

Figure 5.1-6. Conceptual level profile of YCWA's proposed Our House Diversion Dam fish release outlet.

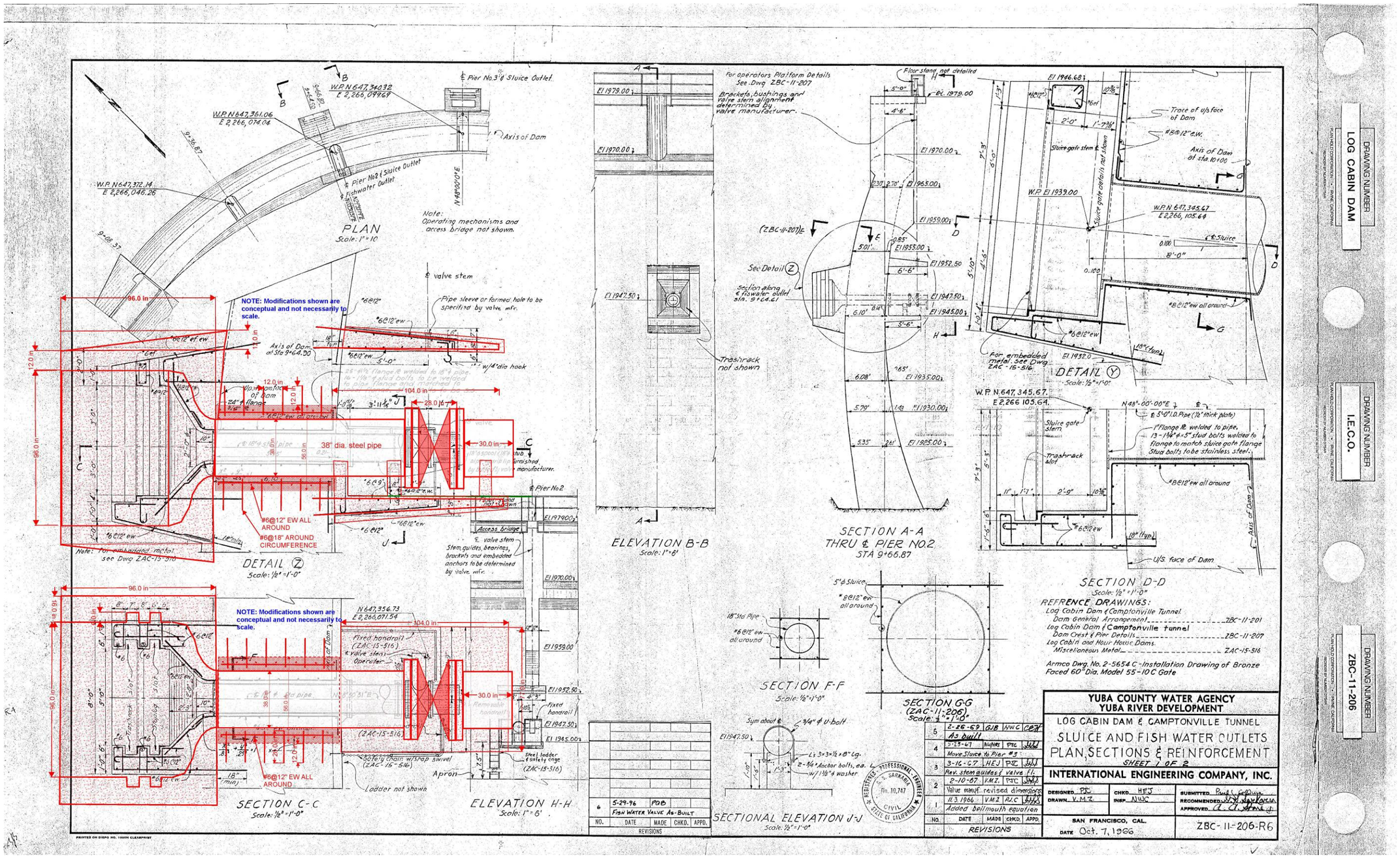

Figure 5.1-7. Conceptual level profile of YCWA's proposed Log Cabin Diversion Dam fish release outlet.

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At this time, YCWA does not propose to modify the existing release outlets from New Bullards Bar Dam.

5.1.2.4 Recreation Facilities

YCWA proposes several enhancements to the existing Project recreation facilities. A description of these enhancements is provided below.

