

**DRAFT**

**HABITAT MITIGATION AND MONITORING PLAN  
IEUA WATER RECHARGE PROJECT  
RP-3 MITIGATION SITE  
FOR IMPACTS ASSOCIATED WITH  
CHINO BASIN FACILITIES IMPROVEMENT PROJECT**

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Prepared on behalf of:

**Inland Empire Utilities Agency**  
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## SUMMARY

This habitat mitigation and monitoring proposal has been prepared to provide the general concepts and specific criteria for implementation of a habitat mitigation program for the impacts associated with the groundwater recharge improvements to the Chino Basin Facilities Improvement Project (CBFIP) as identified in the Chino Basin Optimum Basin Management Program (OBMP) Recharge Master Plan and the 404 permit from the U.S. Army Corps of Engineers (Corps) and a 401 Certification from the State Regional Water Quality Control Board (RWQCB). This program will offset impacts to "waters of the United States" associated with the of re-contouring and re-shaping of various basins as well as the placement of rubber dams in improved flood control channels adjacent to these basins. The Basins are located in San Bernardino County, California (see Exhibit 1 for Regional Location Map and Exhibit 2 for the Local Vicinity/USGS Map).

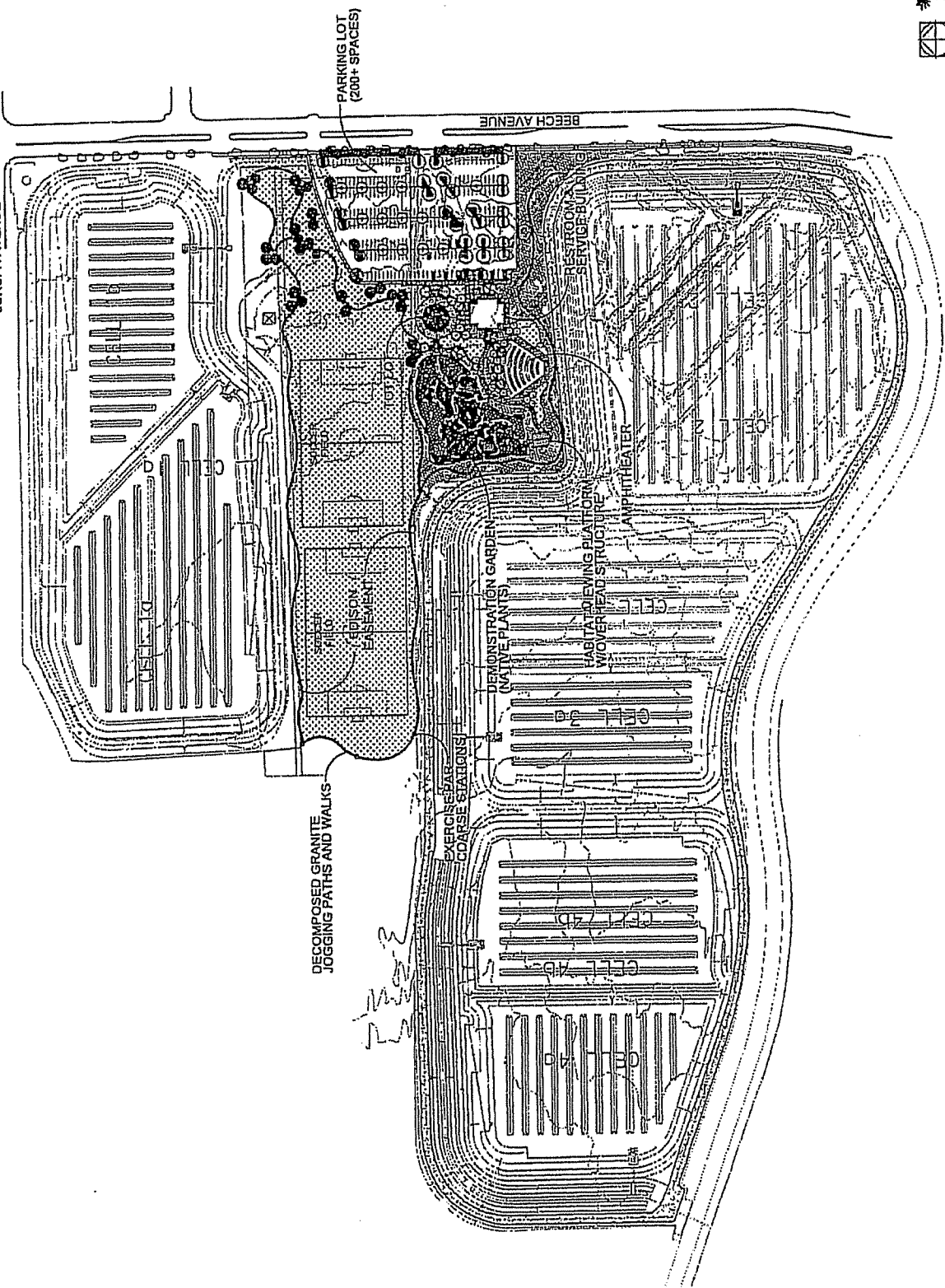
This mitigation plan is intended to create a mitigation area that offset the impacts associated with the basin improvements as well as create additional habitat that may be banked and used by other Inland Empire Utilities Agency (IEUA) Chino Basin OBMP projects. The mitigation area is located within the proposed RP-3 Basin system. The project consists of re-contouring and re-shaping the basins to facilitate the maximum groundwater recharge. These basins have been chosen as a result of the geological and percolation rates. These basins with high percolation rates are being designed to increase the surface area available for recharge, as well as require the least maintenance.

The proposed project will impact approximately 2.17 acres of waters of United States and the County Flood Control's impacts associated with their Jurupa basin improvements. The applicant is proposing to mitigate these impacts by creating 6.46 acres of riparian Woodlands in cell 2 of the RP-3 basin site. RP-3 was a sewage treatment plant and is a highly disturbed upland site.

The project is in the Santa Ana River Hydrographic subunit. The Santa Ana River and its tributaries are listed in Basin Plan as having existing beneficial uses of body contact and non-contact water recreation, water supply for agriculture, industrial service and process water, groundwater recharge, freshwater replenishment, and warm water aquatic habitat, and also as providing a water supply and vegetative habitat for the maintenance of wildlife (wildlife habitat).

Included herein are detailed discussions of the functions and values of the impacted habitats; goals, target functions, and values for replacement habitat; detailed implementation specifications, including underlying rationale for expecting success; maintenance and monitoring provisions; and contingency measures.

JURUPA AVENUE



PARKING LOT  
(200+ SPACES)

BEECH AVENUE

DECOMPOSED GRANITE  
JOGGING PATHS AND WALKS

*Handwritten initials: MWC*

EXERCISE STATIONS  
CONCOURSE STATIONS

DEMONSTRATION GARDEN  
(NATIVE PLANTS)

HABITAT VIEWING PLATFORM  
W/ OVERHEAD STRUCTURE

AMPHITHEATER

RESTROOM  
SERVICE BUILDING

# RP-3 EDISON SPORTS FIELD

# CONCEPTUAL LANDSCAPE PLAN



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## SECTION I PROJECT DESCRIPTION

### A. LOCATION OF PROJECT

The impacted area within Management Zones 2, 3 and 4 of the Chino Basin OBMP Recharge Management Areas in San Bernardino County. The applicant is proposing to mitigate for the impacts to waters of the United States by creating a riparian woodland in Cells 1a and 2 of the proposed RP-3 Basins. The basins will be located south of Jurupa Avenue between Live Oak Street and Beech Avenue.

