5.0 DIVERSION, PUMP STATION, POWER LINE, AND ROAD SURFACING

5.1 VEGETATION TYPES, INCLUDING WETLANDS

5.1.1 Existing Conditions

Diversion and Pump Station

The pump station site was surveyed on May 4 and 5, 1999, and again on May 24 and 25, 2000 by URS and Ecosystem West botanists. The objectives of the surveys were to map vegetation types, compile a list of plant species, and search for sensitive plant species. The entire 24-acre construction site (see Figure 2-7 and Figure 5-1) was surveyed on foot. Vegetation types were delineated on a topographic site map (scale 1" = 200'). All vascular plant species in identifiable condition at the time the survey was conducted were identified to species or infra-specific taxon using keys and descriptions in standard floras. The timing of the botanical survey was appropriate for identification of most of species present.

Four vegetation types occur at the proposed pump station site: Mojave riparian forest, transmontane freshwater marsh, transmontane alkali meadow, and desert greasewood scrub. All but desert greasewood scrub are classified as federal jurisdictional wetlands as defined under Section 404 of the Clean Water Act. Each of these vegetation types is briefly described below using the classification system of Holland (1986) and the Green Book (LADWP and Inyo County, 1990). The classification of the following vegetation types differ slightly from those presented in Section 4 (river), Section 6 (Delta), and Section 7 (Blackrock), which were prepared by White Horse Associates, in that the following descriptions include a specific reference to Holland and the Green Book. Boundaries of vegetation types at the pump station site are shown on Figure 5-2.

1. Mojave Riparian Forest (Holland Type 61700). This vegetation type occurs in the Owens River channel. The canopy is composed of Goodding's black willow (*Salix gooddingii*) and, to a lesser degree, red willow (*Salix laevigata*). The herbaceous layer is commonly composed of bulrush (*Scirpus acutus* var. *occidentalis)* in the deeper water, and on the shallow water margins is characterized by cut-leaf water-parsnip (*Berula erecta*), water-parsnip (*Sium suave*), saltgrass (*Distichlis spicata*), yerba mansa (*Anemopsis californica*), and wire rush (*Juncus arcticus* ssp. *ater*). This habitat is typically considered a wetland under Section 404 of the Clean Water Act. This vegetation is currently in a severely degraded condition due to beaver dam impoundments.

2. Transmontane Freshwater Marsh (Holland Type 52320). This vegetation type also occurs in the river channel. Two phases are present: tall marsh and short marsh. The tall marsh phase occurs in deeper areas of the channel and is composed primarily of tall emergent species, mainly bulrush and, to a lesser degree, common reed (*Phragmites australis*) and southern cattail (*Typha domingensis*). The short marsh phase is found in shallower portions of the river channel, primarily on the channel margins, and is composed of lower herbaceous vegetation, primarily cut-leaf water-parsnip, water-parsnip, wire rush, common threesquare (*Scirpus pungens*), and the non-native species annual beardgrass (*Polypogon monspeliensis*). This habitat is considered a wetland under Section 404 of the Clean Water Act.

3. Transmontane Alkali Meadow (Holland Type 45310). This vegetation type occurs in two different phases, depending on groundwater conditions. Groundwater is at or near the surface in the low-lying area west of the Owens River channel where a small pond is located, and along the

margins of the floodplain east of the channel. The alkali meadow vegetation in these areas is composed mainly of saltgrass except for a sprinkling of alkali bird's beak (*Cordylanthus canescens*), western nitewort or alkali pink (*Nitrophila occidentalis*), yerba mansa, and wire rush. The floodplain east of the river has deeper groundwater. The species composition of the alkali meadow vegetation in this area varies from areas of dense monocultures of saltgrass to areas that have Torrey's saltbush (*Atriplex lentiformis* var. *torreyi*) and to a lesser degree bush seepweed (*Suaeda moquinii*) and arrowscale (*Endolepias covillei = Atriplex phyllostegia*). Barren salt flats are also present in this area. This habitat is considered a wetland under Section 404 of the Clean Water Act when it occurs in areas with prolonged saturated soils, such as in the river channel noted above.

4. Desert Greasewood Scrub (Holland Type 36130). This vegetation type dominates the uplands west of the Owens River at the proposed pump station site, and also occupies a portion of the floodplain east of the river. The shrub layer is composed of greasewood (*Sarcobatus vermiculatus*), bush seepweed (*Suaeda sp.*) and, to a lesser degree, Parry's saltbush (*Atriplex parryi*). The herb layer is composed of kidney-leaved buckwheat (*Eriogonum reniforme*), Mojave stinkweed (*Cleomella obtusifolia*), fan-leaf (*Psathyrotes annua*) and in a few areas few-leaved bee plant (*Cleome sparsifolia*) and the non-native species Russian-thistle (*Salsola tragus*). In a few areas, the greasewood is lacking and bush seepweed is the dominant shrub. This habitat is not considered a wetland under Section 404 of the Clean Water Act.

In addition to the above vegetation types, two areas on the upland west of the Owens River contain very sandy soils that are unvegetated, although these areas might support a sparse cover of annual plants in seasons with favorable precipitation.

Power Line

The power line route (see Figure 2-10) was surveyed on May 24 and 25, 2000 by EcoSystems West botanists to map vegetation types, compile a list of plant species, and search for sensitive plant species. The survey was conducted on foot in the same manner as for the pump station site (see above).

A total of 76 species of vascular plants were observed along the proposed power line. Of these, 69 species are native and 7 species are non-native. Five vegetation types occur along the proposed power line: Mojave mixed woody scrub, desert saltbush scrub, shadscale scrub, desert sink scrub, and transmontane alkali meadow. Only the alkali meadow represents a wetland under Section 404 of the Clean Water Act.

