

# Appendix A

## Checklist and Assessment Form for Consistency and Compliance with GHG Emissions Reduction Plan



# Greenhouse Gas Emissions Reduction Plan

## Consistency Determination

### For Projects Using Contractors or Other Outside Labor

This form is to be used by DWR Project Managers to document a CEQA project's consistency with the DWR Greenhouse Gas Emissions Reduction Plan (GGERP). This form is to be used only when DWR is the Lead Agency and when contractors or outside labor and equipment are used to implement the project.

Additional Guidance on filling out this form can be found at:

<https://cawater.sharepoint.com/teams/prog/icc/SitePages/ClimateActionPlan.aspx>

The DWR Greenhouse Gas Emissions Reduction Plan can be assessed at:

<https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/All-Programs/Climate-Change-Program/Climate-Action-Plan/Files/CAP-I-GGERP-Update-2020.pdf>

<b>Project Name:</b>	Feather River Salmonid Habitat Improvement Project
<b>Environmental Document Type:</b>	Initial Study/Mitigated Negative Declaration
<b>Project Manager's Name:</b>	Seth Lawrence
<b>Project Manager's E-mail:</b>	<a href="mailto:Seth.Lawrence@water.ca.gov">Seth.Lawrence@water.ca.gov</a>
<b>Division:</b>	Division of Regional Assistance
<b>Office, Branch, or Field Division:</b>	Northern Region Office

#### Short Project Description:

Supplement the coarse sediment supply below Oroville Dam by adding clean gravel at multiple existing spawning sites, as well as improve potential habitat accessibility with two existing side channels.

#### Project Greenhouse Gas (GHG) Emissions Summary:

Total Construction Emissions	481	mtCO <sub>2</sub> e
Maximum Annual Construction Emissions	481	mtCO <sub>2</sub> e (For construction lasting 12 months or less, the total and maximum annual construction emissions will be the same.)

- All other emissions from the project not accounted for above will occur as ongoing operational, maintenance, or business activity emissions and therefore have already been accounted for and analyzed in the GGERP.

#### Extraordinary Construction Project Determination:

Do total project construction emissions exceed 25,000 mtCO<sub>2</sub>e for the entire construction phase or exceed 12,500 mtCO<sub>2</sub>e in any single year of construction?

- No – Additional analysis not required.       Yes – Project-specific emissions mitigation measures have been included in the environmental analysis document for the project.

<p><b>Project GHG Reduction Plan Checklist:</b></p> <p><input checked="" type="checkbox"/> All Project Level GHG Emissions Reduction Measures have been incorporated into the design or implementation plan for the project. (<a href="#">Project Level GHG Emissions Reduction Measures</a>)</p> <p style="text-align: center;">Or</p> <p><input type="checkbox"/> All feasible Project Level GHG Emissions Reduction Measures have been incorporated into the design or implementation plan for the project and Measures not incorporated have been listed and determined not to apply to the proposed project (include as an attachment)</p>
<p><input checked="" type="checkbox"/> Project does not conflict with any of the Specific Action GHG Emissions Reduction Measures (<a href="#">Specific Action GHG Emissions Reduction Measures</a>)</p>
<p>Would implementation of the proposed project result in additional energy demands on the SWP system of 15 GWh/yr or greater?</p> <p><input type="checkbox"/> Yes      <input checked="" type="checkbox"/> No</p> <p>If you answered Yes, attach a letter documenting that the project has consulted with the DWR SWP Power and Risk Office regarding the additional power requirements of the project.</p> <p>Is there substantial evidence that the effects of the proposed project may be cumulatively considerable notwithstanding the proposed project's compliance with the requirements of the DWR GHG Reduction Plan?</p> <p><input type="checkbox"/> Yes      <input checked="" type="checkbox"/> No</p> <p>If you answered Yes, the project is not eligible for streamlined analysis of GHG emissions using the DWR GHG Emissions Reduction Plan. (See CEQA Guidelines, section 15183.5, subdivision (b)(2).)</p>

Project Manager Signature: Seth Lawrence Date: 7/26/2022

After the Project Manager has reviewed and signed above, please use DocuSign to forward this form to the DWR Climate Change Program at [ceqaclimatechange@water.ca.gov](mailto:ceqaclimatechange@water.ca.gov) for final approval.