The propose projects will impact a total of 2.17 acres. IEUA is proposing to mitigate these impacts at a 2:1 ratio. In addition to the impacts associated with this project, IEUA will be creating mitigation on behalf of San Bernardino County Flood Control's project in the Jurupa Basin. The IEUA will, therefore, create approximately 6.46 acres of wetlands, riparian woodland, and upland buffer in cell 2 of the proposed RP-3 site. Any additional acreage created will be banked for future IEUA projects. Additionally, approximately 4.64 acres of seasonal open water will be created by the proposed project within the Declez, Ely, and 8<sup>th</sup> Street Basins.

The project is in the Santa Ana River Hydrographic subunit. The Santa Ana River and its tributaries are listed in Basin Plan as having existing beneficial uses of body contact and non-contact water recreation, water supply for agriculture, industrial service and process water, groundwater recharge, freshwater replenishment, and warm water aquatic habitat, and also as providing a water supply and vegetative habitat for the maintenance of wildlife.

### B. PROJECT SUMMARY

Modification of inlet structures within effective waterways and/or basin recontouring to facilitate groundwater recharge within Turner Basins 1 thru 4; Ely Basins 1, 2 and 3; the Etiwanda Conservation Ponds; Lower Day; Declez; Brooks Street; Banana; Jurupa; and 8<sup>th</sup> Street Basins located within San Bernardino County.

### C. RESPONSIBLE PARTIES

IEUA will be responsible for the implementation of this mitigation plan. The contact person is:

Garth Morgan, PhD  
Water Resources Engineer  
(909) 993-1600

Inland Empire Utilities Agency  
6075 Kimball Avenue, Building A  
Chino, CA 91710



The preparer of the mitigation plan is Tom Dodson & Associates (TDA). The contact person is:

Ms. Lisa Kegarice  
**Tom Dodson & Associates**  
2150 North Arrowhead Avenue  
San Bernardino, CA 92405  
(909) 882-3612

**D. JURISDICTIONAL AREAS TO BE FILLED**

The propose projects will impact a total of 2.17 acres. IEUA is proposing to mitigate these impacts at a 2:1 ratio. These impacts will include 1.5:1 creation at RP-3 and 0.5:1 habitat value increases in the project basins.

The IEUA will create approximately 6.46 acres of riparian woodland and wetlands in cells 1a and 2 of the proposed RP-3 site. Any additional acreage will be banked for future IEUA projects. Additionally, approximately 4.64 acres of seasonal open water will be created by the proposed project within the Declez, Ely, and 8<sup>th</sup> Street Basins.

## SECTION II GOAL OF MITIGATION

The overall objective of mitigation is to compensate for the proposed project's impacts such that no net loss of habitat area or functional value occurs. The primary functional value attributed to the jurisdictional areas affected by the proposed project were as hydro-geomorphic formations.

### A. TYPES OF HABITAT TO BE CREATED / ENHANCED

The proposed project will fill 2.17 acres of jurisdictional non-wetland "waters of the United States." These jurisdictional areas range from completely unvegetated to sparsely vegetated with mulefat scrub. The goal of this mitigation project is to compensate for the loss of the dry stream channels and the maintained basins by creating upland buffer, riparian woodlands, and wetlands in a created basin complex. This figure shows the revegetation effort will be accomplished on the 6.46-acre area by excavating existing non-native vegetation and soils.

### B. TIME LAPSE BEFORE HABITAT ESTABLISHMENT

The long-term goal of this plan is to establish a mature, self-sustaining native riparian plant community that will provide valuable habitat for wildlife populations. The establishment and development of the habitat are anticipated to take approximately 3 to 5 years; however, a variety of wildlife species can be expected to utilize the habitat within the riparian mitigation areas within one to 3 years following the initial planting.

### C. ESTIMATED COST OF MITIGATION

Table A shows the estimated costs for implementing the mitigation plan, including 5 years of maintenance and 7 years of monitoring and documentation. The cost of designing and preparing this habitat mitigation and monitoring plan is not included in this cost estimate. These costs are strictly estimates and may not reflect the actual costs, especially if unforeseen factors occur.

Table A: Estimated Mitigation Costs

Action	Estimated Cost
Site Preparation (excluding grading and placement of topsoil)	\$25,000.00
Procurement, Propagation, and Installation of Container Plantings	\$17,500.00
Procurement of Seed Mix	\$11,500.00
Monitoring by Biologist/Restoration Specialist During Implementation (4 week install)	\$20,000.00
Seeding (Hand Broadcast and Rake into Soil)	\$8,000.00
Irrigation System Design and Installation of Irrigation System	\$50,000.00
Maintenance for Five Years (Weeding, plant replacement and irrigation system maintenance)	\$75,000.00
Monitoring/Supervision/Documentation/Administrative Overhead (5 Years)	\$45,500.00
Contingency Measures (20% of the total cost)	\$50,500.00
TOTAL:	\$303,000.00

## SECTION III FINAL SUCCESS CRITERIA

### A. TARGET FUNCTIONS AND VALUES

#### Wildlife Use

The goal of the mitigation program is to provide habitat for a variety of common wildlife species. Due to the fact that current conditions do not support an extensive riparian plant community, it is expected the wildlife use of the created areas will be substantially better than pre-project levels. Use of the mitigation sites by "indicator wildlife species" that are typical of the region's riparian habitats will constitute evidence that the mitigation sites are achieving this goal. The following butterflies, birds, and mammals shall be considered indicator species:

#### *Butterflies*

- Mourning cloak
- Western tiger swallowtail
- Lourquin's admiral

#### *Birds*

- Black-headed grosbeak
- Black-chinned hummingbird
- Nuttall's woodpecker
- Black phoebe
- Pacific-slope flycatcher
- Common yellowthroat
- Song sparrow

Observations of wildlife species' presence and activity within mitigation areas shall be recorded by the Project Biologist/Restoration Specialist during site visits. Significant observations, particularly repeated observations of "indicator wildlife species" will be documented in visitation logs and annual reports to provide the necessary feedback and remediation to further guarantee success.

#### Performance Standards

The performance standards for habitat success in the mitigation areas are based on achieving (1) high survivorship of plantings through the first 6 months after installation, (2) progressively higher rates of cover from the first through the fifth year after planting, and

(3) normal rate of growth, and adequate germination of seeded species to exclude weeds and control erosion. The mitigation will be considered successful if observable healthy functional habitat is becoming established.

During the 5 years following installation, the following observable features may be considered to represent progress toward successful establishment of healthy functional habitat:

- Germination and growth of a variety of seeded plant species (total area coverage may be somewhat sparse after the first year).
- Lack of significant erosion.
- Presence of young shoots for seeded species/noticeable growth and new branching for container plantings as well as cuttings or chippings.
- Low mortality for container plantings (0-20%).
- Evidence of resistance to invasion by non-native species (0-25% composition of non-natives).
- Use of habitat by indicator wildlife.
- Regeneration of the newly established plant community.
- Attainment of 70-percent groundcover by native species (including plantings, seeded species, cuttings, chippings, or volunteers and native reproduction) at the end of 5 years.

