APPENDIX B

Wetland Vegetation Communities

CHULA VISTA MSCP SUBAREA PLAN

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WETLAND VEGETATION COMMUNITIES

Saltpan

Saltpans are unvegetated to sparsely vegetated flat, alkaline areas near the coast that are subject to tidal influence. In coastal areas, saltpans are most often associated with saltmarsh habitat. While saltpans can cover relatively large areas, they often occur in a mosaic pattern with more densely vegetated areas within the saltmarsh. The paucity of vegetation on saltpans is apparently due to seasonally high soil salinity levels that prevent colonization by perennial saltmarsh species. However, the open substrate associated with saltpans is available for colonization by short-lived annual species after winter rains temporarily reduce salinity levels (Ferren et. al. 1987).

Vernal Pools

Vernal pools are a highly specialized plant habitat occurring on undeveloped mesa tops and supporting a unique succession of floral species (Purer 1939; Zedler 1987). These pools fill with rainwater which does not drain off or percolate away because of the mesa top topography and underlying soil conditions (i.e., a hardpan or claypan layer that prevents or impedes subsurface drainage). The plant species confined to these pools constitute what Thorne (1976) calls the vernal pool ephemeral plant community and Holland (1986) refers to as San Diego mesa vernal pools. Holland recognizes two types of vernal pools in San Diego County: San Diego mesa hardpan vernal pools and San Diego mesa claypan vernal pools. Vernal pools are often surrounded by low hummocks called mima mounds. Pools and their supporting watershed constitute vernal pool habitat.

Zedler (1987) discusses the effects of climatic variability on a habitat as sensitive and specialized as one dependent on the temporary ponding of water. Even under the best physical vernal pool conditions (level land surface, nearly impermeable subsurface soil layer, distinct basins, and mounded topography), annual rainfall variations have been shown to result in variations in plant species composition. In particular, a succession of below average rainfall years will eliminate many of the vernal pool species and enable the common herbaceous plants surrounding the pools to invade the basins. Subsequent wet years would then favor germination of the seeds of the vernal pool species which have been stored in the soil or introduced from a neighboring area.

San Diego mesa hardpan vernal pools are a low, mesic, herbaceous community dominated by annual herbs and grasses. Typical sensitive plant species in these pools include San Diego button celery *(Eryngium aristulatum* var. *parishii)*, little mousetail *(Myosurus minimus* ssp. *apus)*, prostrate navarretia *(Navarretia fossalis)*, Orcutt's brodiaea *(Brodiaea orcuttii)*, California adder's tongue-fern *(Ophioglossum lusitanicum* ssp. *californicum)*, and San Diego mesa mint *(Pogogyne abramsii)*. Mima mounds are generally well developed in the hardpan pools, and the surrounding vegetation is often chamise chaparral. Iron-silica cemented soils (often of the Redding series) form the hardpan layer, and the water in pools evaporates rather than drains downward. The soils are always coarser and redder than the claypan pools (Holland 1986).

Southern Coastal Saltmarsh

Southern coastal saltmarsh is a highly productive association of herbaceous and suffrutescent, salt-tolerant hydrophytes that form a moderate to dense cover and can reach a height of 1 meter (3 ft.). Most species are active in summer and dormant in winter (Holland 1986). This association is usually segregated horizontally with cordgrass *(Spartina foliosa)* nearest the open water, dwarf glasswort (*Salicornia bigelovii)*, woody glasswort *(Salicornia virginica)*, and American saltwort *(Batis maritime)* at mid-littoral levels, and a richer mixture of species, including alkali-heath, sea-blite, and/or Parish's glasswort *(Salicornia subterminalis)* at higher elevations (Holland 1986). Other characteristic species include coastal salt-grass, alkali-weed *(Cressa truxillensis* var. *vallicola)*, and fleshy jaumea *(Jaumea carnosa)*.

Freshwater/Alkali Marsh

Freshwater marsh is dominated by perennial, emergent monocots to 1.3 to 2 m (4.3 to 6.6 ft.) tall. Uniform stands of bulrushes *(Scirpus* ssp.*)* or cattails *(Typha* ssp.*)* often characterize this habitat. Freshwater marsh occurs in wetlands that are permanently flooded by standing fresh water (Holland 1986).

Alkali marsh is characterized by standing water or saturated soil during most or all of the year. High evaporation and low input of fresh water render these marshes somewhat saline, particularly during the summer (Holland 1986). Characteristic species include yerba mansa *(Anemopsis californica)*, sedges *(Carex* ssp.*)*, saltgrass, beardless wild ryegrass *(Elymus triticoides)*, and alkali-heath.

Riparian Forest

Vegetation classified as riparian forest includes southern cottonwood-willow riparian forest and areas dominated exclusively by willows *(Salix* ssp.*)*. Riparian forest is an open or closed canopy forest that is generally greater than 6 m (20 ft.) high and occupies relatively broad drainages and floodplains supporting perennially wet streams. This community is dominated by mature individuals of winter deciduous trees, including Fremont's cottonwood *(Populus fremontii* var. *fremontii)* and several species of willows *(Salix gooddingii, S. lasiandra, S. lasiolepis)*, and often has a dense understory of shrubby willows, mulefat *(Baccharis glutinosa)*, and mugwort *(Artemisia douglasiana)*. The dominant species require moist, bare mineral soil for germination and establishment (Holland 1986). This is provided after floodwaters recede, leading to uniform-aged stands. Riparian forest differs from riparian woodland in that western sycamore *(Platanus racemosa)* is generally lacking, or at least is not dominant. Coast live oaks *(Quercus agrifolia)* are also mostly absent from this community.