**For DWR Climate Change Program Use Only:**

Based on the information provided above and information provided in associated environmental documentation completed pursuant to the above referenced project, the DWR Climate Change Program has determined that:

- The entire proposed project is consistent with DWR GGERP and the GHGs emitted by the project are covered by the plan's analysis.
- The operational and maintenance phase of the project is consistent with the DWR GGERP and the GHGs emitted by the project are covered by the plan's analysis. Emissions from the construction phase of the project are not covered by the DWR GGERP and will be mitigated as part of the project.

Climate Change Program Approval Signature: Jordi Vasquez Date: 8/1/2022

**Attachments:**

- GHG Emissions Inventory
- List and Explanation of excluded Project level GHG Emissions Reduction Measures
- SWP Power and Risk Office Consultation Letter

Links:

- <https://cawater.sharepoint.com/teams/prog/icc/SitePages/ClimateActionPlan.aspx>
- <https://water.ca.gov/Programs/All-Programs/Climate-Change-Program>

# Inventory and Calculation of Greenhouse Gas Emissions

Table 1 presents a list of project construction equipment and estimated emission amounts. Data in Table 1 were generated using the California Air Resource Control Board Offroad 2007 Emissions Inventory. Tables 2a through 2e present estimated emission totals generated from project-related construction activities. Table 2f summarizes project construction and life span information.

**Table 1 Equipment Fuel Consumption**

Equipment	Off-Road 2007 Outputs		Class	Individual Unit Factors
	Fuel	MaxHP		Gal/hr
Tampers/Rammers	G2	15	Construction and Mining Equipment	0.20
Plate Compactors	G2	15	Construction and Mining Equipment	0.20
Asphalt Pavers	G4	15	Construction and Mining Equipment	0.58
Asphalt Pavers	G4	25	Construction and Mining Equipment	1.47
Asphalt Pavers	G4	50	Construction and Mining Equipment	2.34
Asphalt Pavers	G4	120	Construction and Mining Equipment	3.95
Tampers/Rammers	G4	15	Construction and Mining Equipment	0.49
Plate Compactors	G4	5	Construction and Mining Equipment	0.18
Plate Compactors	G4	15	Construction and Mining Equipment	0.44
Rollers	G4	5	Construction and Mining Equipment	0.27
Rollers	G4	15	Construction and Mining Equipment	0.55

	Off-Road 2007 Outputs			Individual Unit Factors
	G4			
Rollers	G4	25	Construction and Mining Equipment	1.19
Rollers	G4	50	Construction and Mining Equipment	2.64
Rollers	G4	120	Construction and Mining Equipment	4.64
Paving Equipment	G4	5	Construction and Mining Equipment	0.20
Paving Equipment	G4	15	Construction and Mining Equipment	0.58
Paving Equipment	G4	25	Construction and Mining Equipment	1.32
Paving Equipment	G4	50	Construction and Mining Equipment	2.30
Paving Equipment	G4	120	Construction and Mining Equipment	3.70
Surfacing Equipment	G4	5	Construction and Mining Equipment	0.20
Surfacing Equipment	G4	15	Construction and Mining Equipment	0.39
Surfacing Equipment	G4	25	Construction and Mining Equipment	0.94
Signal Boards	G4	5	Construction and Mining Equipment	0.33
Signal Boards	G4	15	Construction and Mining Equipment	0.60
Trenchers	G4	15	Construction and Mining Equipment	0.65
Trenchers	G4	25	Construction and Mining Equipment	1.40
Trenchers	G4	50	Construction and Mining Equipment	2.20
Trenchers	G4	120	Construction and Mining Equipment	4.27
Bore/Drill Rigs	G4	15	Construction and Mining Equipment	0.79
Bore/Drill Rigs	G4	25	Construction and Mining Equipment	1.45
Bore/Drill Rigs	G4	50	Construction and Mining Equipment	2.68