### **Target Plant Development**

Annual monitoring of tree height, plant cover, and survivorship will indicate whether the mitigation plantings are successful. The target height for the container tree plantings is as follows:

**Table B: Target Growth Rates for Container Stock**

Common Name	Scientific Name	Average Height (feet)	
		3 years	5 years
Arroyo willow	<i>Salix lasiolepis</i>	10	15
Gooding's black willow	<i>Salix goodingii</i>	12	18
Cottonwood	<i>Populus fremontii</i>	12	18

If monitoring indicates that the performance standards for height and/or cover are not being met, or that some trees are not developing properly, the Project Biologist/Restoration Specialist shall determine the cause and take appropriate measures to remedy the cause. Those plants that are not developing an adequate root structure (e.g., the plants are pot-bound, the roots are not spreading into native soil outside the planting hole) shall be replaced or appropriate soil treatments applied to permit root development into native soil.

**B. TARGET HYDROLOGICAL REGIME**

The RP-3 Basin site is a proposed groundwater recharge facility consisting of multiple basins that will promote recharge of the Chino Basin groundwater table. Water that will be stored within the basin for groundwater will come from multiple sources, including urban runoff, stormwater, recycled water, and imported water purchased from Metropolitan Water District.

A proposed force main will convey imported water and recycled water from the Jurupa Basin to the RP-3 Basin site. The imported and recycled water would then be distributed throughout the RP-3 site via open surface channels, buried pipes, and gated structures. Urban runoff and stormwater will also be conveyed to the RP-3 site via a rubber dam diversion to be located in the adjacent Declez Channel. The urban runoff and stormwater would also be distributed throughout the RP-3 site via open surface channels, buried pipes and gated structures.

**C. TARGET JURISDICTIONAL ACREAGE TO BE CREATED / ENHANCED**

Implementation of this plan will result in the establishment of 6.46 acres of riparian habitat. This results in approximately 2:1 creation ratio for the impacts associated with the CBFIP and 2 acres for the San Bernardino County Flood Control's mitigation. Any remaining acres created will be banked for future IEUA projects. Additional onsite mitigation is being proposed in the form of seasonal open water at the project basins.

## SECTION IV PROPOSED MITIGATION SITE

### A. LOCATION AND SIZE OF MITIGATION AREA

The proposed mitigation area is located within the proposed RP-3 Basin complex in an cell 1. The channel areas to be excavated and contoured are shown in Exhibit 3 and contain approximately 6.46 acres.

### B. OWNERSHIP STATUS

The property is currently owned by IEUA and will be either deeded to conservation land holder, or a conservation easement will be recorded over the full length of the mitigation area.

### C. EXISTING FUNCTIONS AND VALUES OF MITIGATION AREA

The area to be created into riparian habitat is currently an abandoned sewage treatment facility dominated by non-native annual grasses/shrub species. The site was used as a sewage treatment facility and has been very disturbed during the past 25 years.

#### Soils

A soils investigation performed at the RP-3 Basin site revealed subsurface conditions consisting of silty sand, silty gravel, poorly graded sand, well graded sand and clayey sand. Groundwater was not encountered during the geotechnical investigation.

### D. PRESENT AND PROPOSED USES OF MITIGATION AREA

#### Present Uses

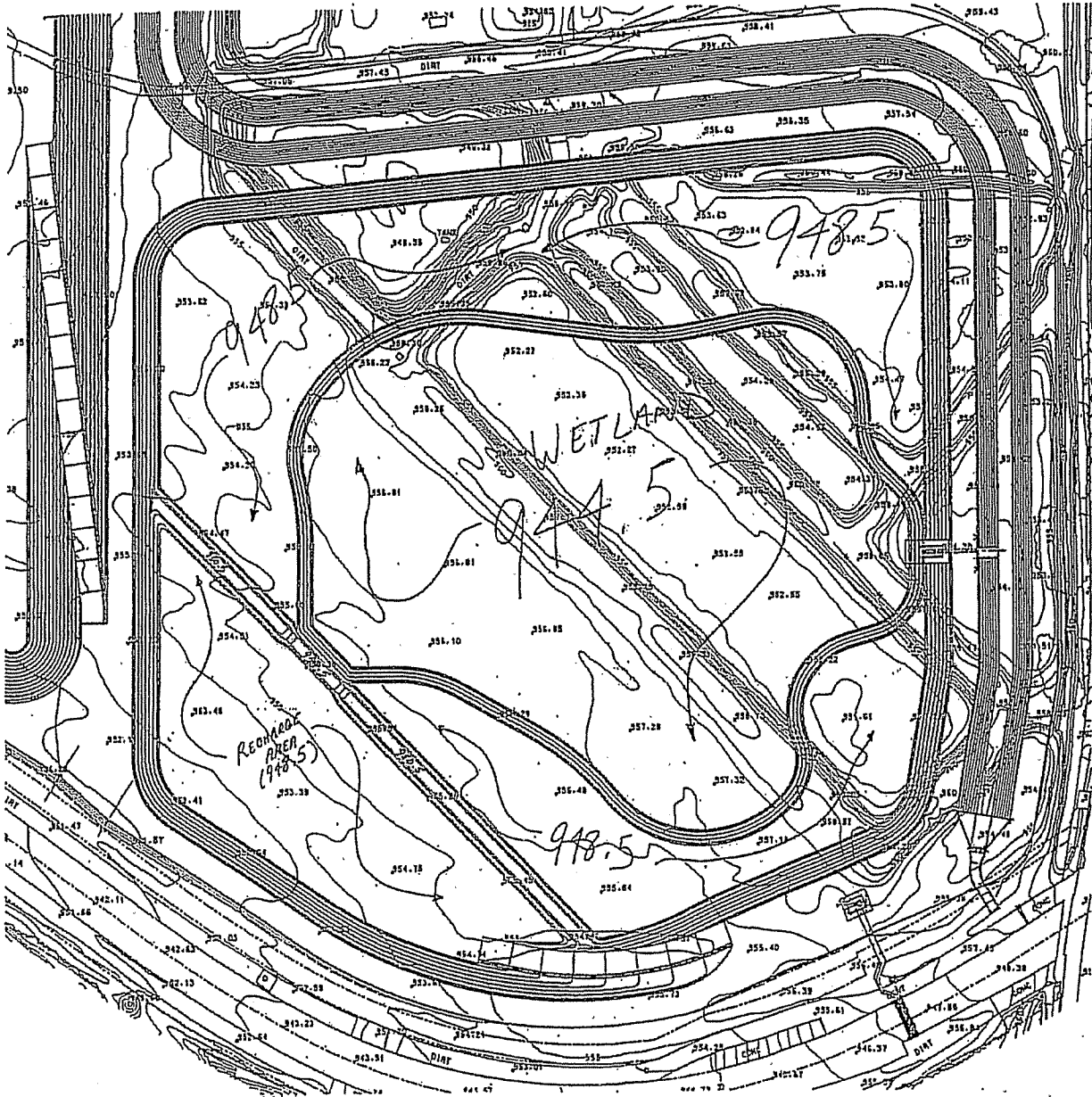
The area proposed for riparian habitat creation has no specific uses at this time. It is predominantly disturbed due to historical use as a sewage facility.