5.1.2.4.1 Schoolhouse Campground

YCWA will provide the following enhancements:

- A standardized four-panel entrance station kiosk
- Appropriate trailhead signage on the facility entrance sign
- Replacement of existing vault and flush restroom buildings with new restroom buildings, including septic systems
- Conversion of all the double and triple campsites into single campsites, except for campsite #9 (double site), which will be separated into two single sites
- An expanded, paved and striped overflow parking area for 10 vehicle plus trailer spaces and 15 single vehicle spaces
- A native surface, non-motorized, multi-use connector trail to Schoolhouse Trail from the trailhead parking area
- A 50-PAOT amphitheater across the road from the campground overflow and trailhead parking area with bench seating, a large group fire ring and an electrical hookup
- Electricity at the entrance station, host site, and each restroom
- A host site with water and electric hookups and a holding tank
- A shower building or buildings with a total of four shower stalls
- Campsite vehicle spurs to accommodate RVs as feasible
- Recreational vehicle (RV) hookups (water and electric only) at 10 existing campsites
- Campground circulation roads to accommodate RVs up to 45 ft.

5.1.2.4.2 Dark Day Campground

YCWA will provide the following enhancements:

- A standardized four-panel entrance station kiosk
- A new replacement two-unit vault restroom building that serves Campsites 5 through 10
- A tent camping only facility

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- Vegetative screening between campsites
- Campsites that meet current standards and guidelines
- Defined campsite access routes from the parking areas that avoid travelling through the living space of other campsites
- A one-unit vault restroom at the Campsite #4
- A two-unit flush restroom building that serves double campsites #1 through 3 if the site terrain allows for a leach field. If a flush model is not feasible, then replace with a vault model.

5.1.2.4.3 Hornswoggle Group Campground

YCWA will provide the following enhancements:

- A standardized four-panel entrance station kiosk
- A new two-unit flush restroom in place of the existing four-unit flush restroom buildings at the Manzanita and Madrone campsites, including appropriate septic systems
- A new one-unit vault restroom in place of the existing two-unit vault restroom at the Sugarpine campsite
- A new one-unit vault restroom in place of the existing two-unit vault restroom at the Douglas Fir campsite, including appropriate septic system
- New one-unit flush restroom buildings including appropriate septic systems at Dogwood and Ponderosa campsites (where restroom buildings do not currently exist)
- A shower building or buildings with a total of 4 shower stalls
- Improved turning radii of each existing group campsite spur road to accommodate RVs up to 45-ft-long at all the group campsites, except Site No. 4 (Ponderosa), where an RV size limit will be implemented.
- One new group campsite (25 PAOT), including a paved parking area, one-unit vault restroom, and group camping area with picnic tables, food lockers, fire ring and a pedestal grill
- Electricity at the entrance kiosk/information board and each restroom

5.1.2.4.4 Cottage Creek Picnic Area

YCWA will complete the second phase of the facility reconstruction on the eastern portion of the campground that was severely burned in the 2010 fire once the area has been sufficiently re-vegetated. The development will consist of four additional small group campsites with the following specifications:

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- A total of four additional campsites, including two double campsites and two triple campsites each with a paved vehicle spur and a living space and the following additional specifications:

  - A potable water system extension from the existing system consisting of underground distribution and water hydrants
  - A two-unit vault restroom building
  - A paved circulation road with vehicle barriers
  - Trash facilities, including a dumpster and recycling receptacles
  - A standardized four-panel entrance station kiosk
  - A two-panel interpretive display at a location with the best view down canyon within the facility

5.1.2.4.5 Garden Point Boat-in Campground

YCWA will provide the following enhancements:

- A standardized four-panel entrance station kiosk
- A one-panel interpretive display that includes information about the gold mining history in the Yuba River drainage and the North Yuba River/Bullards Bar area
- New vault restroom buildings in place of the existing restroom buildings with the most efficient configuration of one- and/or two-unit restroom buildings
- At least seven new single campsites to replace lost capacity with the closure of Frenchy Point Campground
- An additional restroom building(s) to meet the needs of the final number of new campsites
- Solar-powered lighting at the entrance station kiosk
- Removal of existing Klamath stove facilities and concrete bases

5.1.2.4.6 Madrone Cove Boat-in Campground

YCWA will provide the following enhancements:

- A standardized four-panel entrance station kiosk
- A one-panel interpretive display that includes information about the gold mining history in the Yuba River drainage and the North Yuba River/Bullards Bar area
- A new vault restroom building in place of the existing vault restroom building
- Improved campsites to better meet current standards

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- New campsite retaining walls with durable materials
- Improved access routes and trails connecting the campsites to the restroom(s) and entrance station
- Solar-powered lighting at the entrance station kiosk
- Removal of existing Klamath stove facilities and concrete bases

5.1.2.4.7 Frenchy Point Boat-in Campground

YCWA will decommission the facility due to low use and very difficult topography.