	<b>Off-Road 2007 Outputs</b>			<b>Individual Unit Factors</b>
Bore/Drill Rigs	G4	120	Construction and Mining Equipment	6.67
Bore/Drill Rigs	G4	175	Construction and Mining Equipment	9.04
Concrete/Industrial Saws	G4	5	Construction and Mining Equipment	0.27
Concrete/Industrial Saws	G4	15	Construction and Mining Equipment	0.69
Concrete/Industrial Saws	G4	25	Construction and Mining Equipment	1.34
Concrete/Industrial Saws	G4	50	Construction and Mining Equipment	2.78
Concrete/Industrial Saws	G4	120	Construction and Mining Equipment	4.72
Cement and Mortar Mixers	G4	5	Construction and Mining Equipment	0.26
Cement and Mortar Mixers	G4	15	Construction and Mining Equipment	0.52
Cement and Mortar Mixers	G4	25	Construction and Mining Equipment	1.61
Cranes	G4	50	Construction and Mining Equipment	1.94
Cranes	G4	120	Construction and Mining Equipment	3.42
Cranes	G4	175	Construction and Mining Equipment	5.37
Crushing/Proc. Equipment	G4	15	Construction and Mining Equipment	0.75
Crushing/Proc. Equipment	G4	25	Construction and Mining Equipment	1.37
Crushing/Proc. Equipment	G4	120	Construction and Mining Equipment	7.91
Rough Terrain Forklifts	G4	50	Construction and Mining Equipment	3.30
Rough Terrain Forklifts	G4	120	Construction and Mining Equipment	5.26
Rough Terrain Forklifts	G4	175	Construction and Mining Equipment	8.18
Rubber Tired Loaders	G4	50	Construction and Mining Equipment	2.44

	<b>Off-Road 2007 Outputs</b>			<b>Individual Unit Factors</b>
Rubber Tired Loaders	G4	120	Construction and Mining Equipment	3.85
Tractors/Loaders/Backhoes	G4	120	Construction and Mining Equipment	2.97
Skid Steer Loaders	G4	15	Construction and Mining Equipment	0.80
Skid Steer Loaders	G4	25	Construction and Mining Equipment	1.11
Skid Steer Loaders	G4	50	Construction and Mining Equipment	1.93
Skid Steer Loaders	G4	120	Construction and Mining Equipment	4.31
Dumpers/Tenders	G4	5	Construction and Mining Equipment	0.14
Dumpers/Tenders	G4	15	Construction and Mining Equipment	0.40
Dumpers/Tenders	G4	25	Construction and Mining Equipment	0.84
Dumpers/Tenders	G4	120	Construction and Mining Equipment	2.60
Other Construction Equipment	G4	175	Construction and Mining Equipment	5.49
Pavers	D	25	Construction and Mining Equipment	0.85
Pavers	D	50	Construction and Mining Equipment	1.32
Pavers	D	120	Construction and Mining Equipment	3.18
Pavers	D	175	Construction and Mining Equipment	5.87
Pavers	D	250	Construction and Mining Equipment	8.84
Pavers	D	500	Construction and Mining Equipment	10.62
Plate Compactors	D	15	Construction and Mining Equipment	0.20
Rollers	D	15	Construction and Mining Equipment	0.29
Rollers	D	25	Construction and Mining Equipment	0.61