#### Proposed Uses

All the mitigation areas will be dedicated as open space. Only wildlife uses are proposed for these areas.

FIGURE 3

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Source:

Tom Dodson & Associates  
Environmental Consultants



**E. PRESENT AND PROPOSED USES OF ALL ADJACENT AREAS**

The area directly adjacent to the proposed mitigation site is currently not being used, however, extensive dumping has occurred on the site. The proposed mitigation site will be situated adjacent to relatively undisturbed hillside. These areas are not proposed for development.

## SECTION V IMPLEMENTATION PLAN

### A. RATIONALE FOR EXPECTING IMPLEMENTATION SUCCESS

Implementation success is expected based on consideration of the following factors:

- Plant species to be used in the plans have been carefully selected to ensure compatibility with the conditions that will be created in the mitigation areas.
- Planting will take place at the beginning of the rainy season, and plants will be provided with supplemental water to the extent necessary for up to 5 years to promote the establishment of vegetation, such that it is able to survive without human intervention.
- Fencing will be placed around the basins to prevent access to the site. Signs will be placed on the fencing stating that the area behind the fence is dedicated open space and a native revegetation area for wildlife use, and that trespassing and collecting are prohibited.
- The mitigation areas where planting will occur are expected to receive an adequate water supply from the seasonal flows and perennial storm drain runoff from recharge waters. Temporary irrigation will be available for the first 5 years in the event annual rainfall drops below normal levels.

### B. RESPONSIBLE PARTIES

Immediately upon approval of this plan by the regulatory agencies, and prior to initiating grading of the proposed mitigation site, IEUA, the owner, or its successors and assigns, shall contract a qualified biologist/restoration specialist (hereby referred to as the Project Biologist/Restoration Specialist) to oversee implementation of all aspects of this mitigation plan. Upon selection, the Project Biologist/Restoration Specialist's name, address, etc. will be provided to the Corps. The Project Biologist/Restoration Specialist shall be responsible for documentation of compliance with the plan, and shall provide appropriate recommendations where discretion is indicated. Any deviations from the plan shall be documented by the Project Biologist/Restoration Specialist and reported promptly to the appropriate parties, as indicated herein.

The Project Biologist/Restoration Specialist shall be onsite during all critical phases of mitigation implementation (e.g., site grading, plant collection, plant installation, irrigation installation, warranty period, etc.), and shall conduct quarterly site inspections for the entire 5-year monitoring period.

A qualified landscape contractor or restoration contractor shall be retained by IEUA or its successors and assigns, and shall be responsible for the survival of the plantings and for maintaining the mitigation areas until the performance standards have been satisfied.

**C. SCHEDULE**

Construction of the mitigation site is planned for the fall of 2003 or 2004. Clearing, grading, and other preparations for the mitigation areas are planned to begin as soon as the permits have been issued. Initial planting of the mitigation areas must occur as early in the rainy season as possible, preferably between November 1 and February 1, with replacements for failed plantings to be installed before March 15 unless irrigated. IEUA or its successors and assigns will need to work closely with you restoration specialist to determine when and what is planted, weeded, and irrigated.

Plant materials (e.g., seeds, container plants, and cuttings) should be ordered 3 to 6 months prior to installation of the mitigation site if possible. However, if any ordered plant materials are not deliverable or are rejected by the Project Biologist/Restoration Specialist as unsuitable, and if replacements are not available, planting will be completed as soon as desired materials are made available and when the planting season is appropriate.

**D. SITE PREPARATION**

**Grading**

Project Biologist/Restoration Specialist will be under contract and present onsite during grading activities as needed to ensure compliance with this plan and specifications.

The two areas proposed for the mitigation consist of existing basins that will be deepened during grading activities. Side slopes of the basins will be a 3H:1V. Compaction of slopes as needed will be at 95 percent as recommended in the soils report of the RP-3 site. The basin bottoms re proposed to be scarified to a depth of 2 feet upon completion of grading activities. Encountering of bedrock is not anticipated during grading activities. However, bedrock will be removed if it protrudes into the finish grades as shown on the grading Plans. (Exhibit 4 shows typical cross sections of the planting areas.)

In addition to the above specifications, the following notes shall be placed on the grading plans:

- "The Project Biologist/Restoration Specialist shall monitor and approve all stages of and grading operations."

FIGURE 4

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Source:

### **Irrigation System Installation**

The mitigation area may require a temporary irrigation system to be installed to assure plant establishment. The design and installation of the temporary irrigation system will be the responsibility of IEUA or the Revegetation Contractor. The temporary irrigation system will be tested immediately following installation, and shall remain in place for 5 years following installation. The purpose of the irrigation system is to supply sufficient flows to allow the planting to get their root systems down into a permanent water source.

### **Erosion Control / Bank Stabilization**

At the discretion of the Project Biologist/ Restoration Specialist, silt fencing, berms, sand-bags, willow/mulefat wattling and/or live siltation construction will be installed where necessary, if it is determined that plantings and/or substrate will be lost, or are being lost, to erosion.

### **Weed / Exotic Plant Eradication**

Exotic plants/weeds shall be removed from all areas to be revegetated, prior to any planting. Once the planting has been completed, mechanical control methods (hand pulling or cutting) shall be employed, if feasible; however, heavy equipment (e.g., bulldozers, backhoes) shall not be used in eradicating exotic plants and, weeds. In circumstances where mechanical control is not effective, systemic herbicides that have been approved by the U.S. Environmental Protection Agency (EPA) for use in aquatic situations (e.g., Rodeo by Monsanto) may be used. The Project Biologist/Restoration Specialist will be present to supervise all spraying or wicking, to ensure that the application avoids desired native plants to the extent possible.

Eradication of invasive exotic plants and/or ruderal species, following site preparation but prior to planting, should not be necessary within habitat mitigation areas if planting and seeding are conducted shortly after grading. However, if weeds become established in any mitigation area prior to planting, eradication shall be accomplished prior to planting or seeding. This determination will be made by the Project Biologist/Restoration Specialist during site preparation.

## **E. PLANTING PLAN**

Container plants for willow, cottonwood and sycamore plant as well as cuttings of sandbar willow and mulefat will be installed in locations where they are most likely to persist without human assistance. Grasses and herbs will be dry seeded in the bottom of the detention basins and on the slopes of the detention basin and the banks of the stream to limit risk of erosion and to help prevent weeds from becoming established in the disturbed areas.

### Plant Materials

When feasible, propagules for shrub and tree container plantings shall be collected from plants growing as near to the project site as possible. The use of site specific materials, which are adapted to local conditions, increases the likelihood that revegetation will be successful, and maintains the genetic integrity of the local ecosystem. For widespread herbaceous species that are more likely to be genetically homogeneous, site specificity is a less important consideration, and stock from commercial sources may be used. If local propagules are not available or cannot be collected at least 6 months prior to the fall planting, materials grown from other sources shall be substituted.