5.1.2.4.8 Dark Day Picnic Area

YCWA will provide the following enhancements:

- A standardized three-panel entrance station kiosk.
- At the western picnic site cluster:
  - A total of 10 picnic sites near the NMWSE – each with a picnic table and a concrete grill with self-contained ash box
  - Rehabilitation of any relocated picnic sites to conditions satisfactory to the Forest Service
  - Removal of the existing Klamath stoves at each picnic site
  - Outdoor recreation access routes (ORARs) to the re-located picnic sites from the parking area
  - Signage directing users from the parking area to the re-located picnic sites via the new trail access routes
  - Enhanced reservoir views at the re-located picnic sites through selective vegetation management (where practical)
  - A Yuba County ordinance establishing a non-motorized boating only zone on the reservoir adjacent to the western picnic site cluster (if possible with Yuba County)
- At the northern/peninsula picnic site cluster:
  - A total of five picnic sites near the end of the peninsula – each with a picnic table and a concrete grill with self-contained ash box
  - Rehabilitation of any relocated picnic sites to conditions satisfactory to the Forest Service
  - Removal of the existing Klamath stoves at each picnic site
  - ORARs to the re-located picnic sites from the parking area

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  - Signage directing users from the parking area to the re-located picnic sites via the new trail access routes
  - Enhanced reservoir views at the re-located picnic sites through selective vegetation management (where practical)
- A new four-unit vault restroom building in place of the existing restroom building.
- A parking area with a total parking capacity of 34 single vehicle spaces
- Trailhead signage for the Bullards Bar Trail at the parking area and along Marysville Road

5.1.2.4.9 Sunset Vista Point

YCWA will provide the following enhancements:

- A standardized three-panel entrance station kiosk
- Two new picnic sites, each with a picnic table and a concrete grill with self-contained ash box
- A water hydrant near the new picnic sites
- An upgraded existing picnic site with a new picnic table and concrete grill with self-contained ash box
- Enhanced reservoir vistas from each picnic site by selective vegetation management
- A new two-unit vault restroom building in place of the existing four-unit vault restroom building
- A paved and striped parking area on the shoreline side of the road
- A trailhead sign at the start of the Bullards Bar Trail
- A one-panel interpretive display at the picnic sites

5.1.2.4.10 Dam Overlook

YCWA will provide the following enhancements:

- A parking area for 10 single vehicles with a gravel surface and vehicle barriers
- A standardized three-panel entrance station kiosk
- A one-panel interpretive display

5.1.2.4.11 Moran Road Day Use Area

YCWA will provide the following enhancements:

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- A standardized four-panel entrance station kiosk
- A gravel car-top boat ramp with three improved existing turnarounds
- A parking area with five new single spaces[15]

5.1.2.4.12 Cottage Creek Boat Launch

YCWA will provide the following enhancements:

- A standardized four-panel entrance station kiosk

5.1.2.4.13 Dark Day Boat Launch

YCWA will provide the following enhancements:

- Overflow Parking Area
  - A single, switchback trail connecting the overflow parking area to the boat ramp, including decommissioning and rehabilitation of the secondary, non-switchback trail
  - Trail signage at the start and end of the trail
  - Lighting at the existing restroom
  - A standardized four-panel entrance station kiosk
- Main Parking Area and Boat Ramp
  - A standardized four-panel entrance station kiosk
  - Trailhead signage at the parking area
  - An upgraded launch ramp, including straightening, widening, lengthening and courtesy dock enhancements (as feasible)
  - Lighting at the restroom, top of the launch ramp and in the parking area
  - A new four-unit vault restroom building in place of the existing four-unit vault restroom
  - A parking area with new pavement and striping
  - Removal of the accessible loading ramp

In addition, YCWA will evaluate the need to provide additional boat launch parking at or near the Dark Day Boat Launch facility based on site-specific monitoring.

[15] Expansion of the parking area may require relocating the existing one-unit vault restroom to provide the 5 additional single vehicle parking spaces.