	<b>Off-Road 2007 Outputs</b>			<b>Individual Unit Factors</b>
Rollers	D	50	Construction and Mining Equipment	1.22
Rollers	D	120	Construction and Mining Equipment	2.71
Rollers	D	175	Construction and Mining Equipment	4.94
Rollers	D	250	Construction and Mining Equipment	6.95
Rollers	D	500	Construction and Mining Equipment	9.95
Scrapers	D	120	Construction and Mining Equipment	4.32
Scrapers	D	175	Construction and Mining Equipment	6.77
Scrapers	D	250	Construction and Mining Equipment	9.52
Scrapers	D	500	Construction and Mining Equipment	14.64
Scrapers	D	750	Construction and Mining Equipment	25.28
Paving Equipment	D	25	Construction and Mining Equipment	0.57
Paving Equipment	D	50	Construction and Mining Equipment	1.13
Paving Equipment	D	120	Construction and Mining Equipment	2.50
Paving Equipment	D	175	Construction and Mining Equipment	4.62
Paving Equipment	D	250	Construction and Mining Equipment	5.56
Surfacing Equipment	D	50	Construction and Mining Equipment	0.66
Surfacing Equipment	D	120	Construction and Mining Equipment	2.92
Surfacing Equipment	D	175	Construction and Mining Equipment	3.91
Surfacing Equipment	D	250	Construction and Mining Equipment	6.12
Surfacing Equipment	D	500	Construction and Mining Equipment	10.04

	<b>Off-Road 2007 Outputs</b>			<b>Individual Unit Factors</b>
Surfacing Equipment	D	750	Construction and Mining Equipment	15.75
Signal Boards	D	15	Construction and Mining Equipment	0.28
Signal Boards	D	50	Construction and Mining Equipment	1.68
Signal Boards	D	120	Construction and Mining Equipment	3.67
Signal Boards	D	175	Construction and Mining Equipment	7.05
Signal Boards	D	250	Construction and Mining Equipment	11.57
Trenchers	D	15	Construction and Mining Equipment	0.39
Trenchers	D	25	Construction and Mining Equipment	1.50
Trenchers	D	50	Construction and Mining Equipment	1.55
Trenchers	D	120	Construction and Mining Equipment	2.98
Trenchers	D	175	Construction and Mining Equipment	6.58
Trenchers	D	250	Construction and Mining Equipment	10.14
Trenchers	D	500	Construction and Mining Equipment	14.18
Trenchers	D	750	Construction and Mining Equipment	26.74
Bore/Drill Rigs	D	15	Construction and Mining Equipment	0.47
Bore/Drill Rigs	D	25	Construction and Mining Equipment	0.73
Bore/Drill Rigs	D	50	Construction and Mining Equipment	1.42
Bore/Drill Rigs	D	120	Construction and Mining Equipment	3.52
Bore/Drill Rigs	D	175	Construction and Mining Equipment	6.42
Bore/Drill Rigs	D	250	Construction and Mining Equipment	8.50

	<b>Off-Road 2007 Outputs</b>			<b>Individual Unit Factors</b>
Bore/Drill Rigs	D	500	Construction and Mining Equipment	14.07
Bore/Drill Rigs	D	750	Construction and Mining Equipment	27.80
Bore/Drill Rigs	D	1,000	Construction and Mining Equipment	41.98
Excavators	D	25	Construction and Mining Equipment	0.75
Excavators	D	50	Construction and Mining Equipment	1.17
Excavators	D	120	Construction and Mining Equipment	3.38
Excavators	D	175	Construction and Mining Equipment	5.12
Excavators	D	250	Construction and Mining Equipment	7.19
Excavators	D	500	Construction and Mining Equipment	10.60
Excavators	D	750	Construction and Mining Equipment	17.56
Concrete/Industrial Saws	D	25	Construction and Mining Equipment	0.75
Concrete/Industrial Saws	D	50	Construction and Mining Equipment	1.40
Concrete/Industrial Saws	D	120	Construction and Mining Equipment	3.40
Concrete/Industrial Saws	D	175	Construction and Mining Equipment	7.30
Cement and Mortar Mixers	D	15	Construction and Mining Equipment	0.29
Cement and Mortar Mixers	D	25	Construction and Mining Equipment	0.80
Cranes	D	50	Construction and Mining Equipment	1.09
Cranes	D	120	Construction and Mining Equipment	2.30
Cranes	D	175	Construction and Mining Equipment	3.67
Cranes	D	250	Construction and Mining Equipment	5.09