Mojave mixed woody scrub occurs along the southernmost approximately 1.3 miles of the proposed line, where it traverses alluvial fans at the base of the Sierra Nevada. The desert saltbush scrub is the most extensive vegetation type along the proposed line, occurring along approximately 3.9 miles of the proposed line at the west edge of the valley west of Owens Lake. Shadscale scrub occupies a 1.2-mile long segment near the north end of the proposed line. Desert sink scrub occurs only along the approximately 0.3 mile segment where the proposed line deviates from the existing steel tower line in the northern portion of the proposed alignment. Saltbush scrub, playa, alkali meadow, and a freshwater seep occur in a mosaic along a 0.5 mile segment near the northwest shore of Owens Lake.

A description of the individual vegetation types along the route is provided below. The classification of the following vegetation types differs slightly from those presented in Section 4 (river), Section 6 (Delta), and Section 7 (Blackrock), which were prepared by White Horse Associates, in that the following descriptions include a specific reference to Holland and the Green Book.

- Mojave Mixed Woody Scrub (Holland Type 34210). This vegetation type is composed of turpentine-bush (*Ericameria laricifolia*), white bursage (*Ambrosia dumosa*), broad-leaved California buckwheat (*Eriogonum fasciculatum* var. *polifolium*), winter fat (*Krascheninnikovia lanata*), and hopsage (*Grayia spinosa*).

- Desert Saltbush Scrub (Holland Type 36110). This vegetation type contains several phases. In some areas, it is dominated by white bursage, all-scale (*Atriplex polycarpa*), burrobrush (*Hymenoclea* sp.), and shadscale (spiny saltbush) (*Atriplex confertifolia*) in the shrub layer. The herb layer is composed primarily of pebble pincushion (*Chaenactis carphoclinia* var. *carphoclinia*), wing-nut cryptantha (*Cryptantha pterocarya*), and checker fiddleneck (*Amsinckia tessellata*). In some areas, white bursage comprises most of the cover, while in other portions all-scale comprises most of the cover with shadscale being sparse. Burrobrush is most common in areas where alluvium is present from outwash of creeks. Another phase of saltbush scrub areas occurs in relatively moist, or seasonally moist, alkaline soil. It is composed mostly of Torrey's saltbush, except one area which is composed almost entirely of yellow-green rubber rabbitbrush (*Chrysothamnus nauseosus* var. *oreophilus and var. hololeucus*). The herbaceous layer contains areas of saltgrass, wire rush, or yerba mansa.

- Shadscale scrub (Holland Type 36140). This vegetation is transitional between the desert saltbush scrub and shadscale scrub types of Holland (1986). It occurs in sandy soil that is relatively hard-packed. The shrub layer is composed primarily of all-scale and shadscale, with a small amount of small-leaved Mojave indigo bush (*Psorothamnus arborescens* var. *minutifolius*). Inflated buckwheat (*Eriogonum inflatum*) is common in the herb layer. Annuals are scarce. In dry sandy soils, the shrub layer is composed primarily of shadscale and small-leaved Mojave indigo bush. Very few, if any, herbs were present in this habitat.

- Desert Sink Scrub (Holland Type 36120). This vegetation type occurs in low-lying, moist alkaline soils. It is composed of shadscale, Parry's saltbush, yellow-green rubber rabbitbrush, and big sagebrush (*Artemisia tridentata*, occurring only locally). The herb layer in this type is largely dominated by alkali sacaton (*Sporobolus airoides*), narrowleaf stephanomeria (*Stephanomeria tenuifolia*), and saltgrass (occurring only in a few small areas).

- Transmontane Alkali Meadow (Holland Type 45310). An area of transmontane alkali meadow dominated by saltgrass occurs along one segment of the proposed power line near the northwest shore of Owens Lake. In this area, the vegetation has developed at the upper margin of a playa and around the outlet of a small spring. Most of the water from the spring is piped to a water trough. In this area, this habitat type is mostly composed of saltgrass and to a lesser degree yerba mansa and wire rush. This habitat is considered a wetland under Section 404 of the Clean Water Act.

In addition to the above vegetation types, portions of the power line route along the margins of Owens Lake contain unvegetated sand. A small seep occurs in one location along the power line route. The site is dominated by herbs indicative of moist conditions, primarily ciliate willow-herb (*Epilobium ciliatum*), wire rush, common scratchgrass (*Muhlenbergia asperifolia*), and the non-native species white sweet-clover (*Melilotus alba*).

5.1.2 Impacts – Construction of Pump Station

A more detailed discussion of the pump station is available in Section 2.4.3. A description of the construction activities and phases for pump station is provided in Section 2.4.3.9. Construction activities

that would result in temporary and permanent impacts to upland, riparian, and wetland habitats are described below.

Construction Period and Phases

Construction would occur over a 12-month period. Construction will involve the following major phases:

1. Prepare Site; Road Surfacing – Build temporary diversion and bypass pipeline or open channel, then divert flows around the construction site; remove vegetation from alignment of the diversion; install temporary cofferdams around the pump station site and dewater; install service roads to sediment basin and east side of river; place, grade, and compact aggregate base on existing access road;. This phase would require about 2 months. The temporary diversion and bypass pipe are shown on Figure 2-7.

2. Install Diversion Structure – Construct the spillway, spillway abutment, bypass/flushing gate, and erosion control structure; excavate sediment basin. This phase would require about 3 months.

3. Construct Pump Station Structure – Install foundations, concrete sump, structural backfill, and piping. This phase would require about 5 months, of which 2 would overlap with the above activities.

4. Install Pumps, Mechanical, Electrical, Controls, and Pipeline – Install pumps, electrical, and mechanical equipment; install air chamber and electrical transformer yard; install fencing; site clean up; remove temporary river diversion and bypass; install 36-inch diameter pipeline to the Dust Mitigation Program pipeline; test system. This phase would require about 5 months, 1 of which would overlap with the above activities. Once this phase in completed, Phase 2 releases to achieve the 40-cfs baseflow would begin.

