Not to Scale

Source: Merced Irrigation District

MOORE BIOLOGICAL

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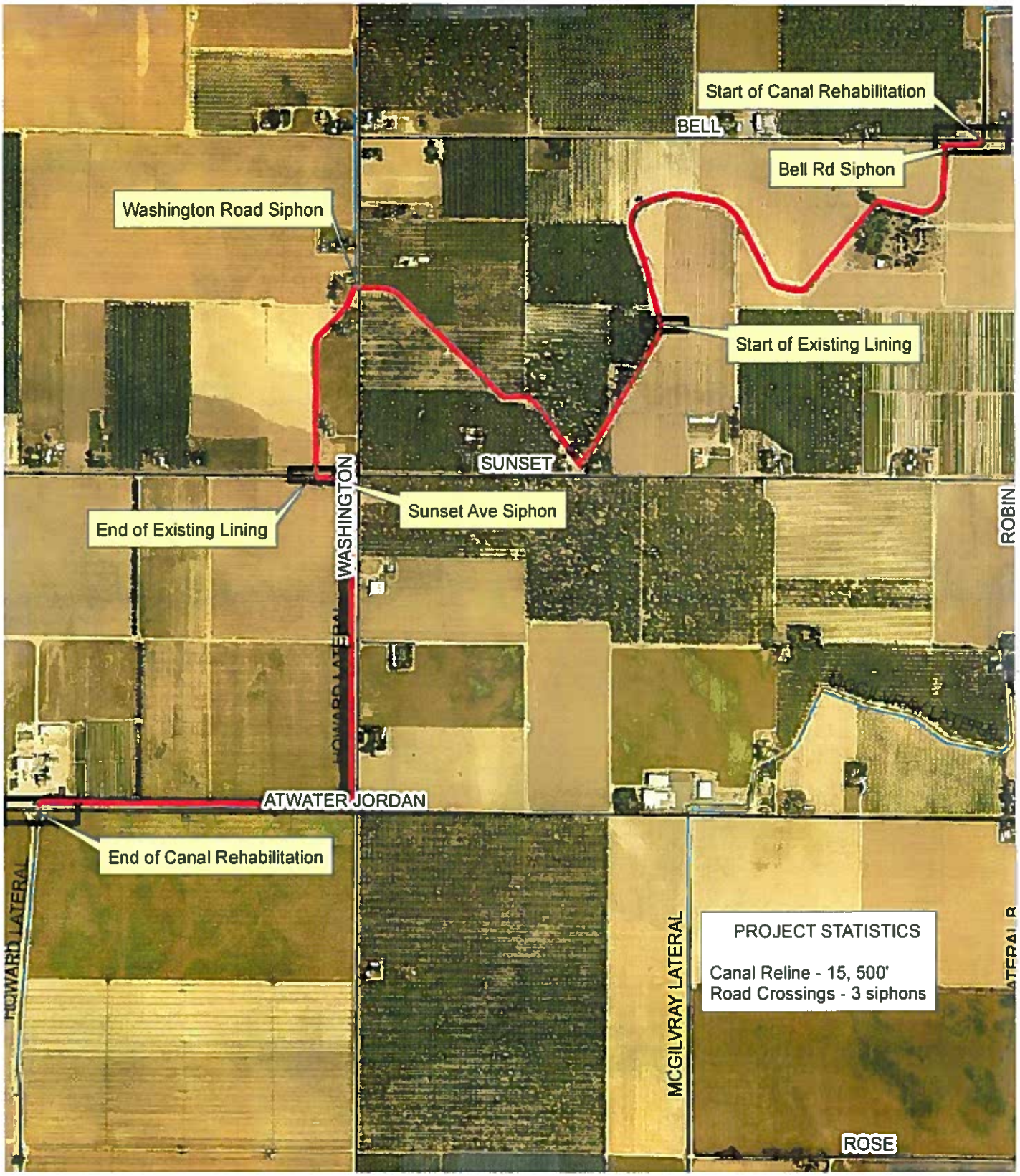
FIGURE 3A
McCONNELL LATERAL PIPELINE



Not to Scale

Source: Merced Irrigation District

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FIGURE 3B
ARENA CANAL/HOWARD LATERAL

TABLE 1

PLANT SPECIES OBSERVED ALONG THE ALIGNMENTS

Avena sp.	oat
Brassica nigra	black mustard
Bromus diandrus	ripgut brome
Centaurea solstitialis	yellow star-thistle
Conyza canadensis	horseweed
Cucurbita foetidissima	melon gourd
Cyperus eragrostis	umbrella sedge
Cynodon dactylon	Bermuda grass
Eremocarpus setigerus	dove weed
Erodium botrys	filaree
Erodium circutarium	red-stem filaree
Eucalyptus spp.	eucalyptus
Grindelia sp.	gumplant
Helianthus annuus	common sunflower
Hordeum murinum	foxtail barley
Lolium perenne	perennial ryegrass
Malva neglecta	common mallow
Pinus sp.	ornamental pine
Populus fremontii	Fremont cottonwood
Quercus agrifolia	coastal live oak
Quercus lobata	valley oak
Raphanus sativus	wild radish
Salsola iberica	Russian thistle
Sambucus mexicana	blue elderberry
Senecio vulgaris	common groundsel
Sonchus asper	prickly sow-thistle
Sorghum halepense	Johnsongrass

Source (Basemap): Google Earth
Scale: 1 inch = 50+/- feet

MOORE BIOLOGICAL

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FIGURE 4
BLUE ELDERBERRY SHRUB

which is in an underground pipe at the tie-in point. The blue elderberry shrub is on the west side of the Livingston Canal, north of an entrance road into the waste water treatment plant parcel.