	<b>Off-Road 2007 Outputs</b>			<b>Individual Unit Factors</b>
Cranes	D	500	Construction and Mining Equipment	8.18
Cranes	D	750	Construction and Mining Equipment	13.77
Cranes	D	9,999	Construction and Mining Equipment	44.16
Graders	D	50	Construction and Mining Equipment	1.29
Graders	D	120	Construction and Mining Equipment	3.44
Graders	D	175	Construction and Mining Equipment	5.66
Graders	D	250	Construction and Mining Equipment	7.81
Graders	D	500	Construction and Mining Equipment	10.42
Graders	D	750	Construction and Mining Equipment	22.05
Off-Highway Trucks	D	175	Construction and Mining Equipment	5.71
Off-Highway Trucks	D	250	Construction and Mining Equipment	7.55
Off-Highway Trucks	D	500	Construction and Mining Equipment	12.35
Off-Highway Trucks	D	750	Construction and Mining Equipment	20.03
Off-Highway Trucks	D	1,000	Construction and Mining Equipment	28.37
Crushing/Proc. Equipment	D	50	Construction and Mining Equipment	2.06
Crushing/Proc. Equipment	D	120	Construction and Mining Equipment	3.82
Crushing/Proc. Equipment	D	175	Construction and Mining Equipment	7.64
Crushing/Proc. Equipment	D	250	Construction and Mining Equipment	11.09
Crushing/Proc. Equipment	D	500	Construction and Mining Equipment	16.94
Crushing/Proc. Equipment	D	750	Construction and Mining Equipment	26.70

	<b>Off-Road 2007 Outputs</b>			<b>Individual Unit Factors</b>
Crushing/Proc. Equipment	D	9,999	Construction and Mining Equipment	59.43
Rough Terrain Forklifts	D	50	Construction and Mining Equipment	1.58
Rough Terrain Forklifts	D	120	Construction and Mining Equipment	2.86
Rough Terrain Forklifts	D	175	Construction and Mining Equipment	5.70
Rough Terrain Forklifts	D	250	Construction and Mining Equipment	7.74
Rough Terrain Forklifts	D	500	Construction and Mining Equipment	11.63
Rubber Tired Loaders	D	25	Construction and Mining Equipment	0.77
Rubber Tired Loaders	D	50	Construction and Mining Equipment	1.46
Rubber Tired Loaders	D	120	Construction and Mining Equipment	2.70
Rubber Tired Loaders	D	175	Construction and Mining Equipment	4.85
Rubber Tired Loaders	D	250	Construction and Mining Equipment	6.76
Rubber Tired Loaders	D	500	Construction and Mining Equipment	10.76
Rubber Tired Loaders	D	750	Construction and Mining Equipment	22.04
Rubber Tired Loaders	D	1,000	Construction and Mining Equipment	26.99
Rubber Tired Dozers	D	175	Construction and Mining Equipment	5.93
Rubber Tired Dozers	D	250	Construction and Mining Equipment	8.36
Rubber Tired Dozers	D	500	Construction and Mining Equipment	12.11
Rubber Tired Dozers	D	750	Construction and Mining Equipment	18.23
Rubber Tired Dozers	D	1,000	Construction and Mining Equipment	27.08
Tractors/Loaders/Backhoes	D	25	Construction and Mining Equipment	0.72