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5.1.2.4.14 Recreational Trails (Bullards Bar and Schoolhouse Trails)

YCWA will provide the following enhancements:

- Appropriate trailhead identification signage at facility identification signs along Marysville Road and in the facility parking areas
- Consistent directional signage at all Project trail junctions

5.1.2.4.15 Our House Diversion Dam

YCWA will provide the following enhancements:

- A standardized three-panel entrance station kiosk
- A temporary restroom (1 unit) every year from October 1 through June 30
- A river access trail downstream of the diversion dam and weir
- A wheeled-cart designed for carrying whitewater rafts behind the existing locked gate at the parking area

5.1.2.4.16 New Recreation Facilities

In addition to the improvements to the existing Project recreation facilities, YCWA proposes several new Project recreation facilities. A description of these new facilities is provided below.

Kelly Ridge Campground

YCWA will construct a new campground designed to accommodate small groups (double and triple sites) and RVs on Kelly Road off Marysville Road. The facility will have the following specific facilities, features and configurations:

- A total of 27 campsites, including 22 double campsites and 5 triple campsites
- A host site designed for an RV including a water and electric hookup and a septic holding tank
- A potable water source and delivery system
- A shower building with 4 shower stalls, 4 flush restroom stalls and associated parking
- Restroom buildings including (2) two-unit vault buildings and at least one flush building
- Paved circulation roads with vehicle barriers and gates
- Signage including an entrance station kiosk and directional signage

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Shadow Ridge Campground

YCWA will construct a new campground designed to accommodate single families at the former Burnt Bridge Campground site. The facility will include a campground, trailhead parking area, non-motorized shoreline loop trail, a non-motorized interpretive trail and a reservoir overlook. The facility will have the following specific facilities, features and configurations:

- A total of 18 single campsites each with a paved vehicle spur and a living space, fire ring, food locker, picnic table and tent pads
- A host site designed for an RV with water and a septic holding tank
- A potable water system, including source (well), underground distribution and water hydrants dispersed throughout the campground
- (2) 2-unit restroom buildings (1 flush and 1 vault model)
- Paved circulation roads
- A 30-PAOT amphitheater with bench seating and a large group fire ring
- An entrance station kiosk
- A trailhead parking area consisting of a gravel parking area (10 vehicles), entrance station kiosk and interpretive display
- A non-motorized shoreline loop trail around the Shadow Ridge peninsula
- An out-and-back, non-motorized interpretive trail
- A reservoir overlook atop the peninsula (at the end of the interpretive trail) with 3 to 5 picnic sites; an interpretive display; and appropriate vegetation management and clearing to enhance the views of the reservoir (Moran Cove)

Cottage Creek Picnic Site

Pending access easements from the private land owners along the access road to the site, YCWA will construct a new picnic site with the following facilities and features.

- A gravel parking area for 15 single vehicles; vehicle barriers; two-unit vault restroom; facility identification sign; directional signage; and an entrance station kiosk
- A shoreline day use area with 10 picnic sites; an accessible shoreline access trail to the reservoir; an interpretive display and a non-motorized boating only zone in the cove accessed by the accessible shoreline trail
- Signage including an entrance station kiosk and a facility identification sign
- Improvements to the existing access road (Forest Service Road 18N15) from the intersection with Yuba County Road 169 to the new parking area

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Dark Day RV Dump Station

YCWA will construct a sanitary dump station for RVs on Dark Day Road. The facility will include the following facilities and features.

- A one-lane dump station with an 8,000-gallon holding tank, potable water hydrant, non-potable water tower for cleaning, an overhead light and trash facilities
- A one-way paved circulation road with an RV-sized pullout after the dump station for exit preparation
- A turning lane on Dark Day Road for vehicles coming from the Marysville Road direction
- Signage including an entrance station kiosk and a facility identification sign

Dark Day Entrance Station

YCWA will include the existing entrance station building along Dark Day Road as a Project facility that supports the Dark Day Facilities. No specific improvements to the entrance stations are planned at this time.

New Colgate Powerhouse River Access

Immediately downstream of New Colgate Powerhouse, YCWA will construct a non-motorized river access trail to the Yuba River; and install an entrance station kiosk and directional signage.

West Shoreline Trail

YCWA will develop a Class 3 shoreline trail on the west shoreline of New Bullards Bar Reservoir connecting the Cottage Creek recreation complex (boat launch, campground and picnic site) and the Shadow Ridge Campground and trails. The trail will be Class 3 trail designed for non-motorized uses (pedestrian, mountain biking and equestrian uses). YCWA will complete this trail construction in two phases, including Phase 1 from Cottage Creek Boat Launch to Cottage Creek Campground and Cottage Creek Picnic Site (approx. 1.1 miles); and Phase 2 from Cottage Creek Picnic Site to Shadow Ridge Campground (approx. 4.5 miles).

