EL CUERVO WETLAND AREA
FINAL CONCEPTUAL WETLAND MITIGATION AND MONITORING PLAN
LOS PEÑASQUITOS CANYON PRESERVE

(Offsite Wetland Mitigation for Sorrento Creek Drainage Channel Work)

Prepared for:

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REVISED FINAL – MARCH 2000

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1.0 PROJECT DESCRIPTION

1.1 Location of Project

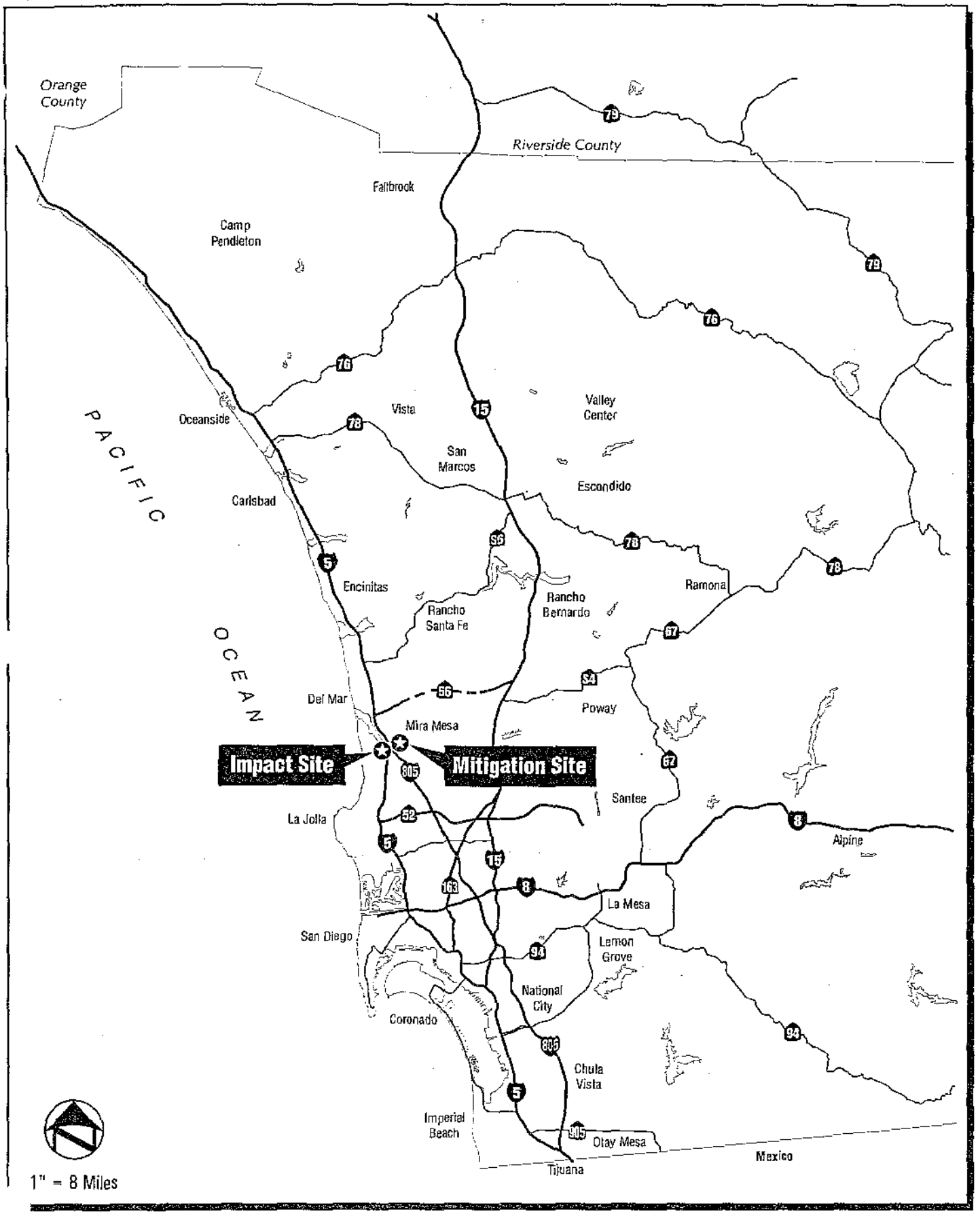
The original Sorrento Creek drainage channel flood control project was implemented in Sorrento Valley north of Sorrento Valley Blvd., west of Sorrento Valley Road and east of Roselle Street. This site is at the confluence of three creeks, Los Peñasquitos Creek, Carroll Canyon Creek and Sorrento Creek. To mitigate for impacts from that project, an offsite mitigation site was required. The proposed off-site mitigation site, referred to herein as the El Cuervo Wetland Mitigation Area, designated as mitigation for the impacts from the Sorrento Creek drainage channel flood control project, is located approximately one mile upstream along Los Peñasquitos Creek, within the Los Peñasquitos Canyon Preserve. The site lies immediately east of the historic El Cuervo Adobe area. *Figures 1 and 2* show the regional location and immediate site vicinity of these areas.

1.2 Summary of the Overall Project

The purpose of the Sorrento Creek Drainage Channel project was to alleviate flooding which occurs to businesses and streets in the Sorrento West area, west of the confluence of Sorrento Creek, Los Peñasquitos Creek and Carroll Canyon Creek. Each year, during mild rain events the businesses experience flooding. Presently, the streets become flooded every time it rains. In more than a light rain, the businesses are seriously threatened by flooding. When it rains heavily, the businesses do become flooded and, in the past, property damage has occurred.

The City of San Diego performed work within the Sorrento Creek drainage under Emergency Procedures outlined in the U.S. Army Corps of Engineers Permit No. 97-20160-DZ (After-the-Fact Permit) and California Department of Fish and Game Streambed Alteration Agreement No. 5-265-97. The work performed included work described as Alternative 1 in the Biological Resources Report and Impact Analysis prepared by DUDEK (September 1997) and as updated in the revised DUDEK report dated (February 2000). The Alternative 1 area encompassed approximately 4.2 acres, involved vegetation clearing and three feet of sediment removal within the existing drainage channel, over a 100-foot wide area. The area lies approximately 1,800 feet north from the railroad crossing of Los Peñasquitos Creek. As part of Alternative 1, a 160-foot corridor of vegetation remained intact adjacent to the railroad tracks for the entire length of the proposed channel clearing.

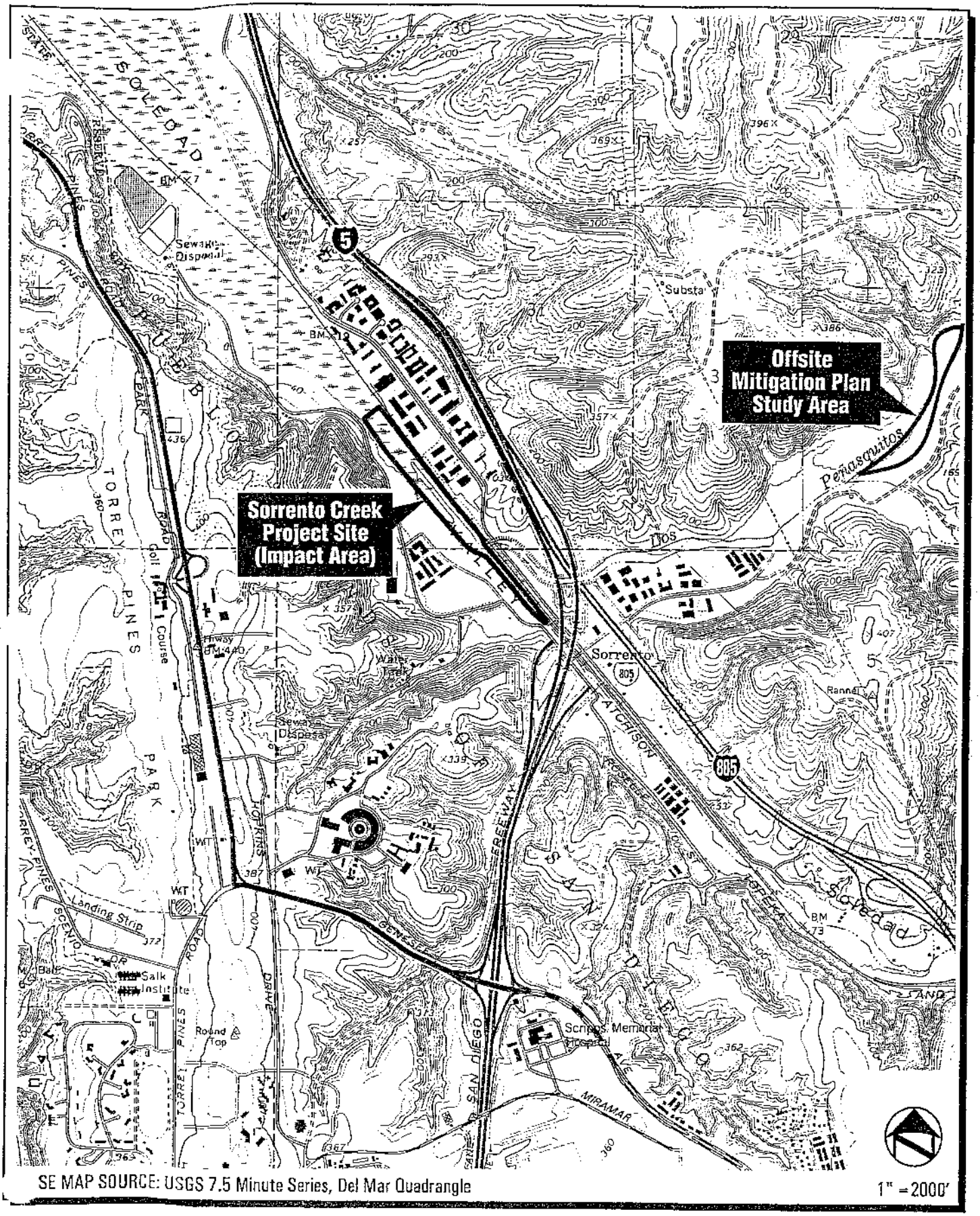
In addition to the vegetation removal, three feet of sediment removal was also conducted over an approximate 1,200 foot long by 100 foot wide area within Los Peñasquitos Creek. This involved the removal of coastal and valley freshwater marsh habitat, in addition to the sediment removal. Three feet of sediment was also removed from the existing open water channel of Carroll Canyon Creek to increase the flood flow capacity downstream from the concrete channel. Sediment removal



Los Penasquitos Canyon Preserve Conceptual Mitigation Plan

Regional Map

FIGURE 1



Los Penasquitos Canyon Preserve Conceptual Mitigation Plan

Vicinity Map

FIGURE 2

in this portion of the creek was conducted over an approximate 1,400 foot long area. *Table 1* summarizes the originally anticipated impacts to all three creeks resulting from the drainage channel project, and additional impacts incurred during actual construction.

TABLE 1
Direct Impacts (Acres) Resulting from Vegetation and Sediment Removal for Alternative 1 of the Sorrento Creek Drainage Channel Project (Original anticipated vegetation impacts.)

Habitat Type	Alternative 1 Impact in Sorrento Creek	Additional Impact in Sorrento Creek	Impact in Los Peñasquitos Creek	Impact in Carroll Canyon Creek
Southern Willow Scrub (SWS)	1.5 acres		0.0 acre	0.0 acre
Mule Fat Scrub (MFS)	0.7 acre	0.8 acre****	0.0 acre	0.0 acre
Southern Coastal Salt Marsh (SM)***	0.1 acre***		0.0 acre	
Open Channel (no mitigation required)	0.5 acre		0.0 acre	1.0 acre
Ruderal, formerly consisted of giant cane (no mitigation required)	1.4 acres		0.0 acre	0.0 acre
Freshwater Marsh (FWM)	0.0 acre		2.8 acres	0.0 acre
Total Habitat Impacts	**4.2 acres**	**0.8 acre**	**2.8 acres**	**1.0 acre**
Total Wetland Impacts	**2.2 acres ***	**0.8 acre******	**2.8 acres ****	**0.0 acre**
Wetland Mitigation Required	**6.6 acres (3:1) offsite**	**0.8 acre (1:1) onsite**	**2.8 acres (1:1) onsite**	**None**
		3.2 acre (4:1) offsite		
Total Onsite Mitigation Required for Sorrento Creek Impacts:				**3.60 acres**
Total Offsite Mitigation Required for Sorrento Creek Impacts :				**9.8 acres**

* Required wetland impact acreage (2.2 acres) to be mitigated for off-site at 3:1 ratio, per ACOE permit and CDFG streambed alteration agreement (salt marsh mitigation being addressed elsewhere). No mitigation required for open channel impacts.

** Required impact acreage (2.8 acres) mitigated for on-site (at the original impact area) at a 1:1 ratio, through natural re-establishment of freshwater marsh habitat annually for the spring nesting season, per CDFG streambed alteration agreement.

*** Required impact acreage to salt marsh (0.1 acre) to be mitigated for elsewhere (0.1 ac x 3:1 ratio = 0.3 ac.), per negotiation with the resource agencies and City of San Diego. Not a part of the offsite mitigation program proposed in Los Peñasquitos Canyon Preserve.

**** Additional unanticipated MFS acreage impacted by mistake in clearing interpreting limits by field crews.

In summary, Alternative 1 vegetation and sediment removal impacted an area 1,200 feet long, by 100 feet wide, by 3 feet deep of sediment and vegetation removals composed of cattails in Los Peñasquitos Creek; 1,400 feet long, by 30 feet wide, by 3 feet deep of sediment and open channel removals in Carroll Canyon Creek; and 1,800 feet long, by 100 feet wide, by 3 feet deep of sediment and wetland /ruderal vegetation removals in Sorrento Creek.

Per resource agency requirements, agreed upon wetland impacts must be mitigated for by creating comparable wetland habitat to insure no net loss of wetlands. As part of the agreement to allow the flood control work to proceed, the resource agencies agreed to compensation ratios and a total mitigation acreage to be provided both onsite and offsite. In order to compensate for the original anticipated wetland impacts from the project, it was agreed by ACOE and CDFG that a total of 9.8 acres of wetland habitat would be provided offsite for the wetland impacts incurred. Compensation for impacts to wetlands in Los Peñasquitos Creek (i.e., 2.8 acres of freshwater marsh impacts and partial compensation for the additional impacts to mulefat scrub 0.8 acre) were to be compensated for through on-site mitigation at the original impact sites, through natural re-establishment of freshwater marsh annually for the spring nesting season and through regrowth of MFS.

1.3 Specific Mitigation Requirements

The original mitigation requirements outlined in the resource agency permits for the Sorrento Creek Drainage Channel project included the requirement for creation of 6.6 acres of southern willow scrub (SWS) habitat within Los Peñasquitos Canyon Preserve. However, due to an error in measurement of the limits of clearing by field crews implementing the channel work, an additional 0.8 acre of mulefat scrub (MFS) vegetation was inadvertently impacted within Sorrento Creek requiring additional mitigation. As agreed to by the City and the resource agencies (ACOE, CDFG, & USFWS), this additional impact was to be mitigated for at a higher compensation ratio of 5:1 (4.0 acres). It was agreed that this would be accomplished by the immediate impacted area being revegetated onsite at 1:1 (0.8 acre) and the remaining 4:1 requirement (3.2 acres) would be included in the offsite Los Peñasquitos Canyon Preserve mitigation program. Thus, the necessary mitigation to be provided offsite at the Los Peñasquitos Canyon Preserve site was agreed to be a minimum of 9.8 acres (6.6 ac. + 3.2 ac.) of appropriate riparian/wetland habitat. In addition to this requirement and in order to implement the intended revegetation program at the El Cuervo Wetland Mitigation site, an unpaved sewer access road/park trail must be relocated, resulting in grading and drainage impacts to existing wetland and upland resources. The end result is that a total of 12.5 acres of wetland revegetation and enhancement are now proposed at the El Cuervo site as overall project mitigation. Sewer access road/park trail realignment impacts are summarized on *Tables 2 and 3.*

TABLE 2
Vegetation Impacts from the El Cuervo Wetland Sewer Access Road Realignment

Vegetation Community	Permanent Impacts from the Sewer Access Road (Acres)	Permanent Impacts from Drainage Improvements (Acres)	Temporary Impacts from Slope Grading (Acres)	Total Impacts (Acres)
Southern Willow Scrub (SWS)	0.027	—	0.039	0.066
Mule Fat Scrub (MFS)	0.028	0.001	0.027	0.056
Freshwater Marsh (FWM)	0.001	0.004	0.047	0.052
Disturbed Wetland (DW)	—	0.004	0.034	0.038
Isolated Wetland Species	0.002	—	0.004	0.006
Subtotal Wetlands	**0.058**	**0.009**	**0.151**	**0.218**
Isocoma Scrub (IS)	0.393	0.017	0.525	0.936
Annual Grassland (AGL)	0.264	0.006	0.473	0.743
Disturbed Habitat (DH)	0.184	0.008	0.181	0.372
Subtotal Uplands	0.841	0.031	1.179	2.051
GRAND TOTAL	**0.899**	**0.040**	**1.330**	**2.269**

TABLE 3
Mitigation Requirements for Impacts to Wetland & Upland Vegetation, Sewer Access Road Realignment (Permanent & Temporary)

Wetland Vegetation Community	Total Impacts (Acres)	Required Mitigation Ratio (Inside MHPA)[1]	Mitigation Required Inside the MHPA, Including Creation/ Enhancement (Acres)
Southern Willow Scrub (SWS)	0.066 acre	3:1	0.198 acre
Mule Fat Scrub (MFS)	0.056 acre	3:1 (was 2:1)	0.168 acre
Freshwater Marsh (FWM)	0.052 acre	4:1 (was 2:1)	0.208 acre
Disturbed Wetland (DW)	0.038 acre	3:1 (was 2:1)	0.114 acre
Isolated Wetland Species	0.006 acre	3:1 (was 2:1)	0.018 acre
Total Wetlands	**0.218 acre**	—	**0.706 acre**
Additional Wetland Mitigation Credit provided by El Cuervo Wetland Mitigation Site (Acres) (10.5 ac. – 9.8 ac. = 0.70 ac.)			0.70 acre
Upland Vegetation Community	**Total Impacts (Acres)**	**Required Mitigation Ratio (Inside MHPA)[2]**	**Mitigation Required Inside the MHPA (Acres)**
Isocoma Scrub	0.936 acre	1:1	0.936 acre
Annual Grassland	0.743 acre	1:1	0.743 acre
Total Upland	**1.679 acres**	—	**1.679 acres**
Upland Mitigation Credit Provided by El Cuervo Mitigation Site (Acres)	—	—	1.130
Additional Upland Mitigation To Be Provided Through Enhancement (Acres)	—	—	0.549[3]

[1] Ratios adjusted from previous sewer access road biology report to correspond with California Coastal Commission recommended ratios. These ratios are equivalent to and/or higher than ratios required per the City of San Diego requirements from the Biology Guidelines for the Environmentally Sensitive Lands Regulations (ESL), the Open Space Residential (R-1-2) Zone, and the California Environmental Quality Act (November 1997).

[2] Ratios consistent with the City of San Diego requirements from the Biology Guidelines for the Environmentally Sensitive Lands Regulations (ESL), the Open Space Residential (R-1-2) Zone, and the California Environmental Quality Act (November 1997).

[3] Additional upland mitigation requirement to be compensated for through exotic/weed removals from adjacent upland and wetland vegetation surrounding the revegetation areas and seeding with an appropriate upland seed mix. This will occur within existing patches of native vegetation identified on the plans as Environmentally Sensitive Lands (ESAs).

The purpose of this mitigation plan is to outline the mitigation program for the 12.5 acre offsite mitigation requirement, including the additional impacts from the actual revegetation work and sewer access road/park trail, and to describe all implementation procedures. Total impacts and mitigation requirements are summarized on *Table 4*. It should be pointed out that impacts to southern coastal salt marsh resulting from the original Sorrento Creek project are being mitigated for elsewhere through a separate agreement between the resource agencies and the City.

1.4 Description of Areas Impacted and Proposed Mitigation Site

The area of Sorrento Valley within which the drainage control project took place was characterized by southern willow scrub, mule fat scrub, southern coastal salt marsh, giant cane patches, open channel, ruderal, and developed habitats. The proposed mitigation site lies adjacent to southern willow scrub and other riparian/wetland habitats within the Los Peñasquitos Creek drainage. As appropriate compensation, the mitigation habitat replacement requirement was determined to be primarily southern willow scrub habitat creation, to be provided within the adjacent Los Peñasquitos Canyon Preserve. The determination of this location as the mitigation site was due to the proximity of the potential mitigation area to the impact area, the presence of appropriate hydrological conditions within the area, the presence of disturbed areas adjacent to the existing riparian corridor that offered potential wetland creation/restoration opportunities, the ownership and control of the Preserve area by the City of San Diego and County of San Diego, and management of the area by the City Park and Recreation Department. The selected mitigation site (El Cuervo) was also identified by the City of San Diego as an area of high priority for restoration in the Los Penasquitos Canyon Preserve Natural Resource Management Plan (City of San Diego, September 1996).

2.0 DESCRIPTION OF THE MITIGATION SITE AND GOALS OF THE MITIGATION PROGRAM

2.1 Location and Size of Proposed Mitigation Site

The proposed mitigation site is located within the Los Peñasquitos Canyon Preserve, approximately 1 mile east of the Interstate 5/805 split and north of Sorrento Valley Boulevard. The site is located near the confluence of Lopez Creek and Los Peñasquitos Creek, just east of the historic El Cuervo Adobe. The area was previously used for agricultural bean field operations and has been historically referred to as the "bean field area." The existing conditions of the site were surveyed during site visits with City park rangers and planning staff and separate site assessments by DUDEK personnel in November and December 1997, with subsequent site visits in 1998 and 1999.

TABLE 4
El Cuervo Wetland Mitigation/Revegetation Area
Existing Native Vegetation, Impacts & Mitigation Acreages

Plant Community	Existing Vegetation (Total Site) (Acres)	Existing Vegetation to Remain [1] (Acres)	Impacts (Sewer Road) (Acres)	Temporary Impacts [3] (Reveg.) (Acres)	Total Impacts	Revegetation Creation Area (per Plans) (Acres)	Revegetation Enhancement Area (per Plans & Add. Enhancemnet) [1]	Total Revegetation & Enhancement (Acres)
Southern Willow Scrub (SWS)	0.54	0.47	0.066	0.006	0.072	3.96	2.65	6.61
Mule Fat Scrub (MFS)	0.49	0.36	0.056	0.079	0.135	0.61	0.88	1.49
Freshwater Marsh (FWM)	0.41	0.35	0.052	0.009	0.061	1.47	0.84	2.31
Sycamore (individual trees)	0.0004	0.0	0.0	0.0004	0.0004	1.23 (Cot/Syc)	0.04 (Cot/Syc)	1.27
Isolated Riparian Trees (RT)	0.09	0.09	0.0	0.0	0.0	0.0	0.0	0.0[2]
Brackish Marsh (BM)	0.163	0.0	0.0	0.163	0.163	0.0	0.0	0.0
Isolated Wetland Species (IW)	0.05	0.044	0.006	0.000	0.006	0.0	0.0	0.0[2]
Distrubed Wetlands (DW)	3.817	0.817	0.038	2.964	3.002	0.0	0.377	0.377[1]
Subtotal Wetlands	**5.560**	**2.131**	**0.218**	**3.221**	**3.439**	**7.27**	**5.227**	**12.497**
Isocoma Scrub (IS)	4.82	1.606	0.936	2.278		0.41	2.569	2.979[1]
Annual Grassland (AGL)	6.13	0.166	0.743	5.221		0.0	0.0	0.0[1]
Subtotal Uplands	**10.95**	**1.772**	**1.679**	**7.499**		**0.41**	**2.569**	**2.979**
Total Native Vegetation	**16.51**	**3.90[1]**	**1.90**	**10.72**		**7.68**	**7.80**	**15.48**

[1] Additional mitigation compensation is being provided trhough enhancement of existing upland and wetland plant communities through exotic/weed species removals from within the limits of the work areas (i.e., from Environmentally Sensitive Areas [ESAs] shown on plants), and totals approximately 3.36 acres spread amongst the various plant communities.

[2] Impacts to these wetland habitat types are being mitigated for as part of the four primary revegetation plant communities listed above.

[3] Temporary impacts are those resulting from the actual revegetation work. These are necessary to make proper hydrologic connections and/or conversions to higher quality habitat.

The proposed mitigation site is primarily composed of ruderal habitat dominated by non-native grasses, mustards (*Brassica* sp.), curly dock (*Rumex crispus*), and cocklebur (*Xanthium* sp.). Recolonizing Isocoma scrub habitat primarily composed of coast goldenbrush (*Isocoma menziesii*) also exists surrounding the immediate vicinity. Adjacent brackish marsh areas exist adjacent to the south portion of the proposed mitigation area, with intermittent cover of southwestern spiny rush (*Juncus acutus*), mule fat (*Baccharis salicifolia*) and willow species (*Salix* sp.), salt grass (*Distichlis spacata*) and curly dock (*Rumex* sp.) and a high percent cover of non-native grasses.

The proposed mitigation site ranges in elevation from about five feet to one foot above the existing creek channel flow elevations. Minor excavation will be required to remove old artificial soil berming and to create adequate hydrological conditions to support the intended species, while allowing secondary flood flow through the sites. Ground water is sufficiently high throughout the area to support the intended species over the long term.

Soils boring tests were conducted within representative locations throughout the proposed mitigation area to help determine existing ground water elevations and to document subsurface soil profile information. Soil fertility and agricultural suitability analysis was also completed on eight representative soil samples taken from the test pit locations throughout the proposed mitigation area, in order to evaluate soil conditions and the need for remedial soil amending prior to planting. Results of these surveys and tests are included in Appendix B.

Existing artificial soil berms located along the northern and southern edges of the creek channel are proposed to be removed as part of the revegetation program to help restore natural hydrologic conditions. The removal of these berms will be conducted carefully and under direction of the project biologist to avoid and/or minimize impacts to existing wetland habitats upstream and downstream of the mitigation area. Removal of these berms would allow downstream flood flow to spread over the mitigation site on the south side of the creek, as well as to restore natural flood flow to the north side of the creek. This should help encourage additional natural recruitment of native wetland species in both areas.

The proposed mitigation area will provide approximately 12.5 acres of total mitigation credit through wetland creation and enhancement. In addition, approximately 1.13 acres of upland habitat conversion to Isocoma scrub habitat, will also be incorporated within disturbed areas and annual grassland habitat areas adjacent to the wetland mitigation areas. An additional 1.85 acres of enhancement of Isocoma scrub habitat will also be provided through exotic species removals as additional compensation for impacts to existing upland resources to implement the revegetation program. Upland mitigation of Isocoma scrub habitat through creation and enhancement will total 2.98 acres.

2.2 Goals of Mitigation

The primary goal of the mitigation project is to provide adequate compensatory wetland creation and enhancement acreage to mitigate for the impacts incurred from the Sorrento Creek drainage control project and the minor impacts from the improved sewer access road/park trail and revegetation site work. Since on-site mitigation acreage was not adequate, an off-site mitigation site had to be located. The site within Los Peñasquitos Canyon Preserve was chosen because it offered numerous opportunities for wetland creation and the potential for restoration of previously disturbed wetland resources. To be able to meet the mitigation acreage requirement of approximately 9.8 acres needed by the City, the site area referred to herein as the "El Cuervo Wetland" area due to its proximity to the historic El Cuervo Adobe, was chosen because of the ability to create and enhance wetland habitat in this location along disturbed margins of the creek. It was felt that this would be the most advantageous approach from a habitat standpoint to provide one overall contiguous habitat. It also was the most economically feasible approach for the City to implement. In addition, it should be pointed out that this specific area within the Preserve has been identified by the City of San Diego Park and Recreation Department as a high priority area for habitat restoration and enhancement. The recently prepared Draft Los Peñasquitos Canyon Preserve Natural Resource Management Plan (City of San Diego Park & Recreation Dept. Sept. 1996) identifies the site area as a "first priority wetland/freshwater marsh enhancement area."

Discussions and site visits with various Parks staff, planning staff, resource agency staff, and representatives of the Friends of Los Peñasquitos Canyon Preserve, have identified numerous site specific goals to meet the mitigation requirements, to help return the area to natural habitat and to improve the functionality of the site as part of the open space preserve. These goals have been incorporated into the current mitigation design to the greatest extent possible and are outlined below.

The following general goals were established for the mitigation program:

- Disturbances to existing wetland habitat and/or native upland habitats will be minimized during development of the revegetation program and will be compensated for accordingly.
- No impacts to threatened or endangered species will occur.
- No impacts will occur to significant cultural resources, including the historic El Cuervo Adobe, located southwest of the proposed mitigation area.
- The mitigation will be composed of habitat creation and restoration to maximize opportunities for restoration of historic wetland and upland habitats.
- The mitigation will also include habitat enhancement through the removal of exotic species such as eucalyptus and weed species from environmentally sensitive areas (ESA's) to remain in proximity to the revegetation effort.

- All of the mitigation and monitoring conditions described in the resource agency permits will be adhered to.

Other site specific issues and goals which have been addressed in developing the mitigation/revegetation program include the following:

- Relocation of the existing sewer access road/park trail to directly over the sewerline and within the existing sewer easement. Raising of grades along the road to maintain adequate cover over the sewerline, to raise the road above flood damage and to accommodate the drainage culverts required for the revegetation effort. The minimum road width was established as 12 feet wide at the top of the elevated road section with side slopes as necessary to meet existing or proposed grades.
- Restoration of abandoned road and trail areas, as directed by Parks staff, resulting from the road relocation.
- Protection of the existing sewerline, avoidance of disturbance during construction, and provision for better vehicular access for long-term maintenance.
- Preservation of the majority of emergent wetland vegetation resources along the old abandoned road sections (i.e., emergent marsh species, willow seedlings, mulefat seedlings and cottonwood seedlings), and additional compensation for minor impacts as necessary.
- Preservation/enhancement of the majority of the recolonizing Isocoma Scrub (*Isocoma venetus,* coast goldenbush) habitat. (Note: Minor impacts will be required to create the proposed wetland creation areas, however, compensatory revegetation/enhancement will be provided for this upland impact.)
- Revegetation/conversion of disturbed ruderal (weedy) areas to wetlands and/or uplands where appropriate.
- Removal of exotic vegetation from the adjacent creek areas including, eucalyptus (*Eucalyptus* sp.), iris (*Iris pseudocorus*) and salt cedar (*Tamarisk* sp.)
- Removal of artificial berming along creek margins, north and south sides. Grading of portions of the area will be required to remove the artificial berming and to establish the intended revegetation areas at the proper elevation related to the water table and surface water flow to support the intended wetland vegetation. All grading will be limited to the minimal amount necessary to provide the necessary hydrological conditions for the revegetation areas. (Note: The artificial berming installed historically to protect the previous agricultural bean field operations will be removed to help restore natural flood flow to the remnant wetland areas and revegetation corridors. Areas of linkage to the existing creek, designed to provide secondary flood flow to the revegetation and enhancement areas, will be adequately stabilized to control erosion and to achieve revegetation with appropriate native wetland species.)

RESPONSIBLE PARTIES

- Exploration of revegetation/restoration potentials on the northwest side of the creek, in the old historic floodplain.
- As part of the revegetation effort, provide an improved hydrologic regime to help restore pre-disturbance natural creek flow characteristics.

2.3 Existing Conditions of Mitigation Site

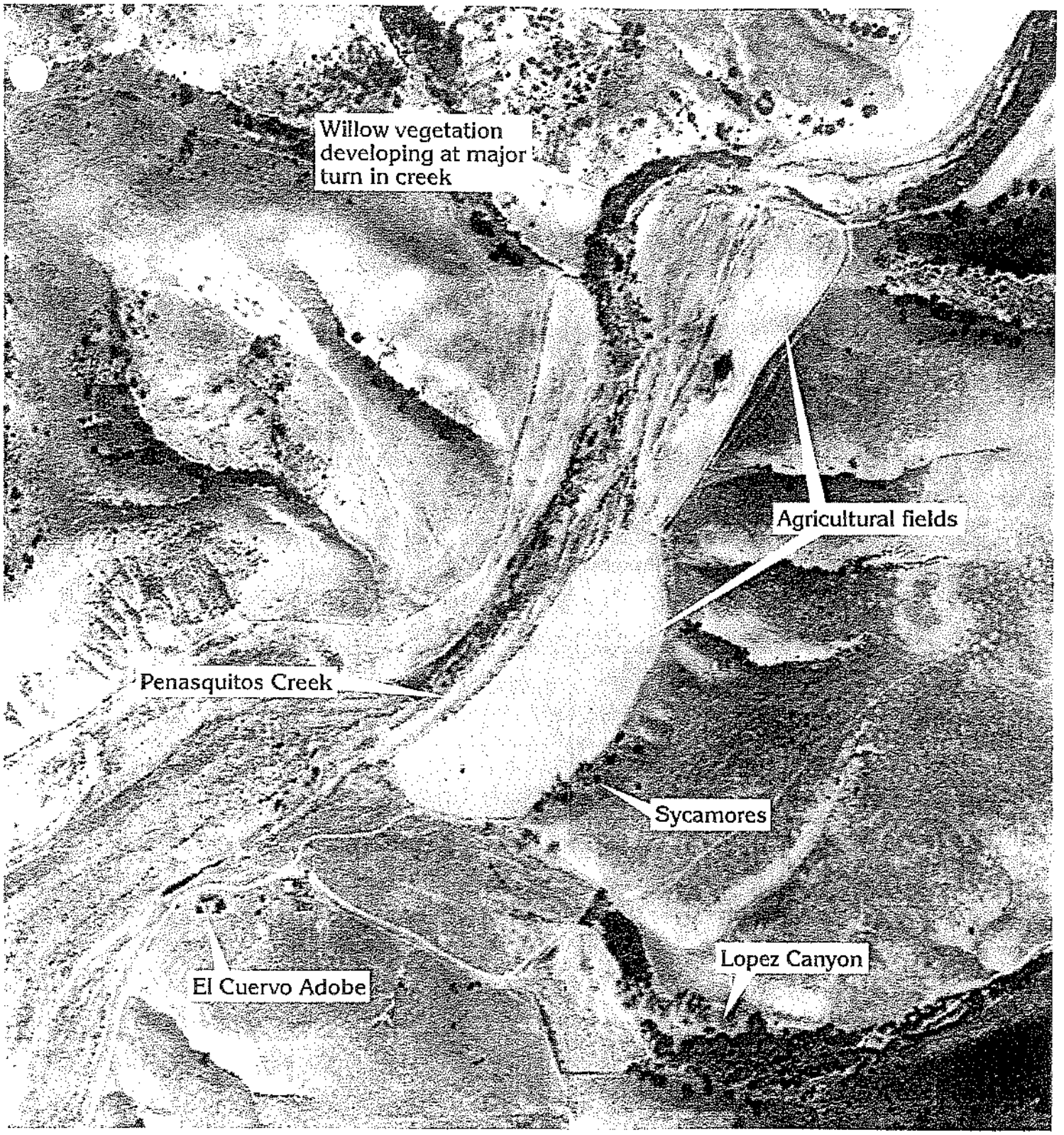
The existing mitigation site area is composed of a mosaic of wetland habitats interspersed with patches of upland and ruderal vegetation. Existing habitats present were surveyed by DUDEK in November and December 1997, using 200 scale aerial photograph information acquired from Aerial Fotobank, Inc. (flown 1/18/97) and ortho-topographic map information acquired from the City of San Diego (Ruis maps). The boundaries of the existing plant communities/vegetation were verified in the field with overlay mapping recorded directly on acetate over the aerial photograph. This information was then digitized in GIS and produced in plan/map format over the topographic base information provided by the City.

Historic aerial photographs dating back to 1953 and 1928-29 were also analyzed to help determine pre-disturbance and post-disturbance conditions (previous agricultural bean field use) of the creek in immediate proximity to the mitigation site. These photographs are shown for reference and comparison on *Figure 3*. Current conditions of the site are shown on a separate aerial photograph included as *Figure 4*.

The existing plant communities present in immediate proximity to the proposed mitigation site include: freshwater marsh, brackish marsh, southern willow scrub, mulefat scrub, disturbed wetland, isocoma scrub, native grassland, annual grassland, isolated riparian trees, isolated wetland shrub species, and exotic trees. Existing vegetation within the site boundaries is graphically shown on *Figure 5*. Primary native plant species present in each of these categories are listed below. (A complete list of plant species observed is included in Appendix A.)