	<b>Off-Road 2007 Outputs</b>			<b>Individual Unit Factors</b>
Tractors/Loaders/Backhoes	D	50	Construction and Mining Equipment	1.41
Tractors/Loaders/Backhoes	D	120	Construction and Mining Equipment	2.37
Tractors/Loaders/Backhoes	D	175	Construction and Mining Equipment	4.63
Tractors/Loaders/Backhoes	D	250	Construction and Mining Equipment	7.78
Tractors/Loaders/Backhoes	D	500	Construction and Mining Equipment	15.62
Tractors/Loaders/Backhoes	D	750	Construction and Mining Equipment	23.43
Crawler Tractors	D	50	Construction and Mining Equipment	1.17
Crawler Tractors	D	120	Construction and Mining Equipment	3.03
Crawler Tractors	D	175	Construction and Mining Equipment	5.54
Crawler Tractors	D	250	Construction and Mining Equipment	7.55
Crawler Tractors	D	500	Construction and Mining Equipment	11.80
Crawler Tractors	D	750	Construction and Mining Equipment	21.15
Crawler Tractors	D	1,000	Construction and Mining Equipment	29.99
Skid Steer Loaders	D	25	Construction and Mining Equipment	0.63
Skid Steer Loaders	D	50	Construction and Mining Equipment	1.18
Skid Steer Loaders	D	120	Construction and Mining Equipment	1.95
Off-Highway Tractors	D	120	Construction and Mining Equipment	4.32
Off-Highway Tractors	D	175	Construction and Mining Equipment	5.97
Off-Highway Tractors	D	250	Construction and Mining Equipment	5.94
Off-Highway Tractors	D	750	Construction and Mining Equipment	25.95

	Off-Road 2007 Outputs			Individual Unit Factors
	D			
Off-Highway Tractors	D	1,000	Construction and Mining Equipment	37.23
Dumpers/Tenders	D	25	Construction and Mining Equipment	0.35
Other Construction Equipment	D	15	Construction and Mining Equipment	0.46
Other Construction Equipment	D	25	Construction and Mining Equipment	0.60
Other Construction Equipment	D	50	Construction and Mining Equipment	1.30
Other Construction Equipment	D	120	Construction and Mining Equipment	3.70
Other Construction Equipment	D	175	Construction and Mining Equipment	4.86
Other Construction Equipment	D	500	Construction and Mining Equipment	11.51
Compressor (Dredging)	D	50	Dredging	1.41
Compressor (Dredging)	D	120	Dredging	2.62
Compressor (Dredging)	D	175	Dredging	4.42
Compressor (Dredging)	D	250	Dredging	5.60
Compressor (Dredging)	D	500	Dredging	8.90
Compressor (Dredging)	D	1,000	Dredging	22.11
Crane (Dredging)	D	750	Dredging	16.28
Deck/door engine	D	250	Dredging	6.45
Dredger	D	175	Dredging	4.09
Dredger	D	250	Dredging	5.69
Dredger	D	750	Dredging	15.90
Dredger	D	9,999	Dredging	34.80

	<b>Off-Road 2007 Outputs</b>			<b>Individual Unit Factors</b>
Hoist/swing/winch	D	50	Dredging	0.96
Hoist/swing/winch	D	120	Dredging	3.05
Hoist/swing/winch	D	175	Dredging	3.88
Hoist/swing/winch	D	250	Dredging	6.18
Hoist/swing/winch	D	500	Dredging	9.81
Hoist/swing/winch	D	750	Dredging	19.56
Hoist/swing/winch	D	9,999	Dredging	36.86
Pump (Dredging)	D	120	Dredging	4.29
Pump (Dredging)	D	175	Dredging	6.35
Pump (Dredging)	D	250	Dredging	10.51
Pump (Dredging)	D	500	Dredging	16.24
Pump (Dredging)	D	750	Dredging	23.77
Pump (Dredging)	D	9,999	Dredging	114.38
Generator (Dredging)	D	50	Dredging	1.44
Generator (Dredging)	D	120	Dredging	4.05
Generator (Dredging)	D	175	Dredging	5.47
Generator (Dredging)	D	250	Dredging	9.94
Generator (Dredging)	D	500	Dredging	16.88
Generator (Dredging)	D	750	Dredging	28.09
Generator (Dredging)	D	9,999	Dredging	61.55