5.1.2.5 Changes to Project Roads

YCWA proposes changes to Primary Project Roads and Recreation Roads. Table 5.1-1 shows Primary Project Roads that have been added, and Table 5.1-2 shows Recreation Roads added and removed. Note that when new Project recreation facilities are constructed under the new license (Section 5.1.2.2), the facilities may include new circulation roads that are not currently part of the Project. When construction of these new recreation facilities is completed, YCWA will include any new recreation facility roads in a revised list.

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Table 5.1-1. Proposed additions to Primary Project Roads and Trails (non-recreation roads and trails) included in Yuba River Development Project by Development.

Road Name	Begin	End	Land Ownership	Mile Marker-Start	Mile Marker-End	Total Length (mi)
NEW COLGATE DEVELOPMENT						
Garden Valley Road (TNF Rd 0125-013)	Forest Service	--	Forest Service	0.34	2.87	2.53
Sunset Vista Point Road Spur	Forest Service	YWCA's Water Storage Tanks	Forest Service	0.66	0.82	0.16
New Bullards Bar Dam Compliance Flow Gage Trail	New Bullards Bar Dam Road	Stream Gage	Private	0	0.12	0.12
Colgate Tunnel Lane	County Road 139	Penstock	Private	0	0.72	0.72
Colgate Tunnel Muck Road	Colgate Tunnel Lane	Rock Pit	Private	0	0.85	0.85
Colgate Haul Road	County Road 139	Penstock	Private	0	0.23	0.23
Colgate Tunnel Penstock Road	Colgate Tunnel Muck Road	Penstock	Private	0	0.15	0.15
Penstock Access Road #1	County Road 1051	Penstock	Private	0	0.23	0.23
Penstock Access Road #1 Spur	Penstock Access 1	Penstock	Private	0	0.04	0.04
Penstock Access Road #2	County Road 1051	Penstock	Private	0	0.10	0.10
Penstock Access Road #3	County Road 1051	Penstock	Private	0	0.10	0.10
Penstock Access Road #4	County Road 1051	Penstock	Private	0	0.15	0.15
NEW BULLARDS BAR FLOW DEVELOPMENT						
None						
NARROWS 2 DEVELOPMENT						
Narrows 2 Compliance Flow Gage Trail	Narrows 2 Access	Stream Gage	USACE	0	0.03	0.03
	--	--	Private	0.03	0.21	0.18
Net Change	**14 road segments added**					**5.59 mi**

Table 5.1-2. Proposed additions to and withdrawals of Recreation Roads associated with the New Colgate Development. YCWA does not propose any changes to Recreation Roads and Trails associated with the New Bullards Bar Minimum Flow Development or the Narrows 2 Development.

Road Name	Associated Recreation Facility	Begin	End	Land Ownership (FS Road #, if applicable)	Mile Marker-Start	Mile Marker-End	Total Length (mi)
PROPOSED ADDITION							
Dark Day Access Road	Dark Day Recreation Area	0.33 mi from County Road 8[1]	Entrance to Dark Day Boat Launch and Campground Roads	Forest Service	0	0.23	0.23
Subtotal	*1 road segment added*						*0.23 mi*

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Table 5.1-2. (continued)

Road Name	Associated Recreation Facility	Begin	End	Land Ownership (FS Road #, if applicable)	Mile Marker-Start	Mile Marker-End	Total Length (mi)
PROPOSED WITHDRAWAL							
Burnt Bridge Campground Loop Road (PNF Rd 18N07)	Burnt Bridge Campground	County Road 129	Campground	Forest Service	0	0.77	0.77
Subtotal	*1 road segment removed*						*0.77 mi*
Net Change	**No change in number of road segments**						**-0.54 mi**

[1] Yuba County confirmed the first 0.33 mi is County Road 181.