Arrangements shall be made well in advance of planting to ensure that plant materials are available at the appropriate planting time. Sufficient time shall be allocated for seed collection and contract growing.

### Container Stock

Cottonwood and willow species will be installed by container plantings, cuttings, or chippings with mulefat cuttings used to supplement the container installation. Container plants shall have healthy, well developed root systems, and shall not be rootbound. The Project Biologist/ Restoration Specialist shall inspect a representative sample of all plant stock, and shall reject those plants that do not meet these requisite standards. All of the container stock to be installed will be one gallon containers. It will not be necessary to install larger containers to obtain vertical herogeneity because larger willows of various sizes already exist adjacent to both of the areas to be planted. In addition, supplementing with cuttings win provide some vertical herogeneity to both sites.

**Table C: The Container and Plant Palette**

Plant Species	Spacing	Maximum #/Acre	Total of Plants	Plant Material
Arroyo willow <i>Salix lasiolepis</i>	8-10 feet	136	1,089	one gallon container
Gooding's willow <i>Salix goodingii</i>	8-10 feet	136	1,089	one gallon container
Cottonwood <i>Populus fremontii</i>	4-8 feet	136	1,089	one gallon container

### **Willow and Mulefat Cuttings**

Willow and mulefat cuttings will be utilized as replacements and to supplement the container plant installation in those areas most conducive to achieving success from the propagules. The following guidelines apply to collecting mulefat and willow cuttings for immediate use on the site:

- Collect the cuttings within 48 hours of anticipated planting. Cuttings not planted within 48 hours of collection shall be disposed of in an appropriate manner.
- Take cuttings only from healthy, vigorous plants that are in a dormant state.
- Do not collect from more than 50 percent of the plants in a given area, and do not remove more than 50 percent of any plant.
- Cuttings shall be approximately 36 inches in length, and shall range between 0.5 to 1.0 inch in diameter.
- Cut the top of each cutting square above a leaf bud; cut the base, below a leaf bud, at an angle of approximately 45 degrees. Use only sharp, clean tools.
- Trim, all leaves and branches from the cuttings, flush with the stem.
- Place cuttings in water until planting time. Cuttings that are allowed to dry shall not be used.

### **Willow and Mulefat Chippings**

Willow and mulefat chippings may be substituted for cuttings as container stock. These chippings may then be spread. These areas should be watered to allow chippings to germinate.

### **Seeds**

The following seed mix will be applied to the Wetland areas:

**Table D: Seed Mix 1**

Species	Lbs/Acre	Purity/Germ
<i>Artemisia douglasiana</i>	2	10/50
<i>Anemopsis californica</i>	2	45/60
<i>Juncus acutus</i>	2	90/40
<i>Typha latifolia</i>	1	60/50
<i>Oenothera Hookerii</i>	1	98/75
<i>Carex spissa</i>	3	--
<i>Artemisia palmeri</i>	1	15/50
<i>Vulpia myuros</i>	5	90/80
Total Lbs/Acre	17.0	

The following seed mix will be applied to the slopes of the detention basin:

**Table E: Seed Mix 2**

Common Name	Scientific Name	Lbs/Acre	Total Lbs
Purple needlegrass	<i>Nassella pulchra</i>	4.0	3.4
California goldfields	<i>Lasthenia californica</i>	2.0	1.7
California deer grass	<i>Muhlenbergia rigens</i>	2.0	1.7
Common phacelia	<i>Phacelia distans</i>	1.0	0.8
Common eucrypta	<i>Eucrypta chrysanthemifolia</i>	0.5	0.4
Golden yarrow	<i>Eriophyllum confertiflorum</i>	1.0	0.8
California everlasting	<i>Gnaphalium californicum</i>	0.5	0.4
Woolly plantain	<i>Plantago ovata</i>	5.0	21.0
Miniature lupine	<i>Lupinus bicolor</i>	1.0	0.8
California poppy	<i>Eschscholzia californica</i>	2.0	1.7
Brittlebush	<i>Encelia farinosa</i>	1.0	0.8
Chaparral pea	<i>Lathyrus laetiflorus</i>	1.0	0.8
California encelia	<i>Encelia californica</i>	1.0	0.8
TOTAL			35.1



The following seed mix will be installed on any upland area that are disturbed by the construction of the mitigation areas.

**Table F: Seed Mix 3**

**COASTAL SAGE SCRUB SEED MIX  
 (For Irrigated and Non-Irrigated Sites)**

Lbs/Acre	Species	Purity / Germ
2.0	Artemisia californica	15 / 50
3.0	Encelia californica	40 / 60
2.0	Eschscholzia californica	98 / 75
8.0	Lotus scoparius	90 / 60
12.0	Eriogonum fasciculatum	10 / 65
2.0	Lasthenia glabrata	90 / 85
4.0	Lupinus succulentus	98 / 85
2.0	Collinsia heterophylla	98 / 90
1.0	Eridycton crassifolius	40 / 40
3.0	Eriophyllum confertiflorum	30 / 60
1.0	Oenothera cheiranthifolia	98 / 75
2.0	Salvia apiana	70 / 50
30.0	Plantago insularis	98 / 75
2.0	Sisyrinchium bellum	95 / 75
2.0	Mimulus puniceus	02 / 55
2.0	Salvia mellifera	70 / 50
<b>Total Lbs/Acre = 78.0</b>		

**Planting Techniques**

All plants shall be spaced in natural looking patterns, so that each species is distributed throughout the planting area and plants are not crowded together. Plants may be arranged in species groups by the Project Biologist/Restoration Specialist, based on the microhabitat conditions present and the recommended spacing guidelines provided in the plant palettes. All container plants are to be installed according to the following specifications:

- All planting holes shall be augured, have vertical sides with roughened surfaces, and be at least three times as deep as the container plant's rootball and two times as wide.
- Prior to auguring, all vegetation shall be removed from a 24-inch diameter around the planting location.
- Any roots wrapped around the sides of the container shall be pulled loose from the rootball. The sides of the rootball shall be scarified to promote new root development.
- Plants shall be planted with the roots untangled and laid out in the planting hole.
- Roots shall be adequately protected at all times from sun and/or drying winds.
- After excavation and before planting, the planting hole shall be filled approximately half full with water, backfilled with thoroughly broken up native topsoil, then completely filled with water to minimize soil settling after installation.
- Plants shall be set in the planting hole so that the crown of the rootball is between 0.5 inch and 0.75 inch above finish grade. The crown of the plant shall not be depressed.
- A watering basin 24 inches in diameter shall be constructed around each plant.
- Each plant is to be individually watered at the time of planting, with sufficient water to reach to the lower roots.
- Place one-half inch of salvaged surface litter in the watering basin, around each plant, if available.

Mulefat and willow cuttings shall be planted according to the following specifications:

- Apply a rooting hormone to each cutting prior to planting, in accordance with manufacturer's instructions.
- Plant in holes approximately 2 inches in diameter, with a minimum depth of 36 inches. All planting holes shall have vertical sides with roughened surfaces. Partially fill each planting hole with the excavated backfill.
- Fill each planting hole with water, and allow the water to absorb into the surrounding ground. Once the water has completely drained, be certain not to disturb the settled soil in the bottom of the planting hole. Repeat this watering process once more.