Freshwater Marsh:

Cattail (*Typha latifolia*)
Olneys' Bulrush (*Scirpus olneyi*)
Iris-leaved Rush (*Juncus xiphioides*)
Mexican Rush (*Juncus mexicanus*)
Yerba mansa (*Anemopsis californica*)

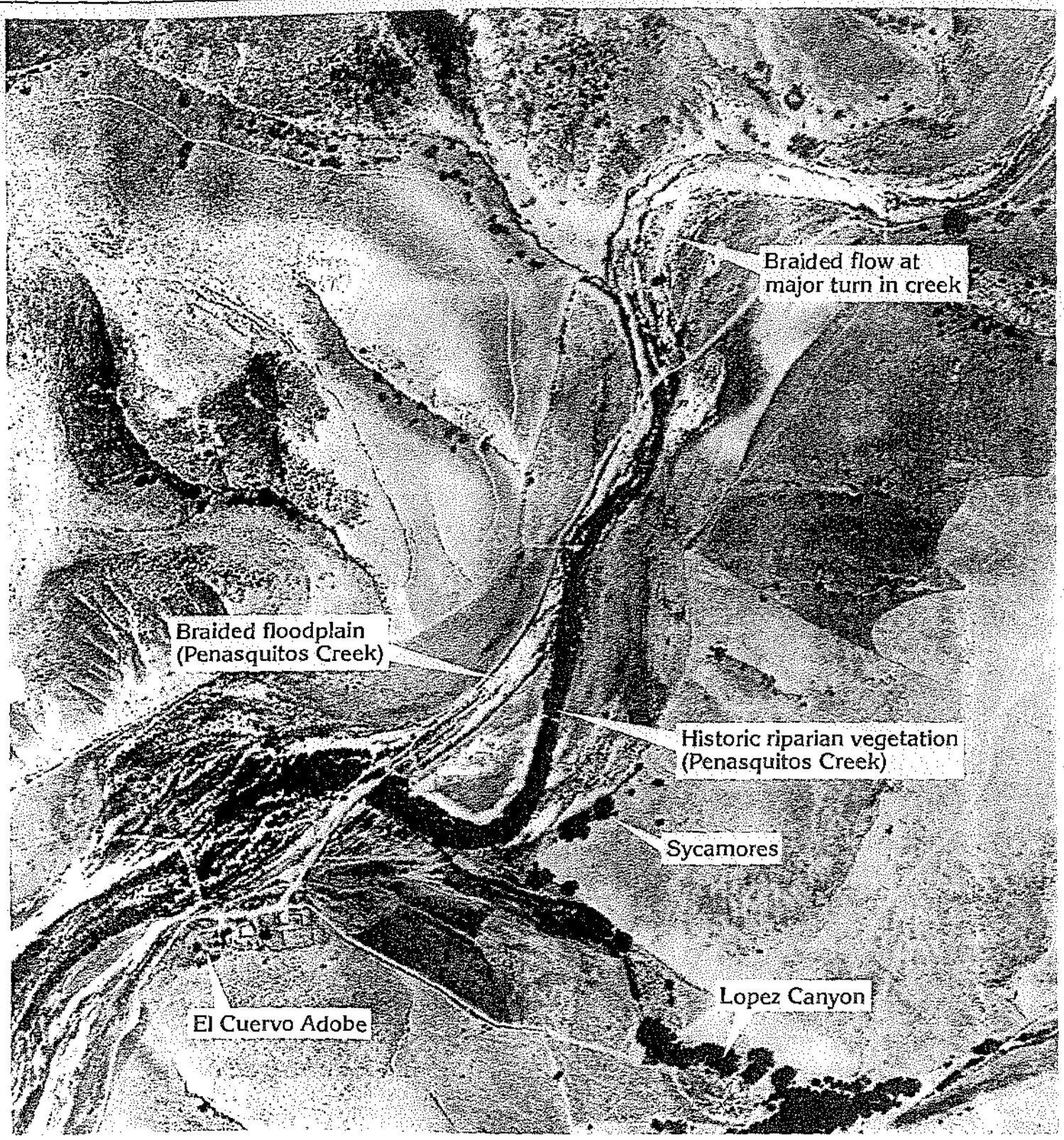


Project Site/Mitigation Area, Flown March 1953

Los Penasquitos Canyon Preserve Conceptual Mitigation Plan

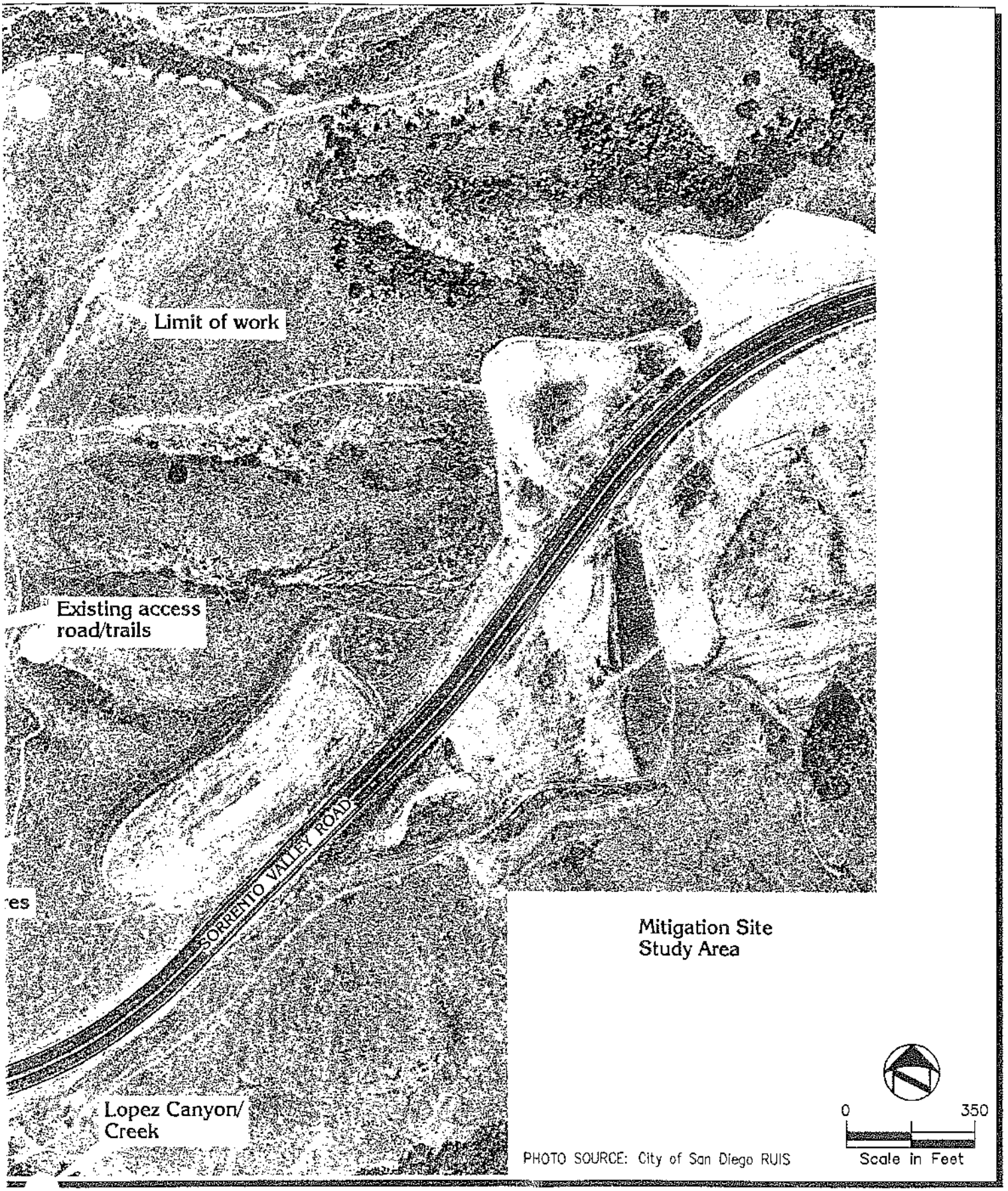
l Aerial Photographs of Mitigation Area, Flown 1928-1929 and 1953

FIGURE 3



Project Site/Mitigation Area, Flown 1928-1929 (exact date unknown)

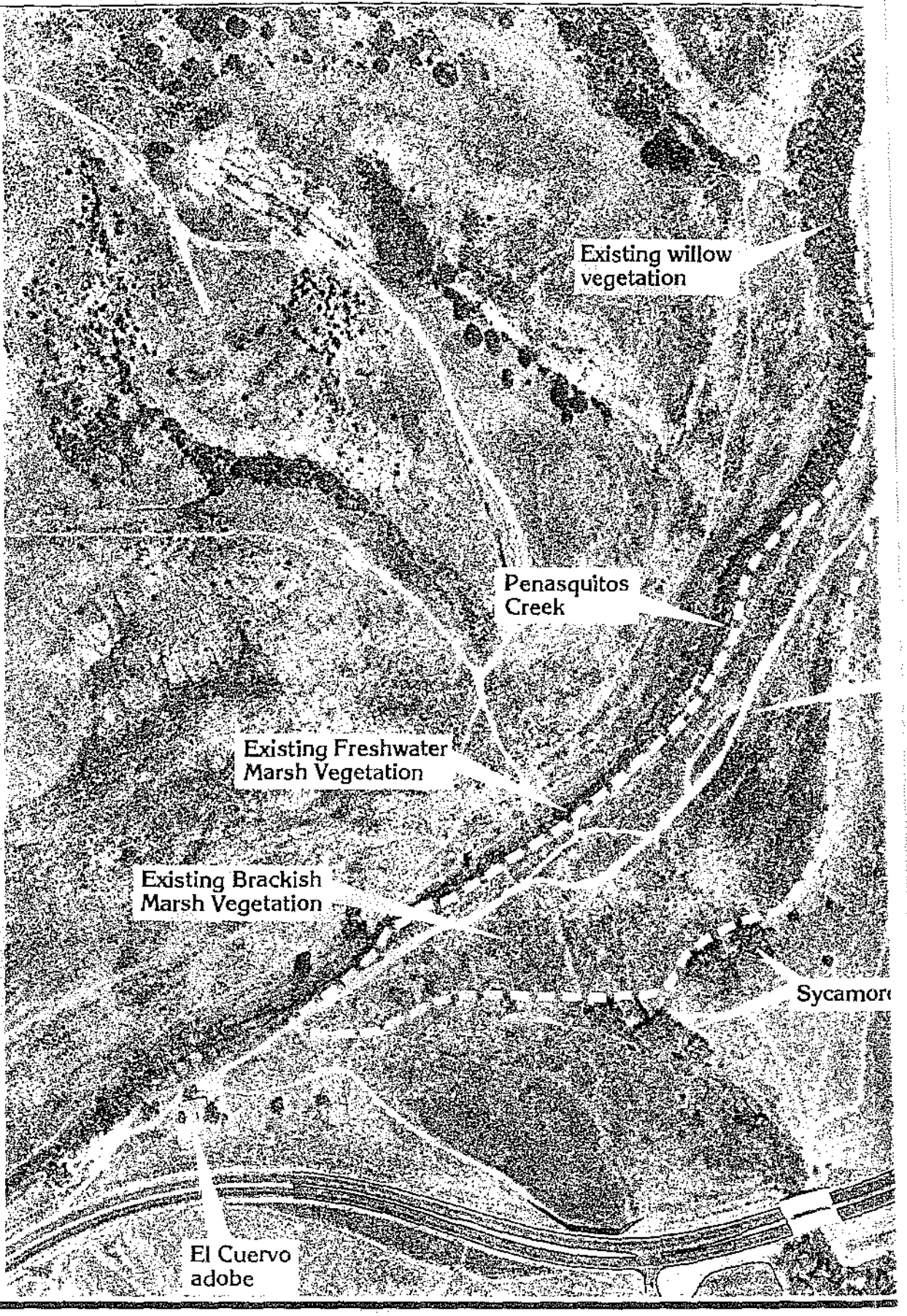
SOURCES: Aerial Fotobank, Inc.



Los Penasquitos Canyon Preserve Conceptual Mitigation Plan

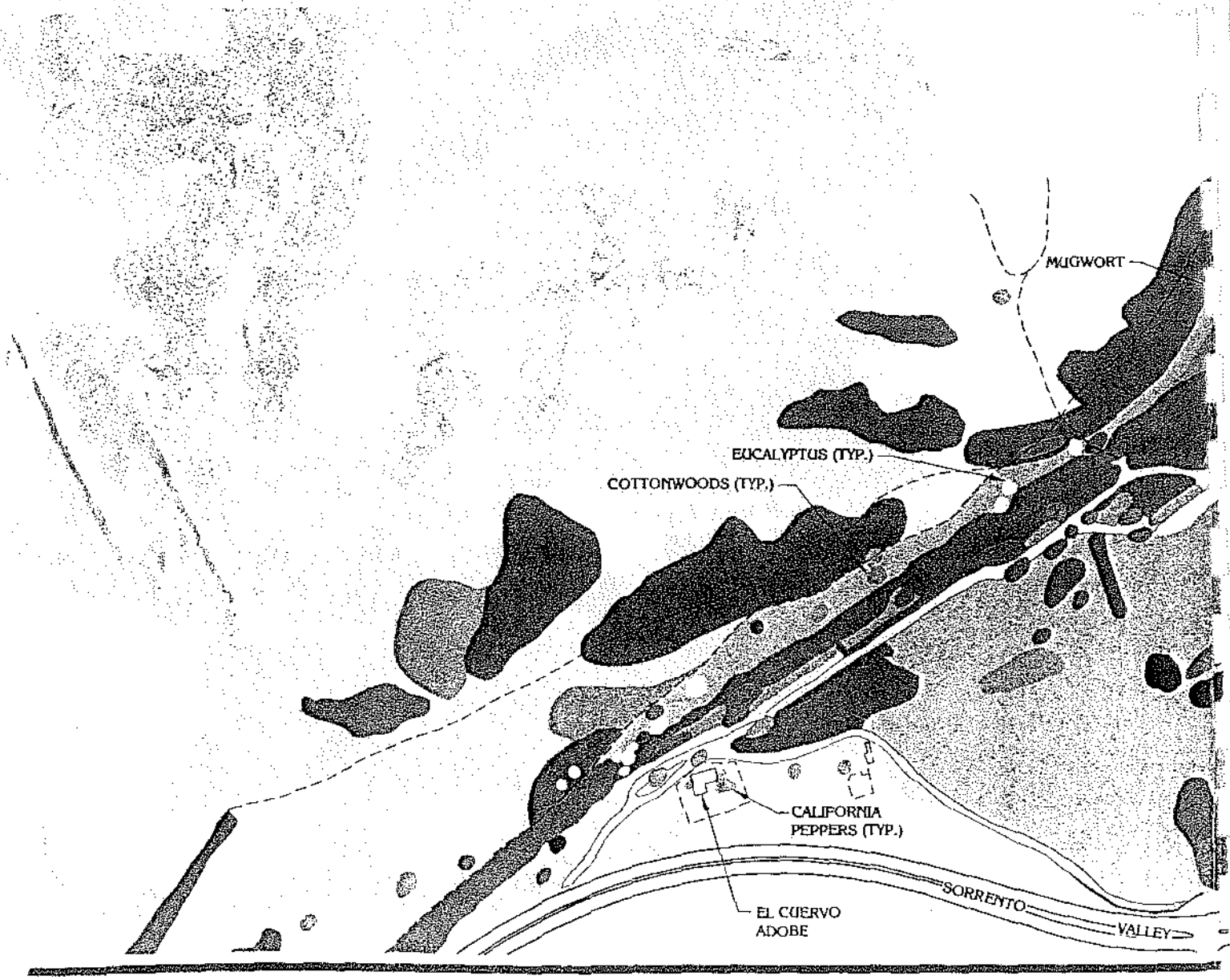
Recent Aerial Photograph of Mitigation Site Study

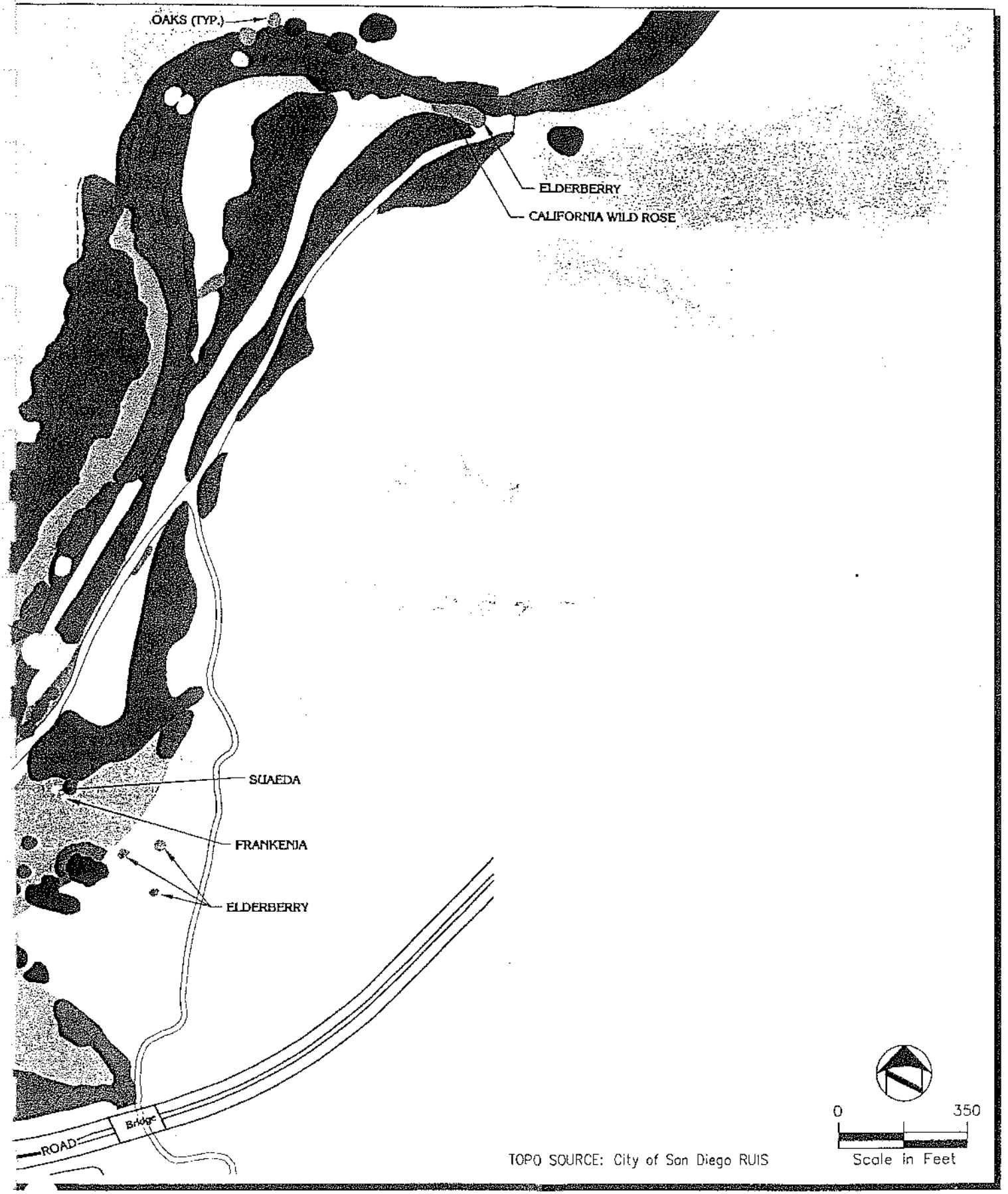
FIGURE 4


Existing willow vegetation
Penasquitos Creek
Existing Freshwater Marsh Vegetation
Existing Brackish Marsh Vegetation
Sycamor
El Cuervo adobe

EXISTING VEGETATION TYPES:

- SOUTHERN WILLOW SCRUB
- MULEFAT SCRUB
- FRESHWATER MARSH
- ISOLATED RIPARIAN TREES:
  - COTTONWOOD
  - ELDERBERRY
  - COAST LIVE OAK
- SYCAMORE
- EUCALUPTUS
- ANNUAL GRASSLAND
- ISOCOMA SCRUB
- BRACKISH MARSH
- ISOLATED WETLAND SPECIES:
  - MUGWORT
  - FRANKENIA
  - SUAEDA
- DISTURBED WETLAND (RUDERAL)
- NATIVE GRASSLAND
- CALIFORNIA WILD ROSE
- CALIFORNIA PEPPER





Los Penasquitos Canyon Preserve Conceptual Mitigation Plan

El Cuervo Wetland Area - Existing Vegetation Map

FIGURE 5

Brackish Marsh:

Southwestern Spiny Rush (*Juncus acutus*)
Pickleweed (*Salorconia virginica*)
Salt Grass (*Distichlis spicata*)
Alkali Heath (*Frankenia salina*)
Sea-blite (*Suaeda* sp.)

Southern Willow Scrub:

Arroyo Willow (*Salix lasiolepis*)
Black Willow (*Salix gooddingii*)
Mulefat (*Baccharis salicifolia*)
Douglas Mugwort (*Artemisia douglasiana*)
San Diego Marsh Elder (*Iva hayesiana*)

Mulefat Scrub:

Mulefat (*Baccharis salicifolia*)
Douglas Mugwort (*Artemisia douglasiana*)
California Wild Rose (*Rosa californica*)

Isolated Riparian Trees:

Fremont Cottonwood (*Populus fremontii*)
California Sycamore (*Platanus racemosa*)
Coast Live Oak (*Quercus agrifolia*)
Mexican Elderberry (*Sambucus mexicana*)

Isolated Wetland and Brackish Marsh Species:

Douglas Mugwort (*Artemisia douglasiana*)
California Wild Rose (*Rosa californica*)
Alkali Heath (*Frankenia salina*)
Sea-blite (*Suaeda* sp.)

Disturbed Wetland:

Salt Grass (*Distichlis spicata*)
Curley Dock (*Rumex crispus*)
Bermuda Grass (*Cynodum* sp.)
Various weed species

Isocoma Scrub:

Coast Goldenbush (*Isocoma menziesii*)
Western Ragweed (*Ambrosia psilostachya*)

Native Grassland:

Purple Needle Grass (*Nassella pulchra*)
Chaparral Broom (*Baccharis pilularis* ssp. *consanguinea*)

Annual Grassland:

Various non-native grasses and weeds including, Fennel, Tree Tobacco, Mustards, Artichoke Thistle, etc.

Exotic Trees:

California Pepper (*Schinus molle*)
Eucalyptus (*Eucalyptus* sp.)

2.4 Present and Proposed Uses of Mitigation Area

The existing mitigation site is currently within a natural open space preserve area of the Los Peñasquitos Canyon Preserve, interspersed with an unpaved access road/trail which allows for sewer maintenance access and also serves the needs of Park users including joggers, mountain bikers, hikers, and equestrians. The unpaved access road is periodically used for emergency park vehicle access and occasional sewerline maintenance. The access road has diverged away from the actual sewer easement overtime due to numerous low lying flood prone locations along the sewer alignment. The road had been moved periodically to drier locations as necessary. The sewer line runs parallel to Los Peñasquitos Creek and bisects the mitigation site at the northeast end. The sewer line continues southwest towards the El Cuervo Adobe and also diverges to the south on a separate leg toward the southwest portion of the mitigation site. Overhead utility lines run across the site, from north to south, at the far west end of the site. The proposed realignment of the sewer access road superimposed over the existing vegetation is shown on *Figure 6*.

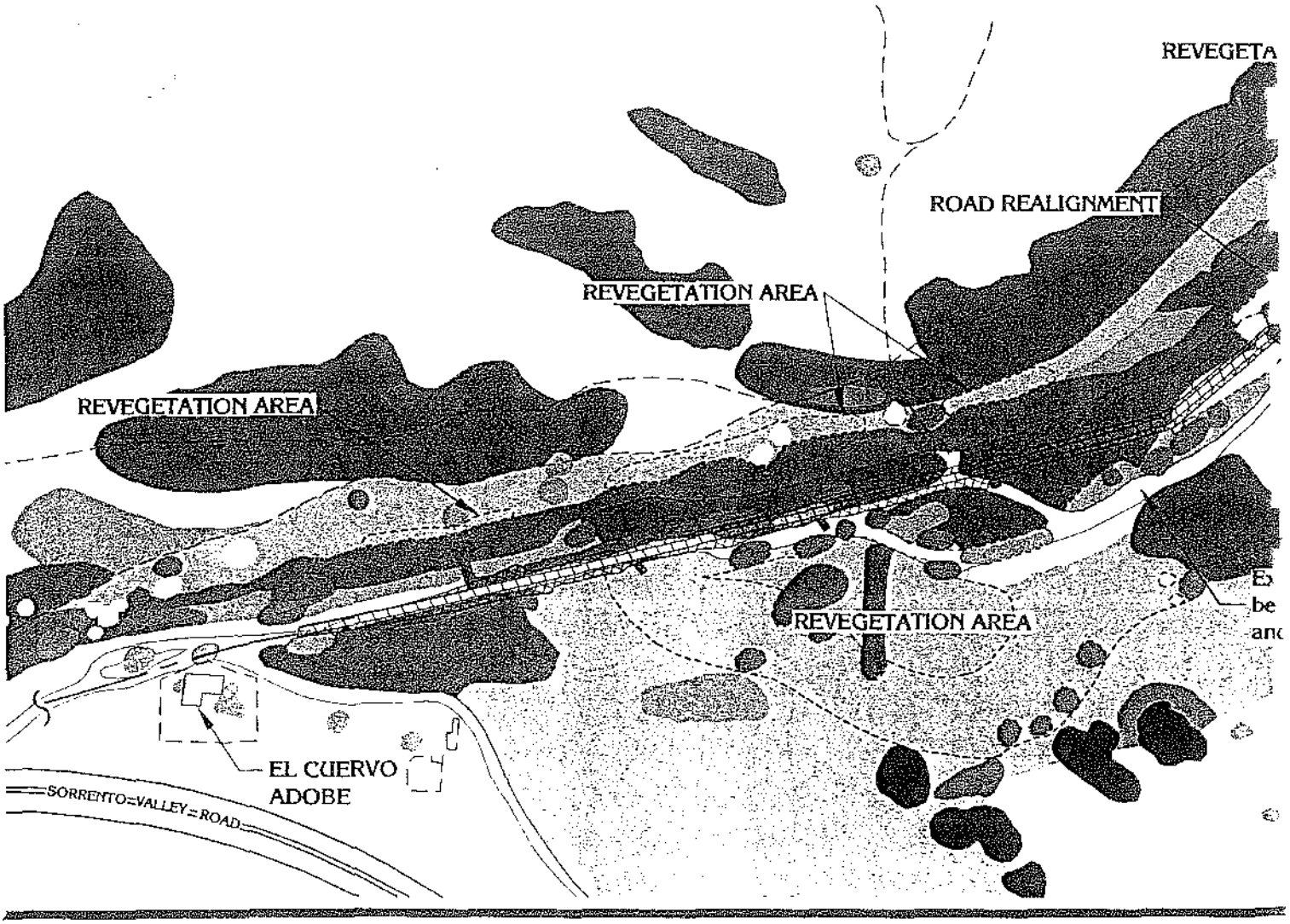
2.5 Type of Habitat to be Created and Enhanced

The mitigation/revegetation program proposes to create additional wetland and associated upland habitat which will complement and expand on the existing plant communities/vegetation found along the creek riparian corridor. Habitats to be created include freshwater marsh, southern willow scrub, mulefat scrub, cottonwood/sycamore woodland and Isocoma scrub. The proposed mitigation areas are shown graphically on *Figure 7*. *Table 5* shows the intended revegetation plant palettes.

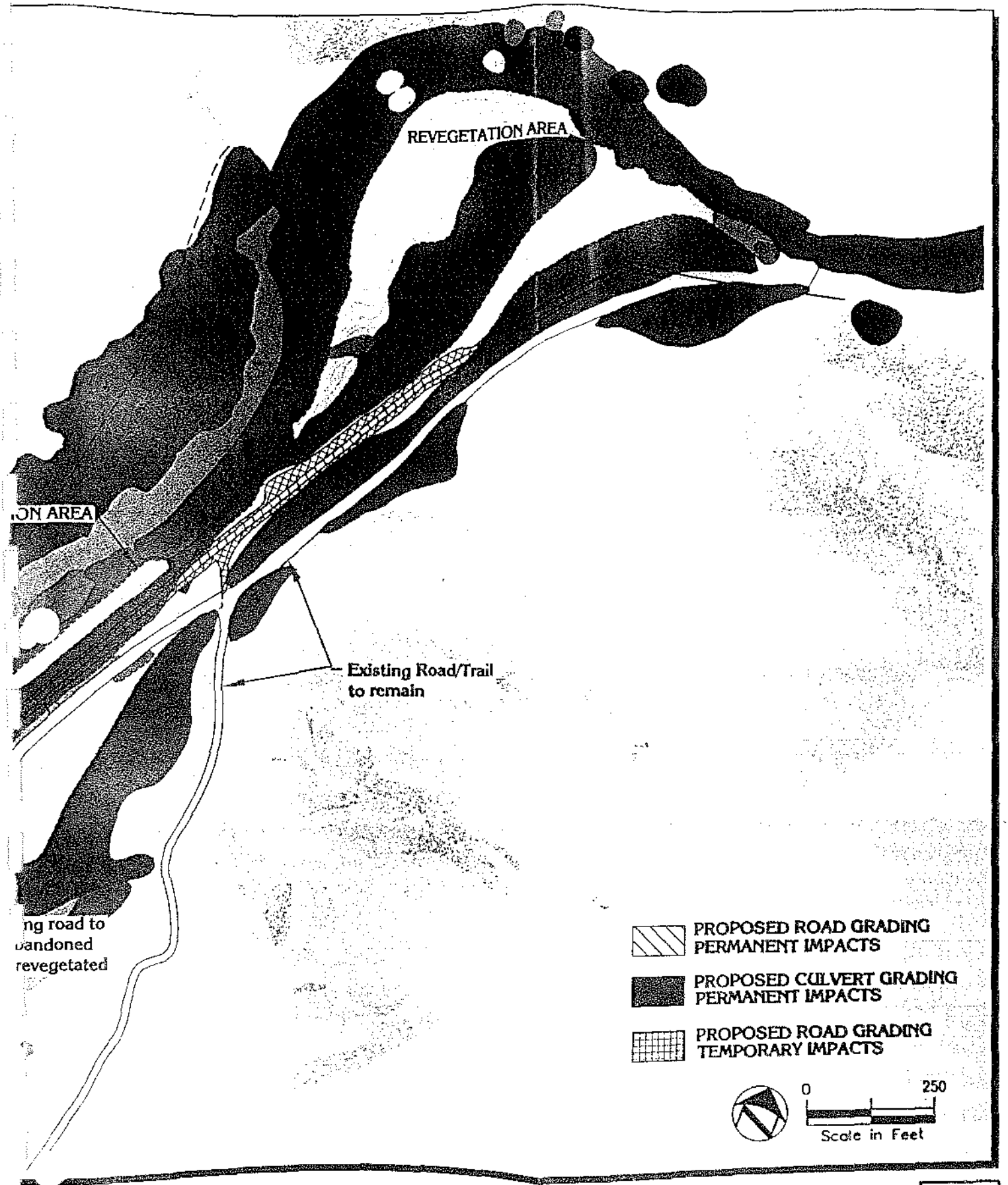
Habitats to be enhanced through exotic/weed removals and improvement of hydrological flow as a result of the revegetation program include, isolated patches of emergent freshwater marsh and brackish marsh; and disjunct patches of southern willow scrub, mulefat scrub and Isocoma scrub.

EXISTING VEGETATION TYPES:

- SOUTHERN WILLOW SCRUB
- MULEFAT SCRUB
- FRESHWATER MARSH
- ISOLATED RIPARIAN TREES:
  - COTTONWOOD
  - ELDERBERRY
  - COAST LIVE OAK
- SYCAMORE
- EUCALUPTUS
- ANNUAL GRASSLAND
- ISOCOMA SCRUB
- BRACKISH MARSH
- ISOLATED WETLAND SPECIES:
  - MUGWORT
  - FRANKENIA
  - SUAEDA
- DISTURBED WETLAND (RUDERAL)
- NATIVE GRASSLAND
- CALIFORNIA WILD ROSE
- CALIFORNIA PEPPER



El Cuervo Wetland Area - Existing Vegeta



Los Penasquitos Canyon Preserve Conceptual Mitigation Plan

on Map With Proposed Road/Culvert Grading and Revegetation Limits

FIGURE
6

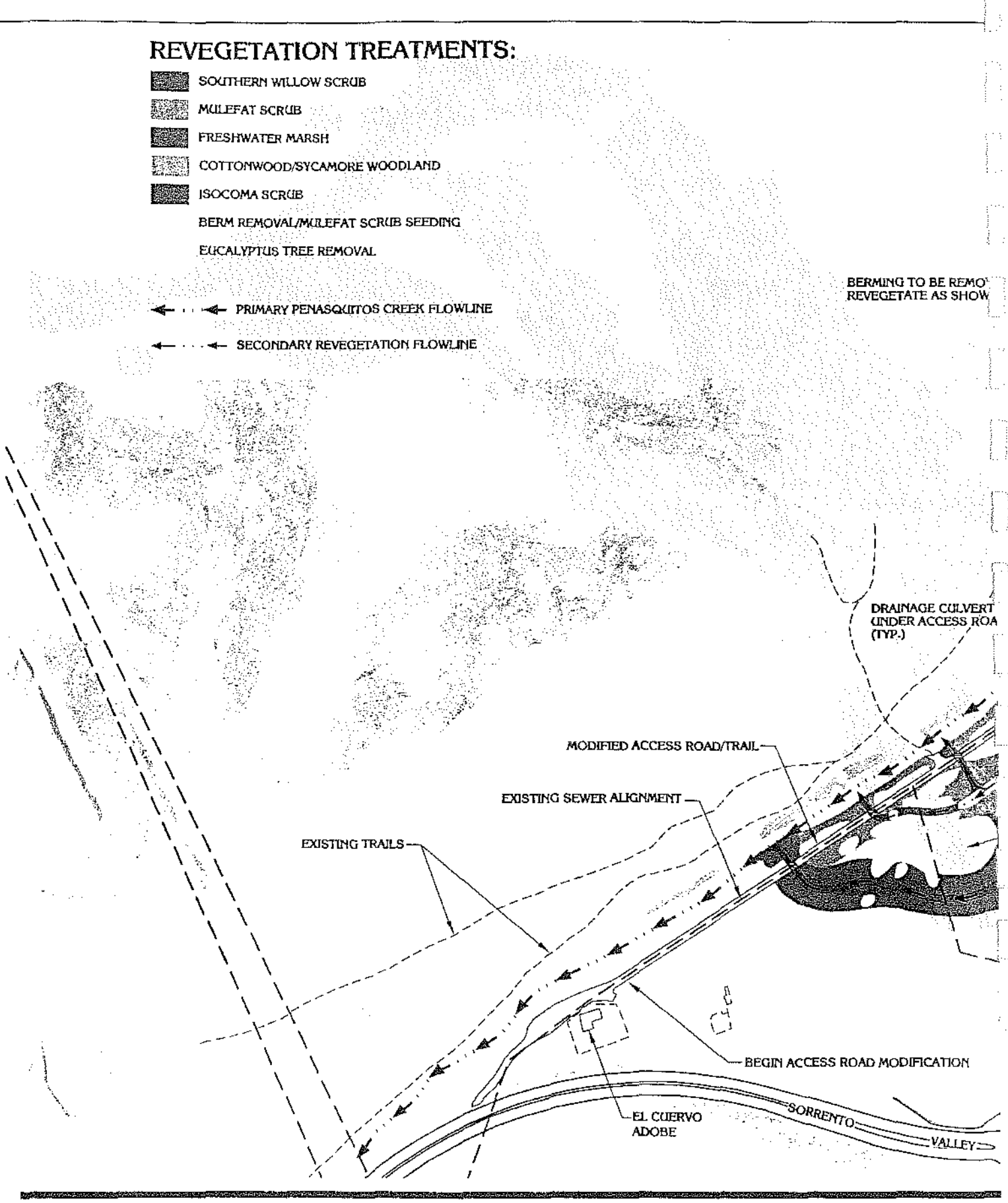

REVEGETATION TREATMENTS:
SOUTHERN WILLOW SCRUB
MULEFAT SCRUB
FRESHWATER MARSH
COTTONWOOD/SYCAMORE WOODLAND
ISOCOMA SCRUB
BERM REMOVAL/MULEFAT SCRUB SEEDING
EUCALYPTUS TREE REMOVAL
PRIMARY PENASQUITOS CREEK FLOWLINE
SECONDARY REVEGETATION FLOWLINE
BERMING TO BE REMO
REVEGETATE AS SHOW
DRAINAGE CULVERT
UNDER ACCESS ROA
(TYP.)
MODIFIED ACCESS ROAD/TRAIL
EXISTING SEWER ALIGNMENT
EXISTING TRAILS
BEGIN ACCESS ROAD MODIFICATION
EL CUERVO
ADOBE
SORRENTO
VALLEY

TABLE 5
Revegetation Plant Palette Species Composition for Southern Willow Scrub Revegetation (container plants and seeding)

Botanical/Common Name	Container Size	Composition	Spacing on Center
Trees (overstory) container plants			
Salix exigua – narrow-leaved willow	1 gal.	20%	8 ft.
Salix lasiolepis – arroyo willow	1 gal.	50%	10 ft.
Salix gooddingii – black willow	1 gal.	30%	15 ft.
Shrubs (understory) container plants			
Artemisia douglasiana - mugwort	1 gal.	20%	3 ft.
Baccharis salicifolia - mulefat	1 gal.	20%	8 ft.
Elymus triticoides – creeping wild rye	1 gal.	15%	2 ft.
Iva hayesiana – San Diego marsh elder	1 gal.	15%	4 ft.
Juncus acutus – spiny rush	1 gal.	10%	4 ft.
Muhlenbergia rigens – deergrass	1 gal.	5%	4 ft.
Oenothera hookeri – Hooker's evening primrose	1 gal.	10%	3 ft.
Rubus ursinus - California blackberry	1 gal.	5%	8 ft.