Areas of Impact at the Pump Station

The temporary construction area at the pump station and diversion site is shown on Figures 2-7 and 5-1. All construction work and staging would occur within this boundary. All equipment storage, equipment maintenance, and vehicle parking would occur in upland areas at least 100 feet from the banks of the river.

Construction Activities That Would Affect Habitat

The following activities would occur in the river channel or floodplain areas where they could affect native vegetation, as described below. The acreages of temporary and permanent disturbances to upland and riparian or wetland habitats are provided in Table 5-1. Approximately 24 acres would be temporarily disturbed and restored after construction, while an additional 8 acres would be permanently disturbed. The location of the pump station facilities relative to the river channel at the site is shown on Figures 5-1 and 5-2.

- A 2- to 3-foot high temporary earthen berm will be constructed to divert flow from the river and around the diversion site during the construction of the permanent diversion structure. Construction of the berms will require clearing a 100-foot wide corridor across the river, and temporarily constructing an earthen berm across the river channel (using riverbed materials) that diverts flows to a bypass culvert or open channel on the east side of the river (Figure 2-7). The berm and bypass culvert or channel will be removed after construction is completed. The riverbed will be re-graded to pre-construction conditions, and flows would be returned to the

river. Installation and removal of these berms would affect the following habitats: open water, freshwater marsh, and riparian forest.

- Installation of the spillway and abutment (combined, about 220 feet in length) will require excavation work in a 100-foot wide corridor across the river. The abutment will be constructed of compacted on-site material with a 25-foot deep sheet pile cutoff wall. The spillway and abutment will require imported rock riprap. The river channel area disturbed by this construction will be re-graded to pre-project conditions after construction, except for the base of the spillway and abutment (about 70 feet wide). Installation and removal of these berms would affect the following habitats: open water, freshwater marsh, and riparian forest.

- A 650-foot long erosion control structure will be constructed in the floodplain east of the river (Figure 2-7). Sheet piles will be placed below grade to form the erosion control structure. The structure will mostly be below grade, except where it will cross several of these small channels. At these locations, the structure will be about 1 to 2 feet in height, constructed using on-site material excavated from the pump station site on the west bank. Installation of the erosion control structure will require excavation work in a 50-foot wide corridor across the river. Installation of the structure will temporarily affect greasewood scrub and alkali meadow.

- About 1 acre of the west bank will be lowered and cut slopes will be constructed around the perimeter for the pump station and sump. A buried 28- by 46-foot sump will be installed in the center of the yard, along with a 60- by 60-foot pump station building. The 189- by 229-foot facility yard will be surfaced with gravel. Most of the facility site will remove upland vegetation – greasewood scrub. However, construction of the inlets to the sump will temporarily disturb the margins of the river, which support freshwater marsh and riparian forest.

- Creation of the 185- by 270-foot sediment basin upstream of the diversion will require removal of vegetation and sediments from the river to lower the existing channel by several feet. The basin will be periodically maintained to prevent the accumulation of sediments and vegetation. The initial and periodic desilting will permanently affect riparian forest and freshwater marsh. The sediments will be removed from the basin using an excavator or crane with a clamshell bucket. The wet sediments will be placed in two upland locations (approximately 5 acres) for dewatering over several weeks (Figure 5-2). The sediment pile will typically be about 2 to 3 feet high, containing about 9,000 cubic yards. Sediments will most likely be removed by a wheeled excavator, or by a crane with a clamshell bucket. The dried sediments will then be spread along the top of the west bluff well above the river in a barren sandy area, up to a height of 6 feet with a potential footprint of 100 by 150 feet (3,000 cubic yards). Additional sediments that accumulate over time will be transported to appropriate off-site areas.

- The sediment stockpile areas currently contain desert greasewood scrub vegetation and barren sand (see Figures 5-1 and 5-2). The sediments will remain in the stockpile until additional storage is required. After sediments are dewatered, they will be loaded onto trucks and hauled off site to a suitable disposal site, or for use in construction projects in the valley.

- A 2,200-foot long, 16-foot wide gravel service road will be constructed to access the sediment basin (Figure 5-2). It will be constructed on a fill slope. The base of the fill will have an average width of about 45 feet. Approximately 6,000 cubic yards of fill material will be required for this road. The fill will be derived from on-site excavations for other facilities (as it is available) and from off site sources. The road will displace unvegetated sand, greasewood scrub, alkali meadow, and riparian forest.

- A 600-foot long, 16-foot wide gravel service road will be constructed on the east side of the river to allow inspection of the diversion structure and sediment basin (Figure 5-2). It will be constructed on a fill slope with a base of about 45 feet. Approximately 2,000 cubic yards of fill material will be required for this road. The fill will be derived from off-site sources. The road will temporarily and permanently affect alkali meadow vegetation.

- A 400-foot long, 16-foot wide gravel access road will be constructed from the existing dust control road to the pump station (Figure 5-2). The existing grade will be excavated as the road slopes down to the pump station. This road will displace greasewood scrub.

TABLE 5-1
TEMPORARY AND PERMANENT HABITAT DISTURBANCES (ACRES) DUE TO CONSTRUCTION AT THE PUMP STATION

Project Elements (see Figures 2-7, 5-1, and 5-2)	Desert Greasewood Scrub	Trans-montane Alkali Meadow*	Mojave Riparian Forest*	Trans-montane Freshwater Marsh*	Flowing Water**	Isolated Pond**	Total
Temporary Construction Impacts (areas to be restored after construction)							
General upland disturbance, including service road construction	20.7	0.8					21.5
Temporary diversion berms			0.40	0.40	0.12		0.92
Installation of permanent diversion structure	0.8		0.40		0.10		1.30
Total =	21.5	0.8	0.80	0.40	0.22	0	23.72
Permanent Impacts from Construction of Facilities (not included above)							
Diversion structure	0.15		0.30		0.05		0.50
Facility pad, including pump station and sump	0.88						0.88
Service roads	1.60	1.85	0.05				3.50
Sediment basin in the forebay			1.01	0.37			1.38
Sediment stockpiling adjacent to the forebay	5.0						5.0
Subtotal =	7.63	1.85	1.36	0.37	0.05	0	11.3
Total Wetland Loss =		3.58 acres					

* Vegetated wetlands as defined under Section 404 of the Clean Water Act. ** Defined as non-wetland "waters of the United States" under Section 404 of the Clean Water Act.
** Impacts to vegetation caused by construction of the power line are not included in this table because they are deemed insignificant (see Section 5.1.3).