- When most of the second filling of water has soaked into the ground, insert a cutting in the hole. The base of the cutting shall be a minimum of 18 inches deep, and shall have 3 to 5 bud scars exposed above ground.
- Backfill with excavated material. The material shall be distributed evenly throughout, without clods or air pockets, and filled in without damaging the bark of the cutting.
- Tamp down the backfill sufficiently to prevent easy removal of the cutting.
- Immediately following installation, deep soak each plant twice with sufficient water to reach the lower roots. In addition, this will assist in settling the plant.
- Construct a 24-inch watering basin around each cutting and cover with one-half inch of salvaged surface litter if available.

### **Seeding Techniques**

The site shall be dry seeded in order to allow the seeds to germinate when environmental conditions are optimal for germination. No hydroseeding is recommended because the seeds may imbibe in the hopper and thus be ready to germinate before the seasonal rains occur. Premature imbibing is not desirable because only drip irrigation on the container stock and cuttings is proposed. No irrigation is proposed on the upper slopes. The seeds should be hand broadcast and then hand raked into the soil.

### **F. AS-BUILT CONDITIONS**

Within 6 weeks of completion of the mitigation installation, an as built report describing the installed condition of the project shall be prepared with drawings of the constructed site. The record drawings will indicate the final elevation of the mitigation areas and the location of the installed plantings. This report will be submitted to the Corps for review.

## SECTION VI MAINTENANCE DURING MONITORING PERIOD

### A. 120-DAY WARRANTY PERIOD MAINTENANCE

The Revegetation Contractor shall be responsible for maintaining the revegetation areas for a 4 month (120 day) period following installation of the plant material. All trees, shrubs, and seeding areas shall be in a healthy and flourishing condition of active growth 4 months from the date of installation.

Container plants shall be free of dead or dying branches and branch tips, with all foliage of a normal density, size, and color.

All delays in completion of planting and seeding operations that extend the seeding into more than one planting season shall extend the warranty period accordingly.

As soon as all plantings are completed per specifications, the Revegetation Contractor shall hold a preliminary review with the Project Biologist/Restoration Specialist to determine the condition of the work.

The Restoration Contractor shall submit a written request to the Project Biologist/Restoration Specialist at least 5 working days prior to the anticipated date of review.

Maintenance during the 120-day warranty period shall follow the specifications in the Maintenance Activities Section, below.

#### **Final Acceptance**

Work shall be accepted by Project Biologist/Restoration Specialist upon satisfactory completion of all work, including the maintenance period, but exclusive of replacement of materials during the warranty period.

All cuttings and container planting shall be guaranteed for a period of 4 months. All container plants that have died or are not showing reasonable growth shall be replaced with the same species, at the cost of the Revegetation Contractor. The Project Biologist/Restoration Specialist shall determine the need to replace cuttings or divisions.

All seeded areas shall be guaranteed to have uniform coverage. Coverage following the 120-day warranty period (one growing season) shall not be less than 25 percent coverage for any given area of 20 square feet or greater. Any such areas having less than the required 25 percent coverage shall be replanted at no extra cost to the owner.

Final acceptance shall be granted when all cuttings and containers have been planted as detailed per plan specifications and have demonstrated health and growth (or been replaced), and seeded areas are covered with a uniform stand of vegetation.

The Revegetation Contractor shall submit a written request to the Project Biologist/Revegetation Specialist for review for final acceptance at least five working days prior to anticipated final review date, which is at the end of the 120-day warranty period.

## **B. MAINTENANCE ACTIVITIES**

A vital component of any revegetation program developed to mitigate loss of biological value is maintenance of the planted and seeded areas until the plants are established. The mitigation areas will require regular maintenance, during and following the 120-day warranty period, consisting primarily of frequent inspection of the sites for erosion problems, weed invasion, irrigation adequacy, browsing, unhealthy or dying plantings, and the removal of trash. These maintenance activities shall be implemented by a qualified Maintenance Contractor throughout the 5-year monitoring/responsibility period.

All plantings shall be maintained for a minimum of 3 years following installation. In general, maintenance shall include any activities required to meet the performance standards set forth in this restoration plan. Maintenance of all mitigation areas shall include, at minimum, the following aspects.

### **Weed Control**

Weeds and exotic plants shall be controlled in mitigation areas for a minimum of 3 years. This is necessary to prevent weeds and exotic plants from outcompeting native plant species for natural resources (e.g., space, water, nutrients and light).

All non-native, invasive weeds should be removed mechanically, if feasible. In circumstances where mechanical control is not effective, it is appropriate to utilize systemic herbicides that have been approved by the EPA for use in aquatic situations. All weeds present in the revegetation areas shall be removed if more than 25 percent of the area is occupied by weeds greater than 6 inches in height. These weeds are to be removed before they produce seed or reach a height of 8 inches, whichever comes first. Target species and those determined by the Project Biologist/Restoration Specialist to be inconsistent with the success of the revegetation effort shall be removed.

Targeted species include, but are not limited to, the following:

- Artichoke thistle (*Cynara cardunculus*)
- Giant reed (*Arundo donax*)
- Sweet fennel (*Foeniculum vulgare*)
- Mustard (*Brassica* spp. and *Hirschfeldia* spp.)

- Tocalote (*Centaurea melitensis*)
- Prickly lettuce (*Lactuca serriola*)
- White sweet clover (*Melilotus alba*)
- Tree tobacco (*Nicotiana glauca*)
- Dallis grass (*Paspalum dilatatum*)
- Harding grass (*Phalaris aquatica*)
- Wild radish (*Raphanus sativus*)
- Castor bean (*Ricinus communis*)
- Russian thistle (*Salsola tragus*)
- Milk thistle (*Silybum marianum*)
- Tamarisk (*Tamarix* spp.)
- Cocklebur (*Xanthium strumarium*)
- Poison hemlock (*Conium maculatum*)
- Myoporum (*Myoporum* spp.)
- German Ivy (*Senecio milkanoides*)
- Scotch broom (*Cytisus scoparius*)
- Garland chrysanthemum (*Chrysanthemum coronarium*)
- French broom (*Genista monspessulana*)
- Eucalyptus (*Eucalyptus* spp.)
- Pepper trees (*Schinus* spp.)

### Mulching

Maintenance crews will also be responsible for mulching within the watering basins of the container plantings at least two times a year. Mulching reduces weeds in the watering basin and increases water retention.

### Pest Control

Insect and rodent (herbivore) damage control shall be the responsibility of the Maintenance Contractor, using only those methods approved by the Project Biologist/Revegetation Specialist. The Maintenance Contractor shall implement control measures, which may require fencing or caging all container plants while staged and upon installation, at the earliest sign of damage.

### Fertilization

No chemical fertilizers shall be used in the mitigation areas unless directed by the Project Biologist/Revegetation Specialist.

### **Pruning and Leaf Litter**

No pruning or leaf litter removal shall take place within the revegetation areas, since the goal is to create a naturally occurring habitat. Therefore, all dead branches shall be left on the shrubs and trees, and all leaf litter and fallen branches shall be left in place and not cleared away from the plantings. Dead branches and leaf litter provide habitat for a variety of species.