WILDLIFE: A limited variety of wildlife species were observed along the alignments. Some of the more common birds observed include red-tailed hawk (*Buteo jamaicensis*), red-shouldered hawk (*Buteo lineatus*), American kestrel (*Falco sparverius*), mourning dove (*Zenaida macroura*), American crow (*Corvus brachyrhynchos*), and white-crowned sparrow (*Zonotrichia leucophrys*). All of these are species commonly found in agricultural areas in the greater project vicinity (Table 2).

There are some relatively large trees along the alignments that are suitable for nesting raptors and other protected migratory birds, including Swainson's hawk. The survey was conducted outside of the avian nesting season and no active raptor nests were observed. However, red-tailed hawks and red-shouldered hawks were observed soaring and perching on poles and trees in the area. Given the presence of trees along the alignments and raptor foraging habitat (i.e., open fields) near the alignments, it is likely one or more pairs of raptors, plus a variety of songbirds, nest along one or more of the alignments each year.

A limited variety of mammals common to agricultural and semi-rural areas are expected to use habitats along the alignments. A few California ground squirrels (*Spermophilus beecheyi*) and sign of raccoon (*Procyon lotor*) were observed along the alignments. Coyote (*Canis latrans*), black-tailed hare (*Lepus californicus*), striped skunk (*Mephitis mephitis*), and Virginia opossum (*Didelphis virginiana*) are expected to occur in the area. A number of species of small rodents including mice (*Mus musculus, Reithrodontomys megalotis,* and *Peromyscus maniculatus*) and voles (*Microtus californicus*) also likely occur.

Based on habitat types present, only a few amphibian and reptile species are expected to use habitats along the alignments. Although none were observed,

TABLE 2

WILDLIFE SPECIES OBSERVED ALONG THE ALIGNMENTS

Birds	
Great egret	*Casmerodius albu*
Turkey vulture	*Cathartes aura*
Red-shouldered hawk	*Buteo lineatus*
Red-tailed hawk	*Buteo jamaicensis*
American kestrel	*Falco sparverius*
Killdeer	*Charadrius vociferous*
Mourning dove	*Zenaida macroura*
Northern flicker	*Colaptes auratus*
Black phoebe	*Sayornis nigricans*
Western scrub jay	*Aphelocoma coerulescens*
American crow	*Corvus brachyrhynchos*
White-crowned sparrow	*Zonotrichia leucophrys*
House finch	*Carpodacus mexicanus*
Mammals	
California ground squirrel	*Spermophilus beecheyi*
Raccoon	*Procyon lotor*

western fence lizard (*Sceloporus occidentalis*), Pacific chorus frog (*Pseudacris regilla*), coast horned lizard (*Phrynosoma coronatum*), gopher snake (*Pituophis melanoleucus*), common king snake (*Lamprpeltis getulus*), and common garter snake (*Thamnophis sirtalis*) are expected to occur in the area.

WATERS OF THE U.S. AND WETLANDS: Waters of the U.S., including wetlands, are broadly defined under 33 Code of Federal Regulations (CFR) 328 to include navigable waterways, many of their tributaries, and adjacent wetlands. State and

federal agencies including CDFG and ACOE, and California Regional Water Quality Control Board have jurisdiction over these habitats Jurisdictional wetlands are vegetated areas that meet specific vegetation, soil, and hydrologic criteria defined by the ACOE *Wetlands Delineation Manual* and Regional Supplement (ACOE, 1987; 2008). Waters of the U.S. are drainage features or water bodies as described in 33 CFR 328.4.

The only potentially jurisdictional waters of the U.S. along the alignments are MID's Livingston Canal, McConnell Lateral, Hammatt Lateral, Arena Canal, and Howard Lateral. These canals and laterals are part of an irrigation network that derives water from the Merced River northeast of the alignments. Some of the excess water in this irrigation system is returned back to the Merced River and other creeks and rivers that eventually drain into the San Joaquin River system.

Beyond MID's facilities, no other potentially jurisdictional waters of the U.S. or wetlands of any type were observed along the alignments. There are no other areas along the alignments that appear to have any potential to fall under the jurisdiction of ACOE and/or CDFG. Specifically, no vernal pools, seasonal wetlands, marshes, ponds, creeks, or lakes of any type were observed.

SPECIAL-STATUS SPECIES: Special-status species are plants and animals that are legally protected under the state and/or federal Endangered Species Act or other regulations. The Federal Endangered Species Act (FESA) of 1973 declares that all federal departments and agencies shall utilize their authority to conserve endangered and threatened plant and animal species. The California Endangered Species Act (CESA) of 1984 parallels the policies of FESA and pertains to native California species. Both FESA and CESA prohibit unauthorized "take" (i.e., killing) of listed species, with take broadly defined in both acts to include activities such as harassment, pursuit and possession.

Special-status wildlife species also includes species that are considered rare enough by the scientific community and trustee agencies to warrant special

consideration, particularly with regard to protection of isolated populations, nesting or denning locations, communal roosts, and other essential habitat. The federal Migratory Bird Treaty Act and Fish and Game Code of California protect special-status bird species year-round, as well as their eggs and nests during the nesting season. Fish and Game Code of California also provides protection for mammals and fish.

Special-status plants include species that are designated rare, threatened, or endangered and candidate species for listing by the U.S. Fish and Wildlife Service (USFWS). Special-status plants also include species considered rare or endangered under the conditions of Section 15380 of the California Environmental Quality Act (CEQA) Guidelines, such as those plant species identified on Lists 1A, 1B and 2 in the Inventory of Rare and Endangered Vascular Plants of California by the California Native Plant Society (CNPS, 2001). Finally, sensitive plants may include other species that are considered sensitive or of special concern due to limited distribution or lack of adequate information to permit listing or rejection for state or federal status, such as those included on List 3 in the CNPS Inventory.

