

WORK PLAN TO UPDATE ADDITIONAL MITIGATION PLANS FOR HINES SPRING AND ALTERNATIVE SITES

prepared for

**Los Angeles Department of Water and Power
and
Inyo County Water Department**

prepared by

Ecosystem Sciences



FINAL
April 22, 2004

Table of Contents

TABLE OF CONTENTS.....	1
INTRODUCTION	1
MOU DIRECTION AND GOALS	1
PHASED APPROACH TO ATTAIN MOU GOALS	2
HINES SPRING.....	3
PHASE I – DATA ACQUISITION, FEASIBILITY STUDY, AND ALTERNATIVES	3
ADDITIONAL MITIGATION SITES	5
PHASE II – SITE SURVEY AND GENERAL SITE ASSESSMENTS	5
PHASE III – PREPARATION OF FINAL MITIGATION PLANS FOR SELECTED ADDITIONAL MITIGATION SITES AND HINES SPRING.....	6
BUDGET	8
2004 TIME LINE – HINES SPRING AND ADDITIONAL MITIGATION.....	9

Introduction

This work plan describes the process that will be followed to: (1) develop plans and recommendations for on-site mitigation at the Hines Spring vent and its surroundings and (2) evaluate and develop plans for additional on-site/off-site mitigation as required under Section III.A.3 of the Memorandum of Understanding (MOU). For the purposes of this work plan, the agencies and organizations that are signatories to the MOU are collectively called the “MOU Parties.”

The MOU provides the following guidance for the allocation of the 1,600 AFY of water:

MOU Direction and Goals

The section of the MOU pertinent to this project, Section III item A. (Studies, Evaluations, and Commitments) on Page 22, follows:

SECTION III - ADDITIONAL COMMITMENTS

A. STUDIES, EVALUATIONS AND COMMITMENTS. Under the direction of DWP and the County, Consultants and their associates will conduct the following studies and evaluations. . .

3. ADDITIONAL MITIGATION. A total of 1600 acre feet of water per year will be supplied by DWP for

- (1) the implementation of the on-site mitigation measure at Hines Spring identified in the EIR, and*
- (2) the implementation of on-site and/or off-site mitigation that is in addition to the mitigation measures identified in the EIR for impacts at Fish Springs, Big and Little Blackrock Springs, and Big and Little Seely Springs.*

Consultants will determine the water requirements of the mitigation measure at Hines Spring. Once the water supply requirements have been determined, opportunities to use any remaining water in the implementation of on-site and/or off-site mitigation at/for Fish Springs, Big and Little Blackrock Springs, and Big and Little Seely Springs will be identified and evaluated by Consultants. The establishment of a shorebird and waterfowl habitat east of Diaz Lake, the enhancement of a wetland at Calvert Slough, and the establishment of a permanent water supply for Warren Lake north of Big Pine to enhance shorebird and wildlife habitat will be included in the evaluation of off-site measures. The feasibility and the relative environmental benefits of the identified opportunities also will be assessed.

Based upon this evaluation, Consultants will recommend reasonable and feasible mitigation measures in addition to the measure at Hines Spring and will recommend how the water should be released and used to implement and maintain these mitigation measures. Reasonable and feasible measures will be recommended which will provide the most environmental benefits that

can be achieved with the available water. On-site mitigation measures will be preferred unless off-site measures are found to be more environmentally beneficial than identified on-site measures. In considering whether to recommend a measure, Consultants will confer with DWP, the lessee for each affected area and the Parties. Mitigation measures recommended by the Consultants, within the limits of 1,600 AFY, will be implemented by DWP and will be maintained by DWP and/or the County.”

The EIR (Mitigation Measure 10-14 Groundwater Pumping – Springs and Seeps – 1970 to 1990) states that:

The Hines Spring vent and its surroundings will receive on-site mitigation. Water will be supplied to the area from an existing, but unused, LADWP well at the site. As a result, approximately one to two acres will either have ponded water or riparian vegetation. Hines Spring will serve as a research project on how to re-establish a damaged aquatic habitat and surrounding marshland. Riparian trees and a selection of riparian herbaceous species will be planted on the banks. The area will be fenced.

Budget

If after the approval of this work plan, before work is conducted that would incur additional expenses that cannot be covered by ES without exceeding the overall total funds in attached budget, concurrence on completing the work must be obtained by ICWD and LADWP. ES will contact LADWP and ICWD to discuss and resolve the issue.