### **Site Maintenance**

All planted and seeded areas shall be kept neat, clean, and free of any non-vegetative debris and trash (except for vegetative debris accumulated during weeding activities, which shall be removed as specified).

### **Replacement of Dead or Diseased Plant Materials**

Plantings shall be surveyed once a year in the spring, for 5 years after project installation; after the initial 120-day maintenance period, dead or diseased plants shall be replaced by the Maintenance Contractor as necessary to achieve the performance standards.

Seeded areas shall be assessed annually for a 5 year period. If at the time of assessment it is determined by the Project Biologist/Restoration Specialist that supplemental seeding is needed to meet the performance standards, this additional seeding shall be undertaken by the Maintenance Contractor. Timing of the seeding is subject to the discretion of the Project Biologist/Restoration Specialist. Dead plantings shall be replaced during the first suitable growing season in accordance with the performance standards included in this plan. (Refer to the section on performance standards.)

### **Maintenance Staff Meetings**

Maintenance staff meetings shall be scheduled every other month in order to address specific questions that the maintenance staff may have about the revegetation site. These meetings shall be conducted by the maintenance supervisor and the Project Biologist/Restoration Specialist, and shall be attended by other maintenance staff. Regular maintenance staff meetings will serve to improve communication among the maintenance supervisor, staff, and the Project Biologist/Restoration Specialist, thereby increasing the chance of project success.

## **C. RESPONSIBLE PARTIES**

IEUA, its successors and assigns, shall assume all responsibility for the cost, management, and, if necessary, protection (including maintenance) of the mitigation areas for a minimum of 5 years, or until the performance standards have been satisfied. As a general statement, maintenance shall include any activities required to meet the performance

standards set forth in this restoration program. After establishment of the habitat and fulfillment of performance standards, IEUA, its successors and assigns may elect to convey the conservation responsibility for the mitigation areas to a third party, or conservation agency, deemed acceptable to the U.S. Army Corps of Engineers and the State Regional Water Quality Control Board.

**D. SCHEDULE**

As indicated previously in this section, maintenance shall include any activities required to meet the performance standards set forth in this mitigation plan. Therefore, maintenance shall take place on an as needed basis. Because the maintenance tasks required to meet the performance standards include numerous discretionary tasks, it is unrealistic and potentially counterproductive to prepare a physical schedule indicating when each task should take place. The guidelines listed above, plus the monitoring plan, provide the Project Biologist/Restoration Specialist and the maintenance supervisor with an appropriate level of direction to achieve the plan's goals.



## SECTION VII MONITORING PLAN

### A. PERFORMANCE CRITERIA

#### **Vegetation**

Section III specifies the final success criteria for the vegetation planted and seeded according to this plan. Therefore, incremental evidence of height and diameter growth and natural reproduction should be apparent within the mitigation areas. If by the third year the areas do not appear to be reproducing normally and naturally, the Project Biologist/Revegetation Specialist shall document this deficiency, attempt to ascertain the source of the problem, and propose remedial actions; the problem and the actions taken shall be documented in the annual reports.

#### **Wildlife Use**

As discussed previously, an important goal of the mitigation program is to provide habitat for a variety of wildlife, comparable to or better than pre-project conditions. Use of the wetland mitigation areas by "indicator wildlife species" will constitute evidence that the mitigation areas are a valuable source of wetland wildlife habitat. Therefore, wildlife observations within the mitigation areas, will be noted in all monitoring reports.

#### **Wetland Hydrology Criteria**

The target hydrologic regime to be met in the wettest portions of the wetland habitats (the ponded areas) is a minimum of 15 consecutive days of soil saturation within one foot of the surface in a median rainfall year once the supplemental watering ceases. The planted areas in the upper margins of the ponded areas may not achieve this standard, but is expected to support riparian habitat dominated by plant species that will develop extensive root systems for retrieving water.

Supplemental water flows would be introduced for a period of 5 years via an irrigation system. Native cuttings of species identified on the enclosed sections would be planted as necessary to establish the riparian habitat.

The hydrologic regime be determined by monitoring shallow piezometers at least annually over a period of several weeks, and by sampling the depth of soil saturation at the peak of the wet season. If this monitoring indicates that the target hydrologic regime is not being established, and the Project Biologist/Restoration Specialist determines that inadequate water supply is contributing to a failure to achieve the performance standards, the applicant, or successors and assigns, shall be responsible to either (1) remedy the situation by

monitoring the mitigation area(s) or (2) submit an alternative/contingency plan to the resource agency's for approval.

## **B. MONITORING METHODS**

### **Monitoring of Site Preparation**

As grading and site preparation proceed, the Project Biologist/Restoration Specialist will visit the site as necessary to ensure that construction is being completed in accordance with the specifications in this plan, and that facilities such as irrigation systems are working. The Project Biologist/Restoration Specialist will consult with the Revegetation Contractor to determine whether field revisions to the plans are necessary. If field revisions are made, they will be documented in the as-built report.

### **Performance Monitoring**

At a minimum, the Project Biologist/Restoration Specialist shall visit each mitigation area at 30, 45, 90, and 120 days. More frequent checks are recommended to detect potential problems at the early stages. At minimum, the Project Biologist/Restoration Specialist shall check the following:

- Survival of all plants,
- Seed germination,
- Presence and density of weeds, and
- Functioning of irrigation systems.

The Project Biologist/Restoration Specialist shall report the findings to IEUA, or its successors and assigns, and to the Revegetation Contractor responsible for the survival of the plantings through the initial warranty period. Dead or dying plants shall be replaced promptly following notification.

Following the 120-day warranty period, performance monitoring shall be done annually and will begin the following summer. This performance monitoring will continue for a total of 5 years from installation and will address plant survival, growth including height, and cover requirements. A minimum of 3 non-consecutive days of wildlife monitoring will be conducted in the spring (April-May) of each year and the results reported in each annual report.

If major corrective actions are needed at any mitigation area (i.e., those involving plant replacement), the monitoring period for the affected area will be extended as necessary to meet the performance standards. IEUA, its successors and assigns and the Corps, will be notified if major corrective actions are necessary. When discovered, these corrective actions shall be implemented promptly by the Maintenance Contractor, and documented in the subsequent annual report.

### **Maintenance Monitoring**

Following the 120-day warranty period, the Project Biologist/Restoration Specialist shall visit the site monthly during the first 2 years and quarterly thereafter.

During each site visit, the Project Biologist/Restoration Specialist shall document the general condition of the site, plantings, and irrigation system. The quality of maintenance, weeding, presence of erosion, trash, and vandalism also be documented in field notes. If necessary, a summary of each site visit, and recommendations on remedial maintenance measures to assist in the establishment of the plantings, shall be provided in reports submitted to IEUA, its successors, and assigns within 10 days following each site visit. These reports shall be summarized and incorporated into the annual reports submitted each year to IEUA and the Corps.