Approximately 3.6 miles of the existing dirt road from Highway 395 to the pump station site will be surfaced with an aggregate base. Placement of the aggregate will not affect any native habitat.

Summary of Temporary Vegetation Impacts at the Pump Station

The construction of the pump station would cause general disturbance to upland vegetation from equipment staging, overland travel between work areas, construction of the service roads, and installation of the permanent diversion structure. About 21.5 acres of desert greasewood scrub would be temporarily disturbed (see Table 5-1). **This impact is considered a significant, but mitigable impact (Class II)** because the disturbed areas would be restored to native vegetation as described in Mitigation Measure P-1 (see Section 5.1.4), which is considered a mandatory mitigation measure that must be implemented to reduce a significant impact. Mitigation Measure P-1 will be implemented in coordination with CDFG.

Construction activities in the river channel would disturb about 2.0 acres of vegetated wetlands (0.4 acres of freshwater marsh, 0.8 acres of riparian forest, and 0.8 acres of alkali meadow). **This impact is considered adverse, but not significant (Class III)** because these areas are expected to recover through natural processes as has been observed in other areas along the river from previous disturbances (e.g., from maintenance activities along the river, creeks, and ditches tributary to the river) and the loss of approximately 2.0 acres of vegetated wetlands will be compensated by the gain of 3,113 acres of wetlands created by the implementation of the overall project (see Table 14-1).

Summary of Permanent Vegetation Impacts from Pump Station

Construction of the pump station facilities (i.e., paved yard, pump station sump and building, service roads, and sediment stockpile areas) would result in the permanent loss of 7.6 acres of greasewood scrub (Table 5-1). **This is considered an adverse, but not significant impact (Class III)** because the loss of approximately 7.6 acres of greasewood scrub will be compensated by the gain of acres of marsh/wet alkali meadow and alkali meadow, and by the creation of other habitats that will result from the implementation of the overall project (see Table 14-1). No mitigation is proposed for this impact.

Creation and maintenance of the sediment basin would result in the permanent conversion of 0.37 acres of freshwater marsh and 1.01 acres of riparian woodland to the open water of the forebay (Table 5-1). The conversion of these wetland and riparian vegetation types to open water **is considered adverse, but not significant (Class III)** due to the small acreage involved and because the loss of approximately 1.38 acres of freshwater marsh and riparian habitat will be compensated by the gain of 3,113 acres of wetlands created by the implementation of the overall project (see Table 14-1).

Construction of the western and eastern service roads to the sediment basin would result in the permanent loss of 1.85 acres of alkali meadow and 0.05 acre of riparian woodland (Table 5-1). **The loss of these wetland types is considered adverse, but not significant (Class III)** due to the small acreage involved and because the loss of approximately 1.9 acres of alkali meadow and riparian woodland will be compensated by the gain of 3,113 acres of wetlands created by the implementation of the overall project (see Table 14-1).

The diversion structure would permanently displace about 0.15 acres of upland vegetation (also included in 7.6 acres of greasewood scrub described above) and about 0.30 acre of riparian woodland in the river channel (Table 5-1). **This is considered an adverse, but not significant impact (Class III)** due to the small area involved, and because the loss of approximately 0.30 acres of riparian woodland will be compensated by the gain of 3,113 acres of wetlands created by the implementation of the overall project (see Table 14-1).

In summary, the proposed diversion and pump station facilities would result in the loss of 3.58 acres of vegetated wetlands, as shown in Table 5-1. Of this total, about 1.38 acres would be converted to open water (sediment basin in the forebay). The remainder (2.20 acres) would be converted to non-wetlands or

developed areas. The total cumulative impact of this loss and conversion is considered adverse, but not significant for the reasons provided above (i.e., small acreage, compensation provided by the implementation of the overall LORP). Therefore, no mitigation is proposed for these wetland losses.

Summary of Permanent Vegetation Impacts from Forebay

Under the 40-cfs baseflow conditions, the flooded area behind the pump station spillway and diversion structure (forebay) will encompass about 17 acres of open water, inundating alkali meadow, freshwater marsh, and riparian forest in the river channel upstream of the diversion (Figure 2-14).

The establishment of the forebay would result in the permanent loss of about 4.1 acres of alkali meadow and 7.5 acres of freshwater marsh, as these vegetation types would be converted to open water (Table 5-2). **This is considered an adverse, but not significant impact (Class III)** because the loss of approximately 7.5 acres of freshwater marsh and 4.1 acres of alkali meadow will be compensated by the gain of 3,113 acres of wetlands created by the implementation of the overall project (see Table 14-1).

TABLE 5-2
HABITAT DISTURBANCES (ACRES) DUE TO FLOODING OF RIVER CHANNEL BY THE FOREBAY

Project Elements (see Figures 2-14, 5-2)	Trans-montane Alkali Meadow*	Mojave Riparian Forest*	Trans-montane Freshwater Marsh*	Open Water**	Total
Permanent Impacts from Flooding in the Forebay					
Habitats inundated during 40 cfs baseflow	4.1	5.3	7.5	0.5	17.4
New Habitats Created in the Forebay					
New habitats created in the forebay under 40 cfs baseflow	0	0	1.9	15.5	17.4

* Vegetated wetlands as defined under Section 404 of the Clean Water Act. ** Defined as non-wetland "waters of the United States" under Section 404 of the Clean Water Act.