Table 3 provides a summary of the listing status and habitat requirements of special-status plant and wildlife species that have been documented in the greater project vicinity or for which there is potentially suitable habitat in the project area. This table also includes an assessment of the likelihood of occurrence of each of these species along the alignments. The evaluation of the potential for occurrence of each species is based on the distribution of regional occurrences (if any), habitat suitability, and field observations.

SPECIAL-STATUS PLANTS: Fourteen (14) species of special-status plants were identified in the CNDDB (2011) search: alkali milk-vetch (*Astragalus tener var. tener*), heartscale (*Atriplex cordulata*), brittlescale (*Atriplex depressa*), San Joaquin spearscale (*Atriplex joaquiniana*), lesser saltscale (*Atriplex minuscula*), vernal pool smallscale (*Atriplex persistens*), succulent owl's clover (*Castilleja*

TABLE 3

SPECIAL-STATUS PLANT AND WILDLIFE SPECIES DOCUMENTED OR POTENTIALLY OCCURRING IN THE PROJECT VICINITY

Common Name	Scientific Name	Federal Status[1]	State Status[2]	CNPS List[3]	Habitat	Potential for Occurrence along the Alignments
Plants						
Alkali milk-vetch	*Astragalus tener var. tener*	None	None	1B	Alkali playas and vernal pools.	Unlikely: there is no suitable habitat along the alignments for this species. The nearest occurrence of alkali milk vetch in the CNDDB (2011) search area is approximately 4 miles southeast of the Arena/Howard alignment.
Heartscale	*Atriplex cordulata*	None	None	1B	Valley and foothill grassland, chenopod scrub	Unlikely: there is no suitable habitat along the alignments for heartscale. The nearest occurrence of this species in the CNDDB (2011) search area is approximately 4 miles southeast of the Arena/Howard alignment.
Brittlescale	*Atriplex depressa*	None	None	1B	Chenopod scrub, meadows, playas, valley and foothill grassland	Unlikely: there is no suitable habitat along the alignments for brittlescale. The nearest occurrence of this species in the CNDDB (2011) search area is approximately 5 miles south of the Arena/Howard alignment.
San Joaquin spearscale	*Atriplex joaquiniana*	None	None	1B	Chenopod scrub, alkali meadow, valley and foothill grassland.	Unlikely: there is no suitable habitat along the alignments for this species. The nearest occurrence of San Joaquin spearscale in the CNDDB (2011) search area is approximately 5.5 miles southeast of the Arena/Howard alignment.
Lesser saltscale	*Atriplex minuscula*	None	None	1B	Chenopod scrub, playas, valley and foothill grassland.	Unlikely: there is no suitable habitat along the alignments for lesser saltscale. The nearest occurrence of this species in the CNDDB (2011) search area is approximately 4.5 miles southeast of the Arena/Howard alignment.

TABLE 3

SPECIAL-STATUS PLANT AND WILDLIFE SPECIES DOCUMENTED OR POTENTIALLY OCCURRING IN THE PROJECT VICINITY

Common Name	Scientific Name	Federal Status[1]	State Status[2]	CNPS List[3]	Habitat	Potential for Occurrence along the Alignments
Vernal pool smallscale	*Atriplex persistens*	None	None	1B	Alkaline vernal pools.	Unlikely: there is no suitable habitat along the alignments for this species. The nearest occurrence of vernal pool smallscale in the CNDDB (2011) search area is approximately 4 miles southeast of the Arena/Howard alignment.
Succulent owl's clover	*Castilleja campestris ssp. succulenta*	T	E	1B	Vernal pools.	Unlikely: there is no suitable habitat along the alignment for this species. The nearest occurrence of succulent owl's clover in the CNDDB (2011) search area is approximately 6 miles northeast of the McConnell Pipeline alignment. The alignments are not in designated critical habitat for vernal pool species (USFWS, 2005a).
Hoover's spurge	*Chamaesyce hooveri*	T	none	1B	Vernal pools.	Unlikely: there is no suitable habitat along the alignment for Hoover's spurge. There are no occurrences of this species in the CNDDB (2011) search area. The alignments are not in designated critical habitat for vernal pool species (USFWS, 2005a).
Delta button celery	*Eryngium racemosum*	None	E	1B	Riparian scrub in seasonally inundated floodplain with clay substrate.	Unlikely: there is no suitable habitat along the alignments for Delta button celery. The nearest occurrence of this species in the CNDDB (2011) search area is approximately 5 miles southwest of the Arena/Howard alignment.
Coulter's goldfields	*Lasthenia glabrata ssp. coulteri*	None	None	1B	Vernal pools in valley and foothill grassland habitats; usually found on alkaline soils.	Unlikely: there is no suitable habitat along the alignments for this species. The nearest occurrence of Coulter's goldfields in the CNDDB (2011) search area is approximately 6 miles southeast of the Arena/Howard alignment.