	<b>Off-Road 2007 Outputs</b>			<b>Individual Unit Factors</b>
Other (Dredging)	D	120	Dredging	2.96
Other (Dredging)	D	175	Dredging	5.11
Other (Dredging)	D	250	Dredging	6.32
Other (Dredging)	D	500	Dredging	11.20
Misc Portable Equipment	D	120	Other Portable Equipment	3.15
Misc Portable Equipment	D	175	Other Portable Equipment	4.32
Misc Portable Equipment	D	250	Other Portable Equipment	7.19
Misc Portable Equipment	D	500	Other Portable Equipment	13.44
Misc Portable Equipment	D	750	Other Portable Equipment	19.11
Misc Portable Equipment	D	1,000	Other Portable Equipment	25.52

Notes: MaxHP = maximum horsepower rating. Gal/hr = gallons per hour consumed by equipment.

**Table 2a Emissions from Construction Equipment**

Type of Equipment	Maximum Number Per Day	Total Operation Days	Total Operation Hours <sup>1</sup>	Fuel Consumption Per Hour <sup>2</sup>	Total Fuel Consumption (gallon diesel)	CO <sub>2</sub> e/gal Diesel <sup>3</sup>	Total CO <sub>2</sub> Equivalent Emissions (metric tons)
Refer to Equip Fuel Consumption Tab for equipment types and factors							
Fuel Truck	1	66	528	3.7	1,954	0.010	20
Water Truck	1	66	528	3.7	1,954	0.010	20
Street Sweeper	1	66	1,584	3.7	5,861	0.010	61
Front End Loader W/Bucket (Biofuel)	3	66	1,584	4.63	7,334	0.010	76
25 to 35 Ton Highway Haul Trucks	6	20	960	12.35	11,856	0.010	123
25 to 35 Ton Highway Haul Trucks	2	2	32	12.35	395	0.010	4
25 to 35 Ton Off-Highway Haul Trucks (Biofuel)	6	12	576	12.35	7,114	0.010	74
Excavator w/Thumb Bucket (Biofuel)	2	12	192	5.12	983	0.010	10

Type of Equipment	Maximum Number Per Day	Total Operation Days	Total Operation Hours <sup>1</sup>	Fuel Consumption Per Hour <sup>2</sup>	Total Fuel Consumption (gallon diesel)	CO <sub>2</sub> e/gal Diesel <sup>3</sup>	Total CO <sub>2</sub> Equivalent Emissions (metric tons)
Excavator w/Thumb Bucket (Biofuel)	1	6	48	5.12	246	0.010	3
Dozer (Biofuel)	4	12	384	5.93	2,277	0.010	24
Small Excavator (Rubber-Tracked)	1	2	16	3.38	54	0.010	1
Small Haul Truck (Rubber-Tired)	1	2	16	3.38	54	0.010	1
Hydroseeder	1	2	16	3.7	59	0.010	1
Stinger on Bobcat	1	2	16	1.3	21	0.010	0
<b>TOTAL</b>					<b>40,161</b>		<b>417</b>

## Notes:

<sup>1</sup> An 8-hour work day is assumed.

<sup>2</sup> California Air Resource Board Off-road 2007 Emissions Inventory fuel consumption factors.

<sup>3</sup> World Resources Institute-Mobile combustion CO<sub>2</sub> emissions tool, June 2003 Version 1.2.

CO<sub>2</sub> = carbon dioxide

CO<sub>2</sub>e/gal Diesel = carbon dioxide emissions per gallon of diesel

**Table 2b Emissions from Transportation of Construction Workforce**

Average Number of Workers per Day	Total Number of Workdays <sup>1</sup>	Average Distance Travelled (round trip)	Total Miles Travelled	Average Passenger Vehicle Fuel Efficiency <sup>2</sup>	Total Fuel Consumption (gallon gasoline)	CO <sub>2</sub> e/gal Gasoline <sup>3</sup>	Total CO <sub>2</sub> Equivalent Emissions (metric tons)
25	66	26	42,900	20.8	2,062.5	0.009	19

Assumptions:

Average distance travelled is the average of round-trip miles from:

Oroville = 5 miles; Chico = 46 miles.