The creation of the forebay would also result in the loss of 5.3 acres of Mojave riparian forest from the river channel due to the effects of permanent inundation. However, the loss of this forest area **is considered an adverse, but not significant impact (Class III)** for the following reasons: (1) the riparian woodland in the river channel that would be inundated by the forebay is in poor condition (approximately 85 to 90 percent of the vegetation in this area is currently dead due to the effects of past flow management in the river and the effects of beaver, and (2) the loss of approximately 5.3 acres of riparian woodland will be compensated by the of 3,113 acres of wetlands created by the implementation of the overall project (see Table 14-1).

To compensate for this loss of riparian forest, EPA defined the following mitigation measure (previously identified as P-2 in the Draft EIR/EIS):

> Three years after completion of the pump station, LADWP shall determine if willow and cottonwood trees are colonizing the margins of the new forebay in such amounts to create a new riparian woodland corridor over time. If recruitment is poor, LADWP will create a total of 5.3 acres of Mojave riparian forest along the riverbanks between the pump station and Keeler Bridge by planting black and red willow and Fremont cottonwood cuttings in suitable sites along the

river corridor. Poor recruitment is defined as a density of willow seedlings that is less than 50 percent of the pre-construction tree density in the river channel at the pump station site. The new habitat shall also include riparian understory shrubs and herbs (if available in seed or container plant form) common to the river. The restoration sites shall be configured to provide cover and shelter for riparian breeding birds. The restoration sites shall be located at or near the forebay where riparian impacts occurred. A 7-year monitoring and maintenance program shall be implemented to ensure successful establishment of the plants. The following are the mitigation goals for revegetation: (1) 80 percent survivorship of plants by year 3 and 90 percent of the remaining by year 7; (2) 50 percent plant cover by year 5 and 85 percent by year 7; (3) plants shall exhibit normal growth rates and healthy conditions for at least 2 years without supplemental watering and weeding; and (4) cover by non-native noxious weeds shall not exceed 10 percent at any time.

However, since the impact to riparian forest from the creation of the forebay was determined to be less than significant, and since LADWP does not intend to implement the above measure, this mitigation measure will not be adopted.

If seasonal habitat flows of 200 cfs reach the pump station, the forebay would extend upstream about 500 feet further than under the 40-cfs baseflow conditions, and inundate about 2 acres more of the river channel, for a total of 19 acres. This temporary flooding of several days is not expected to permanently convert existing wetland and riparian woodland habitats in the river channel due to the short duration of the flooding.

Water Quality Impacts from Pump Station

Construction activities in the river channel would expose channel bed materials and soil along the banks that would be susceptible to erosion and transport downstream, where suspended sediments could be deposited. This impact would be avoided by the planned diversion of flows around the construction site in the river channel. The spillway, abutments, and erosion control structures would be stabilized with rock riprap prior to introducing flows back to the river. Hence, only minor sedimentation immediately following the initial introduction of flows is anticipated. Most of the material suspended during the initial filling of the forebay and pump operations is expected to remain in the forebay, where it would settle out and be deposited.

Similarly, periodic desilting of the sediment basin would increase suspended sediments in the forebay due to excavation of the channel bottom, fall-back from the clam-shell, and runoff from the sediment stockpile adjacent to the forebay. Most of this sediment is expected to remain in the forebay. Any increase in downstream suspended sediment and turbidity is expected to be minor and temporary. Stockpiled material would be located outside of the river channel, and would not be susceptible to erosion.

In summary, sedimentation due to the construction of the pump station facilities and maintenance desilting of the forebay would be minor in magnitude, localized, and temporary. **This would be considered an adverse, but not significant impact (Class III).** Mitigation Measure P-2, discussed in Section 5.1.4, would provide assurances that this impact would remain less than significant.

Heavy equipment would be used for construction of the pump station and diversion. As such, there is potential for accidental spills of fuel, lubricating oils, paints, and concrete. Depending upon the size and location of the spill, and the time of year, contaminants could be discharged to the river and adversely affect water quality. This impact is not expected to occur due to best management practices incorporated into the Construction Stormwater Pollution Prevention Plan (SWPPP) required by state law. However,

any accidental spill is anticipated to be highly localized because most accidental spills are limited in quantity (e.g., less than 50 gallons). **This impact is considered adverse, but not significant (Class III) due to the protective measures in the SWPPP.** Mitigation Measure P-2, discussed in Section 5.1.4, would provide assurances that this impact would remain less than significant.

5.1.3 Impacts - Power Line Construction

The new power line would traverse several upland vegetation types. Access to the route will be accomplished using existing dirt roads that are parallel to the proposed power line route and that are currently used for maintenance of nearby power lines. The new power poles would be installed 12 feet east of the existing lines. Single wooden poles would be used. An auger truck would drill holes and place the poles. Trucks would travel overland from the existing road to the pole sites, usually a distance less than 50 feet. Once the poles are installed, conductors would be strung using several specialized trucks and crews operating from or near the existing access roads, traveling overland as necessary.

No grading or filling would occur, nor would any permanent access roads be constructed. The loss of upland vegetation at each pole site (about 10 by 10 feet) is considered a negligible impact. Overland travel during construction will crush shrubs, but is not expected to destroy plants or alter the soils and drainage patterns. Existing vegetation is expected to recover without adverse effects. The disturbance is not expected to facilitate weed invasion, as soils will not be physically scraped or removed, except at the base of the poles. Based on these considerations, temporary disturbance to upland vegetation during **the installation of the power line is considered an adverse, but not significant impact (Class III).** Mitigation Measure P-3 would be applied to reduce impacts during construction (see Section 5.1.4).