Oak Riparian Forest

Southern coast live oak riparian forest is characterized by an open to locally dense evergreen sclerophyllous community dominated by coast live oak. This community type appears to be richer in herbs and poorer in understory shrubs than other riparian communities. Southern coast live oak riparian forest is associated with bottomlands and outer floodplains along larger streams, and occurs on fine-grained, rich alluvium (Holland 1986). Structurally, this habitat generally consists of western sycamores, cottonwoods, and willows at the channel margins, bordered by coast live oak at slightly higher elevations. Young willows and cottonwoods, mulefat, San Diego sagewort *(Artemisia palmeri)*, and western ragweed *(Ambrosia psilostachya)* dominate the understory. Vegetation within the channel may include sedges, yerba mansa, and scattered patches of cattails. Shrub species in the outer edges of this association may include toyon, California wild rose *(Rosa californica)*, desert elderberry *(Sambucus mexicana)*, and poison-oak, while typical herbaceous understory species include Douglas mugwort *(Artemisia*

douglasiana) and eucrypta *(Eucrypta chrysanthemifolia)*, among others. Potential inclusions within oak riparian forest are riparian forest, riparian woodland, riparian scrub, eucalyptus woodland, freshwater marsh, open water, and disturbed wetland.

Riparian Woodland

Riparian woodland is a tall, winter-deciduous riparian association with western sycamore as the indicator species; however, other riparian tree species, such as willows and cottonwoods, can also be present. This association occupies broader drainages or floodplains of permanent streams and rarely forms closed canopies. Often it may appear as a stand of scattered trees within a matrix of willows, mulefat, and other shrubby species. Riparian woodland is equivalent to Holland's (1986) southern sycamore-alder riparian woodland habitat type, although white alder *(Alnus rhombifolia)* does not occur within this association in the study area.

Riparian Scrub

Riparian scrub varies from a dense, broad-leafed, winter-deciduous association dominated by several species of willow to an herbaceous scrub dominated by mulefat. For the purposes of the Chula Vista Subarea Plan, riparian scrub includes both the southern willow scrub and mulefat scrub communities of Holland's (1986) classification system. The former association is found on loose, sandy, or fine gravelly alluvium deposited near stream channels during floods, and most stands are too dense to allow much understory to develop (Holland 1986). Typical willow species include black willow *(Salix gooddingii)*, arroyo willow *(Salix lasiolepis)*, large-leaf willow *(Salix lasiandra* var. *araquipa)*, lance-leaf willow *(Salix lasiandra)*, and sandbar willow *(Saliz hindsiana)*. Mulefat-dominated scrub occurs along intermittent streams with a fairly coarse substrate and moderately deep water table. Understory vegetation is usually composed of nonnative, weedy species or is lacking altogether. Both of these associations may represent a successional stage leading to riparian woodland or forest or they may be stable.

Open Water/Freshwater

Open water/Freshwater includes reservoirs, lakes, ponds, and relatively large sloughs, channels, and rivers or streambeds that contain water throughout the year. Although the Chula Vista Subarea contains no large reservoirs or ponds (except the man-made lake in Eastlake, which is not designated as a Wetland for the purposes of the Chula Vista Subarea Plan), an example in the Chula Vista Subarea is the Sweetwater River channel.

Natural Flood Channel

Natural flood channels are unvegetated or sparsely vegetated drainages outside of the area of tidal influence. These areas are generally considered "waters of the U.S." by the ACOE. National Wetland Inventory (USFWS 1990) and USGS maps provide supplemental information regarding the occurrence of unvegetated stream channels within the study area. The lack of significant vegetative cover in such areas can be attributed to either natural processes, such as flooding, or to human activities, such as vegetation clearing, sand mining, or stream channelization.

Disturbed Wetlands

Areas mapped as disturbed wetlands include wetland habitat that has been cleared and/or is dominated by herbaceous, nonnative plant species. Categorization of a site as a disturbed wetland was based on the presence of hydric soils and/or wetland indicator plant species, including nonnative plants. Hydric, or

potentially hydric soils include Chino (ChA, CkA), Indio (InA, IoA, IsA), Riverwash (Ru), and Tujunga sand (TuB) soil complexes, among others. Areas lacking saltmarsh species with tidal flat (Tf) soils were also classified as disturbed wetlands. Plant species composition was determined by review of existing documentation and/or ground verification. Herbaceous, nonnative wetland species found in disturbed wetlands included cocklebur (*Xanthium strumarium* var. *canadense*) and dock (*Rumex* spp.), among others.

Source: Excerpted from the MSCP Resource Document; Ogden Environmental and Energy Services Co.; December 1993