5.2 Changes to FERC Project Boundary

YCWA proposes several changes to the Project Boundary in order to more accurately define lands necessary for the safe O&M of the Project and other purposes, such as recreation, shoreline control, and protection of environmental resources. There are two categories of proposed project boundary changes:

- Proposed addition of lands to the existing Project Boundary that are currently utilized with a preponderance of use related to the Project O&M, and proposed removal of lands from the Project Boundary that do not have Project facilities and are not used or necessary for Project O&M. These proposed changes are essentially making corrections to the existing Project Boundary.
- Proposed changes to the existing FERC Project Boundary around the Project reservoir and impoundments from surveyed coordinates to a contour located above the NMWSE. These changes are proposed as this is the preferred method of defining Project Boundaries as outlined in the FERC Drawing Guide (FERC 2012) and as it is a better representation of lands required for Project O&M around the Project reservoirs.
- Proposed changes to the existing FERC Project Boundary related to newly proposed recreation facility development.

Proposed changes are discussed by Project development below. All proposed changes are described in detail in Section 2.0 of Exhibit G.

For the New Colgate Development, YCWA proposes the following changes under the category of corrections to the existing Project Boundary:

- The addition of the areas that encompass 100-ft rights-of-way (i.e., 50 ft on either side of centerline) of nine separate Primary Project Roads used to access and maintain the New Colgate Surge Chamber, New Colgate Powerhouse Penstock and New Colgate Powerhouse. Lands in these proposed additions are owned by private land owners and by YCWA.

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- The removal of lands around the former Burnt Bridge Campground site with the exception of the lands proposed to be utilized for the construction of the proposed new Shadow Ridge Campground access road and facilities. The lands proposed to remain within the Project Boundary do not include the newly proposed trails associated with the proposed new Shadow Ridge Campground as the alignments are not currently known. The Project Boundary will be amended when the trails have been constructed. Lands in this proposed removal are federal lands managed by the NFS as part of the PNF.
- The removal of the land owned by Pacific Gas and Electric Company (PG&E) to the east of New Colgate Powerhouse (Yuba County Assessor's Parcel Number 048270011000). These lands are not used or needed for Project O&M and are owned and utilized by PG&E for maintenance of PG&E facilities located within the boundaries of that parcel.
- The addition of the area that encompasses USGS Gage 11413517 (located at the Old Colgate Diversion Dam) and the Primary Project Trail used to access the gage for Project O&M purposes. Land in this proposed addition is owned by YCWA.
- The removal of the area that encompasses a section of Marysville Road (County Road 8) that is in the existing Project Boundary. Marysville Road is commonly used for many purposes not related to the Project and as such it is not considered a Primary Project Road. Land in this proposed removal is owned by private land owners and by YCWA.
- The addition of the area that encompasses a 20-ft right-of-way (i.e., 10 ft on either side of centerline) around the Primary Project Trail that is used to access USGS Gage 11413517 downstream of the New Bullards Bar Minimum Flow Powerhouse. Land in this proposed addition is owned by YCWA.
- The removal of the area north of a 50-ft offset from centerline of Cottage Creek Campground Access Road to the proposed boundary near New Bullards Bar reservoir's edge except the area surrounding Cottage Creek Campground. Land parcels in this region are not currently used for Project O&M. Land in this proposed removal is a combination of land owned by YCWA and federal land managed by the NFS as part of the PNF.
- The addition of the area that encompasses a 100-ft right-of-way (i.e., 50 ft on either side of centerline) of the section of road that connects Cottage Creek Campground Access Road to Cottage Creek Campground. Land in this proposed addition is owned by private land owners and by YCWA.
- The removal of the area that encompasses the Administration Site to the north of Sunset Vista Point that is used for non-Project related activities by the Forest Service with the exception of the water supply system that provides water to Project recreation sites, which includes a 25-ft offset from water distribution tanks and 20-ft right-of-way (i.e., 10 ft on either side of centerline) of water distribution pipe alignments. Also included in the exception, is a short segment of a 100-ft right-of-way (i.e., 50 ft on either side of centerline) of the section of road that provides access to the water storage tanks from the Administration Site. Land in this area is federal land managed by the NFS as part of the TNF.