SWS Hydroseed Mix A	**%P/%G**	**Lbs./ac.**
Ambrosia psilostachya - western ragweed	2/30	2
Anemopsis californica - yerba mansa	45/60	4
Artemisia douglasiana - mugwort	10/50	6
Artemisia palmeri - San Diego sagewort	15/50	4
Atriplex triangularis (patula ssp. *hastata)* – Halberd-leaf saltbush	?	1
Leymus triticoides - beardless wild rye	90/80	3
Oenothera elata - evening primrose	98/75	1
Pluchea odorata - marsh fleabane	35/60	2
Total Lbs. Per Acre:		**23 lbs.**

TABLE 5
Revegetation Plant Palette Species Composition for Southern Willow Scrub Revegetation (container plants and seeding)

Botanical/Common Name	Container Size	Composition	Spacing on Center
Trees (overstory) container plants			
Salix exigua – narrow-leaved willow	1 gal.	20%	8 ft.
Salix lasiolepis – arroyo willow	1 gal.	50%	10 ft.
Salix gooddingii – black willow	1 gal.	30%	15 ft.
Shrubs (understory) container plants			
Artemisia douglasiana - mugwort	1 gal.	20%	3 ft.
Baccharis salicifolia - mulefat	1 gal.	20%	8 ft.
Elymus triticoides – creeping wild rye	1 gal.	15%	2 ft.
Iva hayesiana – San Diego marsh elder	1 gal.	15%	4 ft.
Juncus acutus – spiny rush	1 gal.	10%	4 ft.
Muhlenbergia rigens – deergrass	1 gal.	5%	4 ft.
Oenothera hookeri – Hooker's evening primrose	1 gal.	10%	3 ft.
Rubus ursinus - California blackberry	1 gal.	5%	8 ft.
SWS Hydroseed Mix A	**%P/%G**		**Lbs./ac.**
Ambrosia psilostachya - western ragweed	2/30		2
Anemopsis californica - yerba mansa	45/60		4
Artemisia douglasiana - mugwort	10/50		6
Artemisia palmeri - San Diego sagewort	15/50		4
Atriplex triangularis (patula ssp. *hastata)* – Halberd-leaf saltbush	?		1
Leymus triticoides - beardless wild rye	90/80		3
Oenothera elata - evening primrose	98/75		1
Pluchea odorata - marsh fleabane	35/60		2
Total Lbs. Per Acre:			**23 lbs.**

TABLE 5 (*Continued*)
Revegetation Plant Palette Composition for
Cottonwood/Sycamore Woodland Revegetation
(container plants and seeding)

Botanical/Common Name	Container Size	Composition	Spacing on Center
Trees (overstory) container plants			
Sambucus mexicana – Mexican elderberry	1 gal.	10%	15 ft.
Platanus racemosa – western sycamore	5 gal.	20%	40 ft.
Populus fremontii – Fremont cottonwood	5 gal.	70%	30 ft.
Shrubs (understory) container plants			
Artemisia douglasiana - mugwort	1 gal.	20%	3 ft.
Baccharis salicifolia - mulefat	1 gal.	30%	8 ft.
Elymus triticoides – creeping wild rye	1 gal.	15%	2 ft.
Muhlenbergia rigens – deergrass	1 gal.	5%	4 ft.
Oenothera hookeri – Hooker's evening primrose	1 gal.	5%	3 ft.
Rosa californica - California wild rose	1 gal.	15%	6 ft.
Rubus ursinus - California blackberry	1 gal.	10%	8 ft.
use SWS Hydroseed Mix A	**%P/%G**		**Lbs./ac.**
Ambrosia psilostachya - western ragweed	2/30		2
Anemopsis californica - yerba mansa	45/60		4
Artemisia douglasiana - mugwort	10/50		6
Atriplex triangularis (patula ssp. *hastata)* – Halberd-leaf saltbush	?		1
Artemisia palmeri - San Diego sagewort	15/50		4
Leymus triticoides - beardless wild rye	90/80		3
Oenothera elata - evening primrose	98/75		1
Pluchea odorata - marsh fleabane	35/60		2
Total Lbs. Per Acre			**23 lbs.**

TABLE 5 (*Continued*)
Revegetation Plant Palette Composition for Mulefat Scrub Revegetation
(container plants and seeding)

Botanical/Common Name	Container Size	Composition	Spacing on Center
Shrubs (understory) container plants			
Artemisia douglasiana - mugwort	1 gal.	10%	3 ft.
Baccharis salicifolia - mulefat	1 gal.	60%	8 ft.
Elymus triticoides – creeping wild rye	1 gal.	5%	2 ft.
Iva hayesiana – San Diego marsh elder	1 gal.	10%	4 ft.
Muhlenbergia rigens – deergrass	1 gal.	5%	4 ft.
Oenothera hookeri – Hooker's evening primrose	1 gal.	5%	3 ft.
Rubus ursinus - California blackberry	1 gal.	5%	8 ft.
Mulefat Scrub Hydroseed Mix B	**%P/%G**		**Lbs./ac.**
Ambrosia psilostachya - western ragweed	2/30		2
Artemisia douglasiana - mugwort	10/50		6
Artemisia palmeri - San Diego sagewort	15/50		4
Atriplex triangularis (patula ssp. *hastata)* – Halberd-leaf saltbush	?		1
Leymus triticoides - beardless wild rye	90/80		3
Oenothera elata - evening primrose	98/75		1
Pluchea odorata - marsh fleabane	35/60		2
Total Lbs. Per Acre			**19 lbs.**

TABLE 5 (*Continued*)
Revegetation Plant Palette Composition for Freshwater Marsh Revegetation
(Container Plants Only, No Seeding)

Botanical / Common Name	Container Size	Composition	Spacing on Center
Shrubs (understory) container plants			
Anemopsis californica - yerba mansa	6" pot	15%	2 ft.
Carex triquetra – triangular fruited sedge	1 gal.	5%	4 ft.
Eleocharis macrostachya – spike rush	1 gal.	5%	3 ft.
Juncus acutus - spiny rush	1 gal.	30%	6 ft.
Juncus bufonius – toad rush	1 gal.	5%	3 ft.
Juncus dubius – mariposa rush	1 gal.	5%	3 ft.
Juncus mexicanus – Mexican rush	1 gal.	5%	3 ft.
Scirpus californicus - California bulrush	1 gal.	15%	4 ft.
Scirpus robustus - prairie bulrush	1 gal.	15%	4 ft.

TABLE 5 (*Continued*)
Revegetation Plant Palette Composition for Isocoma Scrub Revegetation
(Seeding only, no container plants)

Isocoma Scrub Hydroseed Mix C	%P/%G**	Lbs./ac.
Ambrosia psilostachya - western ragweed	2/30	2
Artemisia californica - Calif. sagebrush	15/50	4
Artemisia palmeri - San Diego sagewort	15/50	4
Encelia californica - California encelia	40/60	2
Eriogonum fasciculatum - flat-topped buckwheat	10/65	6
Isocoma menziesii - coast goldenbush	90/80	8
Leymus triticoides - beardless wild rye	90/80	3
Lotus scoparius - deerweed	90/60	4
Lupinus succulentus - arroyo lupine	98/85	3
**Nassella pulchra* - purple needlegrass	70/60	4
Total Lbs. Per Acre		**40 lbs.**

Notes:

* Nassella seed shall be tilled into the soil prior to application of the remainder of the mix.

** %P/%G=Percentage Purity and Percentage Germination of the seed per species. This is the minimal acceptable quality of the seed to be provided.

All wetland seed mixes to be hydroseeded, with a slurry mix to include:

- Seed mix at indicated lbs. per acre.
- Virgin wood cellulose fiber mulch at 2,500 lbs. per acre. .
- Fertilizer (0– 45–0) triple super phosphate at 300 lbs. per acre.
- 19% soil sulfur @ 250 lbs. per acre.
- Fertilizer (38-0-0) Urea Formaldehyde @ 50 lbs. per acre.
- Binder (if mix is to be installed between November – February) at 150 lbs. per acre.

Upland Isocoma scrub seed mixes shall be imprinted per the final revegetation plans (see Appendix C).

2.6 Functions and Values of Habitat to be Created

The habitats to be created and enhanced will ultimately have similar functions and values as the adjacent existing habitat present in proximity to the mitigation site. The intended revegetation and restoration effort will help increase and improve jurisdictional wetland habitat and will provide for

an expanded riparian corridor. The revegetation effort will also help link together fragmented patches of wetland and upland habitat which have been isolated from the main riparian corridor due to past disturbances from roads, cattle grazing, berming and agricultural activities. The area will be enhanced for wildlife use through the diverse planting palettes proposed, the varied habitats to be created and the expanded habitat widths. Restoration of previously lost habitat quality will be accomplished through the removal of artificial soil berming along the creek which has altered the flow of the creek and had introduced exotic/weedy vegetation. These areas will be replaced with appropriate native vegetation. Additional habitat values will be provided by overall expansion of the floodplain and an improved hydrological regime.

2.7 Time Lapse

It is likely that the revegetated habitats will require at least five years to approach the general structure, height, and aspect of typical wetland/riparian and upland habitats. It is likely that native upland species will naturally recolonize in some of the upland revegetation areas which should help speed up the habitat establishment process. Additional weed invasion will require periodic maintenance so that weed growth does not outcompete establishing desirable native species.

It is likely that native wetland species such as, cattails (*Typha* sp.), bulrush (*Scirpus* sp.) and other rushes (*Juncus* sp.), will naturally colonize the low lying freshwater marsh revegetation areas on their own within a short period of time to supplement the planted materials. This should help speed up habitat establishment in these areas.

In general, it is expected that the wetland species will establish quicker than the upland species. It is expected that by the end of the 5-year maintenance and monitoring period sufficient plant establishment of all habitats will have taken place to allow the plant materials to survive on their own without artificial support. By this time it should be evident whether the revegetation effort will be successful over the long-term or whether additional remedial measures may be necessary.

3.0 SUCCESS CRITERIA

The proposed success criteria outlined herein will be used to determine fulfillment of the mitigation obligations. Fulfillment of these yearly criteria shall indicate that the mitigation area is progressing toward the habitat type, as well as functions and values which constitute the long-term goals of the mitigation program. Success criteria will not be considered to have been met until a minimum of five years of maintenance and monitoring have been achieved, or it is mutually agreed by all appropriate parties that the project has achieved success and permit conditions have been fulfilled.

3.1 Proposed Mitigation Site Success Criteria

Mitigation site success criteria have been established with the goal of achieving 80% survival of container planted species the first year (based upon original quantity planted), with 100% survival thereafter (i.e., 100% of the 80% quantity achieved after Year 1). 75% cover of all planted and seeded species will be achieved after three years and 90% cover after five years, for the life of the project. If the survival and cover requirements are not met, then remedial replacement plantings and/or seeding will be required to achieve the goals. Height standards have also been established for all tree species (see *Table 6*). Section 6.1 provides further discussion of success standards and performance criteria.

TABLE 6
Five-Year Maintenance and Monitoring Performance Standards

The following performance standards for all revegetated wetland areas shall be the basis for determining the success of the 12.5-acre wetland revegetation/mitigation and enhancement effort: (Note: All upland revegetation areas beyond the wetland mitigation requirement, shall be exempt from these standards.)

Year 1 Performance Standards:

- 80% survival of all container planted shrub and tree species (based upon original quantity planted).
- 50% total cover of all planted and seeded species:
  - 40% total cover of all planted tree and shrub species (visual analysis)
  - 10% total cover of herbs (visual analysis)

Year 2 Performance Standards:

- 100% survival of all container planted shrub and tree species (based upon quantity alive and/or replanted at the end of Year 1 to achieve the original 80% survival quantity).
- 65% total cover of all planted and seeded species:
  - 50% total cover of all planted tree and shrub species (visual analysis)
  - 15% total cover of herbs (visual analysis)

Year 3 Performance Standards:

- 100% survival of all container planted shrub and tree species (based upon quantity alive and/or replanted at the end of Year 1 to achieve the original 80% survival quantity).
- 75% total cover of all planted and seeded species:
  - 60% total cover of all planted tree and shrub species. (transect measurements)
  - 15% total cover of herbs (transect measurements)
- Tree and shrub height standards listed below.

TABLE 6 (Continued)
Five-Year Maintenance and Monitoring Performance Standards

Year 4 Performance Standards:

- 100 percent survival of all container planted shrub and tree species (based upon quantity alive and/or replanted at the end of Year 1 to achieve the original 80% survival quantity).
- 80% total cover of all planted and seeded species:
  - 65% total cover of all planted tree and shrub species (transect measurements)
  - 15% total cover of herbs. (transect measurements)
- Tree and shrub height standards listed below.

Year 5 Performance Standards:

- 100 percent survival of all container planted shrub and tree species (based upon quantity alive and/or replanted at the end of Year 1 to achieve the original 80% survival quantity).
- 90% total cover of all planted and seeded species:
  - 70% total cover of all planted tree and shrub species. (transect measurements)
  - 20% total cover of herbs. (transect measurements)
- Tree and shrub height standards listed below.

Height Standards For Representative Tree and Shrub Species:

- No height standards established for Years 1 & 2.
- Height measurements will be taken in Yrs. 3-5 and shall achieve the following standards:

By Year 3:

- 8 foot mean height for willows
- 3 foot mean height for mulefat

By Year 4:

- 12 foot mean height for willows
- 4 foot mean height for mulefat

By Year 5:

- 16 foot mean height for willows
- 6 foot mean height for mulefat

Monitoring will take place for 5 years after completion of the installation and the initial 120-day maintenance period. Annual reports will be submitted to the City of San Diego, the California Department of Fish and Game, the U.S. Army Corps of Engineers and the California Coastal Commission for documentation of progress. These reports will include the percent survival, percent cover, and height of tree and shrub species, as measured by three (3) 2m x 50m belt transects per acre. (A total of 38 transects will be established within the approximate 12.5-acre mitigation area, at the rate of approximately three per acre.) The number of plants of each species encountered in the transects will be reported, as well as the number of replacements that are required to fulfill dead plant replacement requirements. These reports will provide an overview of the revegetation effort, the methods used to assess the parameters of success and representative photographs of the revegetation area from established photo documentation viewpoints. Remedial measures will also be provided in each report to address any inadequacies in the establishment of the revegetation areas.

Based on the annual and final monitoring reports, the biological monitor in conjunction with the City of San Diego and the resource agencies, will determine whether or not the standards have been met. If it is determined that performance standards have not been met, then remedial measures will be required each year to bring the mitigation effort into compliance.

3.2 Target Functions and Values

The goal of the revegetation effort is to create new jurisdictional wetland habitat, as defined by the Army Corps of Engineers, as having an adequate hydrology and appropriate hydric soils to support wetland vegetation. The viability and functionality of the created habitat, to meet the goal of establishing Army Corps jurisdictional wetland habitat, will be assessed prior to the end of the five-year monitoring period, by conducting a wetland delineation of the wetland creation areas. This delineation shall be prepared by the biological monitor and shall be submitted to the ACOE for review and approval prior to final acceptance of the mitigation areas.

The created/revegetated wetland habitat should have comparable functions and values as the habitats to which they are immediately adjacent. The revegetated and enhanced areas are intended to provide habitat functions and values comparable to the existing wetland conditions. No state or federally-listed species are expected to be affected by the mitigation measures.

3.3 Target Hydrological Regime

The main channel of Los Peñasquitos Creek is of a variable width of 30-100 foot and has a streambed with year round flow. Normal flow is confined to a defined low-flow creek channel. Only following substantial seasonal rainfall flooding events are the banks of the existing creek breached. The hydrology of the area was previously altered by agricultural operations, with artificial soil berming

installed along the south and north banks in the vicinity of the mitigation site, to confine the flood flow to the main channel. This eliminated the historic widened and braided flood flow characteristics in several locations which had supported a wider band of wetland vegetation and a more defined riparian corridor in the southern portion of the site (see *Figure 3*, i.e., historic aerial photographs of the area). As part of this revegetation/enhancement effort the existing creek flow will be modified in several locations by removal of old berms and by creating tie-in points for the revegetation grading in order to provide secondary creek flow to the revegetation areas and to restore historic flow patterns. The primary low flow of the main creek will, however, remain in its current location and condition, so that existing wetland vegetation is not adversely affected.

3.4 Target Jurisdictional Acreage to Be Created

The goal of the revegetation effort is to create approximately 12.5 acres of jurisdictional wetland habitat. The revegetation effort will result in minimal topographic modifications to existing jurisdictional wetland areas, primarily along the creek banks at locations where the secondary channels and drainage culverts under the sewer access road will diverge or link up with the main creek channel. Impacts to existing wetlands have been minimized to the greatest extent possible while still allowing for the connections in order to facilitate the revegetation effort. These minimal impacts to existing wetland vegetation resulting from the mitigation project will be compensated for through onsite revegetation following the disturbance as part of the total acreage to be created/ enhanced.

4.0 IMPLEMENTATION PLAN

4.1 Rationale for Expecting Implementation Success

The areas to be revegetated and enhanced are surrounded by native vegetation which will provide excellent sources for additional native plant recruitment and will provide important habitat connections. Areas to be converted to wetland habitat from existing upland vegetation are currently composed of predominantly non-native/ruderal vegetation. The mitigation site lies within The Los Peñasquitos Canyon Preserve/open space area and receives human use which is confined to existing roads and trails. Through continued management of the Preserve area, the proposed revegetation and enhancement effort should be successful in the locations proposed. Existing site conditions including soils, hydrology, elevation, and exposure all are appropriate for the re-establishment of the proposed revegetation habitats. Adequate conditions will be established and procedures undertaken to help assure proper establishment of the revegetated habitats until they can naturally survive on their own without artificial support.

4.2 Responsible Parties

The City of San Diego Engineering and Capital Projects Department, Transportation and Drainage Design Division, is responsible for installation of the overall mitigation project and for implementing the long-term monitoring and maintenance program. The City of San Diego Park and Recreation Department, Northern Parks Division, shall be responsible for final design review and approval, as well as coordination of all installation work. Secondarily, the City of San Diego Metropolitan Water and Wastewater Facilities Division (MWWD) will share joint responsibility for the relocation and improvement of the sewer access road to within their existing easement areas. This work includes raising the grade of the road by one to two feet as necessary to facilitate the grading of the revegetation areas, and installation of culverts to allow for flood flow and drainage through the access road in several locations. A written agreement shall be entered into between the City Park and Recreation Department and MWWD, designating shared use of the sewer access road for park/trail access.

4.3 Final Landscape Construction Documents and Construction Award

A final set of landscape/revegetation construction documents has been prepared by DUDEK, which includes planting plans, irrigation plans, details and specifications to implement the intended revegetation program outlined herein. A reduced copy of these plans is included in Appendix C for reference.

Grading plans for the revegetation areas and sewer access road improvements were prepared by the City of San Diego and were used as the base information for the revegetation plans.

The City Transportation and Drainage Division will be responsible for hiring a landscape contractor with experience in native plant revegetation and habitat restoration to implement the revegetation installation and maintenance program. The City shall award a contract and initiate the revegetation work in a timely manner to meet the intended schedule and resource agency permit requirements.

4.4 Preliminary Schedule

Note: The schedule provided below represents a timeline estimate for implementation based upon the City's intended construction schedule. A final schedule for implementation shall be prepared by the City of San Diego and submitted to the Army Corps for approval prior to the start of mitigation installation. The final schedule shall be coordinated accordingly with the City of San Diego Park and Recreation Department. Updates to the schedule shall be provided to all involved parties, as necessary.

Task	Date
Army Corps of Engineers "After-the-Fact" Permit	Issued
City Shall Establish Contract Grow Arrangement with Nursery (for container plants, 25% deposit required) (6-9 months needed for contract growing period)	
Final Approval of Conceptual Mitigation Plan	by
• City of San Diego/Park & Recreation Department	
• ACOE	
• CDFG	
• Regional Water Quality Control Board	
• CCC	
Prepare Final Landscape Revegetation Construction Documents (Plans & Specs.)	Completed
City Shall Advertize Revegetation Installation Contract (3-week advertising period)	Completed
City Award of Installation Contract (assumed 3-month period)	Completed
Pre-Construction meeting	
Initiate Site Clearing, Grubbing and Weed Removal	
Initiate Site Grading	
Install Relocated Access Road and Drainage Culverts	
Initiate Site Preparation and Soil Amending As Necessary prior to Planting	
Install Irrigation Systems	
Plant Container Stock	
Hydroseed Revegetation Areas	
Perform 120 Day Establishment Maintenance Period *	
Conduct Long-Term (5-Yr.) Maintenance/Monitoring & Annual Reports **	
Final Sign-off of Permit Obligations	

* All mitigation grading, irrigation and planting work shall be completed by _____.

** Annual monitoring reports shall be submitted to the resource agencies each year at the anniversary date of completion of the installation.

4.5 Site Preparation and Installation Requirements

Grading modifications will be necessary at the Los Peñasquitos Creek tie-in points to the new revegetation grading, in order to facilitate the secondary channel construction and installation of drainage culverts intended to feed the revegetation areas. The grading required at the tie-in points should be accomplished in a manner to minimize, and/or avoid to the extent possible, impacts to existing wetland vegetation. Prior to grading, the limits of grading and access routes required for construction shall be clearly flagged and/or staked by the project biologist, to help minimize impacts to existing native vegetation and wetlands. Temporary silt fencing shall be installed around the

perimeter of all grading adjacent to existing wetland vegetation, in order to prevent erosion and sediment transport offsite. Sandbagging and/or other stabilization measures may be necessary.

Temporary orange construction fencing shall be maintained in place during construction along all edges of existing trails and roads, to limit unauthorized entry into the work areas during construction and to protect environmentally sensitive areas (ESA's). All fencing shall be removed at the end of the 120-day maintenance period. Primary trail access and detours, as required, shall be maintained during construction and shall be coordinated with the City Parks Department.

Most of the soil to be excavated in order to lower the grades of the revegetation areas, will be utilized to reestablish the sewer access road and to raise its grade by 1-2 feet, to elevate it above flood damage. The sewer access road will be a minimum of 12 feet wide at the top of the elevated road section. Side slopes down from the road to match existing grade or to meet the new excavated grades will vary in size depending on final grade conditions. Final grading plans prepared by the City show all slope conditions. All slopes will be seeded with an appropriate native seed mix. In addition, other low lying areas in upland zones, which are primarily annual grassland and disturbed/ruderal areas which were the result of past disturbances from agricultural activities and previous roads/trails, will also be raised using the excavated soil to match adjacent existing grades and will be revegetated. All additional excavated soil not used in the immediate vicinity of the revegetation work or within the restored road areas, shall be removed from the site and disposed of in locations specified by the City of San Diego, or at a legal disposal site outside the Preserve boundaries.

The overall limits of work areas and all ESA's will be clearly flagged by the project biologist prior to initiating site work. The project biologist shall periodically monitor the site preparation and grading procedures to verify that they stay within established limits, minimize impacts to existing wetlands and native vegetation, meet the intent of the revegetation/mitigation program, and comply with applicable resource agency permit conditions.

4.6 Plant Materials and Installation Requirements

Implementation of the revegetation effort must be coordinated among the landscape/revegetation installation contractor, the City, the biological monitor and the nursery providing plant material under the contract growing arrangement. The contracting nursery and seed collectors (if necessary) should be given the maximum possible lead time to prepare plant material for the project in order to assure availability and minimize cost. In order that the plant material will be reserved and available in appropriate sizes for planting at the time of installation, a contract growing arrangement should be established with a designated native plant nursery. This contract should be initiated six to nine months prior to the intended date for installation of the plant materials to assure availability. The City should enter into the contract growing agreement with the nursery. This would involve paying

an approximate 25% deposit for the total cost of the container plants. The landscape contractor to be retained by the City would be responsible for paying the balance due at delivery and installing the plant materials.

Plant materials for the revegetation effort will include container stock of native wetland and upland species as indicated on the attached plant palette tables (*Table 2*) and as shown on the final planting plans (Appendix C). Few nurseries have experience dealing with native plants, especially those not used for ornamental purposes. Tree of Life Nursery in San Juan Capistrano, Mockingbird Nursery in Riverside, El Nativo Nursery in Azusa, Greenlee Nursery in Pomona and Matilija Nursery in Moorpark have experience in providing material for native plant revegetation projects. (Other approved sources may be acceptable, based upon approval by the City and the biological monitor.) Seed may be obtained from native plant seed sources including, S&S Seeds in Carpenteria, Albright Seed Company in Pomona, or an approved equal.

Appropriate timing of planting (and application of seed) will eliminate the need for excessive supplemental watering and will increase the likelihood of survival of the plants. The best survival rates for non-irrigated revegetation efforts are achieved when revegetation takes place between late fall and early spring, in order to take advantage of winter rainfall. The resource agency permit conditions suggested that planting be accomplished between October 1 - April 30. However, since an irrigation system will be provided to most of the areas which will be planted and seeded, the actual installation date for container plants and seeding can take place outside of this normal seasonal installation window. This was agreed to by the Army Corps of Engineers.

A temporary irrigation system will be provided to support the intended plantings until they can survive on their own based upon natural rainfall. All planting and irrigation work shall be installed per the final plans and specifications prepared by DUDEK (dated May 7, 1999) (see Appendix C). It is expected that the irrigation system will be abandoned prior to the end of Year 4 of the 5-year maintenance/monitoring period, to assure long-term sustainability.

4.7 As-Built Plans

Within 30 days of completion of construction (i.e., planting and road realignment) at the revegetation/restoration site, an "As-Built" assessment of the project shall be prepared. The "As-Built" plans shall demonstrate that the project has been built as proposed and as permitted. As-Built plans shall be submitted to the City, resource agencies and CCC.

5.0 MAINTENANCE AND MANAGEMENT DURING MONITORING PERIOD

The purpose of the maintenance and monitoring program is to provide guidelines for maintenance and long-term monitoring/management of the revegetated habitat. Because the goal of the revegetation plan is to create a natural system that can support itself with little or no maintenance, the primary focus for maintenance during the first season after planting when weed growth can compete with the newly establishing plants. Maintenance intensity will subside each year as the plant materials become more established and local competition is minimized. Specific maintenance and management guidelines are provided as follows:

5.1 Maintenance Activities

A) Removal of native vegetation, native understory plant material or other native species, will not be allowed in the revegetated areas.

B) The site will not be fertilized and the vegetation will not be pruned unless so directed by the biological monitor.

C) Non-native weed and exotic species may invade the revegetation site and become a problem during the establishment of the native plants. Weedy, invasive, non-native species, such as eucalyptus (*Eucalyptus* sp.), salt cedar (*Tamarix* sp.), pampas grass (*Cortaderia* spp.), giant cane (*Arundo donax*), castor-bean (*Ricinus communis*), tree tobacco (*Nicotiana glauca*), fennel (*Foeniculum vulgare*) and black mustard (*Brassica nigra*), should be hand removed as soon as they begin to invade and before they become too large for hand extraction. Herbicide treatments may be necessary if total removal including the rootballs, is not feasible.

D) Remedial container planting and/or supplemental seeding may be necessary following each monitoring stage, per biological monitor recommendations.

5.2 General Habitat Maintenance Guidelines

Weed Control. Weed control measures shall include the following: (1) hand removal, (2) cutting or mowing, (3) chemical herbicides, (4) light exclusion. Hand removal of weeds is the most desirable method of control and shall be used around individual plantings. Weeds such Russian thistle (*Salsola tragus*), cocklebur (*Xanthium* spp.), fennel (*Foeniculum vulgare)* and castor-bean (*Ricinus communis*) should be hand-removed before seed-set. Cutting or mowing is the most practical method, but

requires that maintenance personnel be able to accurately differentiate between native plantings and non-native weeds. This method may be used for control of cheeseweed (*Malva parviflora*), thistles (*Circium* spp.), and sweet-clover (*Melilotus* spp.). Because these species are fast growing, it is critical that they are controlled before they shade and out-compete enhancement plantings. Chemical control shall be used only for hard-to-control weeds such as giant cane (*Arundo donax*), salt cedar (*Tamarix* spp.), eucalyptus (*Eucalyptus* sp.) and pampas grass (*Cortaderia* spp.). The biological monitor should coordinate with the maintenance contractor to identify specific wetland sites where appropriate chemical herbicides such as "Rodeo" should be used. All herbicide treatments must be applied by a licensed pest control applicator and as specified by a licensed pest control advisor. (**Note:** Only "Rodeo" or similar herbicide, approved by CDFG and USFWS, which are compatible with aquatic habitats should be used.) Light exclusion may also be used as a weed control measure and entails temporarily covering of the soil with a material which blocks light to the soil surface. Such coverings may include mulch, landscape fabric, compost, and/or straw. Use of the materials shall be approved by the biological monitor.

Clearing and Trash Removal. Pruning or clearing of any native vegetation will not be allowed within the restoration and enhancement areas, unless so directed by the biological monitor. Deadwood and leaf litter of native trees and shrubs shall not be removed and shall be left onsite to serve as natural mulch. Downed logs and leaf litter provide valuable microhabitats for invertebrates, reptiles, small mammals, and birds. In addition, the decomposition of deadwood and leaf litter is essential for the replenishment of soil nutrients and minerals. Trash consisting of all man-made materials, equipment, or debris dumped, thrown, or left within the revegetation/enhancement areas, and will be removed from the revegetation site by hand on a monthly basis during the five-year period.

5.3 Responsible Parties

The City of San Diego Engineering and Capital Projects Department, Transportation and Drainage Design Division and the Water and Wastewater Utilities Department, will be responsible for financing and carrying out the long-term maintenance and monitoring activities. These departments shall coordinate with the City of San Diego Park and Recreation Department for all final approvals and long-range management arrangements.

Per California Coastal Commission (CCC) requirements, the permittee/applicant (City) shall undertake all mitigation and monitoring in accordance with the approved program prior to, or concurrent with, the occurrence of the subject wetland impacts. Any proposed changes to the approved program shall be reported to the Executive Director of CCC. No changes to the approved program shall occur without an amendment to the coastal development permit, unless the Executive Director determines an amendment is not required.

5.4 Schedule of Maintenance Activities

Maintenance activities shall be conducted concurrent with the installation of the plant material, shall continue throughout the initial 120 day establishment period, and shall include a total of five years of maintenance. The five-year period shall officially start at the successful completion of the installation and 120-day maintenance period. During Year 1, maintenance shall be conducted monthly. Thereafter, during years 2–5, maintenance activities should be conducted bi-monthly (once every two months) throughout the remainder of the five-year maintenance period.

5.5 Long-Term Management

The long-term management of the mitigation area, after completion of the five-year maintenance and monitoring period has been completed, would fall under the responsibility of the City of San Diego Park and Recreation Department. The area would be managed as part of the Los Peñasquitos Canyon Preserve open space area and would be protected in perpetuity as a revegetation/mitigation site. Management practices would be guided by the goals and directives outlined in the Los Peñasquitos Canyon Preserve Natural Resource Management Plan.

6.0 MONITORING PLAN

6.1 Performance Criteria

The following performance standards shall be achieved at the end of each year following planting, and will be evaluated each year during the long-term 5-year maintenance and monitoring period. Performance standards are viewed as interim project objectives designed to achieve the final mitigation goals. If mitigation efforts fail to meet performance standards in any one year the biological monitor will recommend remedial actions to be implemented the following year, that will enhance the project to a level of conformance with the appropriate standard.

In September of the first year of monitoring, the container plants should be checked for survival. All dead container plants shall be tallied. If more than 20 percent of the container stock have died (i.e, 80% survival based upon original installation quantity), the dead plant material in excess of 20% shall be removed and replaced with the same size material as was originally specified. Replacement planting should be completed by November or December of each year. For years two through five 100% survival of container plants will be required, based upon the total existing after replacements in Year 1, (i.e., 80% of original installation amount). The results of the dead plant check in September should be part of the yearly technical assessment and report evaluation each year.

6.2 Remedial Measures

If performance standards are not met for the specified period, remedial efforts shall be required.

After the first year of maintenance and monitoring, the following remedial measures are recommended:

1) If the standard of 80% survival of all planted trees and shrubs is not met at the end of Year 1, each dead tree or shrub must be replaced with a new specimen of the same species and size as originally specified. If one species appears to be more successful than others, that species may be substituted if approved by the biological monitor. Natural recruitment of native wetland species will be considered a credit against loss of planted material.

2) If the creek tie-in points for the secondary flow channels serving the revegetation areas have not been adequately stabilized and protected against erosion by the end of Year 1, then they shall be modified and further protective measures implemented to direct the flow and stabilize the creek banks. If the creek banks have not revegetated naturally, additional enhancement plantings shall be required, i.e., seeds of wetland species such as cattail (*Typha* sp.) and bulrush (*Scirpus* sp.) shall be broadcast into the unvegetated, wet creek areas.

3) If cover of non-native/weed species in the disturbed areas exceeds 5%, monthly weeding shall continue until native plant cover is sufficient.

If after the second year of maintenance and monitoring the standards are not met, the following additional remedial measures are recommended:

1) If the standard of 100% survival of all planted trees and shrubs is not met by the end of Year 2, each dead tree or shrub must be replaced with a new specimen. If one species appears to be more successful than others, that species may be substituted for the dead species per approval of the biological monitor. Natural recruitment of native wetland species will be considered a credit against loss of planted material.

2) If the cover of non-native/weed species in the enhancement areas exceeds 5%, monthly weeding shall continue.

Years 3-5 remedial measures to be determined.

Following the fifth year of maintenance and monitoring the mitigation shall be deemed complete (if no additional work is required to implement Year 5 remedial measures), contingent upon approval and final sign-off from the resource agencies and fulfillment of all permit obligations.

6.3 Monitoring Methods

Monitoring shall consist of qualitative and quantitative field monitoring visits by a qualified biological monitor (as approved by the City and the resource agencies) to assess survival of container planted species, and to assess percent cover (based on visual analysis in years one and two, and sample transect measurements through quantitative analysis in years three through five). Size of individuals, height and spread will be based on a random sample of heights, (willows and mulefat only). Visual evidence of use of the revegetated area by wildlife species shall also be assessed and documented. Spring monitoring sessions should determine the need to continue the temporary irrigation through the following year. Fall monitoring should be conducted to assess plant mortality and compliance with intended standards and the need for container replacements.

Permanent vegetation sampling stations (transects) will be established within the mitigation site at appropriate locations. Transects encompassing at least five transects per acre of revegetated area will be used to determine revegetation success. At least 20 permanent photo-documentation stations will be established to record the progress of the mitigation over the 5-year period.

6.4 Monitoring Reports

The first technical assessment shall be conducted immediately after installation of the plant material and completion of the initial 120 day maintenance period (see 6.5 below). The first construction completion report shall be prepared immediately following the 120 day period. Annual monitoring reports shall be submitted annually at the anniversary date of completion of the installation and official start of the five-year monitoring timeframe. The reports shall be submitted to the City of San Diego, including the City Transportation and Drainage Design Division, the City Parks and Recreation Department; the U.S. Army Corps of Engineers; the California Department of Fish and Game, and the California Coastal Commission (Executive Director). The monitoring reports shall describe the current conditions of the revegetation site, present the qualitative and quantitative monitoring results, identify wildlife use of the site, identify all shortcomings of the revegetation/ enhancement effort, and recommend remedial measures necessary for the successful completion of the revegetation program.

The reports also will include the following:

- a list of names, titles, and companies of all persons who prepared the content of the annual report and participated in monitoring activities;
- a copy of any permits, special conditions, or subsequent letters of modification (if appropriate);
- prints of all monitoring photographs from permanent photo viewpoints;
- maps identifying monitoring areas, transect locations, planting zones, etc. as appropriate.

6.5 Schedule for Monitoring

The revegetation effort should be assessed bimonthly (every two months) during Year 1 to determine survival of container plants, initial success of hydroseeding, maintenance activities and functioning of the irrigation systems. Thereafter general assessments shall be conducted twice per year. Quantitative monitoring (transect data collection) shall be conducted once per year in the Spring, during Years 3 – 5. Other qualitative information shall be collected twice per year during Fall and Spring of each year.

6.6 Completion of Mitigation

6.6.1 Notification of Completion

If the applicant believes that the final success criteria have been met prior to, or at the end of the 5-year monitoring period, the applicant shall notify the regulatory agencies (i.e., Corps, CDFG and CCC) and shall apply for final permit sign-off and approval.

6.6.2 Regulatory Agency Confirmation

Following receipt of the notification of completion, the Corps, CDFG and CCC may visit the site to confirm the successful completion of the mitigation effort and compliance with permit conditions.

6.6.3 Final Turnover Requirements

Prior to final acceptance of the mitigation program the Biological Monitor and the City shall submit to the resource agencies a copy of the "As-Built" plans documenting the final configuration of the

mitigation/revegetation site. Actual "As-Built" plans shall be prepared within 30 days of completion of the installation and shall be updated at the end of the monitoring period if conditions have changed.

In addition, the Biological Monitor on behalf of the City, shall conduct a wetland delineation of the mitigation/revegetation site to verify that jurisdictional wetland habitat has been created by the mitigation/revegetation effort. The wetland delineation report shall be submitted to the Army Corps of Engineers for review and approval prior to final sign-off. A final walkthrough with the resource agencies may be required.

7.0 CONTINGENCY MEASURES

7.1 Remedial Actions

If an annual performance criterion is not met for all or any portion of the mitigation project in any year, or if the final success criteria are not met, the permittee shall prepare an analysis of the cause(s) of failure and, if determined necessary by the Corps, CDFG and CCC, and propose remedial actions for approval. If the mitigation site has not met the performance criteria, the responsible party's maintenance and monitoring obligations will continue until the Corps and CDFG give final project permit compliance/approval.

7.2 Alternative Locations for Contingency Mitigation

In the event that the intended mitigation/revegetation habitats cannot be achieved successfully within the intended mitigation site, an alternative mitigation program will be identified at that time per City and resource agency concurrence, to meet the original mitigation requirements.

7.3 Funding Mechanisms and Bonding

The same funding source available for the intended installation and maintenance/monitoring work, as established by the Applicant, will be available for any additional planning, alternative/remedial actions and monitoring of any contingency procedures that may be required to achieve the mitigation goals.

The Applicant (City of San Diego) shall post a performance bond or irrevocable letter of credit (LOC) with the Army Corps of Engineers (ACOE), for the cost of the revegetation/mitigation program including, grading, irrigation, planting and five years of maintenance and monitoring of all mitigation areas, (this bond amount shall include a 20% contingency to be added to the total costs). This bond

or LOC is intended to guarantee the successful implementation of the wetlands mitigation construction, maintenance and monitoring work. The surety company utilized shall be on the current approved list of treasury-authorized companies. The applicant shall submit the final bond or LOC at least five days prior to initiating wetland impacts authorized by the permit. Since the ACOE permit was an "After-the-Fact" permit, this requirement was not initially satisfied. The City is working with the ACOE to resolve this issue and secure the required bonding prior to start of construction.

8.0 LITERATURE CITED

City of San Diego, September 1996. Park and Recreation Department , City of San Diego, *Draft Los Peñasquitos Canyon Preserve Natural Resource Management Plan.*

DUDEK, October 1997. Dudek & Associates, Inc. *.Biological Resources Report And Impact Analysis For The Sorrento Creek Drainage Channel Project San Diego, San Diego County, California.*

Reed, P.B., 1988. *National List of Plant Species That Occur in Wetlands: California (Region). Biological Report 88 (26.10).* United States Fish and Wildlife Service, Department of the Interior.