Construction would occur Monday through Friday, June 1 through August 31, for total of 66 days.

Notes:

<sup>1</sup> An 8-hour work day is assumed.

<sup>2</sup> United States Environmental Protection Agency. 2008. Light-Duty Automotive Technology and Fuel Economy Trends: 1975 through 2008. [EPA420-R-08-015].

<sup>3</sup> World Resources Institute-Mobile combustion CO<sub>2</sub> emissions tool, June 2003 Version 1.2.

CO<sub>2</sub> = carbon dioxide

CO<sub>2</sub>e/gal Gasoline = carbon dioxide emissions per gallon of gasoline

**Table 2c Emissions from Transportation of Construction Materials**

<b>Trip Type</b>	<b>Total Number of Trips</b>	<b>Average Trip Distance (round-trip)</b>	<b>Total Miles Travelled</b>	<b>Average Semi-truck Fuel Efficiency</b>	<b>Total Fuel Consumption (gal. diesel)</b>	<b>CO<sub>2</sub>e/gal Diesel<sup>1</sup></b>	<b>Total CO<sub>2</sub> Equivalent Emissions (metric tons)</b>
Imported Gravel Delivery	813	28	22,764	6	3,794	0.010	39.42488054
BMP Delivery	2	50	100	6	16.6666667	0.010	0.1731896
Fuel Delivery	66	10	660	6	110	0.010	1.14305136
Storage Container Delivery and Pickup	2	50	100	6	16.6666667	0.010	0.1731896
Portable Restroom Delivery, Servicing, and Pickup	12	25	300	5	60	0.010	0.62348256
Heavy Equipment Delivery <sup>a</sup>	26	80	2,080	6	346.6666667	0.010	3.60234368
Export Material (Unused Excavated Material)	30	8.4	252	6	42	0.010	0.436437792
<b>TOTAL</b>							<b>45.57657514</b>

Assumptions:

<sup>a</sup> Average distance travelled is the average of round-trip miles from:  
 Yuba City = 60 miles; Redding = 100 miles.

Notes:

<sup>1</sup>World Resources Institute-Mobile combustion CO<sub>2</sub> emissions tool, June 2003 Version 1.2.

CO<sub>2</sub> = carbon dioxide

CO<sub>2</sub>e/gal Diesel = carbon dioxide emissions per gallon of diesel

**Table 2d Construction Electricity Emissions**

	MWh of electricity	mtCO <sub>2</sub> e/ MWh <sup>1</sup>	CO <sub>2</sub> e emissions
Electricity Needed	0	0	0

Notes:

<sup>1</sup> eGRID2010 Version 1.0, February 2011 (Year 2007 data) *CAMX-WECC sub-region*.

MWh = megawatt hour

mtCO<sub>2</sub>/MWh = metric tons of carbon dioxide equivalent per megawatt hour

CO<sub>2</sub>e = carbon dioxide equivalent

**Table 2e Total Emissions from Tables 2a through 2d**

Total Construction Activity CO <sub>2</sub> Emissions	481
Average Annual Total GHG Emissions <sup>1</sup>	96.29713 mtCO <sub>2</sub> e

Notes:

<sup>1</sup> Short-term construction emissions amortized over life of project.

CO<sub>2</sub> = carbon dioxide

GHG = greenhouse gas

mtCO<sub>2</sub>e = metric tons of carbon dioxide equivalent

**Table 2f Project Construction Time and Life Span Information**

Expected Start Date of Construction	June 1, 2023
Total Years of Construction	0.25
Estimated Project Useful Life	5 Years <sup>1</sup>

Notes:

<sup>1</sup> Number of years it would take for gravel to be mobilized out of the project area, based on the period of record for Feather River flows.