TABLE 3

SPECIAL-STATUS PLANT AND WILDLIFE SPECIES DOCUMENTED OR POTENTIALLY OCCURRING IN THE PROJECT VICINITY

Common Name	Scientific Name	Federal Status[1]	State Status[2]	CNPS List[3]	Habitat	Potential for Occurrence along the Alignments
Heckard's peppergrass	*Lepidium latipes var. heckardii*	None	None	1B	Valley and foothill grassland, vernal pools; usually alkaline soils.	Unlikely: there is no suitable habitat along the alignments for Heckard's peppergrass. The nearest occurrence of this species in the CNDDB (2011) search area is approximately 6 miles southeast of the Arena/Howard alignment.
Merced monardella	*Monardella leucocephala*	None	None	1A	Creek beds and moist sandy sub-alkaline depressions in grassland habitats.	Unlikely: there is no suitable habitat along the alignments for this species. The nearest occurrence of Merced monardella in the CNDDB (2011) search area is approximately 2 miles west of the McConnell Pipeline alignment.
Prostrate navarretia	*Navarretia prostrata*	None	None	1B	Alkali meadows, playas, and vernal pools.	Unlikely: there is no suitable habitat along the alignments for prostrate navarretia. The nearest occurrence of this species in the CNDDB (2011) search area is approximately 4.5 miles southeast of the Arena/Howard alignment.
Colusa grass	*Neostapfia colusana*	T	E	1B	Vernal pools in valley and foothill grassland habitats.	Unlikely: habitats along the alignment are unsuitable for this species. The nearest occurrence of Colusa grass in the CNDDB (2011) search area is approximately 4 miles southeast of the Arena/Howard alignment. The alignments are not in designated critical habitat for vernal pool species (USFWS, 2005a).
San Joaquin Valley orcutt grass	*Orcuttia inaequalis*	T	E	1B	Vernal pools within the Central Valley.	Unlikely: there is no suitable habitat along the alignments for San Joaquin Valley orcutt grass. The nearest occurrence of this species in the CNDDB (2011) search area is approximately 6 miles northeast of the McConnell Pipeline alignment. The alignments are not in designated critical habitat for vernal pool species (USFWS, 2005a).

TABLE 3

SPECIAL-STATUS PLANT AND WILDLIFE SPECIES DOCUMENTED OR POTENTIALLY OCCURRING IN THE PROJECT VICINITY

Common Name	Scientific Name	Federal Status[1]	State Status[2]	CNPS List[3]	Habitat	Potential for Occurrence along the Alignments
Wildlife						
Mammals						
San Joaquin kit fox	*Vulpes macrotis mutica*	E	T	N/A	Annual grasslands or grassy open stages with scattered shrubby vegetation.	Unlikely: while they may at times move through the area, the disturbed road shoulders and intensively cultivated orchards and fields adjacent to the alignments are not suitable for this species. There only record of San Joaquin kit fox in the CNDDB (2011) search area is approximately 6 miles southwest of the Arena/Howard alignment.
American badger	*Taxidea taxus*	None	SC	N/A	Drier open stages of most shrub, forest, and herbaceous habits, with friable soils.	Unlikely: due to agriculture and road and canal construction and maintenance, habitats along the alignments are unsuitable for this species. American badger is documented in the CNDDB (2011) search area approximately 5 miles southwest of the Arena/Howard alignment.
Birds						
Swainson's hawk	*Buteo swainsoni*	None	T	N/A	Nests in tall trees associated with agricultural and riparian habitats. Forages for small mammals in agricultural fields or grassland habitats.	Moderate: there are several potential nest trees near the alignments and open cropland in the areas is suitable Swainson's hawk foraging habitat. The CNDDB (2011) contains only 3 records of nesting Swainson's hawks within the 240 square miles search area; the nearest occurrence is approximately 1.5 miles northeast of the McConnell Pipeline alignment.
Burrowing owl	*Athene cunicularia*	None	SC	N/A	Annual or perennial grasslands, deserts and scrublands, nests in the burrows of small mammals.	Unlikely: no burrowing owls were observed along or adjacent to the alignments. A few ground squirrels and ground squirrel burrows were located, but none showed any evidence of current or past occupancy burrowing owls. This species is not documented in the 240+/- square mile search area (CNDDB, 2011).

TABLE 3

SPECIAL-STATUS PLANT AND WILDLIFE SPECIES DOCUMENTED OR POTENTIALLY OCCURRING IN THE PROJECT VICINITY

Common Name	Scientific Name	Federal Status[1]	State Status[2]	CNPS List[3]	Habitat	Potential for Occurrence along the Alignments
Reptiles & Amphibians						
California tiger salamander	*Ambystoma californiense*	T	T	N/A	Breeds in seasonal water bodies such as deep vernal pools or stock ponds. Requires small mammal burrows for summer refugia.	Unlikely: there are no vernal pools or seasonal water bodies along or near the alignments that would support breeding tiger salamanders. The nearest occurrence of this species recorded in species in the CNDDB (2011) search area is approximately 6 miles southwest of the Arena/Howard alignment. The alignments are not within designated critical habitat for California tiger salamander (USFWS, 2005b).
Giant garter snake	*Thamnophis gigas*	T	T	N/A	Freshwater marsh and low gradient streams; may use drainage canals and irrigation ditches, primarily for dispersal or migration.	Unlikely: there is no suitable aquatic habitat along the alignments for giant garter snake. Giant garter snake is not known from this part of the valley and there are no recorded occurrences of this species in the CNDDB (2011) search area.
California red-legged frog	*Rana aurora draytonii*	T	SC	N/A	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation.	Unlikely: there is no suitable aquatic habitat for California red-legged frog along the alignments. California red-legged frog is also presumed extinct on the floor of the Central Valley of California and there are no recorded occurrences of this species in the CNDDB (2011) search area. The alignments are not within designated critical habitat for California red-legged frog (USFWS, 2006).
Fresno kangaroo rat	*Dipodomys nitratoides exilis*	E	E	N/A	Alkali sink scrub habitats throughout the southwestern San Joaquin Valley.	Extremely low: there is no suitable habitat along the alignments for this species. There are no occurrences of Fresno kangaroo rat recorded in the CNDDB (2011) within the 240+/- square mile search area.