No wetland or riparian habitat will be traversed by the power line, or by any proposed overland travel route. However, a small (<200 square feet) freshwater seep is present within 100 feet of the proposed route, about 2,000 feet north of Highway 395 on the margins of Owens Lake. It is dominated by willow-herb, wire rush, common scratchgrass, and the non-native species white sweet-clover. This wetland is not anticipated to be disturbed. **However, any unintended disturbance to this wetland would not be significant (Class III)** because it would likely only involve temporary and reversible effects. To ensure avoidance of this wetland, LADWP will implement Mitigation Measure P-4.

5.1.4 Mitigation Measures

P-1 Upland areas disturbed during construction at the pump station site shall be regraded to create natural contours that match adjacent topography, then shall be seeded with native plant species. Restoration shall commence within 1 year of completion of the pump station. The goal of the restoration shall be to restore plant species and cover to pre-construction conditions over time. The species included shall be based on the species removed, availability of seeds or plant materials, and ability to cultivate each species. The colonization by non-native aggressive or noxious weeds shall be inhibited by weed control for 3 years after construction. Revegetation methods, plant maintenance, performance goals, and monitoring methods shall be based on: (1) the guidance in Inyo County's Revegetation Plan prepared pursuant to the Agreement; and (2) results of LADWP's ongoing experimental dryland revegetation studies in the Owens Valley. A 7-year monitoring and maintenance program shall be implemented to ensure successful establishment of the plants. The following are the mitigation goals for revegetation: (1) at least 50 percent of the native perennial species present at the site prior to construction shall be established by year 3 and persist through year 7; (2) plant cover shall achieve 50 percent of pre-construction cover values by year 5 and 65 percent by year 7; (3) newly established plants shall exhibit normal growth rates and healthy conditions for at least 2 years without supplemental

watering and weeding; and (4) cover by non-native noxious weeds shall not exceed pre-construction conditions.

P-2 The Storm Water Pollution Prevention Plan (SWPPP) to be prepared under the provisions of the required Construction General Storm Water NPDES Permit shall specifically include measures to: (1) prevent erosion from the construction site and from the post-construction site that could cause sedimentation into the river, with a focus on stabilizing the river banks to prevent sloughing and erosion during the initial river flows and due to water level fluctuations in the forebay; and (2) prevent discharge of construction materials, contaminants, washings, concrete, fuels, and oils into the river from construction equipment and vehicles. These measures shall include, at a minimum, physical devices to prevent sedimentation and discharges (e.g., silt fencing, hay bales), and routine monitoring of these devices and the conditions of the river downstream of the pump station site.

P-3 The area of temporary disturbance associated with construction of the power line shall be minimized by using overland travel to reach pole sites, prohibiting construction of new roads, and minimizing soil disturbance such as scraping or excavation, except where necessary to ensure safe passage or to complete construction.

P-4 The small freshwater seep along the power line shall be avoided during construction by marking its boundary on construction drawings and flagging the boundary in the field prior to construction activities to indicate an environmentally sensitive area to be avoided.

5.2 FISH AND WILDLIFE

5.2.1 Impacts – Pump Station

The pump station site contains a wide variety of upland, wetland, aquatic, and riparian habitats that provide high quality forage and shelter for wildlife. Conversion of this site to a large forebay with 17 acres of mostly open water would benefit waterfowl, but to the detriment of riparian-dependent bird species. The overall habitat, wildlife diversity and productivity of the site are expected to decrease as a consequence. This impact would be partially offset by the anticipated overall increase in riparian woodland habitat due to the rewatering of the river, and the associated increase in wildlife productivity and diversity along the river. The benefits to wildlife along the remainder of the river would compensate for the potential reduction in wildlife abundance and variety at the forebay. **Hence, this impact is considered adverse, but not significant (Class III).**

Threatened or endangered wildlife species are not expected to occur at the pump station site. Habitat conditions are not suitable for the southwestern willow flycatcher because suitable habitat is absent (i.e., dense continuous willow thickets). Similarly, suitable habitat for the yellow-billed cuckoo (dense multi-layer gallery riparian forest) is also absent. Cattail and bulrush marsh that could be used by the least bittern occur at the pump station site, but there is no evidence that this species of special concern occurs at the site. As part of the conditions of the CDFG Streambed Alteration Agreement for the LORP, pre-construction surveys may be conducted as relevant to avoid bird nests if construction would take place during nesting season.

Game fish are common along this reach of the river, and there are several popular fishing locations upstream of the pump station. A trash screen would be placed at the intake to the pump station. An analysis by Ecosystem Sciences (2002; unpublished data) indicates that approach velocities to the trash

screen are too low (less than 0.5 feet per second) to impinge fish against the screen. Hence, fish are not expected to be entrained in the pump station.

5.2.2 Impacts – Power Line

As described in Section 2.4.3, the new power line will employ vertical construction with conductors spaced at least 4 feet apart (vertical distance), which minimizes the risk of raptors or other large birds becoming electrocuted by touching both conductors simultaneously. The distance between the existing and new power lines (12 feet or more) will also be sufficient to prevent electrocution. In addition, the vertical construction does not include a crossbar, which minimizes the potential for large birds to perch on the pole. Since the new power line will parallel existing infrastructure, including the existing power line and Highway 395, it minimizes any fragmentation of open landscapes, which helps to minimize bird collisions (BirdLife International, 2003). Therefore, the risk of bird collision with and/or electrocution from the new power line is expected to be low. **This impact is considered adverse, but not significant (Class III).**

The potential for increase in predation on plovers and other shorebirds from the increase in power poles is expected to be low due to the use of vertical construction, which minimizes the area available for ravens and raptors to perch or nest. **This impact is considered adverse, but not significant (Class III).** However, since portions of the new power line will be located in close proximity to Owens Lake, a shorebird habitat, Mitigation Measure P-5 is proposed to further reduce the potential for increase in predation on plovers and other shorebirds that use Owens Lake.

5.2.3 Mitigation Measures

P-5 Power poles installed for the LORP pump station that are located within 0.25 mile of Owens Lake will be equipped with anti-predator perches (aluminum combs or other appropriate devices placed on top of poles or other potential perching sites).