### **C. ANNUAL REPORTS**

Annual monitoring reports will be submitted to IEUA and the Corps beginning with the as-built report within 6 weeks following the installation. These reports will evaluate the maintenance and the performance of the project, and will include photographs taken from permanent photo points and at least two clear views of the mitigation areas. They will be no more than three pages in length and will include the site location and size, date of installation, Corps permit number, and a bullet point outline of the maintenance activities that have been conducted since the last report. The results of a functional analysis of the site will also be presented.

**SECTION VIII  
COMPLETION OF MITIGATION**

**A. NOTIFICATION OF COMPLETION**

The Corps will be notified following the completion of the 5-year monitoring period, or at the time the final success criteria have been met.

**B. CORPS CONFIRMATION**

A site visit with the Corps and IEUA, its successors or assigns will be scheduled to verify the results of the mitigation effort.

## SECTION IX CONTINGENCY MEASURES

### A. INITIATING PROCEDURES

If annual performance criteria are not met or if the final success criteria are not met, the Project Biologist/Restoration Specialist shall provide an analysis of the failure, along with any recommended remedial action(s). Additional work will be performed to correct the deficiency or an alternate mitigation site will be established, as appropriate. The monitoring period will be extended, as necessary, following any remedial action(s), until such time as the performance standards are met.

### B. ALTERNATIVE LOCATIONS FOR CONTINGENCY MITIGATION

Should compensatory habitat establishment fail to meet the performance standards described in Section 3, and if remedial measures are unsuccessful or infeasible, the Project Biologist/Restoration Specialist, shall prepare a contingency mitigation plan to offset the impacts of the proposed project at the ratios set forth previously by the Corps. Contingency plans could involve offsite acquisition and/or establishment of comparable, habitat for dedication as open space, or participation in an established mitigation banking program. If a contingency plan is needed, such a plan would be developed and submitted to the Corps.

### C. FUNDING MECHANISM

Planning, implementation and monitoring of contingency procedures will be funded by the applicant, or successors and assigns.

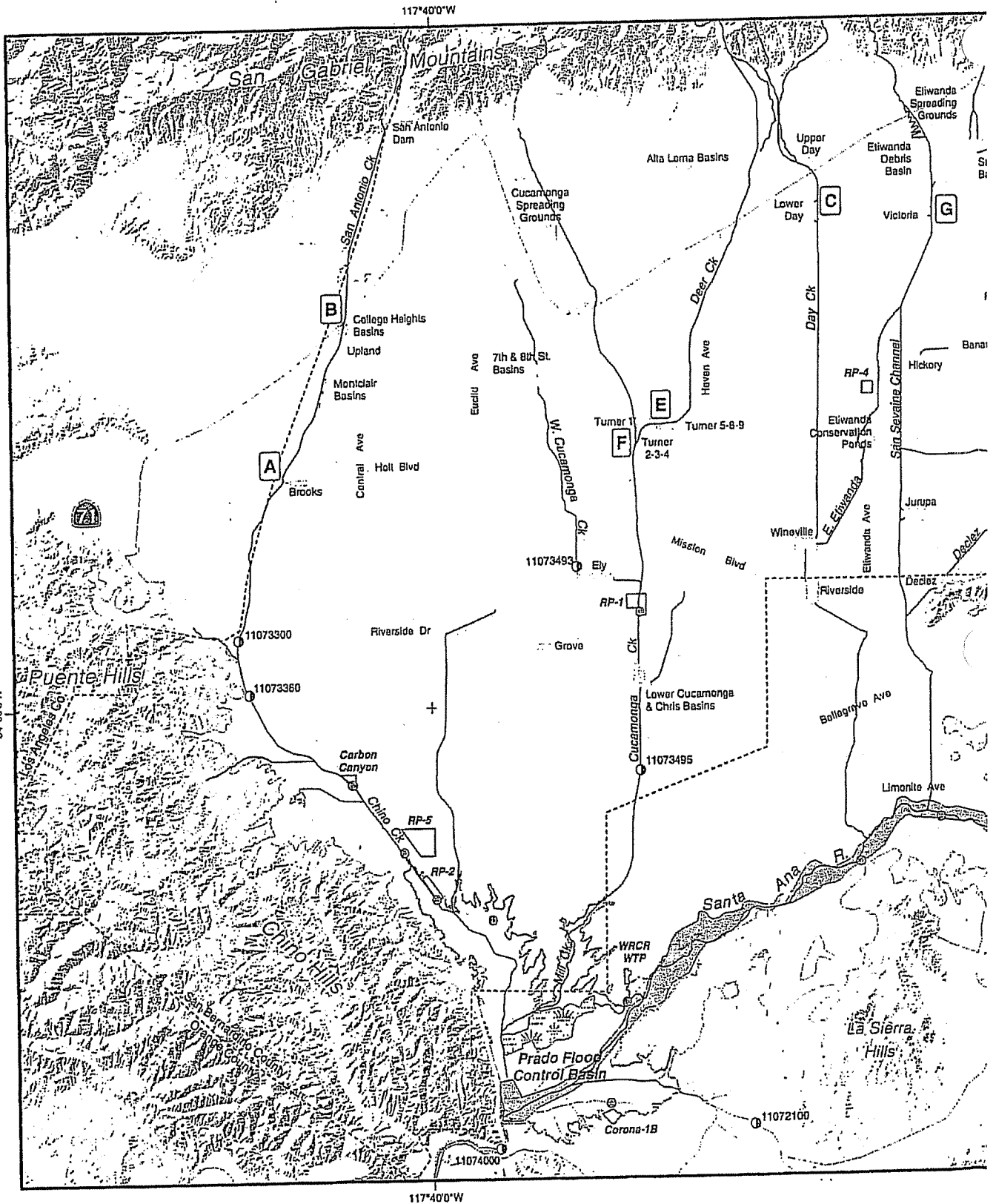
### D. RESPONSIBLE PARTIES

Implementation and contingency procedures will be the responsibility of IEUA, its successors or assigns. The contact person is:

Garth Morgan, PhD  
Water Resources Engineer  
(909) 993-1600

**Inland Empire Utilities Agency**  
6075 Kimball Avenue, Building A  
Chino, CA 91710

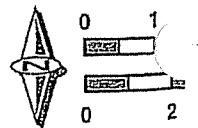
Implementation of all contingency work will be completed under the direction of a qualified Project Biologist/Restoration Specialist.



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## CHINO BASIN WATERMASTER

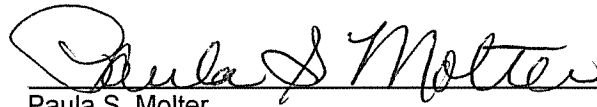
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April 12, 2007

I, Paula S. Molter, am an employee of the Chino Basin Watermaster ("Watermaster"). As part of its normal course of business, Watermaster maintains a library of documents relevant to the Chino Groundwater Basin and Watermaster's role as the arm of the Court administering the Chino Basin Judgment. It is part of my regular duties to retrieve such documents from the library in response to requests from various parties.

I hereby certify that the attached document, titled ***Habitat Mitigation & Monitoring Plan, IEUA Water Recharge Project, RP-3 Mitigation Site for Impacts Associated with Chino Basin Facilities Improvement Project***, is a full, true and accurate copy of that document, on file and of record in the Watermaster library.

  
\_\_\_\_\_  
Paula S. Molter