TABLE 3

SPECIAL-STATUS PLANT AND WILDLIFE SPECIES DOCUMENTED OR POTENTIALLY OCCURRING IN THE PROJECT VICINITY

Common Name	Scientific Name	Federal Status[1]	State Status[2]	CNPS List[3]	Habitat	Potential for Occurrence along the Alignments
Western pond turtle	*Emys marmorata*	None	SC	N/A	Permanent or semi-permanent bodies of water in a variety of habitats; require basking sites such as logs.	Unlikely: there is no suitable habitat for western pond turtle along the alignments. The nearest occurrence of this species in the CNDDB (2011) search area is at the wastewater treatment plant just southwest of the McConnell Pipeline alignment.
Blunt-nosed leopard lizard	*Gambelia sila*	E	E	N/A	Sparsely vegetated alkali and desert scrub habitats in areas of low topographic relief. Requires small mammal burrows for cover.	Unlikely: there is no suitable habitat for blunt-nosed leopard lizard. There are no occurrences of this species recorded in the CNDDB (2011) search area.
Coast horned lizard	*Phrynosoma coronatum*	SC	SC	N/A	Lowlands associated with washes and low-lying bushes.	Unlikely: the maintained canal banks and roads along the alignments are not suitable habitat for coast horned lizard. The nearest occurrence of this species in the CNDDB (2011) search area is approximately 3.5 miles southeast of the Arena/Howard alignment.
Silvery legless lizard	*Anniella pulchra pulchra*	None	SC	N/A	Sandy or loose loamy soils under sparse vegetation.	Unlikely: the maintained canal banks and roads along the alignments are not suitable habitat for silvery legless lizard. The closest occurrence of silvery legless lizard recorded in the CNDDB (2011) search area is approximately 2 miles west of the Arena/Howard alignment.

TABLE 3

SPECIAL-STATUS PLANT AND WILDLIFE SPECIES DOCUMENTED OR POTENTIALLY OCCURRING IN THE PROJECT VICINITY

Common Name	Scientific Name	Federal Status[1]	State Status[2]	CNPS List[3]	Habitat	Potential for Occurrence along the Alignments
Western spadefoot	*Spea hammondii*	None	SC	N/A	Grassland and valley-foothill hardwood habitats. Breeds and lays eggs in vernal pools.	Unlikely: there are no vernal pools or seasonal water bodies along or near the alignments that would support western spadefoot. The nearest occurrence of western spadefoot in the CNDDB (2011) search area is approximately 5.5 miles southeast of the Arena/Howard alignment.
Invertebrates						
Valley elderberry longhorn beetle	*Desmocerus californicus dimorphus*	T	None	N/A	Elderberry shrubs, usually in Central Valley riparian habitats.	Unlikely: there is a blue elderberry shrub near the McConnell Pipeline alignment, but none within the immediate work areas. The shrub is approximately 50 feet northwest of the point in the dirt road where the McConnell Lateral Pipeline will tie in with the McConnell Lateral. The nearest records of valley elderberry longhorn beetle in the CNDDB (2011) search area are along the Merced River, approximately 1.5 miles northeast and approximately 1.5 miles southwest of the McConnell Pipeline alignment.
Conservancy fairy shrimp	*Branchinecta conservatio*	T	None	N/A	Vernal pools and seasonally wet depressions within the Central Valley.	Unlikely: there are no vernal pools or seasonal wetlands along the alignments. The nearest record of Conservancy fairy shrimp in the CNDDB (2011) search areas is approximately 5.5 miles southeast of the Arena/Howard alignment. The alignments are not within designated critical habitat for vernal pool species (USFWS, 2005a).
Longhorn fairy shrimp	*Branchinecta longiantennae*	E	None	N/A	Vernal pools	Unlikely: there are no vernal pools or seasonal wetlands along the alignments. There are no occurrences of longhorn fairy shrimp in the CNDDB (2011) search area. The alignments are not within designated critical habitat for vernal pool species (USFWS, 2005a).

TABLE 3

SPECIAL-STATUS PLANT AND WILDLIFE SPECIES DOCUMENTED OR POTENTIALLY OCCURRING IN THE PROJECT VICINITY

Common Name	Scientific Name	Federal Status[1]	State Status[2]	CNPS List[3]	Habitat	Potential for Occurrence along the Alignments
Vernal pool fairy shrimp	*Branchinecta lynchi*	T	None	N/A	Vernal pools and seasonally wet depressions within the Central Valley.	Unlikely: there are no vernal pools or seasonal wetlands along the alignments. The nearest record of vernal pool fairy shrimp in the CNDDB (2011) search area is approximately 5.5 miles southeast of the Arena/Howard alignment. The alignments are not within designated critical habitat for vernal pool species (USFWS, 2005a).
Vernal pool tadpole shrimp	*Lepidurus packardi*	E	None	N/A	Vernal pools and seasonally wet depressions within the Central Valley.	Unlikely: there are no vernal pools or seasonal wetlands along the alignments. The nearest record of vernal pool tadpole shrimp in the CNDDB (2011) search area is approximately 5.5 miles southeast of the Arena/Howard alignment. The alignments are not within designated critical habitat for vernal pool species (USFWS, 2005a).
Fish						
Delta smelt	*Hypomesus transpacificus*	T	T	N/A	Shallow lower delta waterways with submersed aquatic plants and other suitable refugia.	Unlikely: there is no suitable aquatic habitat for delta smelt along the alignments, There are no occurrences of this species recorded in the CNDDB (2011) within the search area. The alignments are not in designated critical habitat for delta smelt (USFWS, 1994).
Central Valley steelhead	*Oncorhynchus mykiss*	T	None	N/A	Riffle and pool complexes with adequate spawning substrates within Central Valley drainages.	Unlikely: there is no suitable aquatic habitat for Central Valley steelhead along the alignments. There are no occurrences of Central Valley steelhead recorded in the CNDDB (2011) within the search area. The alignments are not in designated critical habitat for Central Valley steelhead (NOAA, 2005).