U.S. Army Corps of Engineers, 1 June 1993. *Habitat Mitigation and Monitoring Proposal Guidelines.*

APPENDICES

DUDEK
& ASSOCIATES
A California Corporation

APPENDIX A

EXISTING PLANT SPECIES LIST
(Los Peñasquitos Canyon Preserve Mitigation Area)

ANGIOSPERMAE (DICOTYLEDONES)

AMARANTHACEAE - AMARANTH FAMILY

* *Amaranthus* sp. - pigweed

ANACARDIACEAE - SUMAC FAMILY

Toxicodendron diversilobum - poison-oak

APIACEAE - CARROT FAMILY

* *Apium graveolens* - common celery
* *Conium maculatum* - poison hemlock
* *Foeniculum vulgare* - sweet fennel

ASTERACEAE - SUNFLOWER FAMILY

Ambrosia psilostachya - western ragweed
Artemisia californica - California sagebrush
Artemisia douglasiana - Douglas mugwort
Baccharis salicifolia - mule fat
* *Chrysanthemum coronarium* - garland chrysanthemum
* *Cirsium vulgare* - bull thistle
* *Conyza canadensis* - common horseweed
* *Conyza bonariensis* - wax-leaf fleabane
* *Cotula coronopifolia* - African brass buttons
* *Cynara cardunculus* - cardoon
Gnaphalium californicum - California everlasting
Gnaphalium "palustre" - lowland cudweed
* *Helianthus annuus* - western sunflower
Heterotheca grandiflora - telegraph weed
Isocoma menziesii - coast goldenbush
* *Lactuca serriola* - wild lettuce
* *Picris echioides* - bristly ox-tongue

APPENDIX A (*Continued*)

Pluchea odorata - salt-marsh fleabane
* *Silybum marianum* - milk thistle
Xanthium strumarium var. *canadese* - cocklebur

BORAGINACEAE - BORAGE FAMILY
Heliotropium curassavicum - salt heliotrope

BRASSICACEAE - MUSTARD FAMILY
* *Brassica nigra* - black mustard
* *Cardaria draba* - hoary cress
* *Nasturtium officinale* - white water cress
* *Raphanus sativus* - wild radish

CAPPRIFOLIACEAE - HONEYSUCKLE FAMILY
Sambucus mexicanus - Mexican elderberry

CHENOPODIACEAE - GOOSEFOOT FAMILY
Atriplex canescens - four-wing saltbush
Atriplex triangularis - halberd-leaf saltbush
* *Atriplex semibaccata* - creeping salt bush
* *Chenopodium ambrosioides* - Mexican Tea
Suaeda sp. - sea-blight

CONVOLVULACEAE - MORNING GLORY FAMILY
Cressa truxillensis - alkali weed

EUPHORBIACEAE - SPURGE FAMILY
* *Chamaesyce polycarpa* - rattlesnake weed
* *Euphorbia lathyris* - caper spurge
* *Ricinis communis* - castor-bean

FABACEAE - PEA FAMILY
Amorpha fruiticosa - false indigo
* *Melilotus* albus - white sweet-clover
* *Melilotus indica* - Indian sweet-clover
* *Vicia* sp. - non-native vetch

APPENDIX A (*Continued*)

FRANKENIACEAE - ALKALI-HEATH FAMILY
Frankenia salina - Alkali-heath

GERANIACEAE - GERANIUM FAMILY
Geranium carolinianum -

IRIDACEAE - IRIS FAMILY
* Iris pseudocorus - no common name

LEGUMINACEAE - LEGUME FAMILY
Trifolium sp. - clover

LYTHRACEAE - LOOSESTRIFE FAMILY
* *Lythrum hyssopifolia* - grass poly

MALVACEAE - MALLOW FAMILY
Malvella leprosa - alkali mallow

MYRTACEAE - MYRTLE FAMILY
* *Eucalyptus* sp. - gum tree

ONAGRACEAE - EVENING-PRIMROSE FAMILY
Epilobium adenocaulon - willow-herb
Oenothera elata - great marsh evening-primrose

PLATANACEAE - SYCAMORE FAMILY
Platanus racemosa - western sycamore

PLANTAGINACEAE - PLANTAIN FAMILY
* *Plantago lanceolata* - plantain

POLYGONACEAE - BUCKWHEAT FAMILY
Polygonum lapathifolium - knotweed
* *Rumex crispus* - curly dock

APPENDIX A (*Continued*)

ROSACEAE - ROSE FAMILY
- *Rosa californica* - California wild rose
- *Rubus ursinus* - California blackberry

SALICACEAE - WILLOW FAMILY
- *Populus fremontii* - western cottonwood
- *Salix gooddingii* - black willow
- *Salix lasiolepis* - arroyo willow

SAURURACEAE - LIZARD-TAIL FAMILY
- *Anemopsis californica* - yerba mansa

SCROPHULARIACEAE - FIGWORT FAMILY
- *Mimulus puniceus* - red monkeyflower
- * *Verbascum thapsus* - common mullein
- *Veronica peregrina* - Mexican speedwell

SOLANACEAE - NIGHTSHADE FAMILY
- *Datura wrightii* - jimsonweed
- * *Nicotiana glauca* - tree tobacco
- *Solanum nigrum* - black nightshade

TAMARICACEAE - TAMARISK FAMILY
- * *Tamarix parviflora* - tamarisk

TYPHACEAE - CATTAIL FAMILY
- *Typha domingensis* - slender cattail

URTICACEAE - NETTLE FAMILY
- *Urtica dioica* - hoary nettle

APPENDIX A (*Continued*)

ANGIOSPERMAE (MONOCOTYLEDONES)

CYPERACEAE - SEDGE FAMILY

* *Cyperus alternifolius* - African umbrella plant
Scirpus americanus(olneyi)- Olney's bulrush
Scirpus californicus - California bulrush
Scirpus robustus - bull tule

JUNCACEAE - RUSH FAMILY

Juncus mexicanus - Mexican rush
Juncus xiphioides - iris-leaved rush

POACEAE - GRASS FAMILY

* *Agropyron intermedium* - intermediate wheatgrass
* *Avena barbata* - slender oat
* *Cynodon dactylon* - Bermudagrass
Distichlis spicata - salt grass
* *Leptochloa uninervia* - dense-flower sprangle-top
Leymus glaucus - Pacific wild rye
Leymus triticoides - breadless wild ryegrass
Lolium perenne - English ryegrass
* *Polypogon monspeliensis* - rabbitfoot beardgrass
* *Vulpia myuros* - rat-tail fescue

TYPHACEAE - CAT-TAIL FAMILY

Typha latifolia - soft flag

* denotes non-native, introduced species

APPENDIX B

SOILS BORING LOGS AND SOILS FERTILITY ANALYSIS

(This work is currently in progress, not available at this time for draft report publication, to be included in final report submittal.)

GROUP DELTA CONSULTANTS

Certified DBE/MBE

Geotechnical Engineering
Geology
Hydrogeology
Coastal Engineering
Hydrology
Hydraulics
Environmental Engineering

Project No. 1820-SI01
March 2, 1998

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MAR - 3 1998
DUDEK & ASSOC.

Attention: Mr. John Minchen
DUDEK AND ASSOCIATES, INC.
605 Third Street
Encinitas, California 92024

LIMITED FIELD INVESTIGATION
PENASQUITOS CANYON MITIGATION
SAN DIEGO, CALIFORNIA

Dear John:

I have enclosed the final logs of our eight hand auger test borings, excavated by Brad Wood on February 6 and 7, 1998, at the locations you selected (see enclosed map photocopy).

Please excuse the delay in getting these logs to you. As you may have heard, our office on Murphy Canyon Road was flooded last Tuesday morning as the result of the Caltrans culvert collapse. Since that time, we have been trying to work around a battalion of people as they ripped up all of our carpeting, pumped and vacuumed the water out of the building, set up 20 huge, noisy fans and dehumidifiers, and began moving furniture out of the building. Hopefully, it won't be too much longer and we'll be back to normal operations.

I have also enclosed the gate key you loaned us. Thanks again for your patience.

Very truly yours,

GROUP DELTA CONSULTANTS, INC.

Braven R. Smillie, Principal Geologist

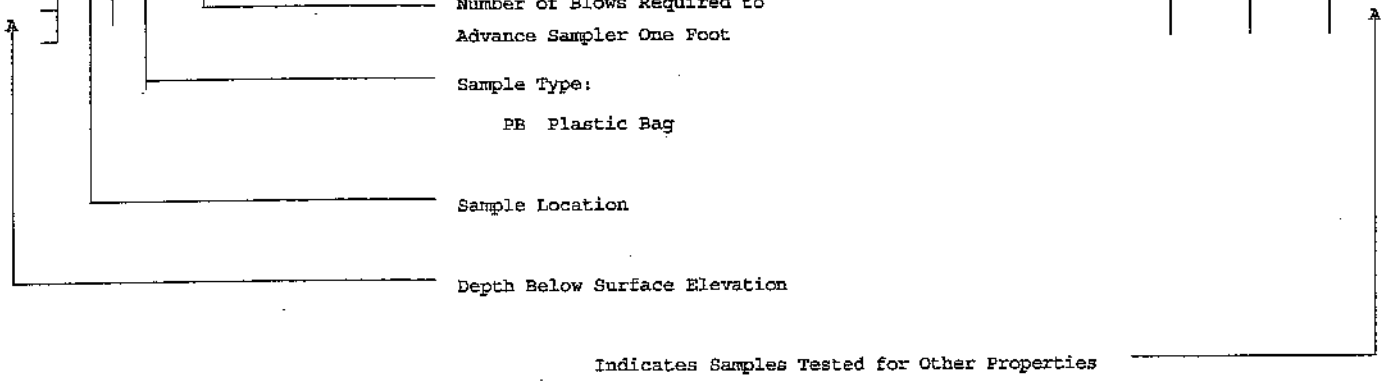
BRS/jc
Enclosures

4455 Murphy Canyon Road, Suite 100 ▲ San Diego, California 92123-4379 ▲ (619) 573-1777 *voice* ▲ (619) 573-0069 *fax* ▲ gdcsd@aol.com *e-mail*
3347 Michelson Drive, Suite 390 ▲ Irvine, California 92612-1692 ▲ (714) 975-7474 *voice* ▲ (714) 975-7390 *fax* ▲ gdcoc@aol.com *e-mail*

K E Y T O E X C A V A T I O N L O G S

LOGGED BY:	DATE DRILLED:	BORING ELEVATION:	BORING NO.:
DRILL RIG:	BORING DIAMETER:	HAMMER WT.: DROP:	

DEPTH (feet)	SAMPLE NO.	TYPE	BLOWS/FOOT	GROUNDWATER	DESCRIPTION	MOISTURE CONTENT %	DRY DENSITY pcf	OTHER TESTS
			14	▽	Medium dense, moist, brown SILTY FINE SAND (SM)			
					Unified Soil Classification			
5								



N O T E S O N F I E L D I N V E S T I G A T I O N

1. Borings were advanced using a 4-inch-diameter auger.
2. The samples obtained from the borings were visually classified, sealed in plastic bags, and taken to the laboratory for detailed inspection.
3. Free groundwater was encountered in the borings as shown on the logs.
4. Classifications are based upon the Unified Soil Classification System and include color, moisture and consistency. Field descriptions have been modified to reflect results of laboratory inspection where deemed appropriate.

Descriptions on this boring log apply only at the specific boring location and at the time the boring was made. The descriptions on this log are not warranted to be representative of subsurface conditions at other locations or times.

PROJECT NO.: 1820-SI01	PENASQUITOS CANYON MITIGATION	FIGURE NO.: A - 1

B O R I N G L O G

LOGGED BY: B. WOOD	DATE DRILLED: 2/7/98	BORING ELEVATION: 52 feet (MSLD)	BORING NO.:
DRILL RIG: Hand Auger	BORING DIAMETER: 4 inches	HAMMER WT.: N/A DROP: N/A	B - 1

DEPTH (feet)	SAMPLE NO.	TYPE	BLOWS/FOOT	GROUND-WATER	DESCRIPTION	MOISTURE CONTENT %	DRY DENSITY pcf	OTHER TESTS
1	1	PB			Soft, moist, dark brown, SILTY CLAY TO CLAYEY SILT (CL-ML) ALLUVIUM			
2	2	PB		▽	Loose to medium dense, moist to saturated, light brown, SILTY FINE SAND (SM), with gravel (0.5 to 1.0 inch)			
3								
4					BOTTOM OF BORING at 3.5 feet			
5								
6								
7								
8								

Descriptions on this boring log apply only at the specific boring location and at the time the boring was made. The descriptions on this log are not warranted to be representative of subsurface conditions at other locations or times.

PROJECT NO.: 1820-SI01	PENASQUITOS CANYON MITIGATION	FIGURE NO.: A - 2

B O R I N G L O G

LOGGED BY: B. WOOD	DATE DRILLED: 2/7/98	BORING ELEVATION: 51 feet (MSLD)	BORING NO.:
DRILL RIG: Hand Auger	BORING DIAMETER: 4 inches	HAMMER WT.: N/A DROP: N/A	B - 2

DEPTH (feet)	SAMPLE NO.	TYPE	BLOWS/FOOT	GROUND-WATER	D E S C R I P T I O N	MOISTURE CONTENT %	DRY DENSITY pcf	OTHER TESTS
	1	PB			Very loose, moist, light brown, SILTY FINE TO MEDIUM SAND (SM) ALLUVIUM			
1					Loose to medium dense, moist to saturated, fine to medium SAND (SP), with gravel and cobble (0.5 to 3 inches)			
2	2	PB		▽				
3					BOTTOM OF BORING at 3 feet			
4								
5								
6								
7								
8								

Descriptions on this boring log apply only at the specific boring location and at the time the boring was made. The descriptions on this log are not warranted to be representative of subsurface conditions at other locations or times.

PROJECT NO.: 1820-SI01	PENASQUITOS CANYON MITIGATION	FIGURE NO.: A - 3

GROUP DELTA CONSULTANTS, INC.
Engineers and Geologists

B O R I N G L O G

LOGGED BY: B. WOOD	DATE DRILLED: 2/7/98	BORING ELEVATION: 48 feet (MSLD)	BORING NO.:
DRILL RIG: Hand Auger	BORING DIAMETER: 4 inches	HAMMER WT.: N/A DROP: N/A	B - 3

DEPTH (feet)	SAMPLE NO.	TYPE	BLOWS/FOOT	GROUND-WATER	DESCRIPTION	MOISTURE CONTENT %	DRY DENSITY pcf	OTHER TESTS
1					Loose to medium dense, moist saturated, light gray-brown,			
2	1	PB			fine to medium SAND (SP) ALLUVIUM			
3				▽				
					BOTTOM OF BORING at 3.25 feet			
4								
5								
6								
7								
8								

Descriptions on this boring log apply only at the specific boring location and at the time the boring was made. The descriptions on this log are not warranted to be representative of subsurface conditions at other locations or times.

PROJECT NO.: 1820-SI01	PENASQUITOS CANYON MITIGATION	FIGURE NO.: A - 4

BORING LOG

LOGGED BY: B. WOOD	DATE DRILLED: 2/7/98	BORING ELEVATION: 47 feet (MSLD)	BORING NO.:
DRILL RIG: Hand Auger	BORING DIAMETER: 4 inches	HAMMER WT.: N/A DROP: N/A	B - 4

DEPTH (feet)	SAMPLE NO.	TYPE	BLOWS/FOOT	GROUND-WATER	DESCRIPTION	MOISTURE CONTENT %	DRY DENSITY pcf	OTHER TESTS
1	1	PB		▽	Soft, saturated, dark brown, SILTY CLAY TO CLAYEY SILT (CL-ML), with gravel (1 to 2 inches) ALLUVIUM			
					BOTTOM OF BORING at 1.25 feet			
2								
3								
4								
5								
6								
7								
8								

Descriptions on this boring log apply only at the specific boring location and at the time the boring was made. The descriptions on this log are not warranted to be representative of subsurface conditions at other locations or times.

PROJECT NO.: 1820-SI01	PENASQUITOS CANYON MITIGATION	FIGURE NO.: A - 5

B O R I N G L O G

LOGGED BY: B. WOOD	DATE DRILLED: 2/6/98	BORING ELEVATION: 46 feet (MSLD)	BORING NO.:
DRILL RIG: Hand Auger	BORING DIAMETER: 4 inches	HAMMER WT.: N/A DROP: N/A	B - 5

DEPTH (feet)	SAMPLE NO.	TYPE	BLOWS/FOOT	GROUND-WATER	D E S C R I P T I O N	MOISTURE CONTENT %	DRY DENSITY pcf	OTHER TESTS
	1	PB		▽	Soft, saturated, dark brown, SILTY CLAY (CL-CH) ALLUVIUM			
1					BOTTOM OF BORING at 1 foot			
2								
3								
4								
5								
6								
7								
8								

Descriptions on this boring log apply only at the specific boring location and at the time the boring was made. The descriptions on this log are not warranted to be representative of subsurface conditions at other locations or times.

PROJECT NO.: 1820-SI01	PENASQUITOS CANYON MITIGATION	FIGURE NO.: A - 6

B O R I N G L O G

LOGGED BY: B. WOOD	DATE DRILLED: 2/6/98	BORING ELEVATION: 44 feet (MSLD)	BORING NO.:
DRILL RIG: Hand Auger	BORING DIAMETER: 4 inches	HAMMER WT.: N/A DROP: N/A	B - 6

DEPTH (feet)	SAMPLE NO.	TYPE	BLOWS/FOOT	GROUND-WATER	D E S C R I P T I O N	MOISTURE CONTENT %	DRY DENSITY pcf	OTHER TESTS
	1	PB		▽	Soft, saturated, dark brown, SILTY CLAY (CH) ALLUVIUM			
1					BOTTOM OF BORING at 1 foot			
2								
3								
4								
5								
6								
7								
8								

Descriptions on this boring log apply only at the specific boring location and at the time the boring was made. The descriptions on this log are not warranted to be representative of subsurface conditions at other locations or times.

PROJECT NO.: 1820-SI01	PENASQUITOS CANYON MITIGATION	FIGURE NO.: A - 7

B O R I N G L O G

LOGGED BY: B. WOOD	DATE DRILLED: 2/6/98	BORING ELEVATION: 44 feet (MSLD)	BORING NO.:
DRILL RIG: Hand Auger	BORING DIAMETER: 4 inches	HAMMER WT.: N/A DROP: N/A	B - 7

DEPTH (feet)	SAMPLE NO.	TYPE	BLOWS/FOOT	GROUND-WATER	D E S C R I P T I O N	MOISTURE CONTENT %	DRY DENSITY pcf	OTHER TESTS
	1	PB		▽	Soft, saturated, dark brown, SILTY TO FINE SANDY CLAY (CL-CH) ALLUVIUM			
1					BOTTOM OF BORING at 1 foot			
2								
3								
4								
5								
6								
7								
8								

Descriptions on this boring log apply only at the specific boring location and at the time the boring was made. The descriptions on this log are not warranted to be representative of subsurface conditions at other locations or times.

PROJECT NO.: 1820-SI01	PENASQUITOS CANYON MITIGATION	FIGURE NO.: A - 8

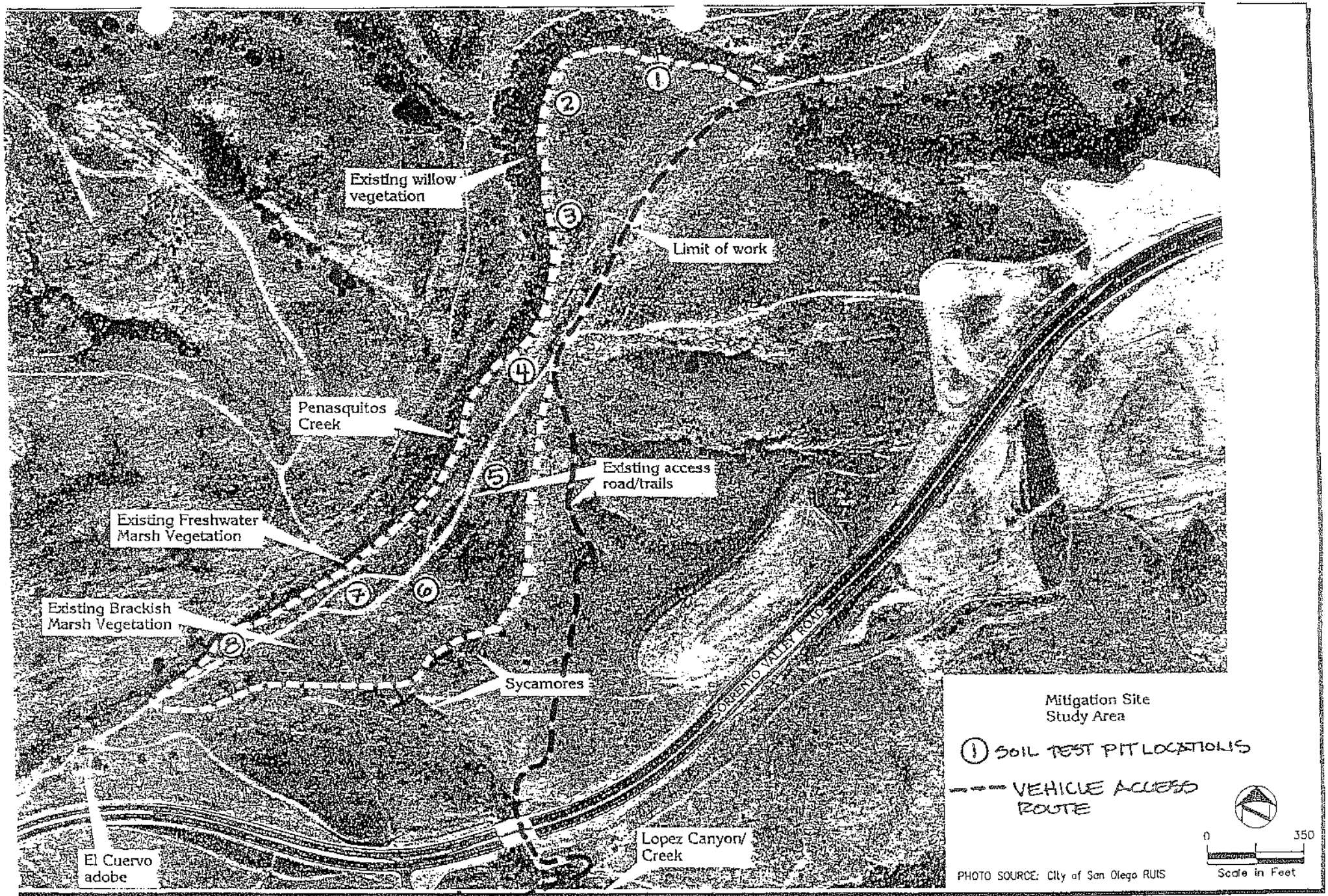
B O R I N G L O G

LOGGED BY: B. WOOD	DATE DRILLED: 2/7/98	BORING ELEVATION: 42 feet (MSLD)	BORING NO.:
DRILL RIG: Hand Auger	BORING DIAMETER: 4 inches	HAMMER WT.: N/A DROP: N/A	B - 8

DEPTH (feet)	SAMPLE NO.	TYPE	BLOWS/FOOT	GROUND-WATER	DESCRIPTION	MOISTURE CONTENT %	DRY DENSITY pcf	OTHER TESTS
1	1	PB		▽	Very loose, moist to saturated, dark olive-brown, CLAYEY FINE SAND (SC) ALLUVIUM			
2					BOTTOM OF BORING at 1.5 feet			
3								
4								
5								
6								
7								
8								

Descriptions on this boring log apply only at the specific boring location and at the time the boring was made. The descriptions on this log are not warranted to be representative of subsurface conditions at other locations or times.

PROJECT NO.: 1820-SI01	PENASQUITOS CANYON MITIGATION	FIGURE NO.: A - 9



Los Penasquitos Canyon Preserve Conceptual Mitigation Plan

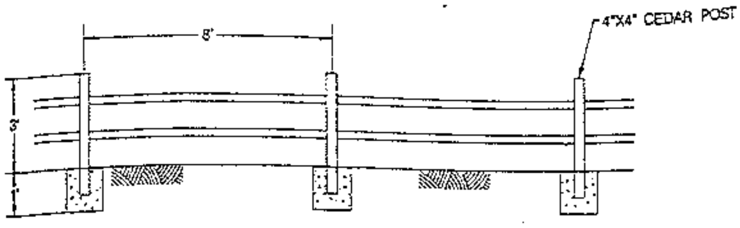
1997 Aerial Photograph of Mitigation Area

FIGURE 4

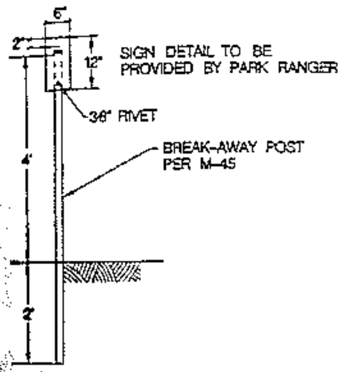
APPENDIX C

Final Revegetation Landscape Plans (Reduced Set)

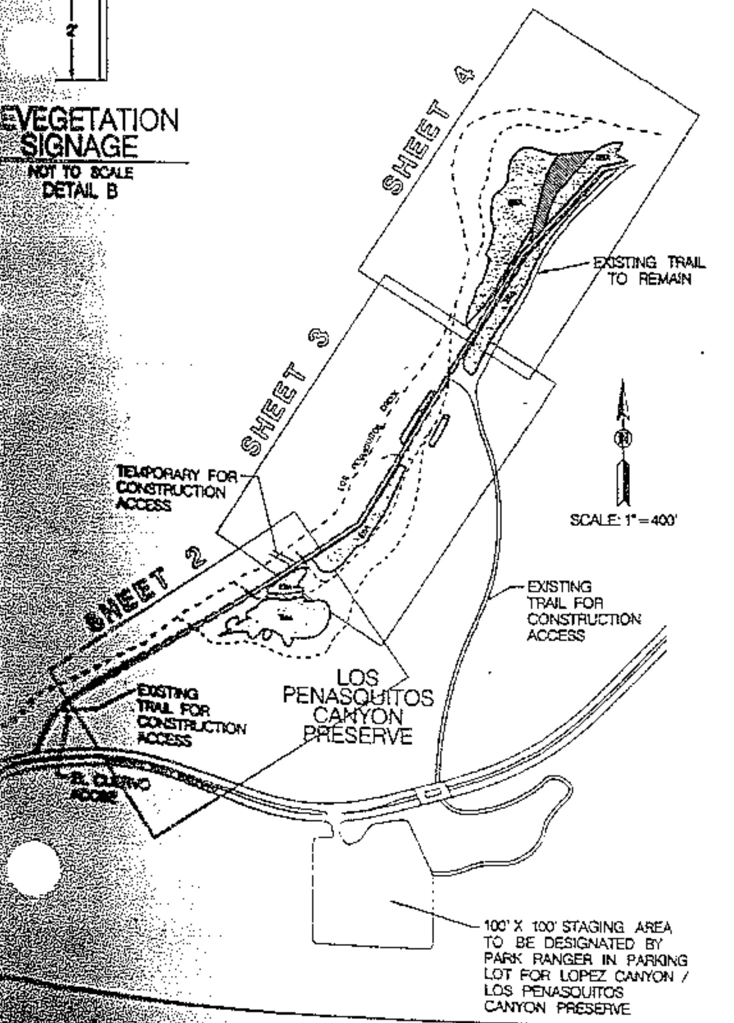
N PRESERVE
VEGETATION



TWO RAIL FENCE
NOT TO SCALE
DETAIL A



REVEGETATION SIGNAGE
NOT TO SCALE
DETAIL B



WORK TO BE DONE

THE IMPROVEMENTS CONSIST OF THE FOLLOWING WORK TO BE DONE ACCORDING TO THESE PLANS AND THE SPECIFICATIONS AND STANDARD DRAWINGS OF THE CITY OF SAN DIEGO.

STANDARD SPECIFICATIONS

STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (1997 EDITION), INCLUDING THE REGIONAL AND CITY OF SAN DIEGO SUPPLEMENT AMENDMENTS DOCUMENT No. 769331, FILED MAY. 2, 1997.

"CALIFORNIA DEPARTMENT OF TRANSPORTATION, MANUAL OF TRAFFIC CONTROLS FOR CONSTRUCTION AND MAINTENANCE WORK ZONES", (1990 EDITION), DOCUMENT NO. 769744, FILED NOV 7, 1990.

CITY OF SAN DIEGO, STANDARD SPECIAL PROVISIONS FOR STREET LIGHTING AND TRAFFIC SIGNAL SYSTEMS (1992 EDITION). DOCUMENT No. 769814, FILED OCT 21, 1993.

STATE OF CALIFORNIA, DEPARTMENT OF TRANSPORTATION, STANDARD SPECIFICATIONS (JULY 1992), DOCUMENT No. 769806, FILED JULY 9, 1992

STANDARD DRAWINGS

CITY OF SAN DIEGO STANDARD DRAWINGS, DOCUMENT No.769332, FILED MAY. 2, 1997.

STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION STANDARD PLANS (JULY 1992), DOCUMENT NO. 769805, FILED JULY 9, 1992.

GRADING LEGEND

ITEM	STD. DWG.	SYMBOL
ESA (ENVIRONMENTALLY SENSITIVE AREA)		
PROPOSED CONTOURS		40
TEMPORARY 6' CONST. FENCE		
PROPOSED 18" RCP CULVERTS	D-60, D-61	
PROPOSED SECONDARY FLOW		
PROPOSED FILL AREA		
PROPOSED GEOTEXTILE SLOPE PROTECTION		
PROPOSED REVEGETATION SIGNS	DETAIL B, M-45	
EXISTING CONTOURS		43
DAYLIGHT LINE		
EXISTING PRIMARY CREEK FLOW		
EXISTING SEWER LINE		
EXISTING SEWER EASEMENT		
EXISTING SEWER MANHOLE		
EUCALYPTUS TREE		

SPECIFICATION NO. 7054
CITY CONTRACT. CIP No. 12-134.0

TITLE SHEET

LOS PENASQUITOS CANYON PRESERVE (EL CUERVO WETLAND) REVEGETATION

CITY OF SAN DIEGO, CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER KAREN LARSON HENRY No. C 39694 Exp. 12-31-01 CIVIL STATE OF CALIFORNIA

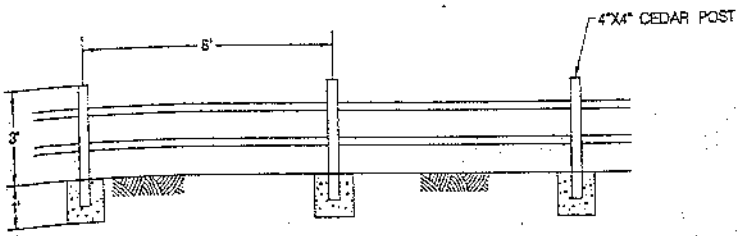
5-14-99

CONTRACTOR MUST NOTIFY THE BELOW LISTED AGENCY AT LEAST TWO (2) WORKING DAYS PRIOR TO COMMENCEMENT OF EXCAVATION :

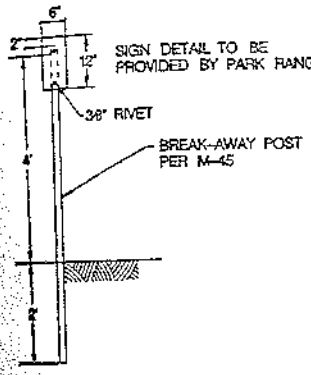
UNDERGROUND SERVICE ALERT (USA) 1-800-422-4133

29400-1-D

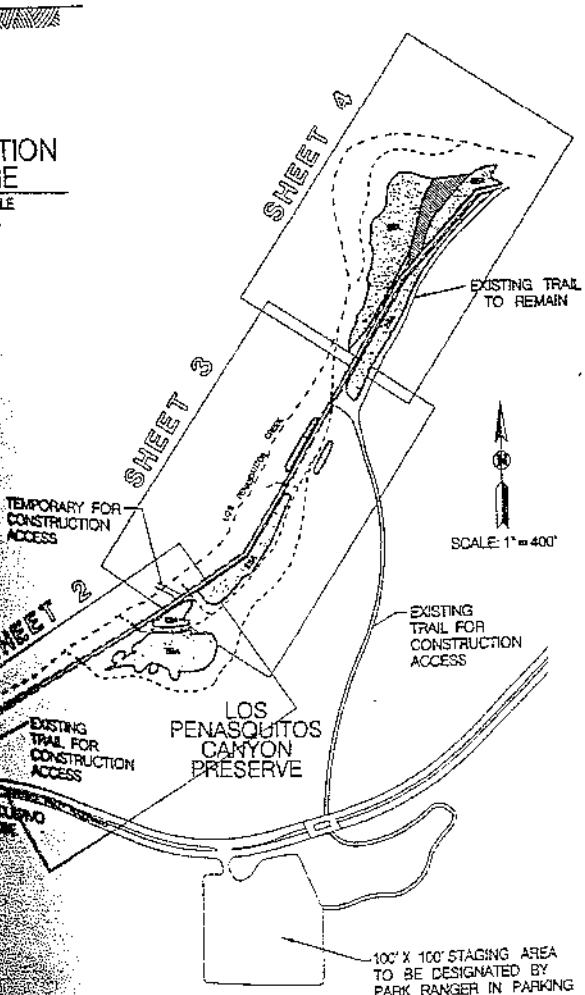
ON PRESERVE
REVEGETATION



TWO RAIL FENCE
NOT TO SCALE
DETAIL A



REVEGETATION SIGNAGE
NOT TO SCALE
DETAIL B



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(1997 EDITION), INCLUDING THE REGIONAL AND CITY OF SAN D
SUPPLEMENT AMENDMENTS DOCUMENT No. 769331,
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TRAFFIC CONTROLS FOR CONSTRUCTION AND MAINTENANCE W
ZONES", (1990 EDITION), DOCUMENT NO. 769744, FILED NOV 7, 19

CITY OF SAN DIEGO, STANDARD SPECIAL PROVISIONS FOR STR
LIGHTING AND TRAFFIC SIGNAL SYSTEMS (1992 EDITION), DOCU
No. 769814, FILED OCT 21, 1993.

STATE OF CALIFORNIA, DEPARTMENT OF TRANSPORTATION, STAN
SPECIFICATIONS (JULY 1992), DOCUMENT No. 769805,
FILED JULY 9, 1992

STANDARD DRAWINGS

CITY OF SAN DIEGO STANDARD DRAWINGS, DOCUMENT No.769
FILED MAY. 2, 1997.

STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION STA
PLANS (JULY 1992), DOCUMENT NO. 769806, FILED JULY 9, 1992

GRADING LEGEND

ITEM	STD. DWG.
ESA (ENVIRONMENTALLY SENSITIVE AREA)	
PROPOSED CONTOURS	
TEMPORARY 6' CONST. FENCE	
PROPOSED 18" RCP CULVERTS	D-60, D-61
PROPOSED SECONDARY FLOW	
PROPOSED FILL AREA	
PROPOSED GEOTEXTILE SLOPE PROTECTION	
PROPOSED REVEGETATION SIGNS	DETAIL B, M-45
EXISTING CONTOURS	
DAYLIGHT LINE	
EXISTING PRIMARY CREEK FLOW	
EXISTING SEWER LINE	
EXISTING SEWER EASEMENT	
EXISTING SEWER MANHOLE	
EUCALYPTUS TREE	

SPECIFICATION NO. 7054
CITY CONTRACT, CIP No. 12-134

REGISTERED PROFESSIONAL ENGINEER
KAREN LARSON HENRY
No. C 39694
Exp. 12-31-01
CIVIL
STATE OF CALIFORNIA

CONTRACTOR MUST NOTIFY THE BELOW LISTED AGENCY AT LEAST TWO (2) WORKING DAYS PRIOR TO COMMENCEMENT OF EXCAVATION :

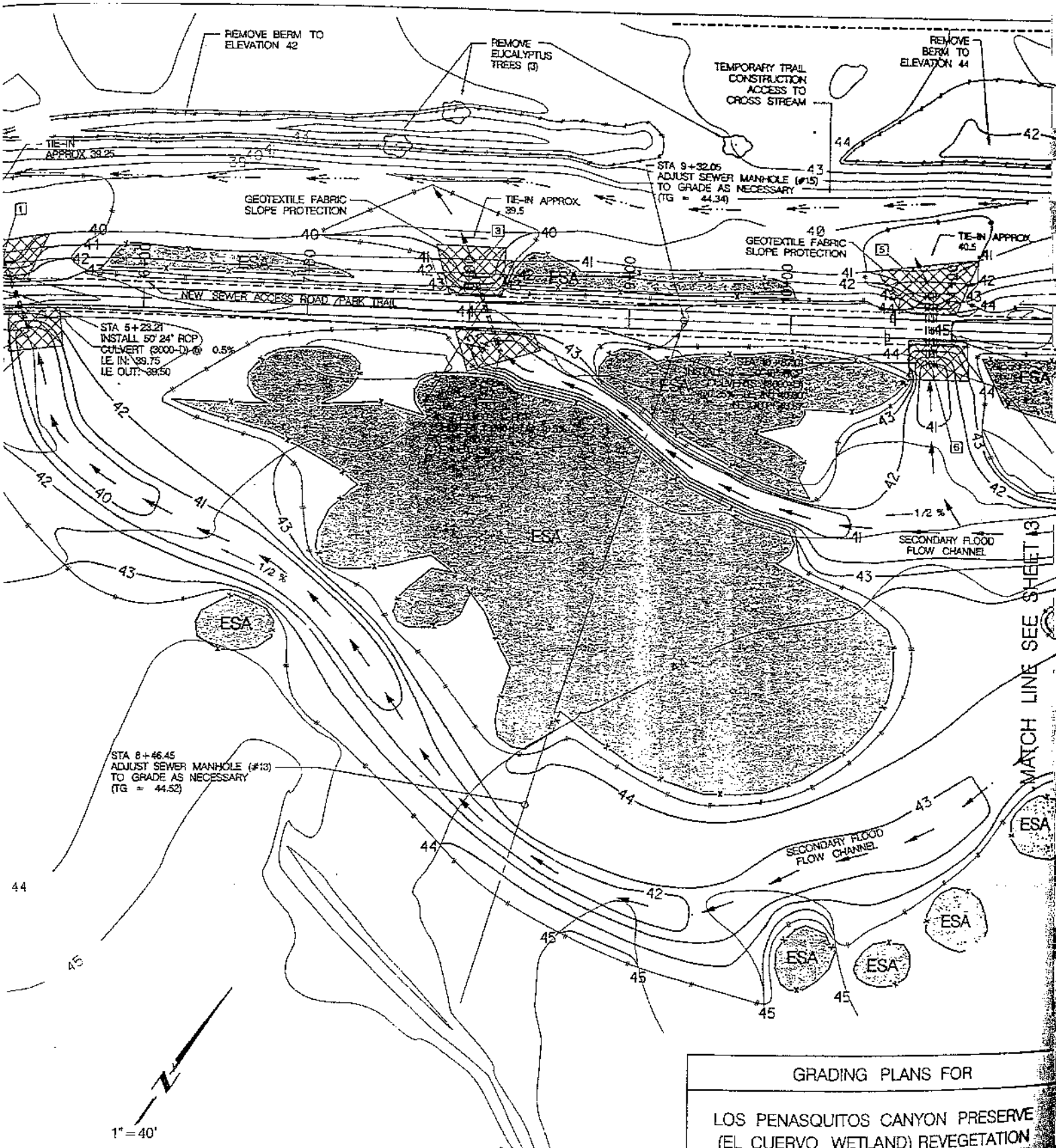
UNDERGROUND SERVICE ALERT
(USA) 1-800-422-4133

TITLE SHEET

LOS PENASQUITOS CANYON PR
(EL CUERVO WETLAND) REVEGE

CITY OF SAN DIEGO, CALIFORNIA

5-14-99



REMARK
STA 8+46.45 306.85' RT
ST +86.05
S 32.05
S 5+69.93
STA 20+35.12
STA 26+79.35
STA 31+64.47
℄ STA 0+00
℄ STA 32+43.88

0 20 40 80 120

SCALE: 1" = 40'

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

0 1 2 3

CONTRACTOR MUST NOTIFY THE BELOW LISTED AGENCY AT LEAST TWO (2) WORKING DAYS PRIOR TO COMMENCEMENT OF EXCAVATION :

UNDERGROUND SERVICE ALERT (USA) 1-800-422-4133

GRADING PLANS FOR

LOS PENASQUITOS CANYON PRESERVE (EL CUERVO WETLAND) REVEGETATION

CITY OF SAN DIEGO, CALIFORNIA
ENGINEERING DEPARTMENT
SHEET 2 OF 16 SHEETS

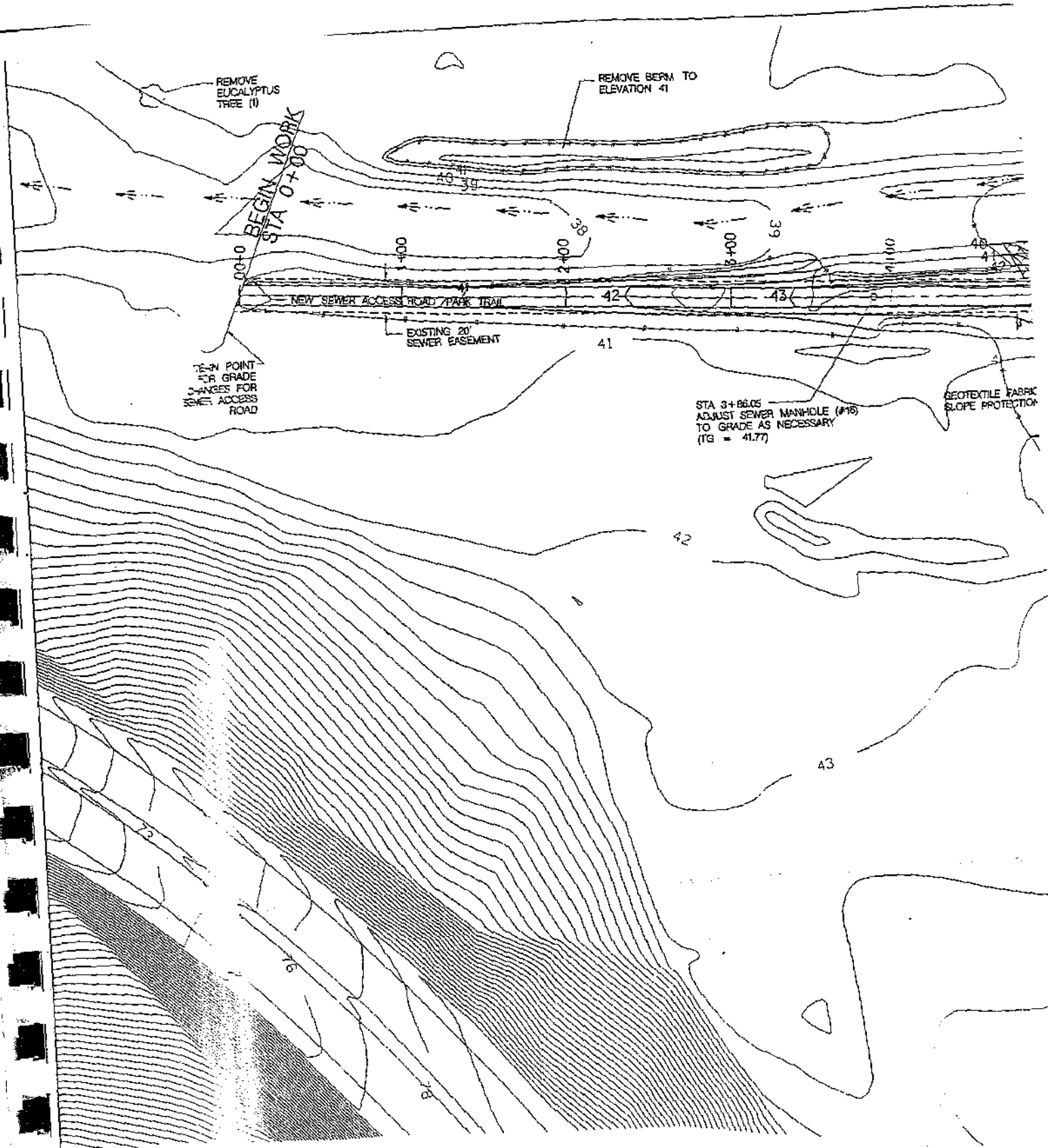
K. L. Henry
FOR CITY ENGINEER

5-14-99
DATE

DESCRIPTION	BY	APPROVED	DATE	FILMED
FILE NAME: 29450-D DGN DATE: 05-25-99	RCD			
AS-BUILT				

CONTRACTOR _____ DATE STARTED _____
INSPECTOR _____ DATE COMPLETED _____

W.O. 180019
NO. 29450-D

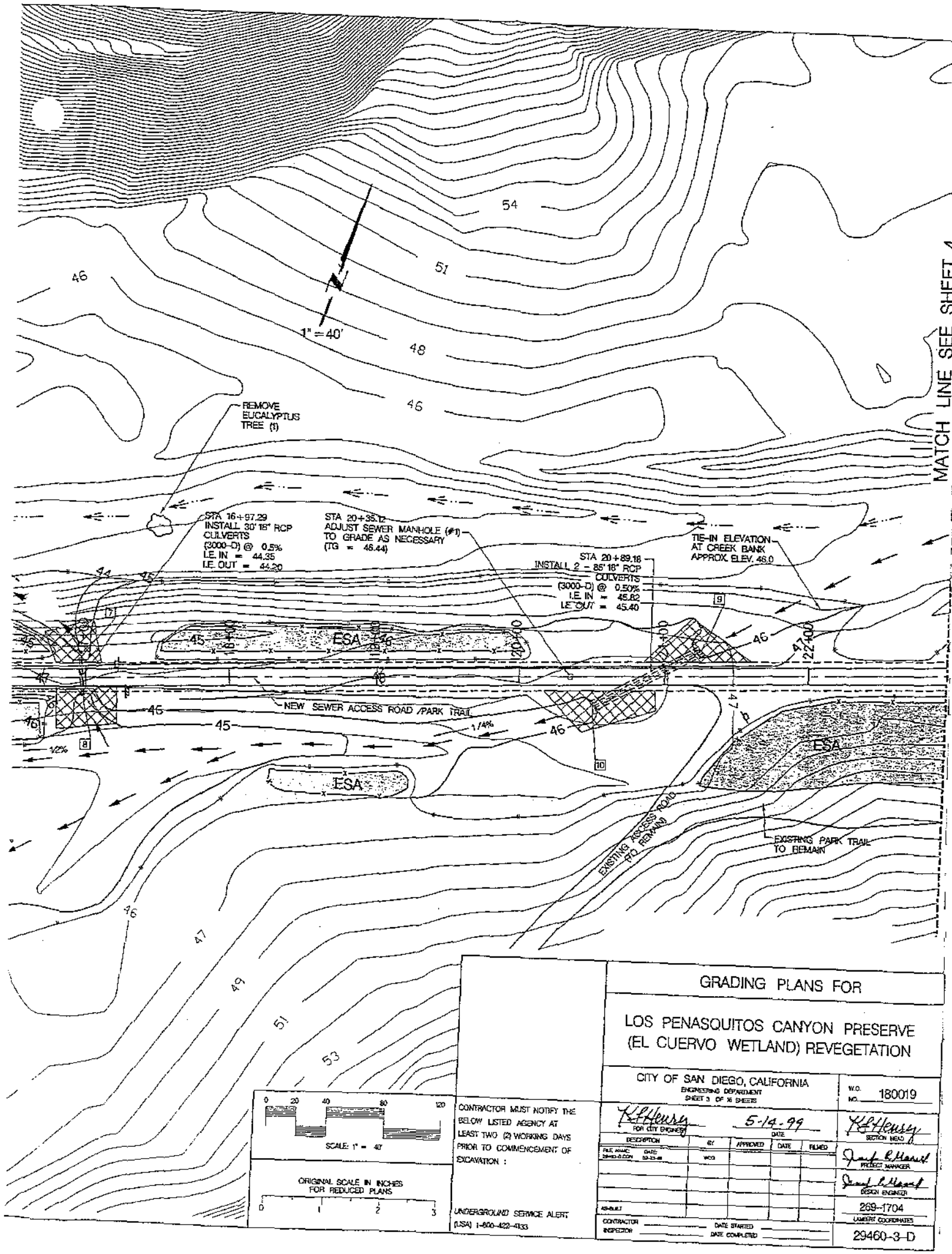


COORDINATE DATA STORM DRAIN

ID	NORTHING	EASTING	REMARK
1	[illegible]	6267247.47	24" RCP STA 5+23.21 IE IN:39.75 IE OUT:39.50
2	[illegible]	6267288.95	
3	[illegible]	6267492.27	24" RCP STA 8+13.87 IE IN:40.00 IE OUT:39.75
4	[illegible]	6267532.48	
5	[illegible]	6267726.77	2-18" RCP STA 10+87.01 IE IN:40.80 IE OUT:40.67
6	[illegible]	6267755.95	
7	[illegible]	6268128.77	18" RCP STA 16+97.29 IE IN:44.35 IE OUT:44.20
8	[illegible]	6268155.37	
9	[illegible]	6268345.00	2-18" RCP STA 20+89.18 IE IN:45.82 IE OUT:45.40
10	[illegible]	6268340.10	

COORDINATE DATA SE

SMH	PTS	NORTHING	EASTING	EX. GRADE	PROP. GRADE
#13	154	1911770.16	6267706.02	43.52	43.41
#16	155	1911782.02	6267152.86	41.77	43.11
#15	156	1912075.02	6267613.59	44.34	44.43
#14	157	1912322.75	6267974.65	45.79	45.96
#1	160	1912894.31	6268314.94	48.44	48.35
#4	161	1913448.11	6268644.08	49.20	49.93
#3	162	1913805.11	6268972.56	57.35	57.92
-	-	1911574.86	6266827.10	40.00	40.00
-	-	1913822.91	6269049.94	58.80	58.80



0 20 40 80 120

SCALE: 1" = 40'

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

0 1 2 3

CONTRACTOR MUST NOTIFY THE BELOW LISTED AGENCY AT LEAST TWO (2) WORKING DAYS PRIOR TO COMMENCEMENT OF EXCAVATION :

UNDERGROUND SERVICE ALERT (USA) 1-800-422-4133

GRADING PLANS FOR

LOS PENASQUITOS CANYON PRESERVE (EL CUERVO WETLAND) REVEGETATION

CITY OF SAN DIEGO, CALIFORNIA
ENGINEERING DEPARTMENT
SHEET 3 OF 16 SHEETS

W.O. NO. 180019

K.L. Heursy FOR CITY ENGINEER — 5-14-99 DATE

K.L. Heursy SECTION HEAD

DESCRIPTION	BY	APPROVED	DATE	FILMED
FILE NAME: 29460-D.DGN DATE: 03-23-99	WCO			
AS-BUILT				

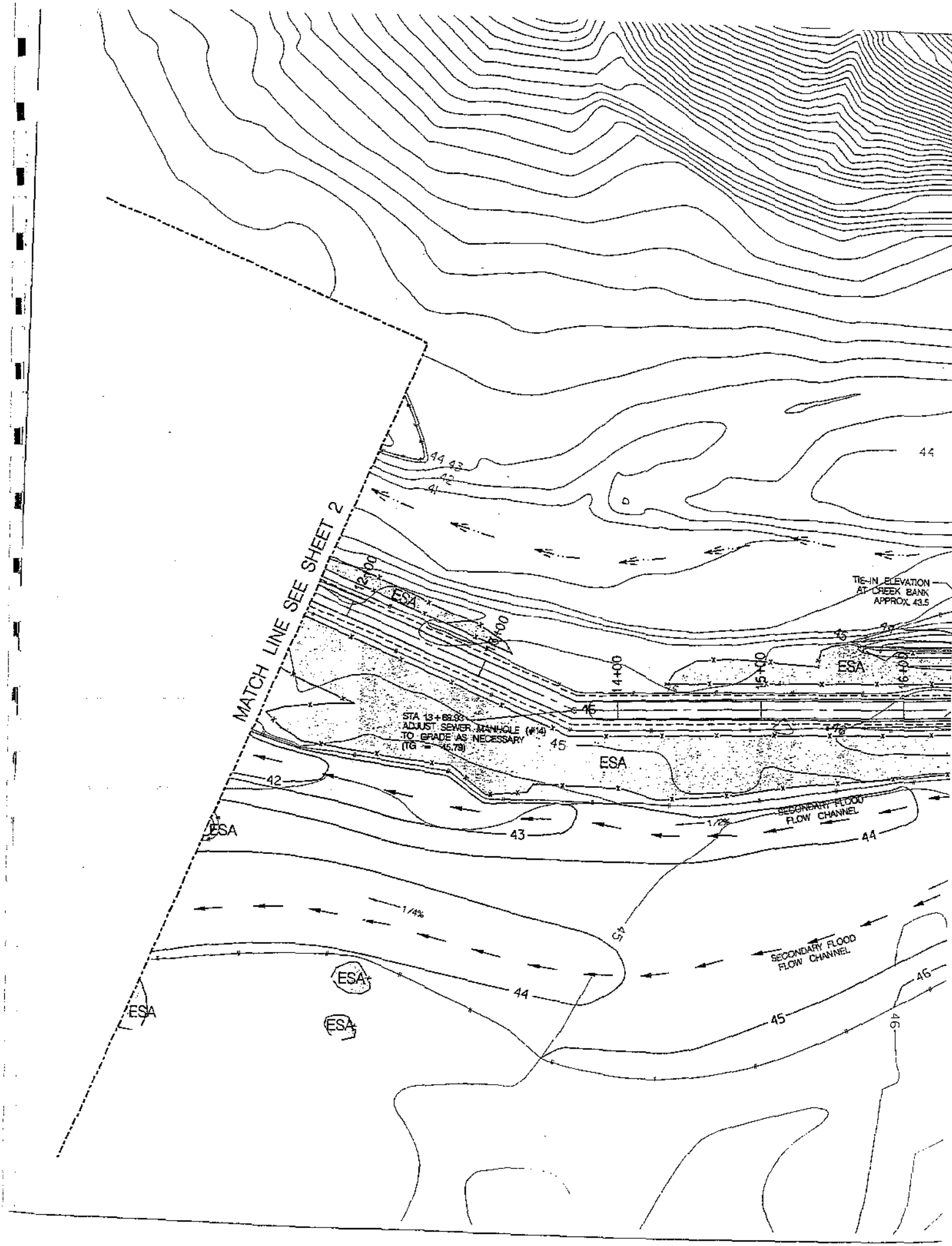
Jack L. Hearst PROJECT MANAGER

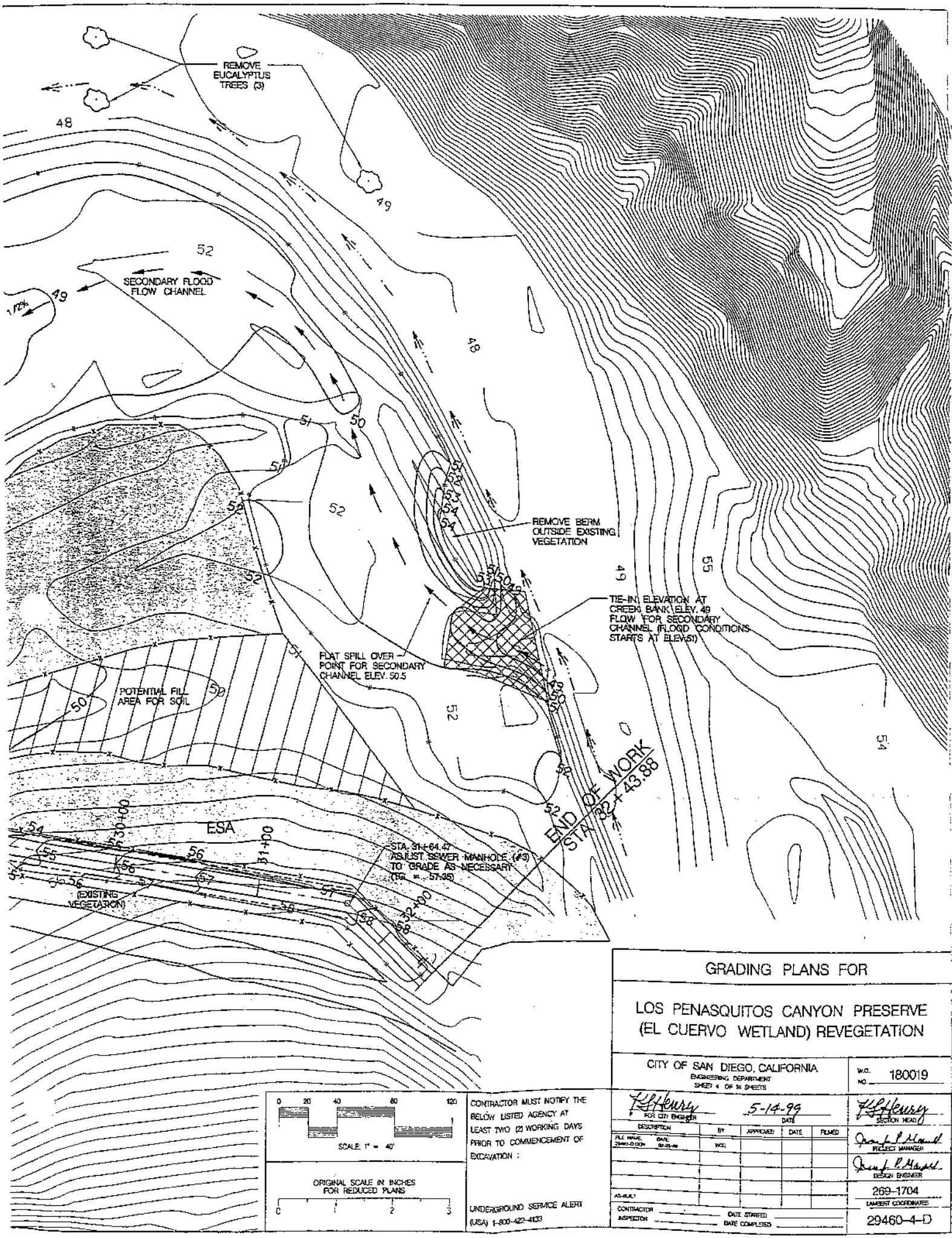
Jack L. Hearst DESIGN ENGINEER

269-1704 LAMBERT COORDINATES

CONTRACTOR _____ DATE STARTED _____
INSPECTOR _____ DATE COMPLETED _____

29460-3-D


MATCH LINE SEE SHEET 2
12+00
13+00
14+00
15+00
16+00
ESA
ESA
ESA
ESA
ESA
ESA
TIE-IN ELEVATION AT CREEK BANK APPROX. 43.5
STA 13+88.93
ADJUST SEWER MANHOLE (#14) TO GRADE AS NECESSARY (TG = 45.79)
SECONDARY FLOOD FLOW CHANNEL
SECONDARY FLOOD FLOW CHANNEL
1/2%
1/4%
41
42
43
44
45
46



GRADING PLANS FOR

LOS PENASQUITOS CANYON PRESERVE (EL CUERVO WETLAND) REVEGETATION

CITY OF SAN DIEGO, CALIFORNIA
ENGINEERING DEPARTMENT
SHEET 4 OF 16 SHEETS

W.O. NO. 180019

0 20 40 80 120
SCALE: 1" = 40'

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS
0 1 2 3

CONTRACTOR MUST NOTIFY THE BELOW LISTED AGENCY AT LEAST TWO (2) WORKING DAYS PRIOR TO COMMENCEMENT OF EXCAVATION :

UNDERGROUND SERVICE ALERT (USA) 1-800-422-4133

F.S. Henry — 5-14-99
FOR CITY ENGINEER — DATE

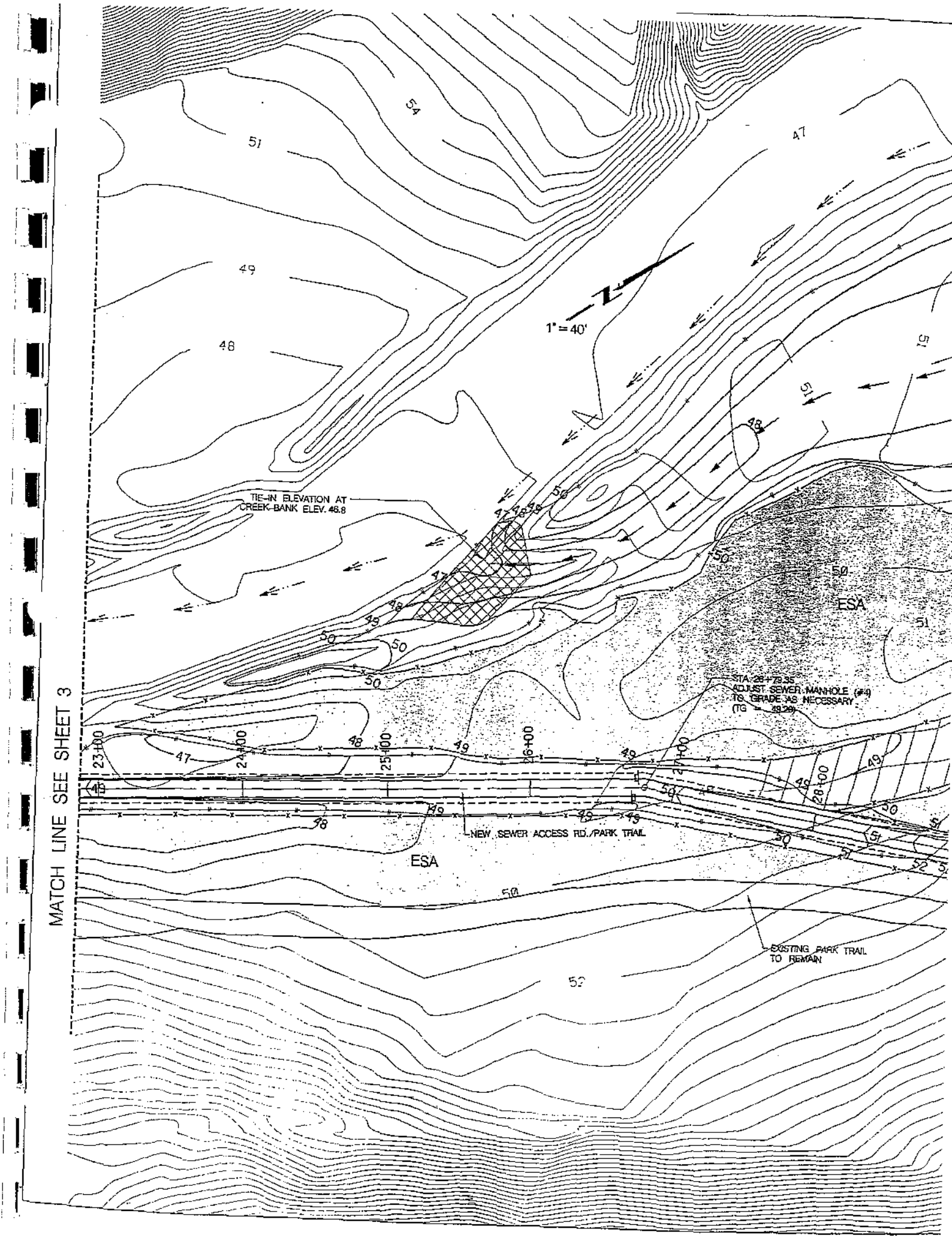
DESCRIPTION	BY	APPROVED	DATE	FILMED
FILE NAME: 29460-D.DGN DATE: 02-25-99	WCG			
AS-BUILT				

CONTRACTOR _____ DATE STARTED _____
INSPECTOR _____ DATE COMPLETED _____

F.S. Henry — SECTION HEAD
PROJECT MANAGER
DESIGN ENGINEER

269-1704
LAMBERT COORDINATES

29460-4-D


MATCH LINE SEE SHEET 3
1" = 40'
TIE-IN ELEVATION AT CREEK-BANK ELEV. 46.8
STA. 28+79.35
ADJUST SEWER MANHOLE (#4) TO GRADE AS NECESSARY
(TG = 49.29)
NEW SEWER ACCESS RD./PARK TRAIL
EXISTING PARK TRAIL TO REMAIN
ESA
ESA
23+00
24+00
25+00
26+00
27+00
28+00

;ANYON PRESERVE
[illegible]D) REVEGETATION
[illegible]RENTO CREEK FLOOD CONTROL PROJECT)

DEX-REVEGETATION PLANS

EET TITLE
LE SHEET
RIGATION PLANS
RIGATION PLANS
RIGATION PLANS
RIGATION LEGEND & DETAILS
RIGATION DETAILS
ANTING PLANS
ANTING PLANS
ANTING PLANS
ANT & SEED LEGEND
ANTING DETAILS, & NOTES
TES & SPECIAL PROVISIONS

STANDARD SPECIFICATIONS:

1. STANDARD SPECIFICATIONS FOR PUBLIC WORKS (1997 EDITION) INCLUDING THE REGIONAL AND CITY OF SAN DIEGO SUPPLEMENT AMENDMENTS. DOCUMENT NO. 769331 FILED MAY 2, 1997

STANDARD DRAWINGS:

1. CITY OF SAN DIEGO STANDARD DRAWINGS, INCLUDING REGIONAL STANDARD DRAWINGS DOCUMENT NO. 769332, FILED MAY 2, 1997.

IATIONS:

		VEGETATION TYPES:	
TER			
ONMENTALLY IVE AREA		ANG	ANNUAL GRASSLAND
		BM	BRACKISH MARSH
NG		CWR	CA WILD ROSE
IM		DW	DISTURBED WETLAND
M		FWM	FRESHWATER MARSH
R		IS	ISOCOMA SCRUB
NTER		MFS	MULEFAT SCRUB
OF CONNECTION		SWS	SOUTHERN WILLOW SCRUB
S/ SQUARE INCH			
AL			

MAP DATA:

DIGITAL TOPOGRAPHIC MAPS PROVIDED BY CITY OF SAN DIEGO ENGINEERING & CAPITAL PROJECTS DEPARTMENT.

REFERENCES:

RUIS DIGITAL MAPS

ADDITIONAL SURVEY DATA COLLECTED BY CITY OF SAN DIEGO.

GRADING PLANS PREPARED BY CITY OF SAN DIEGO USED AS BASE DATA. ENGINEERING AND CAPITAL PROJECTS, TRANSPORTATION AND DRAINAGE DIVISION, SEE SHEETS 29460-1 THRU 4.

ATION OF RESPONSIBLE CHARGE:

RE THAT I AM THE LANDSCAPE ARCHITECT OF WORK FOR THIS HAVE EXERCISED RESPONSIBLE CHARGE OVER THE DESIGN OF DEFINED IN SECTION 6703 OF THE BUSINESS AND PROFESSIONS THE DESIGN IS CONSISTENT WITH CURRENT STANDARDS.

AT THE CHECK OF PROJECT DRAWINGS AND SPECIFICATIONS BY DIEGO IS CONFINED TO A REVIEW ONLY AND DOES NOT RELIEVE E ARCHITECT OF WORK, OF MY RESPONSIBILITIES FOR PROJECT

ATES

R.L.A. # 2225 DATE: MAY 7, 1999

CITY CONTRACT CIP NO. 12-134.0
SPECIFICATION NO. 7054

LICENSED LANDSCAPE ARCHITECT JOHN LINSDEN MINCHIN 2225 Signature 12/31/99 Renewal Date 5/7/99 Date STATE OF CALIFORNIA

TITLE SHEET

LOS PENASQUITOS CANYON PRESERVE (EL CUERVO) WETLAND REVEGETATION

CITY OF SAN DIEGO, CALIFORNIA
ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
SHEET 5 OF 16 SHEETS

W.O. NO. 180019

DATE: MAY 7, 1999

DUDEK & ASSOCIATES
A California Corporation
Corporate Office: 605 Third Street Encinitas, CA 92024
760.942.5147 Fax 760.632.0164

PLAN PREPARED UNDER THE SUPERVISION OF:

NAME DATE

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS
0 1 2 3

CONTRACTOR MUST NOTIFY THE BELOW LISTED AGENCY AT LEAST TWO (2) WORKING DAYS PRIOR TO COMMENCEMENT OF EXCAVATION :

UNDERGROUND SERVICE ALERT (USA) 1-800-422-4133

FOR CITY ENGINEER 5-14-99 DATE

SECTION HEAD

DESCRIPTION	BY	APPROVED	DATE	FILMED
FILE NAME: DATE:				
AS-BUILT				

PROJECT MANAGER

DESIGN ENGINEER

269-1704
LAMBERT COORDINATES

CONTRACTOR ______ DATE STARTED ______
INSPECTOR ______ DATE COMPLETED ______

29460-5-D

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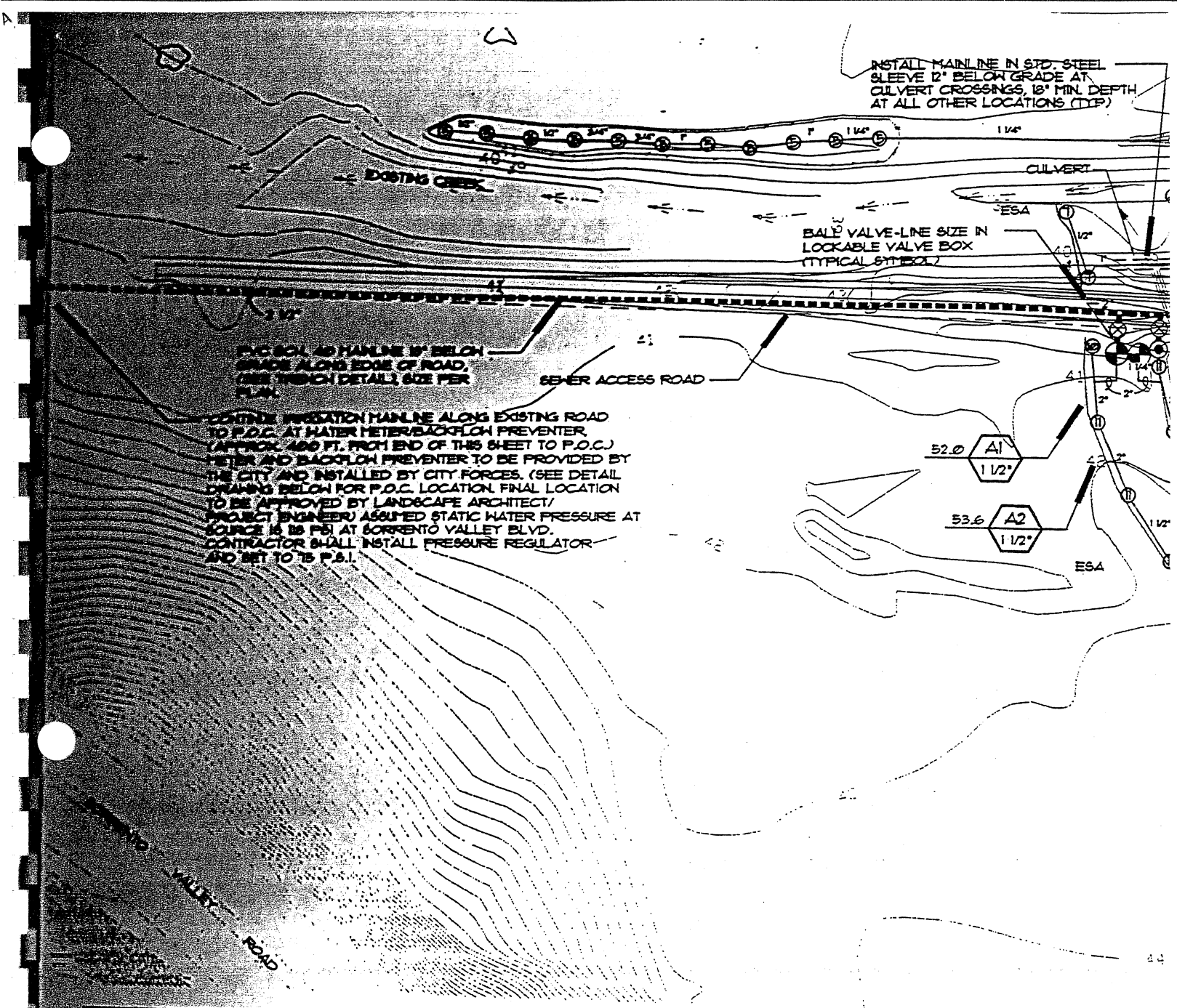
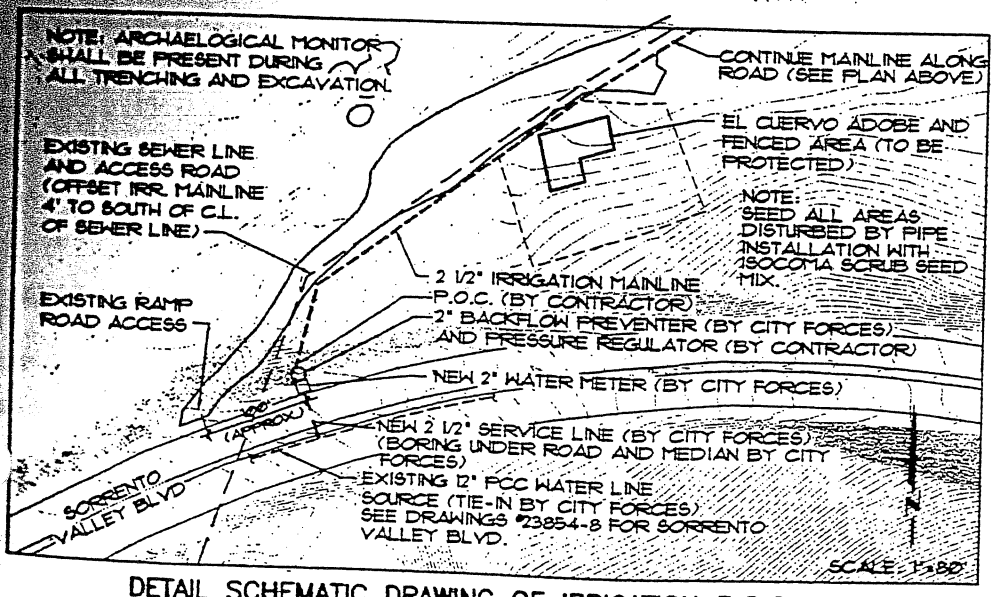
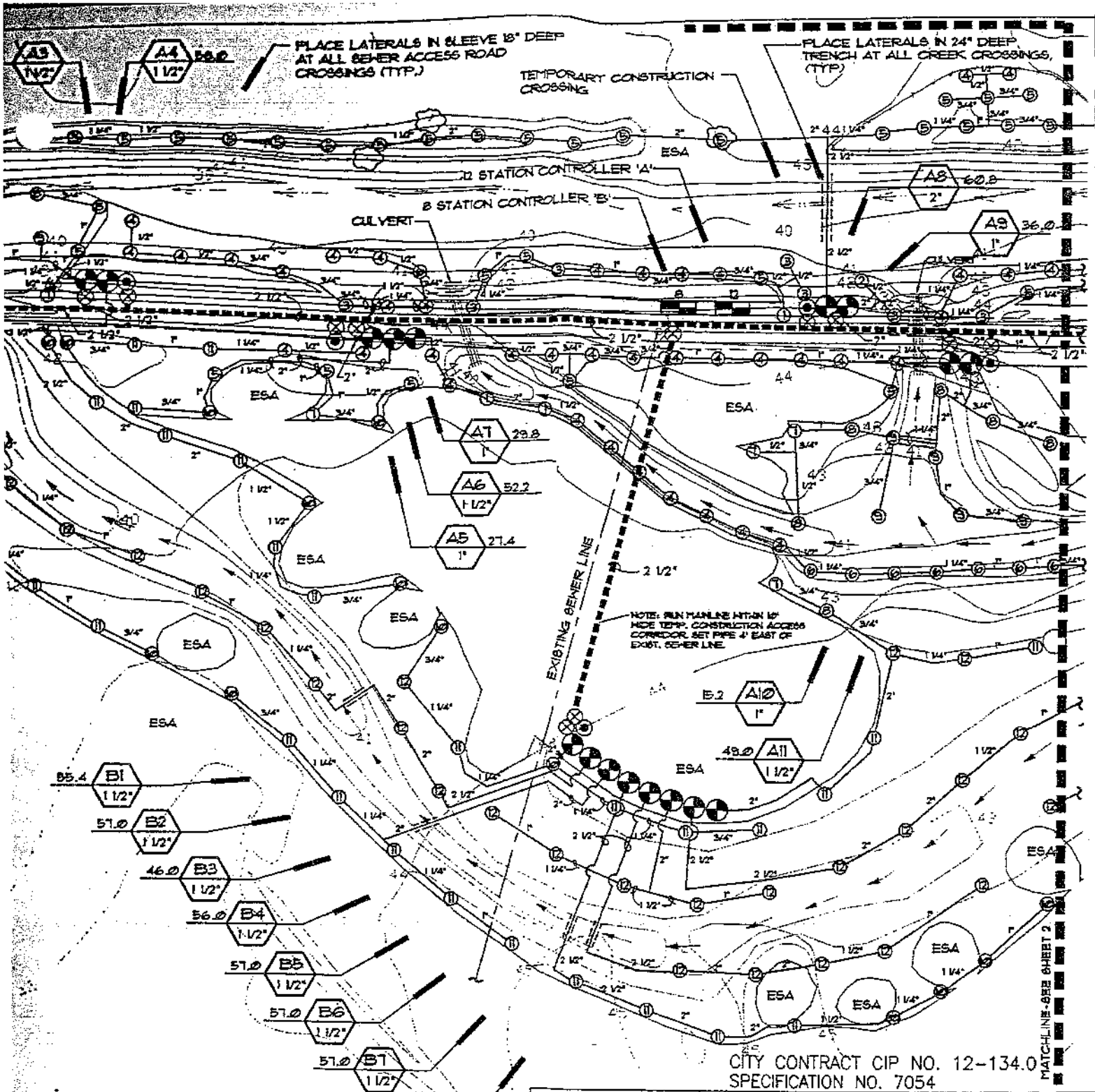




DETAIL SCHEMATIC DRAWING OF IRRIGATION P.O.C.