5.3 AIR QUALITY

5.3.1 Existing Conditions

Under the federal Clean Air Act, the US Environmental Protection Agency (EPA) has set ambient air quality standards to protect public health and welfare. Air quality standards have been set for the following pollutants: particulate matter less than 10 microns in diameter (PM10), particulate matter less than 2.5 microns in diameter (PM2.5), carbon monoxide (CO), nitrogen oxides (NOx), sulfur dioxide, and lead. The State of California has also set air quality standard for these pollutants, which are generally more stringent than federal standards.

The southern Owens Valley is located in the Great Basin Air Pollution Control District. The valley has been designated by the State and EPA as a non-attainment area for the state and federal 24-hour average PM10 standards. Wind-blown dust from the dry bed of Owens Lake is the primary cause of the PM10 violations. The area has been designated as attainment or unclassified for all other ambient air quality standards. Air quality is considered excellent for all criteria pollutants with the exception of PM10. Large industrial sources are absent from Owens Valley. The major sources of criteria pollutants, other than wind-blown dust, are woodstoves, fireplaces, vehicle tailpipe emissions, fugitive dust from travel on unpaved roads, prescribed burning, and gravel mining.

5.3.2 Impacts – Power Line and Pump Station

Overview of Emissions-Generating Activities Associated with the Entire LORP

Implementation of the LORP will involve the following activities, which involve construction equipment (e.g., loader) or construction-related vehicles (e.g., light trucks) and trips:

- Installation of the new gate at the River Intake
- Desilting the river channel near the River Intake
- Construction of the pump station, diversion, and power line
- Replacement and installation of spillgates in the Blackrock Waterfowl Habitat Area
- Construction or repair of ditches and berms in the Blackrock Waterfowl Habitat Area
- Installation of new fencing for riparian pastures
- Road paving

These activities would generate emissions of pollutants. In addition, fugitive dust could be generated from travel on unpaved roads and from certain earth-disturbing activities. These emissions would contribute to the degradation of air quality conditions in the Owens Valley. As noted above, the region exhibits very good air quality conditions except for PM10.

Operations of the LORP would involve emissions from the following sources: (1) periodic vehicle travel (i.e., weekly) for monitoring purposes throughout the LORP project area; (2) daily vehicular traffic to the pump station for inspection and maintenance; 3) vehicular traffic generated by visitors to the LORP area. Most of the electricity for the pump station will be provided by LADWP's Cottonwood Power Plant or other LADWP hydroelectric facilities on the Owens Valley grid; since these arehydroelectric facilities, they do not generate air pollutants.

Emissions associated with operations are expected to be negligible, and similar to emissions associated with other LADWP operations in Owens Valley. For example, LADWP crews perform daily maintenance work on water facilities throughout the valley. The LORP maintenance would be similar in nature and magnitude. As such, no adverse air quality impacts are anticipated to occur associated with operations of the LORP.

In contrast, certain construction activities will cause short-term, localized increases in emissions. The primary emissions would be from construction of the pump station, diversion, power line, and Blackrock area berms and ditches. Installation of the new gate at the River Intake, initial river channel clearing, and installation of new or replacement spillgates at Blackrock would cause negligible emissions because the work would be performed with small equipment (e.g., auger truck or backhoe), require only several days to weeks, and involve few worker trips (2 to 3 vehicles per day).

Daily and total emissions of criteria pollutants are estimated below for the construction of the pump station, diversion, and power line. The emissions were estimated from heavy equipment operations, fugitive dust from grading, construction truck and worker vehicle trips. Key assumptions concerning the construction activities are listed in the following subsections. Estimates of emissions associated with channel clearing along the river are presented in Section 4.9, and for various construction activities in the Blackrock Habitat Area are presented in Section 7.4.

5.3.2.1 Emissions-Generating Activities from the Construction of the Pump Station

Construction would occur over a 12-month period, and would involve the following major phases. These construction activities would generate pollutants from gasoline and diesel vehicles and construction

equipment, and from fugitive dust created by earthwork and vehicular travel along dirt roads. A more detailed description of construction activities is provided in Section 2.4.3.1 and 5.1.2.

1. Prepare Site – build temporary diversion around the construction site; install temporary cofferdams around the pump station site and dewater; install service roads.

2. Install Diversion Structure – construct spillway, spillway abutment, bypass gate structure, and erosion control structure; excavate sediment basin.

3. Construct Pump Station Structure – install foundations, concrete sump, structural backfill, and associated piping.

4. Install Pumps, Mechanical, Electrical, and Controls – install pumps, electrical and mechanical equipment; install air chamber and electrical transformer yard; install fencing; site clean up; and remove temporary river diversion and bypass.

5. Surfacing of Access Road From Highway 395 – install permanent aggregate base.

5.3.2.2 Emissions-Generating Activities Associated with Construction of the Power Line

Construction of the new power line and installation of a new conductor would require about 3 months. Construction access would be provided by the existing dirt road along the existing nearby power line. A daily crew of five to eight people would typically be involved in the installation of a new power line, with four to five light trucks along the construction corridor. No heavy equipment would be used.

Summary of Emissions

An estimate of the combined daily and total emissions from the construction activities at the pump station site is provided below in Table 5-3. Note that these activities may or may not occur concurrently, and that the activities are located at great distances from one another. Hence, the daily emissions provided in Table 5-3 are considered worst case estimates.

Table 5-3 also includes the emissions from the construction activities at the Blackrock Waterfowl Habitat Area (described in Section 7.4), and from the initial channel clearing near the River Intake (described in Section 4.9) to provide an estimate of the cumulative emissions of all LORP construction work.