TABLE 3

SPECIAL-STATUS PLANT AND WILDLIFE SPECIES DOCUMENTED OR POTENTIALLY OCCURRING IN THE PROJECT VICINITY

Common Name	Scientific Name	Federal Status[1]	State Status[2]	CNPS List[3]	Habitat	Potential for Occurrence along the Alignments
Winter-run Chinook salmon	*Oncorhynchus tshawytscha*	E	E	N/A	Deep flowing pools and riffle complexes with adequate spawning substrates in the Sacramento River system.	Unlikely: although historically present in the south valley, viable populations of winter-run Chinook salmon are currently restricted to the Sacramento River and some of its major tributaries. There are no occurrences of this species recorded in the CNDDB (2011) within the search area.
Spring-run Chinook salmon	*Oncorhynchus tshawytscha*	T	T	N/A	Deep flowing pools and riffle complexes with adequate spawning substrates in the Sacramento River system.	Unlikely: although historically present in the south valley, viable populations of spring-run Chinook salmon are currently restricted to the Sacramento River and some of its major tributaries. There are no occurrences of this species recorded in the CNDDB (2011) within the search area.
Hardhead	*Mylopharodon conocephalus*	None	SC	N/A	Clear and deep pools with sand and gravel bottoms with slow water velocity in the San Joaquin/Sacramento River tributaries.	None: the alignment does not contain suitable aquatic habitat for this species. The nearest occurrence of hardhead in the CNDDB (2011) search area is approximately 4 miles south of the Arena/Howard alignment.

1 T= Threatened; E = Endangered.

2 T = Threatened; E = Endangered; SC=State of California Species of Special Concern.

3 CNPS List 1A species are considered extinct; List 1B species includes plants that are rare, threatened, or endangered in California and elsewhere.

campestris ssp. succulenta), delta button celery (*Eryngium racemosum*), Coulter's goldfields (*Lasthenia glabrata ssp. coulteri*), Heckard's peppergrass (*Lepidium latipes var. heckardii*), Merced monardella (*Monardella leucocephala*), prostrate navarretia (*Navarretia prostrata*), Colusa grass (*Neostapfia colusana*), and San Joaquin Valley orcutt grass (*Orcuttia inaequalis*) (Table 3 and CNDDB search results in Appendix A). Although not included in the CNDDB within the search area, Hoover's spurge (*Chamaesyce hooveri*) was added to Table 3 because designated critical habitat for this species is identified in the USFWS Species List (Appendix A).

All of the special-status plants identified in the CNDDB (2011) query in the greater project vicinity (Table 3) occur in relatively undisturbed areas within vegetation communities such as chenopod scrub, vernal pools, seasonal wetlands, marshes, swamps, riparian scrub, and areas with unique soils. None of these habitat types occur along the alignments. Due to lack of suitable habitat, no special-status plant species are expected to occur along the alignments.

SPECIAL-STATUS WILDLIFE: The potential for intensive use of habitats along the alignment by special-status wildlife species is generally considered low. Sensitive wildlife species that have been recorded in greater project vicinity in the CNDDB (2011) include San Joaquin kit fox (*Vulpes macrotis mutica*), Amercian badger (*Taxidea taxus*), Swainson's hawk, California tiger salamander (*Ambystoma californiense*), western pond turtle (*Actinemys marmorata*), coast horned lizard (*Phrynosoma coronatum*), silvery legless lizard (*Anniella pulchra pulchra*), western spadefoot (*Spea hammondii*), valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), Conservancy fairy shrimp (*Branchinecta conservatio*), vernal pool fairy shrimp (*Branchinecta lynchi*), vernal pool tadpole shrimp (*Lepidurus packardi*), and hardhead (*Mylopharodon conocephalus*).

Although not included in the CNDDB within the search area, giant garter snake (*Thamnophis gigas*), California red-legged frog (*Rana aurora draytonii*), Fresno

kangaroo rat (*Dipodomys nitratoides exilis*), blunt-nosed leopard lizard (*Gambelia sila*), longhorn fairy shrimp (*Branchinecta longiantennae*), delta smelt (*Hypomesus transpacificus*), Central Valley steelhead (*Oncorhynchus mykiss*), and Chinook salmon (*Oncorhynchus tshawytscha*) were added to Table 3 because designated critical habitat for this species is identified in the USFWS Species List (Appendix A). Burrowing owl was added to Table 3 due to the presence of ground squirrel burrows along the alignments.

While the alignments and surrounding areas may have provided habitat for some of the special-status wildlife species listed in Table 3 at some time in the past, farming, development, and road and canal construction and maintenance along the alignments and in surrounding parcels have substantially modified natural habitats within the greater project vicinity. Of the wildlife species identified in the CNDDB, Swainson's hawk, burrowing owl, and valley elderberry longhorn beetle are the only species that have potential to occur along the alignments on more than a transitory or very occasional basis. Swainson's hawk and burrowing owl are discussed further below because they could be disturbed by construction if they nested along or near the alignment during construction. Other special-status birds may fly over the area on occasion, but would not be expected to nest along the alignment. Valley elderberry longhorn beetle could be disturbed by construction activities if the blue elderberry shrub cluster is occupied by this species and construction results in impacts to the shrub. There is no habitat along the alignments for the remaining species in Table 3.

SWAINSON'S HAWK: The Swainson's hawk is a migratory hawk listed by the State of California as a Threatened species. The Migratory Bird Treaty Act and Fish and Game Code of California protect Swainson's hawks year-round, as well as their nests during the nesting season (March 1 through September 15). Swainson's hawk are found in the Central Valley primarily during their breeding season, a population is known to winter in the San Joaquin Valley.