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- The addition of the area that encompasses a 20-ft right-of-way (i.e., 10 ft on either side of centerline) around the Project portion of the New Bullards Bar Trail that follows along the southeast side of the New Bullards Bar Reservoir. Land in this proposed addition is a combination of federal land managed by NFS as part of the TNF, and land owned by YCWA.
- The addition of the area that encompasses a 20-ft right-of-way (i.e., 10 ft on either side of centerline) around the Schoolhouse Trail that provides access to the Bullards Bar Trail from Schoolhouse Campground. Land in this proposed addition is a combination of federal land managed by NFS as part of the TNF, Yuba County road right-of-way, and private land owners.
- The addition of the area that encompasses a 20-ft right-of-way (i.e., 10 ft on either side of centerline) around the water distribution pipe alignments that parallel both Marysville Road (County Road 8) and Dark Day Road. The water distribution system provides water to Project Recreation Sites and is considered a Project facility. Land in this proposed addition is federal land managed by NFS as part of the TNF.
- The addition of the area that encompasses the leach field that is a part of the Hornswoggle Group Campground. Land in this proposed addition is federal land managed by NFS as part of the TNF.
- The addition of the area that encompasses a 100-ft right-of-way (i.e., 50 ft on either side of centerline) of the non-county maintained portion of Dark Day Access Road which provides access to Dark Day Boat Launch, Picnic Area and Campground. The non-county maintained road starts approximately 0.33 mile from Marysville Road. Land in this proposed addition is federal land managed by NFS as part of the TNF.
- The addition of the area that encompasses a 100-ft right-of-way (i.e., 50 ft on either side of centerline) of the non-county maintained portion of Garden Valley Road which provides Project maintenance access for the annual removal of debris and maintenance access to Garden Point Boat-In Campground. The non-county maintained road begins just past the gate located approximately at the road's intersection with the Township Line common between Section 5, T18N, R8E, and Section 32, T19N, R8E. Land in this proposed addition is federal land managed by NFS as part of the TNF.
- The addition of the area that encompasses a 100-ft right-of-way (i.e., 50 ft on either side of centerline) around the Primary Project Road that is used to access USGS Gage 11408880 located downstream from Our House Diversion Dam. Land in this proposed addition is federal land managed by NFS as part of the TNF.

For the New Colgate Development, YCWA proposes the following changes under the category of expanding the existing Project Boundary in anticipation of proposed new recreation facilities:

- The addition of the area that encompasses the proposed new Kelly Ridge Campground. Land in this proposed addition is federal land managed by NFS as part of the TNF.

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- The addition of the area that encompasses both the proposed new Dark Day RV Dump Station and the proposed Dark Day Entrance Station. Land in this proposed addition is federal land managed by NFS as part of the TNF.
- The addition of the area that encompasses a 20-ft right-of-way (i.e., 10 ft on either side of centerline) around the proposed new Our House Diversion Dam River Access Trail. Land in this proposed addition is federal land managed by NFS as part of the TNF.

The proposed changes to the FERC Project Boundary for the New Colgate Development do not include the lands that encompass the proposed new West Shoreline Trail as those lands have not yet been identified. YCWA will amend the FERC Project Boundary after the proposed West Shoreline Trail has been constructed.

For the New Colgate Development, YCWA proposes the following changes under the category of redefining the boundary around the Project reservoir and impoundments from surveyed coordinates to a contour located above the NMWSE. A contour 30 ft above NMWSE or 200 horizontal ft from the NMWSE was chosen to define the proposed boundary for each of the three Project impoundments in areas where the boundary is not already defined to encompass Project facilities and recreation sites. The proposed boundary will encompass between 50 and 200 horizontal ft from reservoir NMSWE except where slopes exceed 60 percent, in which case the boundary would encompass less than 50 horizontal ft. As such, the proposed boundary will provide shoreline access from the reservoir of at least 50 ft for all areas except for areas where slopes are unsafe.

- The addition and removal of land such that the Project Boundary around New Bullards Bar Reservoir where the Project Boundary is not encompassing Project facilities or proposed Project facilities is defined by the lesser (closer to reservoir NMWSE) of either the topographic contour of 1,985 ft, which is 30 ft above the NMWSE, or 200 horizontal ft from the NMWSE. Lands in this proposed change are a combination of lands owned by private land owners and YCWA, and federal lands managed by the NFS as part of the PNF and TNF.
- The addition and removal of lands such that the Project Boundary around Log Cabin Diversion Dam impoundment where the Project Boundary is not encompassing Project facilities is defined by the topographic contour of 2,000 ft, which is 30 ft above the NMWSE. Lands in this proposed change are a combination of federal lands managed by the NFS as part of the TNF, lands owned by YCWA, and a small area within a Yuba County road right-of-way.
- The addition and removal of lands such that the Project Boundary around Our House Diversion Dam impoundment where the Project Boundary is not encompassing Project facilities is defined by the topographic contour of 2,060 ft, which is 30 ft above the NMWSE. Lands in this proposed change are a combination of federal lands managed by the NFS as part of the TNF, and land owned by private land owners.