0 20 40 80 120
SCALE: 1"= 40'



CITY CONTRACT CIP NO. 12-134.0
SPECIFICATION NO. 7054

LICENSED LANDSCAPE ARCHITECT JOHN LARSEN MACKIN 2960 STATE OF CALIFORNIA

IRRIGATION PLAN FOR

LOS PENASQUITOS CANYON PRESERVE (EL CUERVO) WETLAND REVEGETATION

CITY OF SAN DIEGO, CALIFORNIA
ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
SHEET 6 OF 16 SHEETS

W.O. NO. 180019

K.F. Henry 5-14-99
FOR CITY ENGINEER DATE

DESCRIPTION	BY	APPROVED	DATE	FILMED
FILE NAME: DATE:				
AS-BUILT				

CONTRACTOR _____ DATE STARTED _____
INSPECTOR _____ DATE COMPLETED _____

K.F. Henry
SECTION HEAD

PROJECT MANAGER

DESIGN ENGINEER

269-1704
LAMBERT COORDINATES

29460-6-D

PLAN PREPARED UNDER THE SUPERVISION OF:

NAME DATE

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS
0 1 2 3

CONTRACTOR MUST NOTIFY THE BELOW LISTED AGENCY AT LEAST TWO (2) WORKING DAYS PRIOR TO COMMENCEMENT OF EXCAVATION :

UNDERGROUND SERVICE ALERT (USA) 1-800-422-4133

DUDEK & ASSOCIATES
A California Corporation
Corporate Office: 760.942.5147
605 Third Street Fax 760.632.0164
Encinitas, CA 92024

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LOS PENASQUITOS
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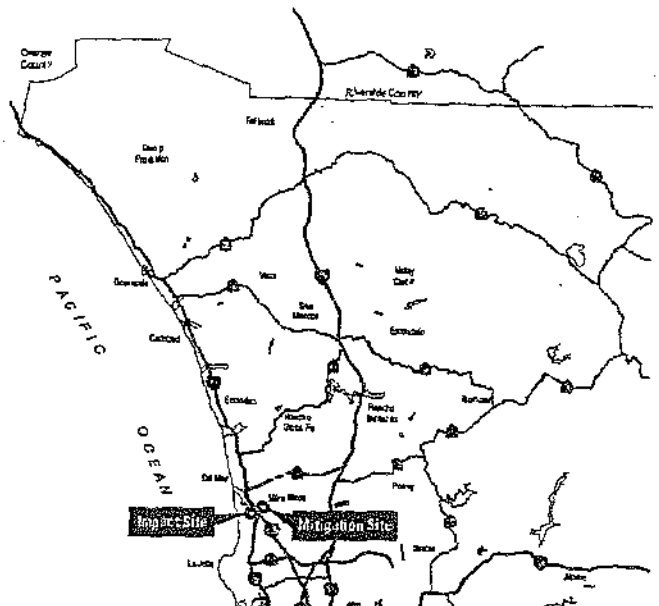
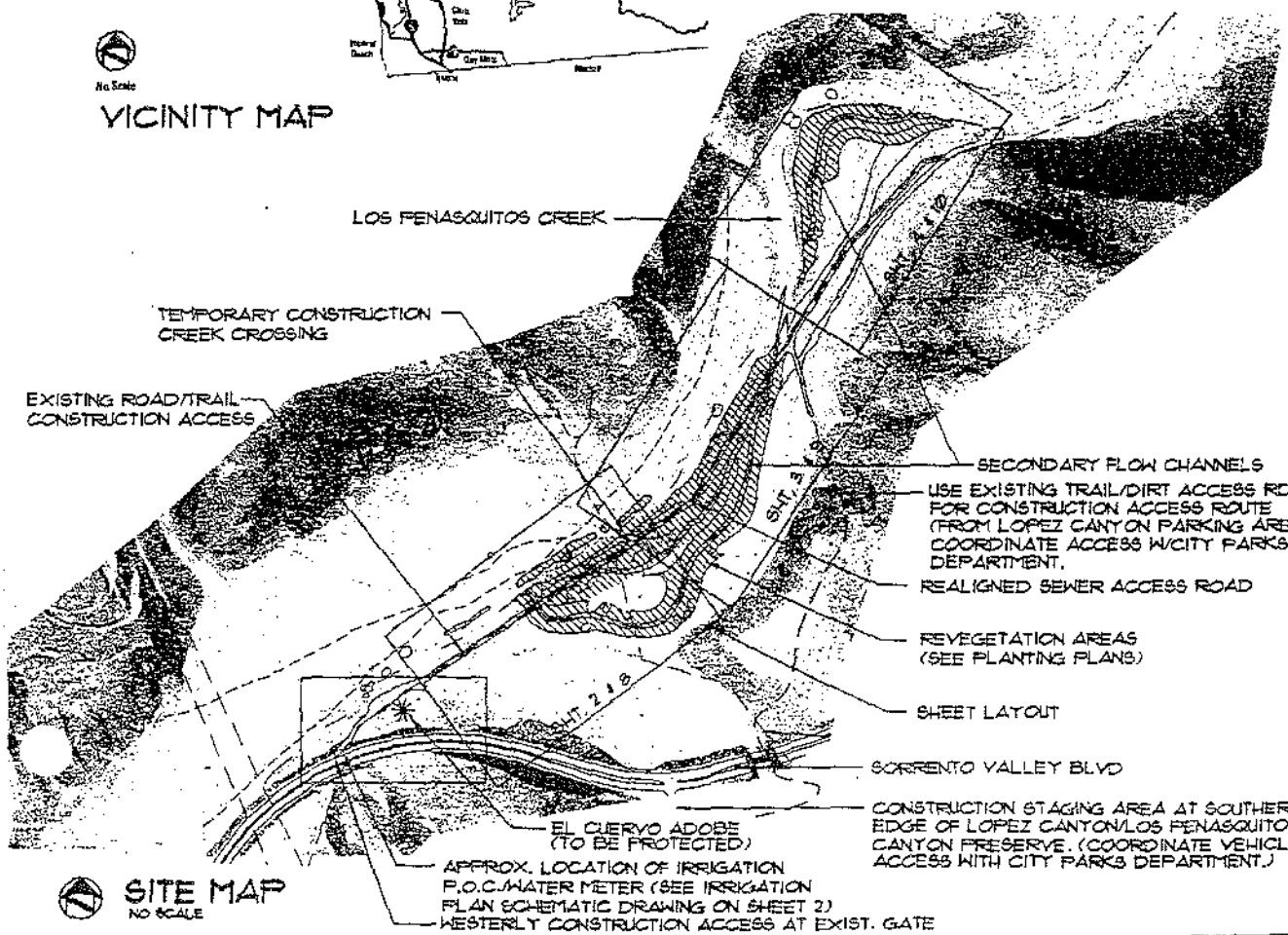


No Scale

VICINITY MAP



SITE MAP
NO SCALE

SHEET

SHEET NO.
29460-5-D
29460-6-D
29460-7-D
29460-8-D
29460-9-D
29460-10-D
29460-11-D
29460-12-D
29460-13-D
29460-14-D
29460-15-D
29460-16-D

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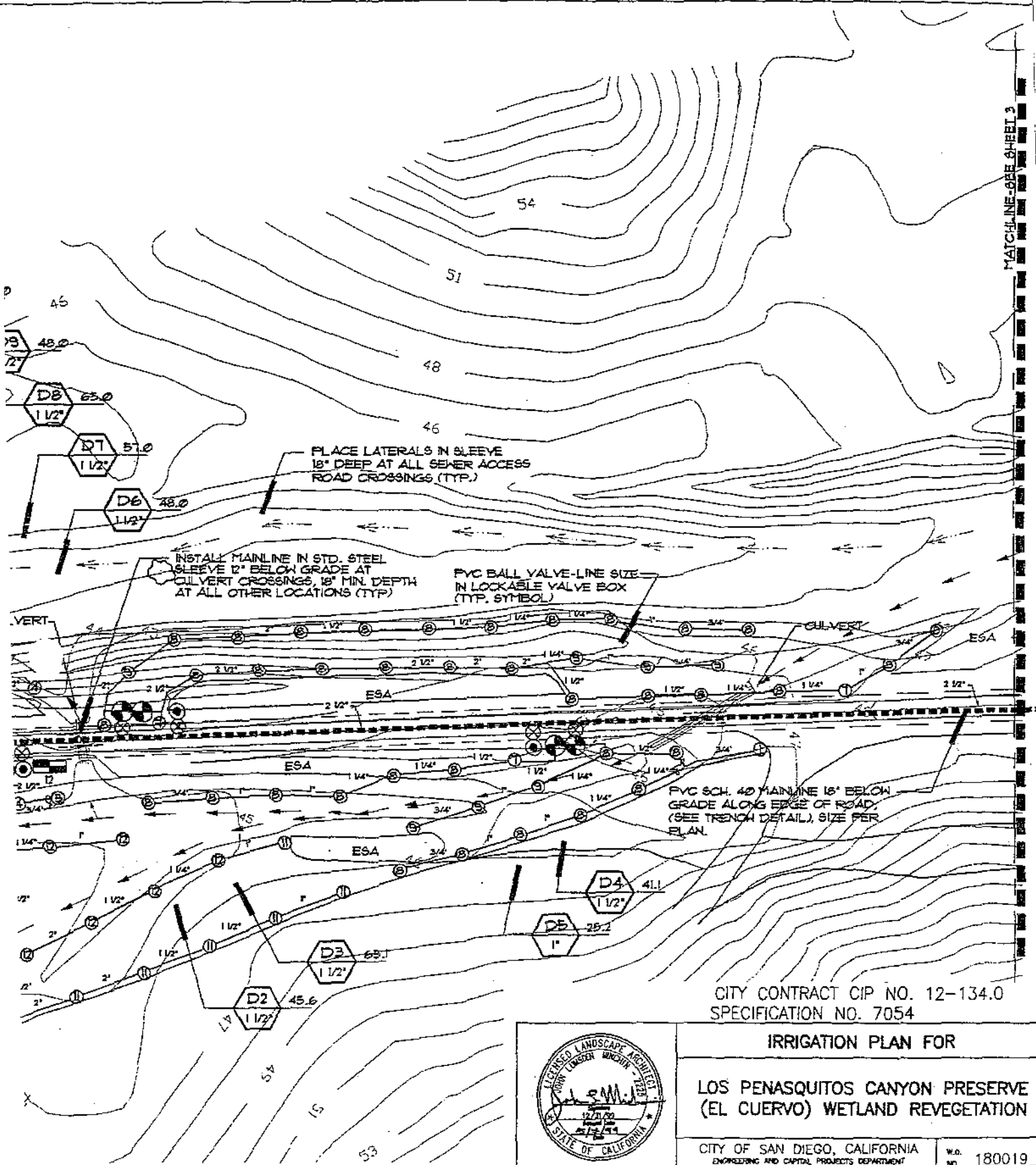
DUDEK & ASS

JOHN L. MINCH



CITY CONTRACT CIP NO. 12-134.0
SPECIFICATION NO. 7054

LICENSED LANDSCAPE ARCHITECT — JOHN LAWSON MINCHIN — 2322 — 12/31/00 — STATE OF CALIFORNIA

IRRIGATION PLAN FOR

LOS PENASQUITOS CANYON PRESERVE (EL CUERVO) WETLAND REVEGETATION

CITY OF SAN DIEGO, CALIFORNIA
ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
SHEET 7 OF 16 SHEETS

W.O. NO. 180019

K.F. Henry — 5-14-99
FOR CITY ENGINEER — DATE

K.F. Henry
SECTION HEAD

DESCRIPTION	BY	APPROVED	DATE	FILMED
FILE NAME: DATED				
AS-BUILT				

CONTRACTOR _____ DATE STARTED _____
INSPECTOR _____ DATE COMPLETED _____

Jon L. Hand
PROJECT MANAGER

DESIGN ENGINEER

269-1704
LAMBERT COORDINATES

29460-7-D

PLAN PREPARED UNDER THE SUPERVISION OF:

NAME DATE

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS
0 1 2 3

CONTRACTOR MUST NOTIFY THE BELOW LISTED AGENCY AT LEAST TWO (2) WORKING DAYS PRIOR TO COMMENCEMENT OF EXCAVATION :

UNDERGROUND SERVICE ALERT (USA) 1-800-422-4133

DUDEK & ASSOCIATES
A California Corporation
Corporate Office: 760.942.5147
605 Third Street Fax 760.632.0164
Encinitas, CA 92024

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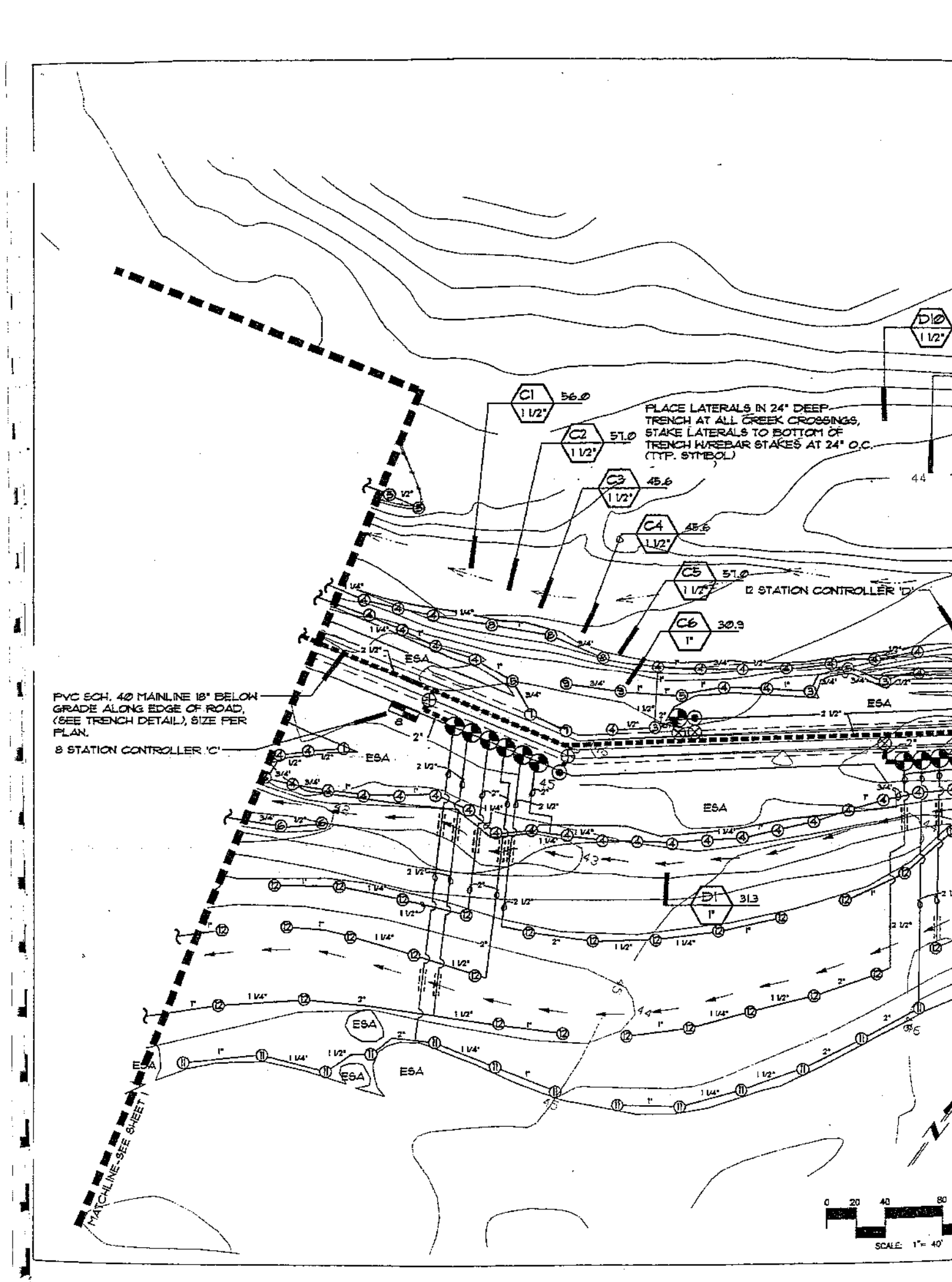
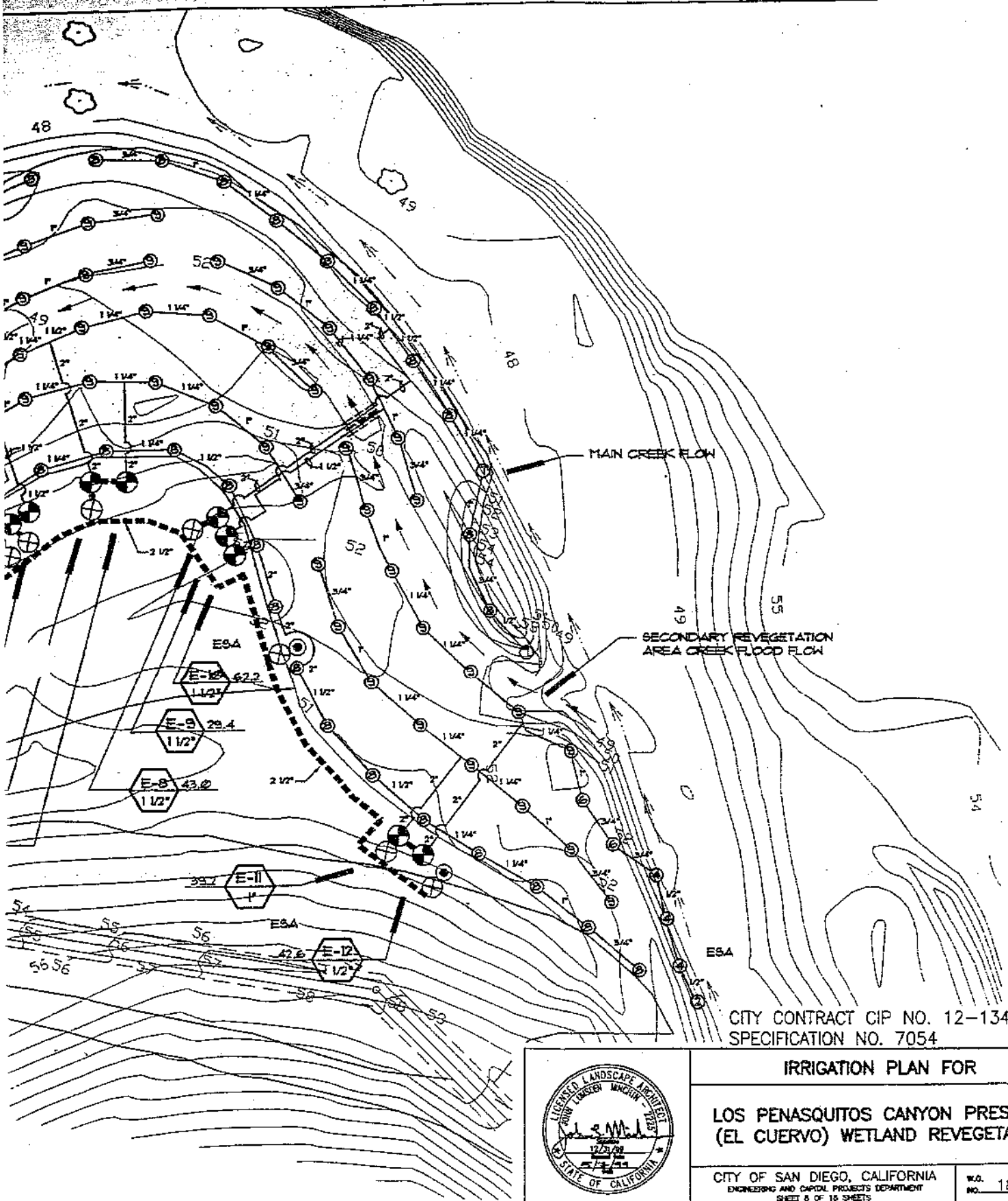

C1 56.0 1 1/2"
C2 57.0 1 1/2"
C3 45.6 1 1/2"
C4 45.6 1 1/2"
C5 57.0 1 1/2"
C6 30.9 1"
D1 31.3 1"
D10 1 1/2"
PLACE LATERALS IN 24" DEEP TRENCH AT ALL CREEK CROSSINGS, STAKE LATERALS TO BOTTOM OF TRENCH W/REBAR STAKES AT 24" O.C. (TYP. SYMBOL)
12 STATION CONTROLLER 'D'
PVC SCH. 40 MAINLINE 18" BELOW GRADE ALONG EDGE OF ROAD, (SEE TRENCH DETAIL), SIZE PER PLAN.
8 STATION CONTROLLER 'C'
ESA
MATCHLINE-SEE SHEET 1
0 20 40 80
SCALE: 1"= 40'



CITY CONTRACT CIP NO. 12-134.0
SPECIFICATION NO. 7054

LICENSED LANDSCAPE ARCHITECT
JOHN LINCOLN MARTIN
12/31/99
STATE OF CALIFORNIA

IRRIGATION PLAN FOR

LOS PENASQUITOS CANYON PRESERVE (EL CUERVO) WETLAND REVEGETATION

CITY OF SAN DIEGO, CALIFORNIA
ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
SHEET 8 OF 15 SHEETS

W.O. NO. 180019

K.H.Henry FOR CITY ENGINEER — 5-14-99 DATE

K.H.Henry SECTION HEAD

DESCRIPTION	BY	APPROVED	DATE	FILMED
FILE NAME: DATE:				
AS-BUILT				

CONTRACTOR _____ DATE STARTED _____
INSPECTOR _____ DATE COMPLETED _____

Jon L. Martin PROJECT MANAGER

DESIGN ENGINEER

269-1704 LAMBERT COORDINATES

29460-8-D

PLAN PREPARED UNDER THE SUPERVISION OF:

NAME DATE

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS
0 1 2 3

CONTRACTOR MUST NOTIFY THE BELOW LISTED AGENCY AT LEAST TWO (2) WORKING DAYS PRIOR TO COMMENCEMENT OF EXCAVATION :

UNDERGROUND SERVICE ALERT (USA) 1-800-422-4133

DUDEK & ASSOCIATES
A California Corporation
Corporate Office: 760.942.5147
605 Third Street Fax 760.632.0164
Encinitas, CA 92024

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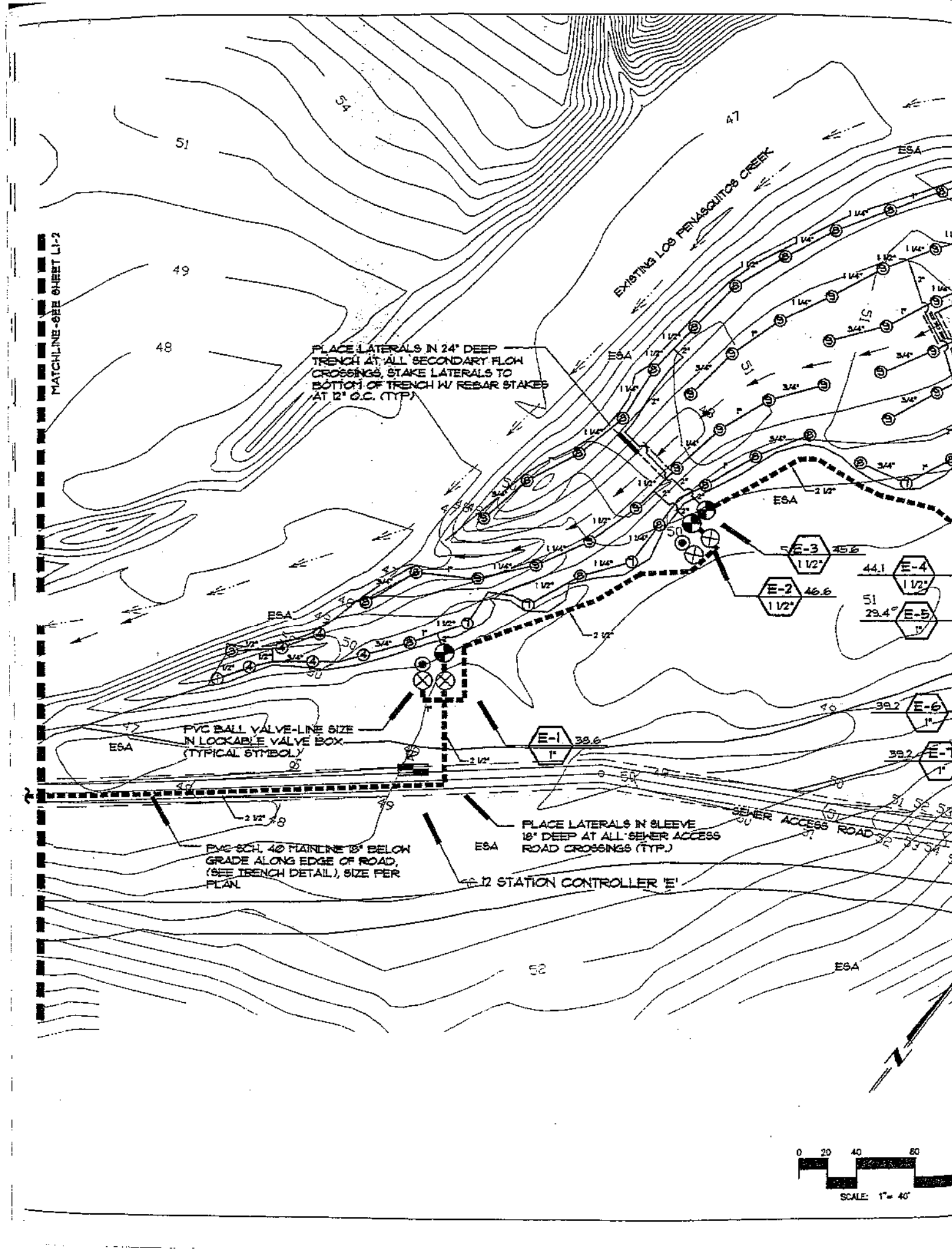
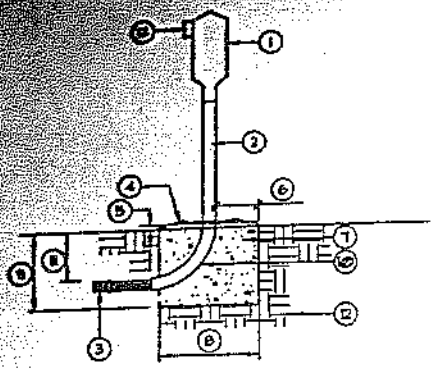

MATCHLINE-SEE SHEET L1-2
EXISTING LOS PENASQUITOS CREEK
PLACE LATERALS IN 24" DEEP TRENCH AT ALL SECONDARY FLOW CROSSINGS, STAKE LATERALS TO BOTTOM OF TRENCH W/ REBAR STAKES AT 12" O.C. (TYP.)
ESA
E-1 38.6 1"
E-2 46.6 1 1/2"
E-3 45.6 1 1/2"
E-4 44.1 1 1/2"
E-5 29.4 1"
E-6 39.2 1"
E-7 39.2 1"
PVC BALL VALVE-LINE SIZE IN LOCKABLE VALVE BOX (TYPICAL SYMBOL)
PVC SCH. 40 MAINLINE 18" BELOW GRADE ALONG EDGE OF ROAD, (SEE TRENCH DETAIL), SIZE PER PLAN
PLACE LATERALS IN SLEEVE 18" DEEP AT ALL SEWER ACCESS ROAD CROSSINGS (TYP.)
SEWER ACCESS ROAD
12 STATION CONTROLLER 'E'
0 20 40 80
SCALE: 1"= 40'



ITEM	NO.	DESCRIPTION
1	1	UNIT 8000 - CNTL 8 STATION SOLAR IRRIGATION CONTROLLER
2	-	MOUNT CONTROLLER ON MCOL 8000-L MOUNTING COLUMN
3	-	CONTROL WIRE (bundle & tape) RUN BELOW MAINLINE WHERE POSSIBLE
4	4	ANCHOR BOLTS ATTACHED TO LEAD ANCHOR SHIELDS IN CONCRETE FOOTING
5	-	2" HT. ABOVE GRADE FOR CONCRETE FOOTING (typ)
6	-	4" MIN. WIDTH AROUND MOUNTING COLUMN
7	1	CONCRETE FOOTING
8	-	12" MIN. WIDTH OF FOOTING
9	-	12" MIN. 18" MAX. DEPTH OF FOOTING
10	1	90° LONG SWEEP ELL PLASTIC ELECTRICAL CONDUIT FOR CONTROL WIRES
		#1228 36 (reg.) EXTEND UP INTO BASE OF CONTROLLER PEDESTAL
11	-	18" MIN. DEPTH OF CONTROL WIRE
12	-	95% COMPACT SUBGRADE
13	1	RAIN SENSOR, ATTACH PER MANUFACTUREER'S DIRECTIONS.

AUTOMATIC SPRINKLER CONTROLLER

NOT TO SCALE

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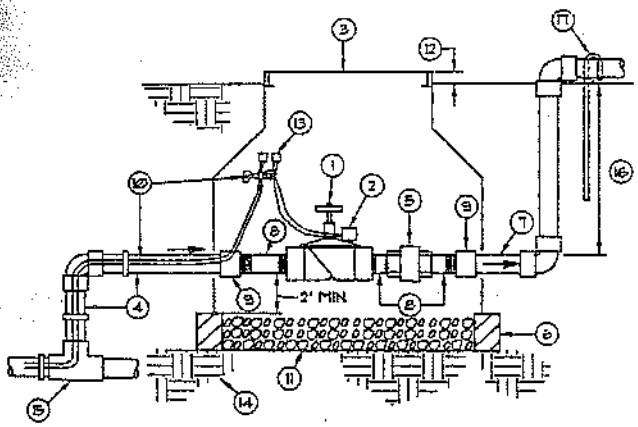


ITEM	NO.	DESCRIPTION
1	1	REMOTE CONTROL VALVE, PLASTIC
2	1	LEMA-ALTEC 1500 SERIES MICROPOWER ACTUATOR SOLENOID
3	1	LOCKABLE CONCRETE "BROOKS" VALVE BOX, STENCIL VALVE NO. ON LID
4	-	PVC PRESSURE PIPE
5	1	SCH 80 UNION
6	-	BRICK OR CONCRETE BLOCK SUPPORTS ON COMPACTED SUBGRADE
7	-	PVC LATERAL PIPE, TRANSITION TO ON GRADE PIPE
8	-	PVC SCH. 80 NIPPLE (typ)
9	-	PVC SCH 80 FEMALE ADAPTER (typ, slip x thread)
10	-	CONTROL WIRES BUNDLE AND TAPE TO MAINLINE
	-	(w/4'min extra wire) COILED INTO VALVE BOX
11		1 CU FT (min) PEA GRAVEL SUMP
12	-	2" ABOVE FINISH GRADE
13	-	WATERPROOF WIRE CONNECTORS
14	-	COMPACTED SUBGRADE
15	-	PVC SCH 40 TEE OR ELL ON MAINLINE
16	-	18" DEPTH
17	-	NO.4 REBAR J-HOOK STAKE TO STABILIZE LATERAL LINE AT 10' O.C. (MAX.)
		AND AT PIPE ENDS. (stakes to extend min. 16" into subgrade)

REMOTE CONTROL VALVE

NOT TO SCALE

B / -

RNKLER HEAD LEGEND

BOL	MANUF.	MODEL NO	DESCRIPTION	DETAIL	ARC	RADIUS	PSI	GPM
	HUNTER	PGS-ADJ-01 NOZZLE	GEAR DRIVEN ROTOR (SHRUB HEAD)	D	40	25'-30'	30	.5
	HUNTER	PGS-ADJ-02 NOZZLE	GEAR DRIVEN ROTOR (SHRUB HEAD)	D	90	25'-30'	30	.7
	HUNTER	PGS-ADJ-03 NOZZLE	GEAR DRIVEN ROTOR (SHRUB HEAD)	D	120	25'-30'	30	.9
	HUNTER	PGS-ADJ-04 NOZZLE	GEAR DRIVEN ROTOR (SHRUB HEAD)	D	180	25'-30'	30	1.2
	HUNTER	PGS-ADJ-05 NOZZLE	GEAR DRIVEN ROTOR (SHRUB HEAD)	D	270	25'-30'	30	1.6
	HUNTER	PGS-ADJ-06 NOZZLE	GEAR DRIVEN ROTOR (SHRUB HEAD)	D	360	25'-30'	30	2.0
	HUNTER	PGS-ADJ-07 NOZZLE	GEAR DRIVEN ROTOR (SHRUB HEAD)	D	120	40'	40	3.0
	HUNTER	PGS-ADJ-08 NOZZLE	GEAR DRIVEN ROTOR (SHRUB HEAD)	D	180	40'	40	3.7
	HUNTER	PGS-ADJ-09 NOZZLE	GEAR DRIVEN ROTOR (SHRUB HEAD)	D	360	40'	40	4.9
	HUNTER	PGS-ADJ-10 NOZZLE	GEAR DRIVEN ROTOR (SHRUB HEAD)	D	90	45'	40	6.0
	HUNTER	PGS-ADJ-11 NOZZLE	GEAR DRIVEN ROTOR (SHRUB HEAD)	D	180	46'	40	8.0
	HUNTER	PGS-ADJ-12 NOZZLE	GEAR DRIVEN ROTOR (SHRUB HEAD)	D	360	46'	40	11.4

RIGATION EQUIPMENT LEGEND

YMBOL	MANUF.	MODEL NO	DESCRIPTION	DETAIL	REMARKS
	RAINBIRD	44 LRC-1"	QUICK COUPLING VALVE	E	1 1/4" MAINLINE TO SERVE EACH QUICK COUPLER TEE
	RAINBIRD & ALTEC IRRIGATION	PEB-PRS-B WITH ALTEC LEMA 1500 SERIES SOLENOIDS	PLASTIC PRESSURE REGULATING REMOTE CONTROL VALVE W/ MICROPOWER ACTUATORS (FOR SOLAR CONTROLLERS)	B	ONE PER RECTANGULAR CONCRETE "BROOKS" LOCKABLE VALVE BOX
	KING BROS (KBI)	PVC TRU-UNION BALL VALVE (LINE SIZE)	PLASTIC PVC SCH 80 BALL VALVE	C	FOR ISOLATION OF MAINLINE SET BELOW GRADE IN VALVE BOX. (LINE SIZE, TYPICAL)
	BACKFLOW PREVENTER	2" (PER CITY)	REDUCED PRESSURE BACKFLOW PREVENTOR INSTALLED BY CITY. (PART OF METER INSTALLATION)	F	INTEGRAL PRESSURE REGULATOR AND BALL VALVES
	WILKINS	500 BR 2 1/2"	PRESSURE REGULATOR	D	INSTALL IMMEDIATELY AFTER BACKFLOW ASSEMBLY
	WATER METER/ P.O.C.	2" (PER CITY)	WATER METER INSTALLED BY CITY FORCES.	N.A.	SEE TITLE SHEET SITE MAP AND DETAIL DRAWING SHT. 2 FOR LOCATION
12	ALTEC IRRIGATION	LEIT 8000-CW12 & COLUMN * MCOL 8000-L WITH RAIN GUARD	12-STATION SOLAR CONTROLLER W/MOUNTING COLUMN & RAIN SENSOR	A	SOLAR CONTROLLER WITH RAIN SENSOR. NO ELEC. POWER SOURCE REQUIRED.
8	ALTEC IRRIGATION	LEIT 8000-CW8 & COLUMN * MCOL 8000-L WITH RAIN GUARD	8-STATION SOLAR CONTROLLER W/MOUNTING COLUMN & RAIN SENSOR	A	SOLAR CONTROLLER WITH RAIN SENSOR. NO ELEC. POWER SOURCE REQUIRED.
	LATERAL LINE	SCH 40 UVPVC	UV RESISTANT LATERAL LINE	N.A.	STAKE ON GRADE AT 10' O.C. AND AT ALL CORNERS. STAKES SHALL EXTEND 16" (MIN.) INTO SUBGRADE. PLACE IN SLEEVE 24" BELOW GRADE AT ALL ROAD, PATH, AND CREEK CROSSINGS. SIZE PER PLAN.
	PRESSURE MAINLINE	CLASS 315 PVC .	IRRIGATION MAINLINE	G	BELOW GRADE, 18" MIN DEPTH, WITHIN ROAD AS INDICATED AND 12" AT CULVERT CROSSINGS
	SLEEVING	SCH 40 PVC/SCH 40 STD. STD. STEEL PIPE AS NOTED.	SLEEVING AT ROADS, PATHS, AND CREEK CROSSINGS.	N.A.	AT ALL CULVERT CROSSINGS INSTALL 3" SCH 40 STD. STEEL PIPE 12" BELOW GRADE, ALL OTHER SLEEVING TO BE PVC SCH 40

CAL VALVE CALL-OUT & CONTROLLER REFERENCE

- CONTROLLER STATION NUMBER
- 55 — TOTAL GALLONS PER MINUTE FOR VALVE
- VALVE SIZE (SEE PLANS)

CITY CONTRACT CIP NO. 12-134.0
SPECIFICATION NO. 7054

IRRIGATION LEGEND & DETAILS FOR

LOS PENASQUITOS CANYON PRESERVE (EL CUERVO) WETLAND REVEGETATION

LICENSED LANDSCAPE ARCHITECT — JOHN LAMSDEN MINCHIN — 2223 — 12/31/99 — STATE OF CALIFORNIA

CITY OF SAN DIEGO, CALIFORNIA
ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
SHEET 9 OF 16 SHEETS

W.O. NO. 180019

K.F. Henry — FOR CITY ENGINEER — 5-14-99 DATE

K.F. Henry — SECTION HEAD

PROJECT MANAGER

DESIGN ENGINEER

269-1704 LAMBERT COORDINATES

29460-9-

DESCRIPTION | BY | APPROVED | DATE | FILMED

FILE NAME: DATE:

AS-BUILT

CONTRACTOR ______ DATE STARTED ______
INSPECTOR ______ DATE COMPLETED ______

CONTRACTOR MUST NOTIFY THE BELOW LISTED AGENCY AT LEAST TWO (2) WORKING DAYS PRIOR TO COMMENCEMENT OF EXCAVATION :

UNDERGROUND SERVICE ALERT (USA) 1-800-422-4133

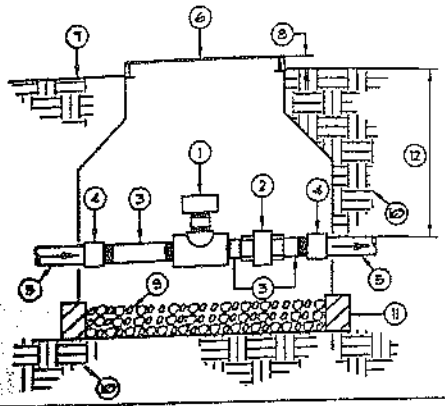
PLAN PREPARED UNDER THE SUPERVISION OF:

NAME DATE

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS
0 1 2 3

DUDEK & ASSOCIATES
A California Corporation
Corporate Office: 760.942.5147
605 Third Street Fax 760.632.0164
Encinitas, CA 92024

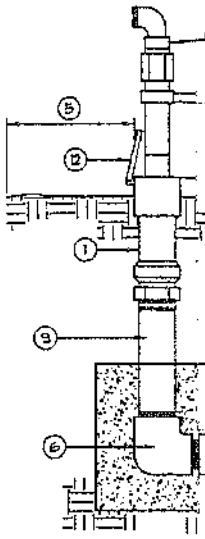
1422IR-2.DWG



ITEM	NO.	DESCRIPTION
1	1	BALL VALVE (PVC) (LINE SIZE)
2	1	UNION (PVC)
3	2	SHORT NIPPLES PVC, SCH 80 (typ)
4	1	PVC SCH 80 MALE ADAPTER (typ)
5	-	PVC MAINLINE PIPE (see specs) SIZE PER PLANS
6	1	ROUND PLASTIC VALVE BOX (see specs)
7	-	FINISH GRADE
8	-	3" ABOVE FINISH GRADE
9	-	CU. FT. (min) PEA GRAVEL SUMP
10	-	COMPACTED SUBGRADE 90%
11	-	BRICK OR CONC. BLOCK SUPPORTS ON COMPACTED SOIL
12	-	SEE SPECS FOR DEPTH (min 18")

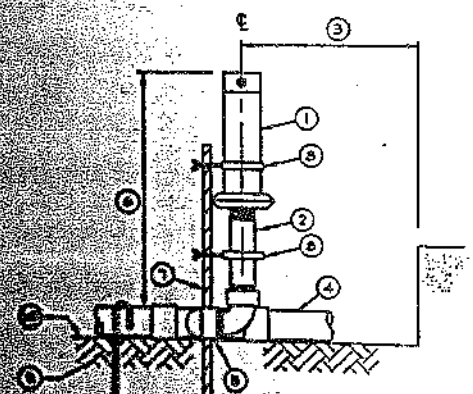
BALL VALVE
NOT TO SCALE

C
-



ITEM	NO.	DES
1	1	QUICK COUPLER VALVE
2	1	QUICK COUPLER KEY W/SWIVEL HO
3	-	COMPACT SUBGRADE 90%
4	-	1 1/2" ABOVE FINISH GRADE
5	-	18" FROM EDGE OF CURBS, WALK, TR
6	1	RED BRASS THREADED ELL
7	1	PVC SCH 40 MALE ADAPTER
8	1	12" SQ.x12" DEEP CONCRETE THRUST
		COMPACTED SUBGRADE
9	1	RED BRASS NIPPLE (length as req.
10	-	PVC MAINLINE PIPE (1 1/4" TYPICAL
11	-	FINISH GRADE OF PLANTING AREA
12	-	RUBBER COVER

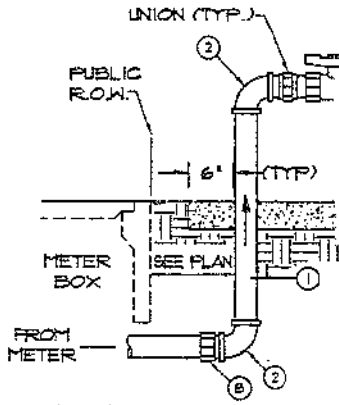
QUICK COUPLER V
NOT TO SCALE



ITEM	NO.	DESCRIPTION
		[illegible]
		[illegible]
		[illegible]
		[illegible]
		[illegible]
		[illegible]
		[illegible]
		[illegible]
		[illegible]
		[illegible]
		[illegible]
		[illegible]

ABOVE GRADE SPRINKLER HEAD
NOT TO SCALE

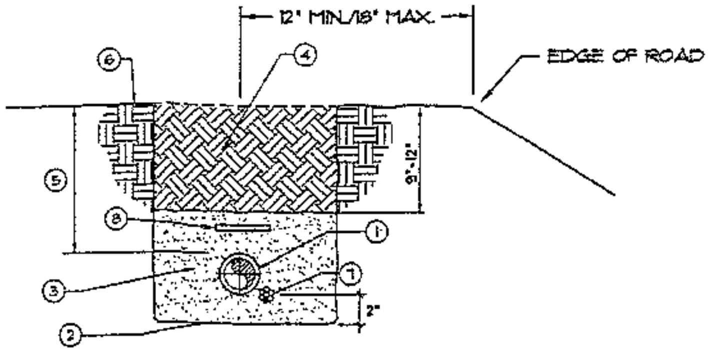
D
-



ITEM	NO.	DES
1	-	COPPER TUBING (R
2	2	COPPER 90's STREE
3	1	REDUCED PRESSURE
4	1	RESILIENT SEATED
5	1	PRESSURE REGULAT
6	1	18" MIN. DEPTH
7	VARIES	SHORT BRASS NIPP
8	2	PVC SCH 80 FEMAL
9	-	COMPACT SUBGRAD
10	1	4" THICK X 12" WIDE
		SHED WATER

REDUCED PRESS
NOT TO SCALE

*NOTE: WATER METER AND
PRESSURE REGULAT



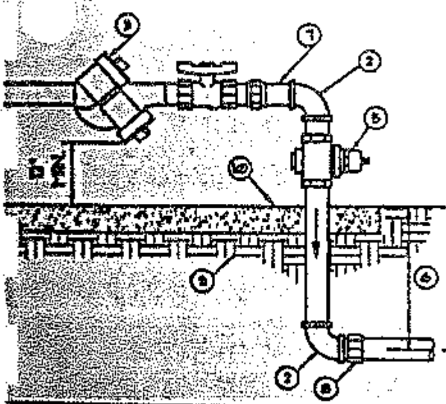
ITEM	DESCRIPTION
1	PVC MAINLINE PIPE CLASS 315 SIZE PER PLANS
2	LEVEL AND COMPACT TRENCH BED BEFORE PIPE PLACEMENT, 90%
3	MORTAR SAND BACKFILL OVER AND AROUND PIPE
4	NATIVE SOIL BACKFILL FREE OF ROCKS AND DEBRIS, SATURATE
	AND COMPACT BACKFILL TO 90%
5	18" MIN DEPTH, EXCEPT 12" AT CULVERT CROSSINGS
6	FINISH GRADE OF ROADWAY
7	DIRECT BURIAL CONTROL WIRES
8	TRENCH MARKER TAPE, 9"-12" BELOW GRADE

TRENCH DETAIL (G)

NOT TO SCALE

TION
PATHS, ETC
TO 90%
ADAPT TO O.C. W/ BUSHINGS AS NEEDED)
(SHOWN OTHERWISE)

E (E)



NOTE:

NO CONNECTIONS ALLOWED BETWEEN WATER METER AND RPBP DEVICE. REPAIR, MAINTENANCE AND ANNUAL TESTING IS THE RESPONSIBILITY OF OWNER.

PRESSURE MAINLINE TO VALVES

ION	REMARKS
PLES	
LOW PREVENTOR (RPBP)	
ALVE (part of RPBP assembly)	
REQUIRED)	
ADE	
TE PAD, SLOPE 2% TO	

BACKFLOW PREVENTOR (F)

LOW PREVENTER INSTALLATION BY CITY.
BE INSTALL BY CONTRACTOR.

DUDEK & ASSOCIATES
A California Corporation
Corporate Office: 760.942.5147
605 Third Street Fax 760.632.0164
Encinitas, CA 92024

PLAN PREPARED UNDER THE SUPERVISION OF:

NAME DATE

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS
0 1 2 3

CONTRACTOR MUST NOTIFY THE BELOW LISTED AGENCY AT LEAST TWO (2) WORKING DAYS PRIOR TO COMMENCEMENT OF EXCAVATION :

UNDERGROUND SERVICE ALERT (USA) 1-800-422-4133

CITY CONTRACT CIP NO. 12-134.0
SPECIFICATION NO. 7054

IRRIGATION DETAILS FOR

LOS PENASQUITOS CANYON PRESERVE
(EL CUERVO) WETLAND REVEGETATION

CITY OF SAN DIEGO, CALIFORNIA
ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
SHEET 10 OF 18 SHEETS

W.O. NO. 180019

K.F. Henry — FOR CITY ENGINEER — 5-14-99 DATE

K.F. Henry — SECTION HEAD

DESCRIPTION	BY	APPROVED	DATE	FILMED
FILE NAME: DATE:				

PROJECT MANAGER

DESIGN ENGINEER

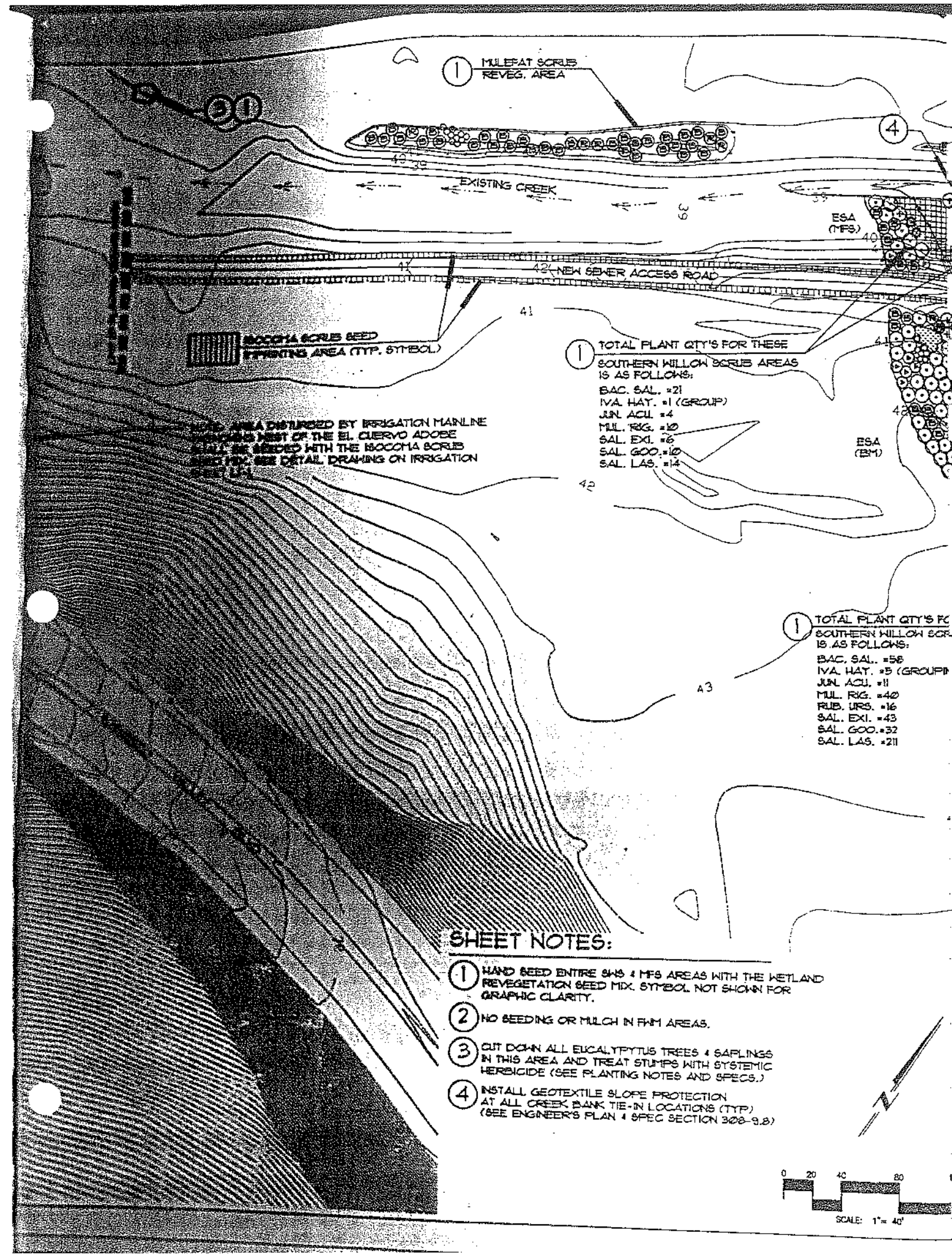
AS-BUILT

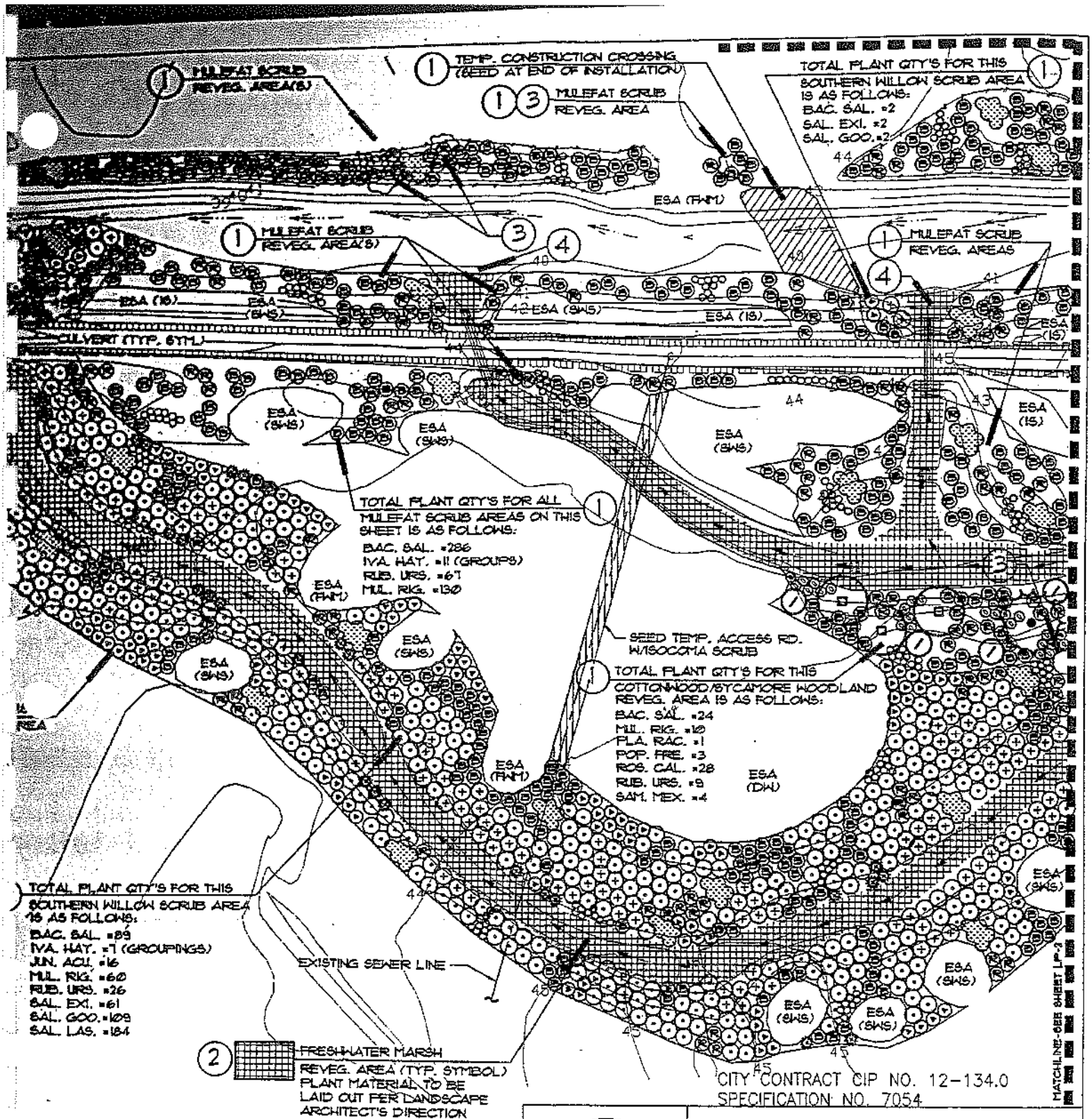
CONTRACTOR ______ DATE STARTED ______
INSPECTOR ______ DATE COMPLETED ______

269-1704
LAMBERT COORDINATES

29460-10-D

1422IR-5.DWG LI-


1 MULEFAT SCRUB REVEG. AREA
4
EXISTING CREEK
ESA (MFS)
NEW SEWER ACCESS ROAD
BOCCONIA SCRUB SEED MIXTURE AREA (TYP. SYMBOL)
1 TOTAL PLANT QTY'S FOR THESE SOUTHERN WILLOW SCRUB AREAS IS AS FOLLOWS:
BAC. SAL. =21
IVA. HAT. =1 (GROUP)
JUN. ACU. =4
MUL. RIG. =10
SAL. EXI. =6
SAL. GOO. =10
SAL. LAS. =14
ESA (EEM)
AREA DISTURBED BY IRRIGATION MAINLINE
1 TOTAL PLANT QTY'S FO
SOUTHERN WILLOW SCR
IS AS FOLLOWS:
BAC. SAL. =58
IVA. HAT. =5 (GROUPI
JUN. ACU. =11
MUL. RIG. =40
RUB. URS. =16
SAL. EXI. =43
SAL. GOO. =32
SAL. LAS. =211
SHEET NOTES:
1 HAND SEED ENTIRE SWS & MFS AREAS WITH THE WETLAND REVEGETATION SEED MIX. SYMBOL NOT SHOWN FOR GRAPHIC CLARITY.
2 NO SEEDING OR MULCH IN FMM AREAS.
3 CUT DOWN ALL EUCALYPTUS TREES & SAPLINGS IN THIS AREA AND TREAT STUMPS WITH SYSTEMIC HERBICIDE (SEE PLANTING NOTES AND SPECS.)
4 INSTALL GEOTEXTILE SLOPE PROTECTION AT ALL CREEK BANK TIE-IN LOCATIONS (TYP.) (SEE ENGINEER'S PLAN & SPEC SECTION 308-9.8)
0 20 40 80
SCALE: 1"= 40'



NOTE:
CONSTRUCTION ACCESS SHALL UTILIZE EXISTING GATE AND ACCESS ROAD OFF SORRENTO VALLEY BLVD, WEST OF EL CUERVO ADOBE AND EXISTING ROAD ACCESS FROM LOPEZ CANYON PARKING AREA. COORDINATE WITH PARKS DEPARTMENT FOR ACCESS AND APPROVED STAGING AREAS

LICENSED LANDSCAPE ARCHITECT JOHN LAWSON MARTIN 2256 12/31/00 STATE OF CALIFORNIA

PLANTING PLAN FOR

LOS PENASQUITOS CANYON PRESERVE (EL CUERVO) WETLAND REVEGETATION

CITY OF SAN DIEGO, CALIFORNIA
ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
SHEET 11 OF 16 SHEETS

W.O. NO. 180019

DUDEK & ASSOCIATES
A California Corporation
Corporate Office: 760.942.5147
605 Third Street Fax 760.632.0164
Encinitas, CA 92024

PLAN PREPARED UNDER THE SUPERVISION OF:
NAME DATE

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS
0 1 2 3

CONTRACTOR MUST NOTIFY THE BELOW LISTED AGENCY AT LEAST TWO (2) WORKING DAYS PRIOR TO COMMENCEMENT OF EXCAVATION :

UNDERGROUND SERVICE ALERT (USA) 1-800-422-4133

K.F. Henry FOR CITY ENGINEER 5-14-99 DATE

DESCRIPTION	BY	APPROVED	DATE	FILMED
FILE NAME: DATE:				

AS-BUILT
CONTRACTOR ____ DATE STARTED ____
INSPECTOR ____ DATE COMPLETED ____

K.F. Henry SECTION HEAD
PROJECT MANAGER
DESIGN ENGINEER
269-1704 LAMBERT COORDINATES
29460-11-D

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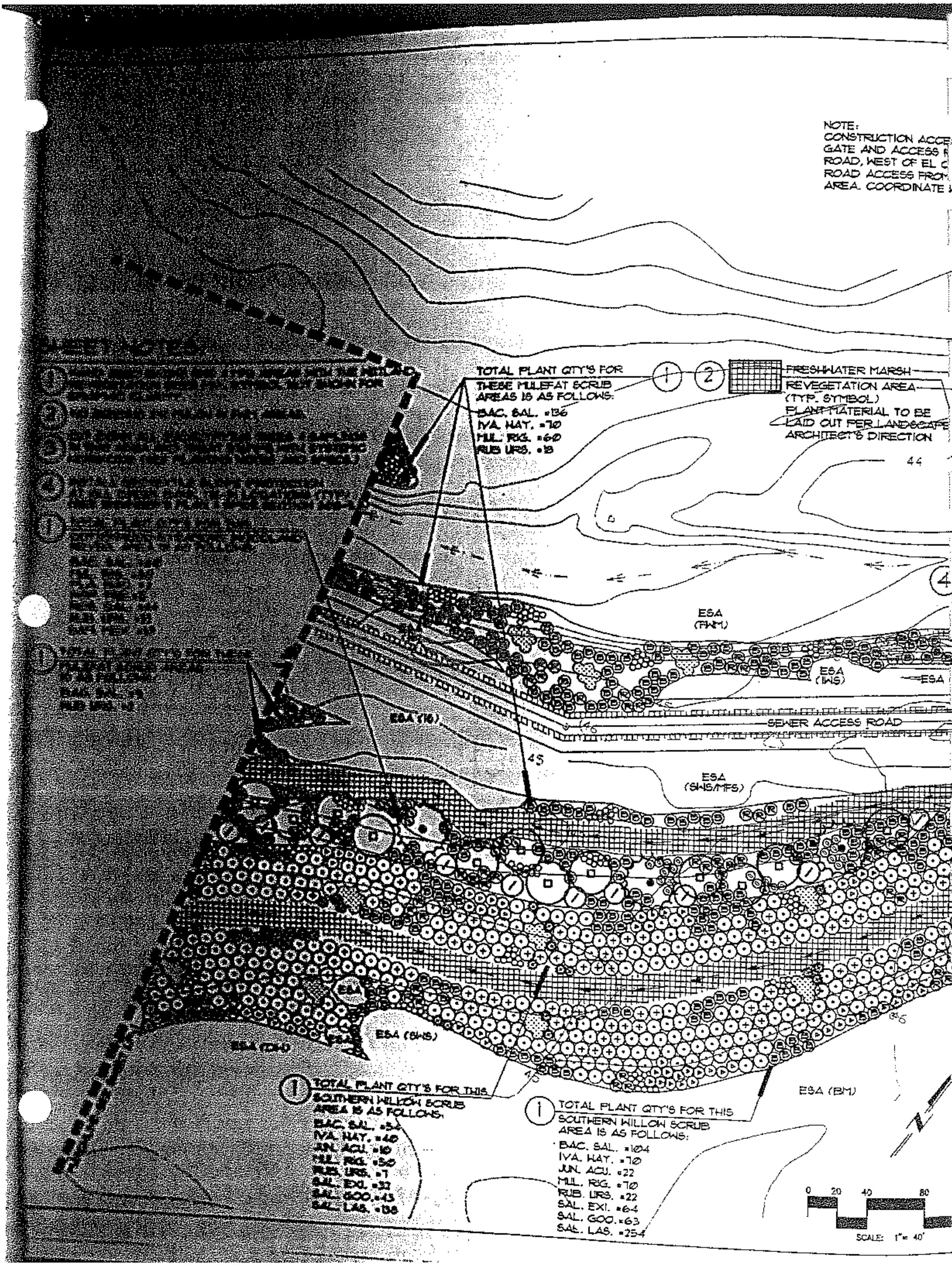
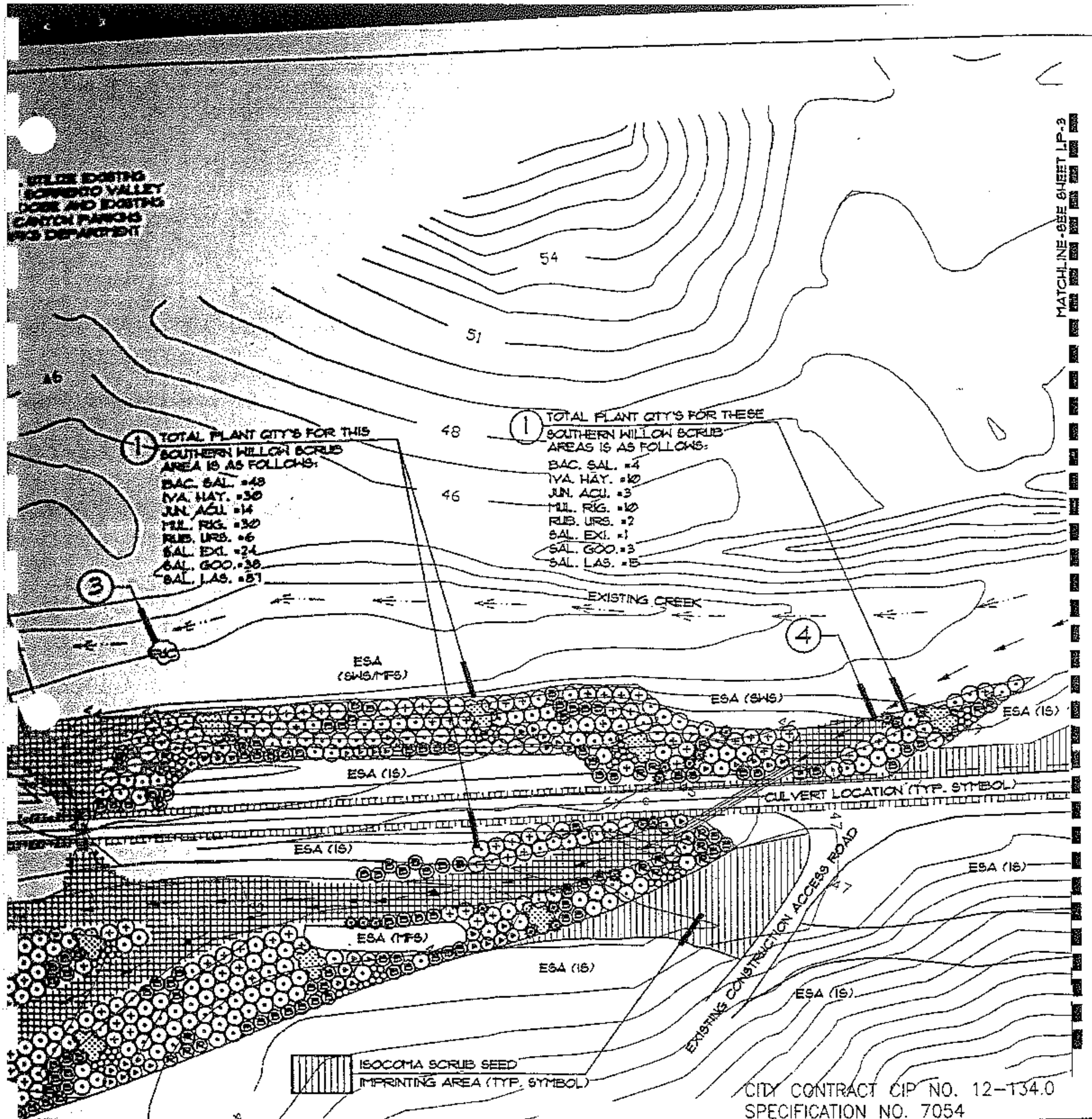


NOTE:
CONSTRUCTION ACCE
GATE AND ACCESS R
ROAD, WEST OF EL C
ROAD ACCESS FROM
AREA. COORDINATE
TOTAL PLANT QTY'S FOR
THESE MULEFAT SCRUB
AREAS IS AS FOLLOWS:
BAC. SAL. =136
IVA. HAT. =70
MUL. RIG. =60
RUB. URS. =18
FRESHWATER MARSH
REVEGETATION AREA
(TYP. SYMBOL)
PLANT MATERIAL TO BE
LAID OUT PER LANDSCAPE
ARCHITECT'S DIRECTION
44
ESA
(FWM)
ESA
(IWS)
ESA
SEWER ACCESS ROAD
ESA (IG)
45
ESA
(SWS/MFS)
ESA (SWS)
ESA (BM)
TOTAL PLANT QTY'S FOR THIS
SOUTHERN WILLOW SCRUB
AREA IS AS FOLLOWS:
BAC. SAL. =54
IVA. HAT. =40
JUN. ACU. =10
MUL. RIG. =50
RUB. URS. =7
SAL. EXI. =32
SAL. GOO.=43
SAL. LAS. =138
TOTAL PLANT QTY'S FOR THIS
SOUTHERN WILLOW SCRUB
AREA IS AS FOLLOWS:
BAC. SAL. =104
IVA. HAT. =70
JUN. ACU. =22
MUL. RIG. =70
RUB. URS. =22
SAL. EXI. =64
SAL. GOO.=63
SAL. LAS. =254
0 20 40 80
SCALE: 1"= 40'



CITY CONTRACT CIP NO. 12-134.0
SPECIFICATION NO. 7054

PLANTING PLAN FOR

LOS PENASQUITOS CANYON PRESERVE (EL CUERVO) WETLAND REVEGETATION

LICENSED LANDSCAPE ARCHITECT JOHN LAWSON MINCHIN 2223 — 12/31/99 — 5/7/99 — STATE OF CALIFORNIA

CITY OF SAN DIEGO, CALIFORNIA
ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
SHEET 12 OF 16 SHEETS

W.O. NO. 180019

DUDEK & ASSOCIATES
A California Corporation
Corporate Office: 605 Third Street Encinitas, CA 92024
760.942.5147
Fax 760.632.0164

PLAN PREPARED UNDER THE SUPERVISION OF:

NAME DATE

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS
0 1 2 3

CONTRACTOR MUST NOTIFY THE BELOW LISTED AGENCY AT LEAST TWO (2) WORKING DAYS PRIOR TO COMMENCEMENT OF EXCAVATION :

UNDERGROUND SERVICE ALERT (USA) 1-800-422-4133

K. F. Henry — FOR CITY ENGINEER — 5-14-99 DATE

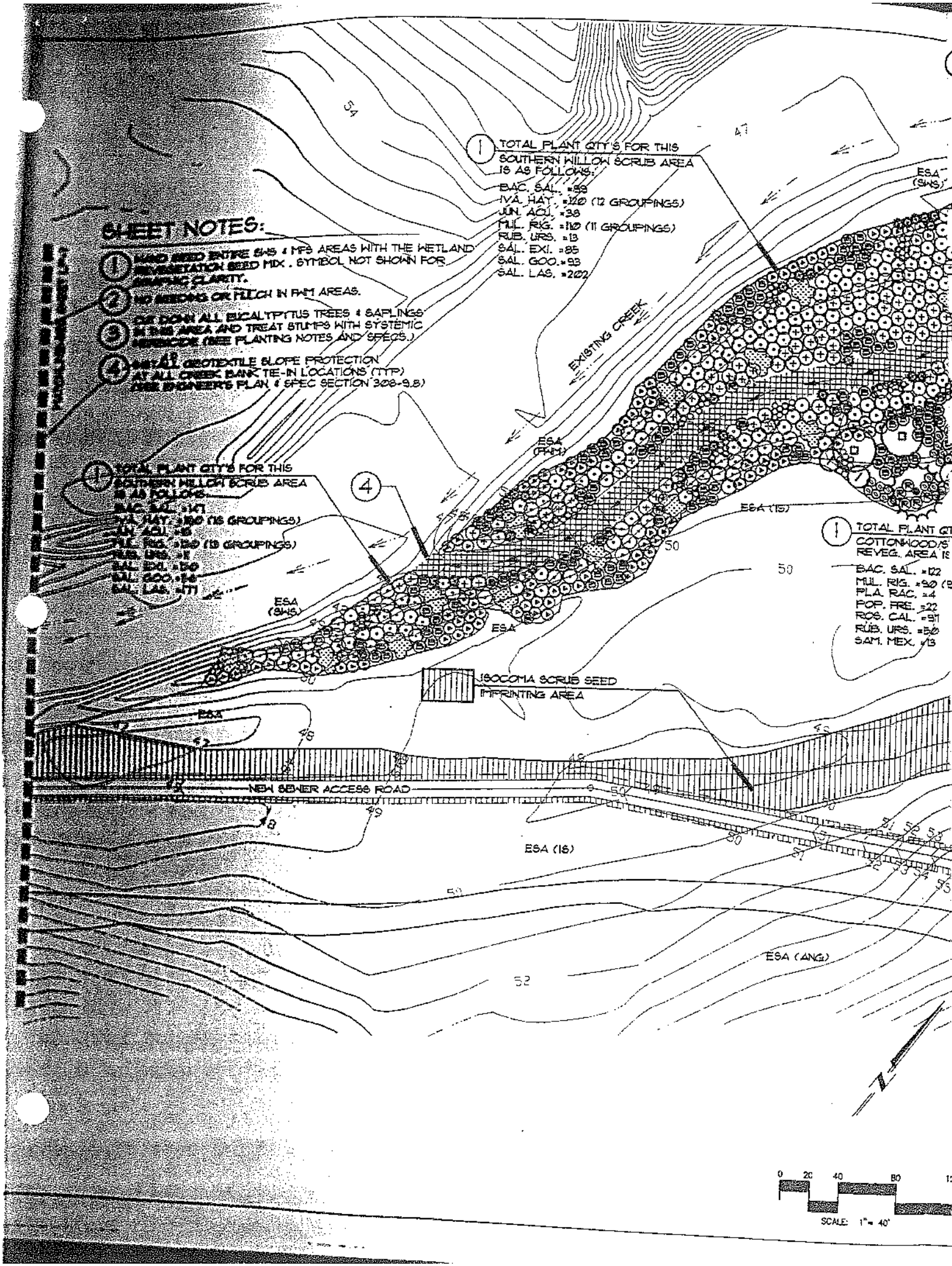
DESCRIPTION	BY	APPROVED	DATE	FILMED
FILE NAME. DATE:				
AS-BUILT				

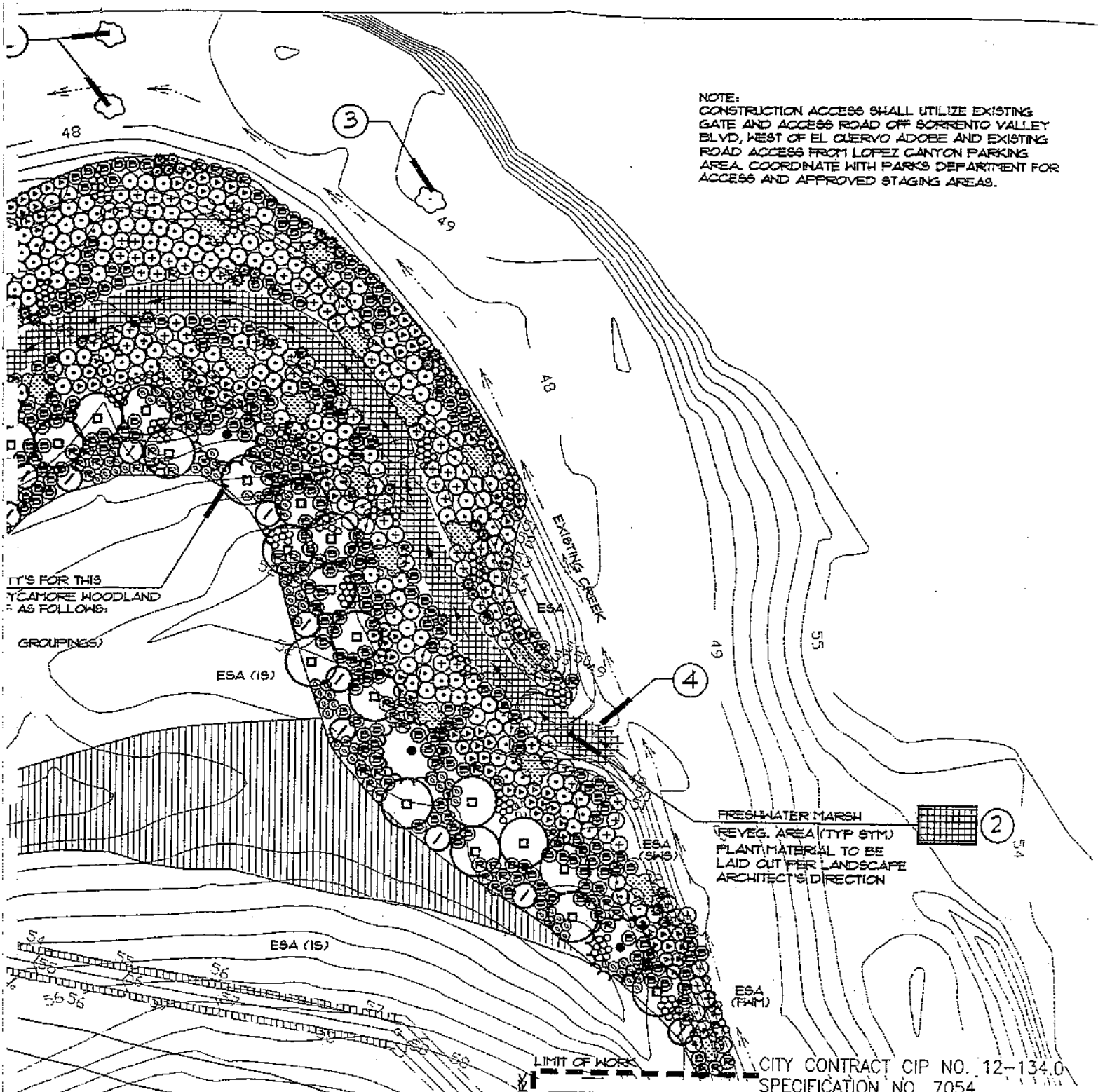
CONTRACTOR ______ DATE STARTED ______
INSPECTOR ______ DATE COMPLETED ______

SECTION HEAD
PROJECT MANAGER
DESIGN ENGINEER
269-1704
LAMBERT COORDINATES
29460-12-D

120

LP


SHEET NOTES:
1 HAND BROADCAST SEED ENTIRE SWS & MFS AREAS WITH THE WETLAND REVEGETATION SEED MIX. SYMBOL NOT SHOWN FOR GRAPHIC CLARITY.
2 NO MULCHING OR MULCH IN PAM AREAS.
3 CUT DOWN ALL EUCALTPYTUS TREES & SAPLINGS IN THIS AREA AND TREAT STUMPS WITH SYSTEMIC HERBICIDE (SEE PLANTING NOTES AND SPECS.)
4 INSTALL GEOTEXTILE SLOPE PROTECTION AT ALL CREEK BANK TIE-IN LOCATIONS (TTP) (SEE ENGINEER'S PLAN & SPEC SECTION 308-9.8)
1 TOTAL PLANT QTY'S FOR THIS SOUTHERN WILLOW SCRUB AREA IS AS FOLLOWS:
BAC. SAL. =88
IVA. HAY. =120 (12 GROUPINGS)
JUN. ACU. =38
MUL. RIG. =110 (11 GROUPINGS)
RUB. URS. =13
SAL. EXI. =85
SAL. GOO. =93
SAL. LAS. =202
EXISTING CREEK
ESA (PAM)
ESA (SWS)
ESA (15)
ESA (18)
ESA (ANG)
ISOCOMA SCRUB SEED IMPRINTING AREA
NEW SEWER ACCESS ROAD
SCALE: 1" = 40'