Swainson's hawks prefer nesting sites that provide sweeping views of nearby foraging grounds consisting of grasslands, irrigated pasture, hay, and wheat crops. Most Swainson's hawks are migratory, wintering in Mexico and breeding in California and elsewhere in the western United States. This raptor generally arrives in the Central Valley in mid-March, and begins courtship and nest construction immediately upon arrival at the breeding sites. The young fledge in early July, and most Swainson's hawks leave their breeding territories by late August.

The CNDDB (2011) contains only 3 records of nesting Swainson's hawks within the 240 square miles search area; the nearest occurrence is approximately 1.5 miles northeast of the McConnell Pipeline alignment. The survey was conducted outside of the avian nesting season and no active Swainson's hawk nests were located. However, there are a few suitable nest trees along and near the alignments that could be used by nesting Swainson's hawks. Open grassland, alfalfa, and other cropland near these trees provide high-quality Swainson's hawk foraging habitat and increases the suitability of the trees in the area being used for nesting.

BURROWING OWL: The Migratory Bird Treaty Act and Fish and Game Code of California protect burrowing owls year-round, as well as their nests during the nesting season (February 1 through August 31). Burrowing owls are a year-long resident in a variety of grasslands as well as scrub lands that have a low density of trees and shrubs with low growing vegetation; burrowing owls that nest in the Central Valley may winter elsewhere.

The primary habitat requirement of the burrowing owl is small mammal burrows for nesting. The owl usually nests in abandoned ground squirrel burrows, although they have been known to dig their own burrows in softer soils. In urban areas, burrowing owls often utilize artificial burrows including pipes, culverts, and piles of concrete pieces. This semi-colonial owl breeds from March through

August, and is most active while hunting during dawn and dusk. This species is not documented in the 240 square miles search area (CNDDB, 2011).

No burrowing owls were observed along the alignments during the 2011 survey. There are a few areas of open grassland and cropland near the alignments that could be used by foraging burrowing owls. A few suitable ground squirrel burrows were also observed along ditches, banks of irrigation laterals, and in some of the parcels adjacent to the alignments. However, none of these burrows had any evidence of burrowing owl occupancy (i.e. whitewash, feathers and/or pellets). Despite these negative findings, burrowing owls could nest along or near the alignment in the future.

VALLEY ELDERBERRY LONGHORN BEETLE: The valley elderberry longhorn beetle (VELB) is listed as a federally threatened species and its host plant is the blue elderberry shrub. The United States Fish and Wildlife Service (USFWS, 1999) *Conservation Guidelines for the Valley Elderberry Longhorn Beetle* identifies stems in excess of 1 inch diameter at ground level as potential habitat for the beetle. These guidelines direct that, if possible, elderberry shrubs should be avoided by a ground disturbance set back of at least twenty feet from the drip line of each shrub. The guidelines further directs that buffer areas between 20 and 100 feet from the driplines of the shrubs that are subject to temporary ground disturbance should be restored or re-vegetated. Although USFWS announced in early-October 2006 that the species has recovered to the extent that warrants de-listing, VELB remains protected until the de-listing process is completed.

There is a blue elderberry shrub near the north end of the McConnell Lateral Pipeline alignment (Figure 4 and attached photograph). No other blue elderberry shrubs were observed within or adjacent to the alignments. The shrub is approximately 50 feet northwest of the point in the dirt road where the McConnell Lateral Pipeline will tie in with the McConnell Lateral. Valley elderberry longhorn beetle in the CNDDB (2011) is reported in two nearby locations along the Merced River, approximately 1.5 miles northeast and approximately 1.5 miles southwest

of the McConnell Pipeline alignment. Despite it's location in a non-riparian setting in the waste water treatment plant parcel, it is possible VELB inhabits this elderberry shrub. However, it would not be expected to occur along the dirt road where the new pipeline will be constructed.

The blue elderberry shrub is within the waste water treatment plant parcel, outside the footprint of project work. There is enough separation between the shrub and the work areas to accomplish the work without physical contact with the shrub and with minimum ground disturbance near the shrub. The health and vigor of the shrubs are expected to remain unchanged.

Conclusions:

- Lands along the alignments are primarily highly disturbed orchards and fields farmed in alfalfa and other grain crops. Most of the habitats along the alignments are biologically unremarkable.

- The only potentially jurisdictional waters of the U.S. observed along the alignments are MID's Livingston Canal, McConnell Lateral, Hammatt Lateral, Arena Canal, and Howard Lateral. Proposed project construction in MID's irrigation facilities is exempt under ACOE's Regulatory Guidance Letter 07-02, which outlines activities in irrigation and drainage ditches that are exempt from Clean Water Act permitting requirements.

- Due to a lack of suitable habitat, it is unlikely that special-status plants would occur along the alignments.

- With the exception of Swainson's hawk, burrowing owl, and valley elderberry longhorn beetle, no special-status wildlife species are expected to occur along or near the alignments on more than a very occasional or transitory basis. As the project is limited to pipeline construction and lining

and/or piping open laterals, and does not involve conversion of habitat to development, there will not be a loss of potential or actual habitat of these species.

- Pre-construction surveys for nesting Swainson's hawks along the alignments should be conducted if construction commences between March 1 and September 15. The surveys should include all large trees visible from the alignments. If active nests are found, a qualified biologist should determine the need (if any) for temporal restrictions on construction.

- Pre-construction surveys for burrowing owls along the alignments should be conducted if construction commences between February 1 and August 31. The surveys should include the ruderal areas along the roads that the alignment follows, and all areas of open grassland visible from the alignments. If occupied burrows are found, a qualified biologist should determine the need (if any) for temporal restrictions on construction.

- Disturbance to the blue elderberry shrub should be avoided by restricting ground disturbance activities near the elderberry shrub to the minimum needed to accomplish the project. Additionally, work should be scheduled between July 1 and April 1 to avoid potentially adverse impacts to any adult VELB that may have emerged and be present on the leaves or stems of the elderberry shrub.