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For the Narrows 2 Development, YCWA proposes the following changes under the category of corrections to the existing Project Boundary.

- The addition of the area that encompasses a 20-ft right-of-way (i.e., 10 ft on either side of centerline) around the Primary Project Trail that is used to access USGS Gage 11418000 located downstream of the Narrows 2 Powerhouse and the gage building itself. Land in this proposed addition is owned by and managed by the State of California.
- The removal of the area that extends south beyond a 100-ft right-of-way (i.e., 50 ft on either side of centerline) along the Narrows 2 Access Road, which is a Project road. These lands are not used for Project O&M and do not have any Project or non-Project facilities. Lands in this proposed removal are a combination of federal land managed by the USACE, land owned and managed by the State of California, and land owned by private land owners.
- The removal of the area that is between a 50-ft offset from the centerline of Narrows 2 Access Road, 50-ft offset from the centerline of Narrows 2 Powerhouse Intake Access Road, and a 10-ft offset from westernmost extent of either the communication line between the Narrows 2 Powerhouse and Powerhouse Intake Structure or the Narrows 2 Powerhouse Penstock. These land parcels are not used for Project O&M and do not have any Project or non-Project facilities. Land in the proposed removal is federal land managed by the USACE.

Exhibit G discusses and displays these proposed changes in detail. Table 5.2-1 summarizes land ownership within the existing FERC Project Boundary (Table 4.0-1) and YCWA's proposed changes to the FERC Project Boundary.

Table 5.2-1. Summary of land ownership within the proposed Yuba River Development Project FERC Project Boundary by Project Development and difference as compared to existing FERC Project Boundary.

Development	Forest Service (acres)	USACE (acres)	State of California (acres)	YCWA (acres)	Other Private (acres)	Total	
						(acres)	Percent
PROPOSED PROJECT BOUNDARY							
New Colgate	3,411.6	0	0	2,578.8	198.7	6,189.1	99.5%
New Bullards Minimum Flow	0	0	0	<0.1	0	<0.1	0%
Narrows 2	0	11.1	20.3	1.2	0.0	32.6	0.5%
Total	**3,411.6**	**11.1**	**20.3**	**2,580.0**	**198.7**	**6,221.7**	**100%**
Percent	**54.8%**	**0.2%**	**0.3%**	**41.5%**	**3.2%**	**--**	**--**
DIFFERENCE BETWEEN EXISTING (TABLE 5.0-1) AND PROPOSED PROJECT BOUNDARY							
	-1,005.1	**-5.0**	**0.2**	**-569.3**	**-14.3**	**-1,593.5**	**-21.7%**

Source: Yuba County GIS Parcel Base, obtained August 2013, modified per the Forest Service's request.

Table 5.2-1 shows that 55.0 percent of the land within the proposed Project Boundary is federal land. This represents a decrease of 1,010.1 ac, including 1,005.1 ac of NFS land and 5.0 ac of

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USACE land. Table 5.2-2 identifies by Public Land Survey System each section within the proposed FERC Project Boundary that is federal land.

Table 5.2-2. Lands of the United States enclosed within the proposed FERC Project Boundary by Project Development and managing federal agency.

Administered by	Township	Range	Section	Acres
NEW COLGATE DEVELOPMENT				
Forest Service	18N	7E	1	142.7
			2	65.8
			11	31
			12	186.1
			13	111.6
			14	129.2
			15	27.3
			24	156.3
			25	10.1
			26	18.2
			34	5.2
			35	0.1
		8E	3	26
			4	129.8
			5	15
			6	71.6
			7	221.7
			8	324.8
			9	90.3
			10	20.5
			11	12.2
			13	0.1
			14	7.1
			16	8.3
			17	354.6
			18	444.7
			19	126.9
			20	51.2
		9E	18	0.1
			19	8.1
			20	27.4
	19N	7E	13	0.3
			24	11.7
			25	34.3
			26	168.3
			35	229.6
			36	30.9
		8E	7	8.4
			8	42.7
			9	21.6
			18	39.8
			New Colgate Development Total	**3,411.6**
NEW BULLARDS BAR MINIMUM FLOW				
No Federal Lands				

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Table 5.2-2. (continued)

Administered by	Township	Range	Section	Acres
NARROWS 2 DEVELOPMENT				
USACE	16N	6E	14	11.1
			Narrows 2 Development Total	**11.1**
			Grand Total	**3,422.7**

Source: Yuba County GIS Parcel Base, obtained August 2013, modified per the Forest Service's request.

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