TABLE 5-3
ESTIMATED CONSTRUCTION EMISSIONS FOR THE LORP*

Activity	Carbon Monoxide	Reactive Organic Gases (hydrocarbons)	Nitrogen Oxides	Particulate Matter (PM10)
Maximum Daily Emissions (lbs per day)				
Pump station and diversion, including road paving and pipelines	55	13	110	17
Power line	2	0.5	12	2
Blackrock berms and ditches	5.5	7.5	20	4.5
Initial channel clearing	1.1	0.5	15	1.3
Total =	63.6	21.5	157	24.8
Total Construction Emissions (tons)				
Pump station and diversion	5.0	1.2	10	1.5
Power line	<0.1	<0.1	0.3	<0.1
Blackrock berms and ditches	0.2	0.3	0.7	<0.1
Initial channel clearing	0.1	0.2	0.4	<0.1
Total =	5.4	1.7	11.4	1.6

* See Section 7.4 for a description of emissions associated with the Blackrock Waterfowl Habitat Area. See Section 4.9 for a description of emissions associated with initial channel clearing near the River Intake. Emissions calculated by URS Corporation.

Emissions from construction activities are considered an adverse, but not significant impact (Class III). The emissions would contribute to degradation of air quality conditions in the valley, but are unlikely to cause air quality violations. The primary impact of concern is emission of fugitive dust because the region has a PM10 non-attainment status. Fugitive dust emissions can be reduced by the application of dust control measures (see Mitigation Measures AQ-1 and AQ-2).

5.3.3 Mitigation Measures

Although air quality impacts were determined to be less than significant, the following mitigation measures will be implemented to further minimize impacts:

AQ-1 To minimize dust/PM10 emissions during construction activity, as necessary, one or more of the following measures shall be implemented:

- After clearing, grading, earth moving or excavation is complete, the disturbed areas shall be treated by watering, or revegetating, or by spreading soil binders until the area is stabilized.
- During construction, use water trucks or sprinkler systems to keep areas of vehicle movement, temporary soil stockpiles, and construction disturbance damp enough to minimize dust from leaving the site. This may include wetting down such areas in the late morning and after work is completed for the day. Watering frequency may be increased when wind speed exceeds 15 mph.
- Minimize the amount of disturbed area and reduce on-site vehicle speeds to 15 miles per hour or less.

AQ-2 LADWP shall stabilize the sediment stockpile at the pump station site as necessary to minimize wind-blown dust from the stockpile. Methods to reduce fugitive dust emissions include revegetating the pile, armoring it with a layer of coarse materials, soil binders, or water application.

5.4 CULTURAL RESOURCES

A description of the two cultural resources inventories conducted for the EIR/EIS is provided Section 4.8.3. Field surveys were performed for the pump station site and the power transmission line corridor as part of the first cultural resources inventory conducted in 2000 (Far Western, 2001) to search for evidence of cultural resources. Precise locational information for cultural resources is not provided in the EIR/EIS, as it is considered sensitive and confidential (see Section 4.8.1 for additional information on confidentiality of cultural resources technical information).

5.4.1 Pump Station

As described in Table 4-14B (Section 4.8.3.2), the Area of Potential Effect (APE, field survey area) for the pump station site was defined as the 30-acre construction zone for the proposed pump station and diversion.

Two isolated finds were located at the pump station site. The isolated finds are not significant cultural resources and are not eligible for inclusion on the National Register of Historic Places (NRHP). No other cultural resources are known or expected to occur at the pump station site.

Based on the above information, no impacts to cultural resources at the pump station site are anticipated. However, there is always potential, in a region with known prehistoric use, that cultural material could be unexpectedly encountered during construction. The potential for encountering buried site deposits is considered greater within high alluvial deposition zones near the river delta. **Therefore, the potential for encountering an intact, potentially significant, archaeological site is considered a significant, but mitigable impact (Class II).** A significant impact can be avoided through the implementation of Mitigation Measure CRP-1.

5.4.2 Power Line

As described in Table 4-14 (Section 4.8.3.2), the APE (field survey area) for the proposed power line was defined as the 200-foot wide corridor along 7.5 miles of the proposed power transmission line.

An isolated find, four prehistoric sites (one previously recorded in 1950 and three newly recorded), and four newly recorded historic sites were located along the power line route. The isolated find is not a significant cultural resource and is not eligible for inclusion on the NRHP. All four prehistoric sites are considered ineligible for the NRHP because they consist of very disturbed, ephemeral artifact scatters with little potential for intact subsurface deposits. All four historic sites are not considered eligible for inclusion on the NRHP as they consist of insignificant historic can scatters (trash dumps).

These features are located in proximity to the proposed power line and existing dirt access road. It appears that all sites would be avoided. However, there is potential for inadvertent disturbance to one or more cultural resource sites. **This would represent an adverse, but not significant impact (Class III)** because none of the resources is considered significant, nor eligible for inclusion in the NRHP.

5.4.3 Mitigation Measures

CRP-1 LADWP shall implement the following management actions to avoid impacts on cultural resources during construction of the pump station:

- LADWP shall notify representatives of regional Native American Tribes prior to beginning earthwork for the pump station. Interested Tribal representatives shall be invited to participate (on a volunteer basis) in the monitoring of the earthwork.
- A qualified archaeologist shall be present during site grading for the pump station to monitor for and avoid cultural resources. In the event that prehistoric or historic cultural material is encountered, the archaeologist will investigate the find and determine if it represents an intact deposit or archaeological site. LADWP shall implement the recommendations of the archaeologist concerning measures to protect or salvage the site. If prehistoric cultural material is identified by the archaeologist, LADWP shall coordinate the monitoring, investigations, and actions with appropriate Native American parties. If any investigations are conducted, interested Tribal representatives would be invited to participate (on a volunteer basis).

CRP-2 LADWP shall implement the following management actions during installation of the power line:

- LADWP shall notify representatives of regional Native American Tribes prior to beginning construction of the power line. Interested Tribal representatives shall be invited to be present (on a volunteer basis) during construction.