- Orange safety fencing should be installed along the edges of the shrub facing construction activities (i.e., south and east), at a distance of 20 feet outside the dripline of the shrub. The fencing will alert workers of the environmentally sensitive area and prevent physical disturbance to the shrub cluster. If the waste water treatment plant parcel is utilized for staging or parking, the fencing would also be needed along the west side of the shrub.

- Trees along the alignments could be used by nesting raptors and other protected birds. Any trees that need to be removed or trimmed to facilitate the project (if any) should be felled or trimmed outside of the general bird nesting season (February 1 through August 31) or a nesting bird survey should be conducted immediately prior to tree removal. If active nests are found, tree felling should be delayed until the young have fledged.

Thank you, again, for asking Moore Biological Consultants to assist with the project. Please feel free to call me at (209) 745-1159 with any questions.

Sincerely,

Diane S. Moore, M.S.
Principal Biologist

References and Literature Consulted

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Appendix A

USFWS Species List & CNDDB

Summary Report

U.S. Fish & Wildlife Service

Sacramento Fish & Wildlife Office

Federal Endangered and Threatened Species that Occur in or may be Affected by Projects in the Counties and/or U.S.G.S. 7 1/2 Minute Quads you requested

Document Number: 120107020010

Database Last Updated: September 18, 2011

Quad Lists

Listed Species

Invertebrates

- Branchinecta conservatio
  - Conservancy fairy shrimp (E)
  - Critical habitat, Conservancy fairy shrimp (X)
- Branchinecta longiantenna
  - Critical habitat, longhorn fairy shrimp (X)
  - longhorn fairy shrimp (E)
- Branchinecta lynchi
  - Critical habitat, vernal pool fairy shrimp (X)
  - vernal pool fairy shrimp (T)
- Desmocerus californicus dimorphus
  - valley elderberry longhorn beetle (T)
- Lepidurus packardi
  - Critical habitat, vernal pool tadpole shrimp (X)
  - vernal pool tadpole shrimp (E)

Fish

- Hypomesus transpacificus
  - delta smelt (T)
- Oncorhynchus mykiss
  - Central Valley steelhead (T) (NMFS)
  - Critical habitat, Central Valley steelhead (X) (NMFS)
- Oncorhynchus tshawytscha
  - Central Valley spring-run chinook salmon (T) (NMFS)
  - winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

- Ambystoma californiense
  - California tiger salamander, central population (T)

- Rana draytonii
  - California red-legged frog (T)

Reptiles

- Gambelia (=Crotaphytus) sila
  - blunt-nosed leopard lizard (E)

- Thamnophis gigas
  - giant garter snake (T)

Mammals

- Dipodomys nitratoides exilis
  - Fresno kangaroo rat (E)

- Vulpes macrotis mutica
  - San Joaquin kit fox (E)

Plants

- Castilleja campestris ssp. succulenta
  - succulent (=fleshy) owl's-clover (T)

- Chamaesyce hooveri
  - Critical habitat, Hoover's spurge (X)

- Neostapfia colusana
  - Colusa grass (T)
  - Critical habitat, Colusa grass (X)

- Orcuttia inaequalis
  - San Joaquin Valley Orcutt grass (T)

Quads Containing Listed, Proposed or Candidate Species:

CRESSEY (422B)

ARENA (422C)

TURLOCK (423A)

STEVINSON (423D)

County Lists

No county species lists requested.

Key:

- (E) Endangered - Listed as being in danger of extinction.
- (T) Threatened - Listed as likely to become endangered within the foreseeable future.
- (P) Proposed - Officially proposed in the Federal Register for listing as endangered or threatened.
- (NMFS) Species under the Jurisdiction of the National Oceanic & Atmospheric Administration Fisheries Service. Consult with them directly about these species.
- Critical Habitat - Area essential to the conservation of a species.
- (PX) Proposed Critical Habitat - The species is already listed. Critical habitat is being proposed for it.
- (C) Candidate - Candidate to become a proposed species.
- (V) Vacated by a court order. Not currently in effect. Being reviewed by the Service.
- (X) Critical Habitat designated for this species

Important Information About Your Species List

How We Make Species Lists

We store information about endangered and threatened species lists by U.S. Geological Survey 7½ minute quads. The United States is divided into these quads, which are about the size of San Francisco.

The animals on your species list are ones that occur within, or may be affected by projects within, the quads covered by the list.

- Fish and other aquatic species appear on your list if they are in the same watershed as your quad or if water use in your quad might affect them.
- Amphibians will be on the list for a quad or county if pesticides applied in that area may be carried to their habitat by air currents.
- Birds are shown regardless of whether they are resident or migratory. Relevant birds on the county list should be considered regardless of whether they appear on a quad list.

Plants

Any plants on your list are ones that have actually been observed in the area covered by the list. Plants may exist in an area without ever having been detected there. You can find out what's in the surrounding quads through the California Native Plant Society's online Inventory of Rare and Endangered Plants.

Surveying

Some of the species on your list may not be affected by your project. A trained biologist and/or botanist, familiar with the habitat requirements of the species on your list, should determine whether they or habitats suitable for them may be affected by your project. We recommend that your surveys include any proposed and candidate species on your list.
See our Protocol and Recovery Permits pages.

For plant surveys, we recommend using the Guidelines for Conducting and Reporting Botanical Inventories. The results of your surveys should be published in any environmental documents prepared for your project.

Your Responsibilities Under the Endangered Species Act

All animals identified as listed above are fully protected under the Endangered Species Act of 1973, as amended. Section 9 of the Act and its implementing regulations prohibit the take of a federally listed