CITY CONTRACT CIP NO. 12-134.0
SPECIFICATION NO. 7054

PLANTING PLAN FOR

LOS PENASQUITOS CANYON PRESERVE (EL CUERVO) WETLAND REVEGETATION

CITY OF SAN DIEGO, CALIFORNIA
ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
SHEET 13 OF 16 SHEETS

W.O. NO. 180019

LICENSED LANDSCAPE ARCHITECT
JOHN LINDSEY MARTIN 3273
12/31/99
STATE OF CALIFORNIA

K.F. Henry
FOR CITY ENGINEER
5-14-99
DATE

K.F. Henry
SECTION HEAD

DESCRIPTION	BY	APPROVED	DATE	FILMED
FILE NAME: DATE:				
AS-BUILT				

CONTRACTOR _____ DATE STARTED _____
INSPECTOR _____ DATE COMPLETED _____

Chad Edwards
PROJECT MANAGER

DESIGN ENGINEER

269-1704
LAMBERT COORDINATES

29460-13-D

DUDEK & ASSOCIATES
A California Corporation
Corporate Office: 760.942.5147
605 Third Street Fax 760.632.0164
Encinitas, CA 92024

PLAN PREPARED UNDER THE SUPERVISION OF:

NAME DATE

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS
0 1 2 3

CONTRACTOR MUST NOTIFY THE BELOW LISTED AGENCY AT LEAST TWO (2) WORKING DAYS PRIOR TO COMMENCEMENT OF EXCAVATION :

UNDERGROUND SERVICE ALERT
(USA) 1-800-422-4133

PLANTING & SEEDING LEGEND

SOUTHERN WILLOW SCRUB PLANT PALETTE (6.14 ACRES)

SYMBOL	SCIENTIFIC NAME	COMMON NAME	CONTAINER SIZE	SPACING ON CENTER	QUANTITY	DETAIL
TREE (OVERSTORY) CONTAINER PLANTS						
	SALIX EXIGUA	SANDBAR WILLOW	1 GAL	8' O.C.	448	A
	SALIX GOODDINGII	BLACK WILLOW	1 GAL	15' O.C.	448	A
	SALIX LASIOLEPIS	ARROYO WILLOW	1 GAL	10' O.C.	1203	A
SHRUB (UNDERSTORY) CONTAINER PLANTS						
	BACCHARIS SALICIFOLIA	MULEFAT	1 GAL	8' O.C.	620	A
	IVA HAYESIANA	S.D. MARSH ELDER	1 GAL	6' O.C.	520 (10 PER SYMBOL)	A
	JUNCUS ACUTUS	SPINY RUSH	1 GAL	7' O.C.	136	A
	MUHLENBERGIA RIGENS	DEERGRASS	1 GAL	4' O.C.	510	A
	RUBUS URSINUS	CALIFORNIA BLACKBERRY	1 GAL	8' O.C.	103	A

COTTONWOOD SYCAMORE WOODLAND PLANT PALETTE (1.27 ACRES)

SYMBOL	SCIENTIFIC NAME	COMMON NAME	CONTAINER SIZE	SPACING ON CENTER	QUANTITY	DETAIL
TREE (OVERSTORY) CONTAINER PLANTS						
	SAMBUCUS MEXICANA	MEXICAN ELDERBERRY	1 GAL	15' O.C.	27	A
	PLATANUS RACEMOSA	WESTERN SYCAMORE	5 GAL	40' O.C.	8	A
B	POPULUS FREMONTII	FREMONT COTTONWOOD	5 GAL	30' O.C.	37	A
SHRUB (UNDERSTORY) CONTAINER PLANTS						
	BACCHARIS SALICIFOLIA	MULEFAT	1 GAL	8' O.C.	206	A
	MUHLENBERGIA RIGENS	DEERGRASS	1 GAL	4' O.C.	130	A
	ROSA CALIFORNICA	CALIFORNIA WILD ROSE	1 GAL	6' O.C.	160	A
	RUBUS URSINUS	CALIFORNIA BLACKBERRY	1 GAL	8' O.C.	81	A

MULEFAT SCRUB PLANT PALETTE (1.13 ACRES)

SYMBOL	SCIENTIFIC NAME	COMMON NAME	CONTAINER SIZE	SPACING ON CENTER	QUANTITY	DETAIL
SHRUB (UNDERSTORY) CONTAINER PLANTS						
	BACCHARIS SALICIFOLIA	MULEFAT	1 GAL	8' O.C.	395	A
	IVA HAYESIANA	S.D. MARSH ELDER	1 GAL	6' O.C.	160 (10 PER SYMBOL)	A
	MUHLENBERGIA RIGENS	DEERGRASS	1 GAL	4' O.C.	170	A
	RUBUS URSINUS	CALIFORNIA BLACKBERRY	1 GAL	8' O.C.	87	A

FRESHWATER MARSH PLANT PALETTE (1.96 AC) (CONTAINER PLANTS ONLY, NO SEEDING)

SYMBOL	SCIENTIFIC NAME	COMMON NAME	CONTAINER SIZE	SPACING ON CENTER	QUANTITY	DETAIL
SHRUB (UNDERSTORY) CONTAINER PLANTS						
	ANEMOPSIS CALIFORNICA	YERBA MANSA	6" POT	2' O.C.	3202	(A)
	CAREX TRIQUETRA	TRIANGULAR FRUITED SEDGE	1 GAL	4' O.C.	267	(A)
	ELEOCHARIS MACHROSTACHYA	SPIKE RUSH	1 GAL	3' O.C.	474	(A)
	JUNCUS ACUTUS	SPINY RUSH	1 GAL	7' O.C.	523	(A)
	JUNCUS BUFONIUS	TOAD RUSH	1 GAL	3' O.C.	474	(A)
	JUNCUS MEXICANUS	MEXICAN RUSH	1 GAL	3' O.C.	949	(A)
	SCIRPUS CALIFORNICUS	CALIFORNIA BULRUSH	1 GAL	3' O.C.	1423	(A)
	SCIRPUS ROBUSTUS	PRARIE BULRUSH	1 GAL	4' O.C.	800	(A)

NOTE:
1. FRESHWATER MARSH PLANT MATERIAL SHALL BE LAID-OUT PER LANDSCAPE ARCHITECT'S DIRECTION. LANDSCAPE ARCHITECT SHALL APPROVE FINAL LAYOUT PRIOR TO PLANTING TO ENSURE PLANTS ARE IN THEIR PROPER ECOLOGICAL LOCATIONS.

WETLAND REVEGETATION SEED MIX (TO BE APPLIED BY HAND TO ENTIRE SOUTHERN WILLOW SCRUB, COTTONWOOD/SYCAMORE WOODLAND, AND MULEAT SCRUB REVEGETATION AREAS)

SYMBOL	SCIENTIFIC NAME	COMMON NAME	MIN. %P/%G	LBS/ACRE
NO SYMBOL SHOWN	AMBROSIA PSILOSTACHYA	WESTERN RAGWEED	2/30	2
	ARTEMISIA DOUGLASIANA	MUGWORT	10/50	8
	ARTEMISIA PALMERI	SAN DIEGO SAGEWORT	15/50	4
	LEYMUS TRITICOIDES	CREEPING WILD RYE	90/80	6
	OENOTHERA HOOKERI	EVENING PRIMROSE	98/75	4
	PLUCHEA ODORATA	MARSH FLEABANE	35/60	2
				26 LBS/ACRE

NOTE:
1. SEE PLANTING NOTES & SPECS FOR SITE PREPARATION, APPLICATION PROCEEDURE AND REQUIREMENTS.
2. SYMBOL NOT SHOWN IN CONTAINER PLANTING AREAS FOR GRAPHIC CLARITY.

ISOCOMA SCRUB SEED IMPRINTING MIX (1.13 ACRES) (SEEDING ONLY, NO CONTAINER PLANTS)

SYMBOL	SCIENTIFIC NAME	COMMON NAME	MIN. %P/%G	LBS/ACRE
	AMBROSIA PSILOSTACHYA	WESTERN RAGWEED	2/30	2
	ARTEMISIA CALIFORNICA	COASTAL SAGEBRUSH	15/50	4
	ARTEMISISA PALMERI	SAN DIEGO SAGEWORT	15/50	4
	ENCELIA CALIFORNICA	COAST SUNFLOWER	40/60	2
	ERIOGONUM FASCICULATUM	FLAT-TOPPED BUCKWHEAT	40/60	6
	ISOCOMA MENZIESII	COAST GOLDENBUSH	90/80	8
	LEYMUS TRITICOIDES	CREEPING WILD RYE	90/80	3
	LOTUS SCOPARIUS	DEERWEED	90/60	4
	LUPINUS SUCCULENTUS	ARROYO LUPINE	98/85	3
	*NASSELA PULCHRA	PURPLE NEEDLEGRASS	70/60	4
				40 LBS/ACRE

NOTE:
1. SEE PLANTING NOTES & SPECS FOR SITE PREPARATION, APPLICATION PROCEEDURE AND REQUIREMENTS.

CITY CONTRACT CIP NO. 12-134.0
SPECIFICATION NO. 7054

LICENSED LANDSCAPE ARCHITECT — JOHN LUNDEEN MINCHIN — 2125 — Signature 12/31/99 — Renewal Date — 5/5/99 — Date — STATE OF CALIFORNIA

PLANT & SEED LEGEND FOR

LOS PENASQUITOS CANYON PRESERVE (EL CUERVO) WETLAND REVEGETATION

CITY OF SAN DIEGO, CALIFORNIA
ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
SHEET 14 OF 16 SHEETS

W.O. NO. 180019

DUDEK & ASSOCIATES
A California Corporation
Corporate Office: 760.942.5147
605 Third Street Fax 760.632.0164
Encinitas, CA 92024

PLAN PREPARED UNDER THE SUPERVISION OF:

NAME DATE

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS
0 1 2 3

CONTRACTOR MUST NOTIFY THE BELOW LISTED AGENCY AT LEAST TWO (2) WORKING DAYS PRIOR TO COMMENCEMENT OF EXCAVATION :

UNDERGROUND SERVICE ALERT (USA) 1-800-422-4133

K.F. Henry — 5-14-99
FOR CITY ENGINEER — DATE

DESCRIPTION	BY	APPROVED	DATE	FILMED
FILE NAME: DATE:				
AS-BUILT				

CONTRACTOR _____ DATE STARTED _____
INSPECTOR _____ DATE COMPLETED _____

K.F. Henry — SECTION HEAD
J. L. Maxwell — PROJECT MANAGER
DESIGN ENGINEER
269-1704 — LAMBERT COORDINATES
29460-14-D

PLANTING NOTES:

1. IRRIGATION SYSTEM SHALL BE IN PLACE, FULLY OPERATIONAL, AND APPROVED BY PROJECT ENGINEER, CITY PARKS REPRESENTATIVE AND LANDSCAPE ARCHITECT PRIOR TO PLANTING AND SEEDING. ALL DEBRIS SHALL BE DIPOSED OF OFF-SITE.

2. ALL WEEDS/NON-NATIVE PLANTS MUST BE CLEARED AND REMOVED FROM THE REVEGETATION AREAS PRIOR TO PLANTING OR SEEDING.

3. ALL CONTAINER PLANTS FOR THIS PROJECT SHALL BE CONTRACT GROWN AT A REPUTABLE NATIVE PLANT NURSERY SPECIALIZING IN GROWING NATIVE PLANT MATERIALS. QUALITY OF PLANT MATERIALS SHALL BE OF STANDARD QUALITY IN THE NURSERY INDUCSTRY FOR NATIVE PLANT MATERIAL. PLANTS SHALL ALSO ABIDE BY THE THE CITY OF SANDIEGO GREEN BOOK SPECIFICATIONS, HOWEVER, PRUNING WILL BE ACCEPTABLE IF THIS IS DONE AS PART OF THE STANDARD PROPAGATION AND SHIFTING PROCEEDURES. PLANTS SHALL NOT BE PRUNED BY THE NURSERY IMMEDIATELY PRIOR TO DELIVERY, OR BY THE INSTALLATION CONTRACTOR, UNLESS SO DIRECTED. PLANT MATERIALS SHALL BE JOINTLY APPROVED BY THE CITY REPRESENTATIVE AND THE LANDSCAPE ARCHITECT AT THE TIME OF DELIVERY.

4. ALL SEED SHALL BE OF THE CURRENT YEAR'S CROP, WITH THE SPECIFIED PURITY AND GERMINATION FOR EACH SPECIES CLEARLY IDENTIFIED ON ALL SEED TAGS. ALL SEED TAGS SHALL BE IN TACT ON SEED BAGS UPON DELIVERY TO THE PROJECT SITE. TAGS SHALL BE REMOVED FROM THE BAGS AT THE TIME OF INSTALLATION AND RETAINED FOR THE PROJECT INSPECTOR.

5. CONTRACTOR SHALL ACQUIRE REPRESENTATIVE SOIL SAMPLES FROM THE REVEGETATION AREAS (4 REQUIRED) AND HAVE THEM TESTED AT A REPUTABLE SOILS LABRATORY FOR AGRICULTURAL SUITABILITY AND FERTILITY. SOIL REPORTS/RECOMMENDATIONS SHALL BE PROVIDED AND SUBMITTED FOR REVIEW/APPROVAL PRIOR TO AMENDING SOIL. SOIL AMENDING MAY BE ALTERED BASED UPON THE LABRATORY'S RECOMMENDATIONS. CHANGES WILL BE HANDLED AS A CONSTRUCTION CHANGE ORDER IF NEEDED.

6. ALL SITE PREPARATION AND SOIL AMENDING SHALL BE COMPLETED AND APPROVED BY THE PROJECT BIOLOGIST/LANDSCAPE ARCHITECT PRIOR TO INITIATING PLANTING.

7. SILT FENCING SHALL BE IN PLACE PRIOR TO PLANTING, AS INDICATED IN THE SPECS. AND AS SHOWN ON THE GRADING PLANS.

8. ALL CONTAINER PLANTS MUST BE PLANTED WITHIN 10 WORKING DAYS FOLLOWING DELIVERY TO THE SITE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR WATERING AND PROTECTING ALL PLANTS AND MATERIALS STORED ON-SITE.

9. PLANTS SHALL BE LOCATED PER THESE PLANS. ONCE ALL THE CONTAINER PLANTS HAVE BEEN SPOTTED IN PLACE, THE CONTRACTOR SHALL ACQUIRE FINAL APPROVAL FROM THE ENGINEER AND PROJECT BIOLOGIST/LANDSCAPE ARCHITECT PRIOR TO EXCAVATING PLANTING HOLES. IF PLANTING LOCATIONS CONFILICT WITH EXISTING UTILITIES THE CONTRACTOR SHALL GET FIELD APPROVAL FOR RELOCATING THE PLANT MATERIAL(S) FROM THE PROJECT ENGINEER/LANDSCAPE ARCHITECT.

10. PLANTING HOLES SHALL BE FILLED WITH WATER AND ALLOWED TO DRAIN COMPLETELY A MINIMUM OF 24 HOURS BEFORE PLANTING CONTAINER PLANTS.

11. PLANTING AND SEEDING SHALL ONLY OCCUR WHEN ENVIRONMENTAL CONDITIONS ARE FAVORABLE FOR SUCH ACTIVITIES, BASED ON STANDARD HORTICULTURAL PRACTICES. PLANTING OR SEEDING SHALL NOT TAKE PLACE IF TEMPERATURES ARE UNREASONABLY HIGH OR IF THE SITE IS EXCESSIVELY WET OR MUDDY.

12. CONTAINER PLANTS SHALL BE WATERED IN THOROUGHLY IMMEDIATELY AFTER BEING PLANTED.

13. PLANTING SHALL OCCUR ONLY AFTER THE PROJECT BIOLOGIST/LANDSCAPE ARCHITECT HAS INSPECTED AND APPROVED THAT THE SITE HAS BEEN PROPERLY PREPARED FOR SEEDING.

14. FOR WORK WITHIN ENVIRONMENTALLY SENSITIVE AREAS, CONTRACTOR SHALL BE RESPONSIBLE FOR INSURING EMPLOYEES, SUBTIERS, AND SUBCONTRACTORS OUT OF THESE AREAS. CONTRACTOR SHALL INCURE ALL COSTS ASSOCIATED WITH REPAIRING DAMAGE TO THESE AREAS DUE TO HIS/HER NEGLIGENCE.

15. THE CONTRACTOR SHALL MAINTAIN ALL IRRIGATION AND PLANTING AREAS FOR AN INITIAL 120 DAY PLANT ESTABLISHMENT PERIOD (120 CONTINUOUS CALENDAR DAYS). THE 120 DAY MAINTENANCE PERIOD SHALL BEGIN IMMEDIATELY FOLLOWING THE FINAL COMPLETION OF THE INSTALLATION. AFTER SUCCESSFUL COMPLETION OF THE 120 DAY PERIOD, THE CONTRACTOR SHALL CONTINUE TO MAINTAIN THE PROJECT FOR THE REMAINDER OF THE 1 YEAR PERIOD (365 CALENDAR DAYS).

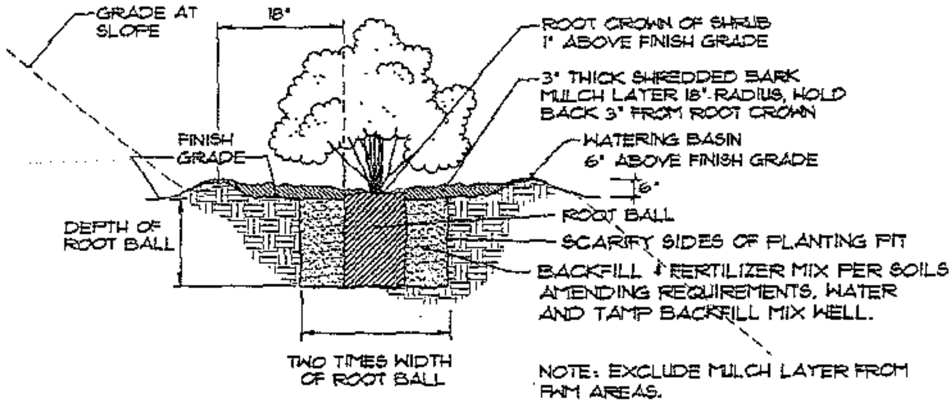
BASE BID SOIL AMENDING REQUIREMENTS

SOIL PREPARATION FOR ALL REVEGETATION AREAS:
BROADCAST THE FOLLOWING MATERIALS UNIFORMILY. THE RATES ARE PER 1,000 SQUARE FEET.
INCORPORATE THE FOLLOWING MATERIALS THOROUGHLY TO A DEPTH OF 6".
AMMONIUM NITRATE (34-0-0) - 3 POUNDS
POTASSIUM SULFATE (0-0-50)- 4 POUNDS
SINGLE SUPERPHOSPHATE (0-20-0) - 4 POUNDS
AGRICULTURAL GYPSUM - 10 POUNDS
4 CUBIC YARDS VEGETATION BASED HUMUS

BACKFILL MIX FOR CONTAINER PLANTS:
INCORPORATE THE FOLLOWING MATERIALS UNIFORMILY. THE RATES ARE PER CUN-BIC YARD.
AMMONIUM NITRATE (34-0-0) - 1/5 POUND
POSTASSIUM SULFATE (0-0-50) - 1/4 POUND
SINGLE SUPERPHOSPHATE (0-20-0) - 1/4 POUND
AGRICULTURAL GYPSUM - 1/2 POUND
VEGETATION BASED HUMUS (15% BY VOLUME)

GEOTEXTILE FABRIC SLOPE PROTECTION

SEE GRADING PLANS FOR LOCATION OF FABRIC SLOPE PROTECTION. GEOTEXTILE FABRIC SHALL BE 'BON-TERRA' EROSION CONTROL BLANKET #C 2 (100% COCONUT FIBER, OR APPROVED EQUAL). AVAILABLE FROM BON-TERRA AT (208) 882-9489, OR BON-TERRA REPRESENTATIVE DEAN BRADFIELD (CITY OF LA CANADA), (818) 790-6525. INSTALL AND STAKE PER MANUFACTERER'S RECOMMENDATIONS. INSTALL EROSION BLANKET AFTER SEEDING IS COMPLETED. CONTRACTOR SHALL SUBMIT SAMPLE OF GEOTEXTILE FABRIC FOR APPROVAL IF DIFFERENT THAN THAT SPECIFIED ABOVE.



1 AND 5 GAL SHRUB/TREE PLANTING DETAIL (A)

NO SCALE

CITY CONTRACT CIP NO. 12-134.0
SPECIFICATION NO. 7054

PLANTING DETAILS & NOTES FOR

LOS PENASQUITOS CANYON PRESERVE (EL CUERVO) WETLAND REVEGETATION

LICENSED LANDSCAPE ARCHITECT JOHN LINCOLN MINCHIN 2228 12/31/99 STATE OF CALIFORNIA

CITY OF SAN DIEGO, CALIFORNIA
ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
SHEET 15 OF 16 SHEETS

W.O. NO. 180019

FOR CITY ENGINEER 5-14-99 DATE

SECTION HEAD

PROJECT MANAGER

DESIGN ENGINEER

DESCRIPTION	BY	APPROVED	DATE	FILMED
FILE NAME DATE				

269-1704
LAMBERT COORDINATES
29460-15-D

AS-BUILT
CONTRACTOR ____ DATE STARTED ____
INSPECTOR ____ DATE COMPLETED ____

PLAN PREPARED UNDER THE SUPERVISION OF:
NAME DATE

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS
0 1 2 3

CONTRACTOR MUST NOTIFY THE BELOW LISTED AGENCY AT LEAST TWO (2) WORKING DAYS PRIOR TO COMMENCEMENT OF EXCAVATION :

UNDERGROUND SERVICE ALERT (USA) 1-800-422-4133

DUDEK & ASSOCIATES
A California Corporation

LP

GRADING AND DRAINAGE NOTES :

1. CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING IMPROVEMENTS, STRUCTURES, AND UTILITIES, AND PROTECT IN PLACE BEFORE BEGINNING WORK INCLUDING IMPROVEMENTS, STRUCTURES, AND UTILITIES NOT SHOWN ON THESE PLANS.

2. WHERE NEW BELOW GRADE WORK TIES INTO, OR CONNECTS TO EXISTING BELOW GRADE WORK, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE ACTUAL LOCATIONS AND ELEVATIONS OF EXISTING WORK PRIOR TO EXCAVATING FOR NEW WORK.

3. AT LEAST 48 HOURS BEFORE BEGINNING EXCAVATION THE CONTRACTOR SHALL LOCATE AND MARK THE LOCATIONS OF ALL UNDERGROUND UTILITIES. CALL THE "UNDERGROUND SERVICE ALERT" AT 1 800 422-4133.

4. ALL PLANTING AREAS SHALL HAVE POSITIVE SURFACE DRAINAGE TO SWALES INDICATED ON GRADING PLANS.

5. ALL PLANTING AREA GRADES SHALL BE RAKED SMOOTH AND ALL DEBRIS, COBBLE, CONSTRUCTION DUFF, AND ROCK LARGER THAN 1" DIAMETER SHALL BE REMOVED.

6. ALL DRAINAGE CULVERT CONNECTIONS WITH FINISH GRADE SHALL BE UNIFORM TO ALLOW FOR INTENDED DRAINAGE.

7. ALL GRADING AND CULVERT INSTALLATION IS SUBJECT TO INSPECTION AND APPROVAL BY THE PROJECT ENGINEER.

CONSTRUCTION NOTES:

1. ALL CONSTRUCTION DEBRIS SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR.

IRRIGATION NOTES :

1. IRRIGATION SYSTEM INSTALLATION SHALL CONFORM TO THE CRITERIA AND STANDARDS OF THE CITY OF SAN DIEGO AND THE ALL OTHER APPLICABLE STANDARDS AS OF THE APPROVED DATE OF THESE PLANS.

2. NO DEVIATIONS FROM THE PLANS, DETAILS OR SPECIFICATIONS SHALL BE ALLOWED UNLESS SO APPROVED BY THE PROJECT ENGINEER.

3. ALL MAINLINE PIPING AND EQUIPMENT LOCATIONS ON THE PLANS ARE DIAGRAMMATICALLY SHOWN. ALL PIPE AND EQUIPMENT SHALL BE INSTALLED WITHIN THE PLANTING AREAS, AS CLOSE TO THE PLAN LOCATIONS AS POSSIBLE. ALL FINAL LOCATIONS FOR PIPING AND EQUIPMENT SHALL BE APPROVED BY THE PROJECT ENGINEER AND SHALL BE RECORDED BY THE CONTRACTOR ON THE FINAL "AS-BUILT" PLANS. AS-BUILTS SHALL BE DUPLICATE ORIGINALS OF THE IRRIGATION PLANS.)

4. THE IRRIGATION SYSTEM IS DESIGNED TO SUPPLY 30 P.S.I. AT THE SPRINKLER HEADS. THE PRESSURE REGULATOR SHALL BE PRESET AT 75 P.S.I. THE CONTRACTOR SHOULD ADJUST THE PRESSURE REGULATOR AS NECESSARY TO OBTAIN ADEQUATE SYSTEM OPERATION.

5. VALVES SHOWN IN THE SAME LOCATION SHALL BE MANIFOLDED TOGETHER. ONLY ONE VALVE PER VALVE BOX ALLOWED. ALL VALVE BOXES SHALL HAVE A 6" DEEP LAYER OF PEA GRAVEL AT THE BOTTOM.

6. ALL PIPE FROM THE WATER METER THROUGH THE BACK FLOW ASSEMBLY SHALL BE COPPER.

7. CONTRACTOR/INSTALLER SHALL VERIFY THE EXISTING STATIC WATER PRESSURE AT THE PROPOSED POINT OF CONNECTION (P.O.C.) IS AT LEAST 75 PSI. CONTRACTOR SHALL NOTIFY THE LANDSCAPE ARCHITECT AND/OR THE OWNERS REPRESENTATIVE IF THE EXISTING PRESSURE IS LOWER THAN 75 P.S.I. FOR POSSIBLE PLAN CHANGES. THIS SHALL BE DONE PRIOR TO ORDERING IRRIGATION COMPONENTS.

8. ALL MAINLINE PIPE SHALL BE INSTALLED A MINIMUM OF 18" BELOW GRADE. ALL LATERAL LINE PIPE, SHALL BE INSTALLED ON-GRADE AS SHOWN EXCEPT AT ROAD CROSSINGS. PLACE LATERALS IN PVC SCH 40 SLEEVE 18" BELOW GRADE AT ALL ROAD CROSSINGS.

9. CONTRACTOR SHALL VERIFY THE LOCATIONS OF ALL EXISTING UNDERGROUND UTILITIES PRIOR TO STARTING WORK AND SHALL HAVE THEM MARKED OUT IN THE FIELD AS NECESSARY.

10. CONTROLLER LOCATIONS SHALL BE AS SHOWN ON IRRIGATION PLANS AND ARE SUBJECT TO APPROVAL BY THE THE PROJECT ENGINEER.

11. IRRIGATION SYSTEMS SHALL BE ADEQUATELY MAINTAINED TO PROVIDE FOR UNIFORM SPRINKLER HEAD COVERAGE AND ADEQUATE MOISTURE TO PLANTING AREAS.

12. INSPECTIONS/OBSERVATIONS OF THE IRRIGATION SYSTEM INSTALLATION SHALL BE BE AS INDICATED IN THE SPECIFICATIONS.

13. MILESTONE INSPECTIONS/OBSERVATIONS SHALL BE PERFO
AS INDICATED IN THE SPECIFICATIONS.

All irrigation components shall be installed per the 'San Dieg
Regional Standard Drawings', and per the details shown here
Details on plans take precedence over regional standard
All irrigation work shall abide by the 'Greenbook' specificatio
Standard Specifications For Public Works Construction', 1991
and the special provisions specifications for this projec

SUPPLEMENTAL IRRIGATION NOTES :

1. ALL MATERIALS AND EQUIPMENT USED IN SPRINKLER IR
WORK SHALL BE NEW AND WITHOUT FLAWS OR DEFECTS A
AND PERFORMANCE AS SPECIFIED. PRIOR TO INSTALLATI
IRRIGATION WORK THE CONTRACTOR SHALL SUBMIT FOR A
CITY, A LIST OF ALL MATERIALS AND EQUIPMENT PROPOSE
SHOULD THE CONTRACTOR PROPOSE TO USE MATERIAL(S)
OTHER THAN THOSE LISTED AS "APPROVED", CONTRACTO
WRITING TO THE CITY, A REQUEST TO DEVIATE FROM THE A
SAMPLES OF THE MATERIAL(S) OR EQUIPMENT SHOULD AC
REQUEST TO ASSIST IN THE EVALUATION OF THE PROPOSED
THE BURDEN OF PROOF SHALL BE BORNE BY THE CONTRA

2. ALL REMOTE CONTROL VALVE BOXES SHALL BE CONC
3-HL"), OR APPROVED EQUAL. THE CONTRACTOR SHALL
IDENTIFICATION NUMBER OF THE VALVE AND THE CONTROL
ON THE COVER OF THE VALVE BOX. THE PAINT SHALL BE
ASPHALTIC-BASE WATERPROOF PAINT.

3. THE CONTRACTOR SHALL REWORK THE LOCKING TOGGL
CONCRETE VALVE BOXES BY REPLACING THE EXISTING CL
AND SHEET METAL CLIP WITH A MARINE-TYPE STAINLESS
MACHINE BOLT AND SELF-LOCKING NUT. APPLY OIL TO LU
AND PREVENT RUST.

4. SAND ENCASEMENT FOR ALL IRRIGATION PIPE, DIRECT
CONTROL WIRE AND ELECTRICAL CONDUIT SHALL BE PLA
MORTAR SAND AS PER SECTION 200 OF THE STANDARD SP
WITH AS MINIMUM SAND EQUIVALENCY OF 30.

5. ALL PRESSURE PIPE 4" AND SMALLER, POLYVINYL CHLO
OR ASBESTOS CEMENT, SHALL HAVE THE CORRECT SIZE CO
THRUST BLOCK INSTALLED AT EVERY ABRUPT CHANGE OF
ALIGNMENT: AT GATE VALVES, AT TEES, ELBOWS AND CRO
AT END OF PIPE RUNS: OR WHEREVER FIELD ENGINEER DE
TO BE NECESSARY. THRUST BLOCKS ARE TO BE INSTALLED
STANDARD DRAWINGS W-17, W-18 AND W-19, SIZED AS FOR

6. ALL PIPE CONNECTIONS TO POLYVINYL CHLORIDE OR
PIPE MAINS SHALL BE MADE HORIZONTALLY. SEE STANDA
1-28 AND 1-29.

7. ALL PRESSURE PIPE SHALL HAVE A CONTINUOUS BLUE
MARKER METALLIC TAPE PLACED NINE INCHES (9") BELOW
DIRECTLY ABOVE THE BURIED PIPE. MARKER TAPE SHALL
AS MANUFACTURED BY PAUL POTTER WARNING TAPE, INC.
EQUAL.

8. PRESSURE AND LEAK TEST SHALL BE APPROVED BY TH
PRIOR TO BACKFILLING TRENCHES.

9. DIRECT BURIAL CONTROL WIRES: ALL CONTROL WIRES
COPPER, 600 VOLT, TYPE UF, CONFORMING TO THE STAND
AND DRAWINGS, SPECIAL PROVISIONS AND THE FOLLOWING
INSTALLATION REQUIREMENTS.
NEUTRAL WIRES: WHITE (#12 AWG) DO NOT INTERCONNECT
WIRES BETWEEN CONTROLLERS.
PILOT WIRES: (#14) AWG) (USE AS MANY AS NECESSARY)

VALVE NO.	VALVE NO.
1 YELLOW	10 WHITE W/ RED STRIPE
2ORANGE	11 YELLOW W/ RED STRIPE
3 BLUE	12 BLUE W/ RED STRIPE
4 BLACK	13 ORANGE W/ RED STRIPE
5 BROWN	14 PURPLE W/ WHITE STRIPE
6 PURPLE	15 BROWN W/ WHITE STRIPE
7 YELLOW W/BLACK STRIPE	16 YELLOW W/ WHITE STRIPE
8 ORANGE W/ BLACK STRIPE	17 BLUE W/ WHITE STRIPE
9 RED W/ BLACK STRIPE	18 RED W/ WHITE STRIPE

SPARE WIRES: TWO (2) RED (#14AWG) FROM FURTHEST VALVE
MANIFOLD TO EACH CONTROLLER.

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10. WIRE CONNECTIONS: NEUTRAL, PILOT AND SPARE WIRES SHALL BE INSTALLED WITH A 2'-0" COILED EXCESS WIRE LENGTH AT EACH END ENCLOSURE. EACH AND EVERY WIRE SPLICE SHALL BE SOLDERED TOGETHER (USING 60-40 SOLDER), THEN ENCASED IN THE WATERPROOF EPOXY OF THE "SCOTHC PAC" OR "PEN-TITE" CONNECTORS AS SHOWN ON THE STANDARD DRAWING I-15, WIRE SPLICES SHALL BE MADE ONLY IN VALVE OR PULL BOXES.

11. WIRE BUNDLES: EACH INDIVIDUAL CONTROLLER CLOCK'S CONTROL WIRES SHALL BE BUNDLED AND TAPED TOGETHER WITH COLORED TAPE AT INTERVALS NOT EXCEEDING 10'-0". CONTROLLER IDENTIFICATION TAPE COLORS SHALL BE AS FOLLOWS: (USE AS MANY AS NECESSARY.

CONTROLLER	COLOR
"A"	BLACK
"B"	RED
"C"	WHITE
"D"	BLUE
"E"	GREEN
"F"	YELLOW

12. TRENCH MARKER: ALL DIRECT BURIAL WIRES SHALL BE MARKED WITH A CONTINUOUS RED COLORED TRENCH MARKER PLASTIC TAPE PLACED NINE INCHES (9") BELOW FINISHED GRADE DIRECTLY ABOVE THE BURIED WIRES. MARKER TAPE SHALL BE "ALLEN TAPE" OR APPROVED EQUAL. TAPE SHALL BE THREE INCHES (3") WIDE.

13. TESTING: ALL WIRING SHALL BE TESTED FOR CONTINUITY, OPEN CIRCUITS AND UNINTENTIONAL GROUNDS PRIOR TO CONNECTING TO EQUIPMENT. THE MINIMUM INSULATION RESISTANCE TO GROUND SHALL BE FIFTY (50) MEGAOHMS. ANY WIRING NOT MEETING THIS REQUIREMENT SHALL BE REPLACED, AT THE CONTRACTOR'S EXPENSE.

14. ALL WIRES IN PULL BOXES SHALL BE LOOSE AND SHALL NOT COME WITHIN THREE (3") FROM LID. BOXES SHALL BE SIZED ACCORDINGLY TO ACCOMMODATE THIS REQUIREMENT.

15. SLEEVES SHALL BE SCH. 40 PVC, 2 TIMES THE PIPE SIZE DIAMETER AND SHALL EXTEND 12" BEYOND EACH SIDE OF PAVEMENT/ROADS. THE LETTERS "E" FOR ELECTRICAL OR "W" FOR WATER SHALL BE STAMPED OR CHISELED ON THE PAVEMENT DIRECTLY ABOVE THE SLEEVE WHERE APPROPRIATE.

16. GUARANTEE: THE CONTRACTOR'S GUARANTEE SHALL CONSIST OF SECTION 308-7 OF THE STANDARD SPECIFICATIONS AND THE FOLLOWING:

THE ENTIRE IRRIGATION SYSTEM SHALL BE GUARANTEED AGAINST DEFECTS IN MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF ACCEPTANCE OF WORK. SHOULD THE CONTRACTOR FAIL DURING THE GUARANTEE PERIOD TO EXPEDITIOUSLY CORRECT A DEFECT UPON WRITTEN NOTIFICATION BY THE CITY, THE CITY SHALL CAUSE THE WORK TO BE CORRECTED AND BILL THE ACTUAL COSTS INCURRED TO THE CONTRACTOR. DEFECT CORRECTIONS SHALL INCLUDE THE COMPLETE RESTORATION OF IMPROVEMENTS THAT WERE DAMAGED AS A RESULT OF THE DEFECT.

17. A REDUCED COPY OF THE AS-BUILT IRRIGATION PLAN(S), COLOR CODED BY STATIONS, AND LAMINATED IN PLASTIC, SHALL BE MOUNTED ON THE INSIDE OF EACH CONTROLLER ENCLOSURE FOR MAINTENANCE PERSONNEL.

CITY CONTRACT CIP NO. 12-134.0
SPECIFICATION NO. 7054

NOTES AND SPECIAL PROVISIONS FOR

LOS PENASQUITOS CANYON PRESERVE (EL CUERVO) WETLAND REVEGETATION

LICENSED LANDSCAPE ARCHITECT
JOHN LINGSON MINCHIN
2225
12/31/99
5/13/99
STATE OF CALIFORNIA

CITY OF SAN DIEGO, CALIFORNIA
ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
SHEET 16 OF 16 SHEETS

W.O. NO. 180019

FOR CITY ENGINEER 5-14-99 DATE
SECTION HEAD
PROJECT MANAGER
DESIGN ENGINEER
269-1704
LAMBERT COORDINATES
29460-16-D

DESCRIPTION	BY	APPROVED	DATE	FILMED
FILE NAME: DATE:				
AS-BUILT				

CONTRACTOR ______ DATE STARTED ______
INSPECTOR ______ DATE COMPLETED ______

DUDEK & ASSOCIATES
A California Corporation
Corporate Office: 605 Third Street, Encinitas, CA 92024
760.942.5147
Fax 760.632.0164

PLAN PREPARED UNDER THE SUPERVISION OF:
NAME DATE

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS
0 1 2 3

CONTRACTOR MUST NOTIFY THE BELOW LISTED AGENCY AT LEAST TWO (2) WORKING DAYS PRIOR TO COMMENCEMENT OF EXCAVATION :

UNDERGROUND SERVICE ALERT (USA) 1-800-422-4133