Phased Approach to Attain MOU Goals

The project will be performed in four phases. Phase I will consist of data acquisition, conducting an evaluation of the feasibility of the project, and determining whether to continue data collection at the spring site or incorporate a mitigation project at Hines Spring that uses surface water rather than groundwater into the assessment of additional mitigation measures (Phase II). Phase II will consist of a survey for potential sites followed by a general assessment of the mitigation potential of each site. This assessment will be used to determine which sites warrant further investigation as potential mitigation sites. Following review of the information and analysis of Phases I and II, mitigation actions for Hines Spring and the additional sites will be selected in Phase III. In Phase IV, mitigation plans will be completed for Hines Spring and/or the additional mitigation sites.

Team Approach

In fulfilling the requirements of the MOU with regard to this project, ES will utilize a team of experts. This work plan describes the work that will be performed by each team member. Where the work plan calls for a team member(s) to prepare a report, the report will be released as written by the author(s).

Hines Spring

Phase I – Data Acquisition, Feasibility Study, and Alternatives

Task 1:

1. Otis Bay will examine existing data (fault maps, well logs, groundwater levels, pumping records, and air photos) for the Taboose-Aberdeen well field to characterize the geologic and geomorphic features and groundwater conditions. Deliverables: Subreport.
2. Otis Bay will conduct topographic surveys of the spring and all of its outflow channels to determine; (1) the volume of water and flow extent for the pond and channels, and (2) the characteristics and functions of the spring complex, variables for hydraulic analysis, and how feasible mitigation of these historic channels would be. Deliverable: Subreport.
3. Otis Bay will estimate the water requirement at Hines Spring to support approximately 1-2 acres of ponded water and/or riparian vegetation that would serve as a research project on how to re-establish a damaged aquatic habitat and surrounding marshland. The estimate will be used as input into the groundwater model. Deliverables: Subreport.
4. Once the water requirement has been estimated, LADWP and ICWD will apply a groundwater model to evaluate the potential impacts of pumping to meet the estimated water requirement. Deliverables: Subreport

Task 2: LADWP, ICWD, Ecosystem Sciences, and Otis Bay will evaluate the feasibility of implementing the Hines Spring mitigation measure. Based on the results of Task 1, LADWP and ICWD will determine whether the remaining Phase I tasks for Hines Spring will be conducted and/or whether to proceed directly to the Phase II tasks without completing the remaining Phase I tasks, and/or whether alternative measures at the spring will be incorporated into the Phase II assessment of additional mitigation measures. Deliverable: If it is determined that it is infeasible to implement the Hines Spring mitigation measure, ICWD and LADWP will prepare a report explaining the reasons for such a determination.

Task 3: Knowledge of historic biological conditions (plants and animals) can be used as a basis for determining the biota to be included in the mitigation project. Otis Bay will excavate a shallow trench across the spring vent to determine: (1) soil type, (2) historic plant species composition in the spring vent, and (3) historic freshwater macroinvertebrates based on their skeletal remains. Deliverables: Subreport.

Task 4: Otis Bay will refine vegetation maps in relation to topographic mapping. Vegetation maps will be used to compare current vegetation cover to historic vegetation condition, at least qualitatively. Deliverable: Subreport.

Task 5: For purposes of CEQA analysis and additional mitigation, Otis Bay will explore alternative water sources for rewatering the spring site. This examination will focus on nearby surface water

sources. The feasibility of a fish barrier to filter the water prior to release to the project area will be included in the analysis. Deliverable: Subreport.

Task 6: Based on experience and a literature search, Otis Bay will assess the natural history and suitability criteria of the salient aquatic biota of the Hines Spring system, including T&E fish and macroinvertebrates. This will serve to further refine mitigation recommendations for the spring system, including such measures as discharge, velocity, and specific habitat features. Review historic and contemporary information relevant to this site for bird and other wildlife uses to determine how important the site might have been for sustaining wildlife abundance and diversity, and which basic directions should be taken to restore that function. Deliverable: Subreport.

Task 7: Otis Bay will prepare a Phase I report describing methods and results from tasks 1 through 6 and describing a range of feasible options for implementing mitigation at the Hines Spring mitigation site. The report will contain the products produced for each of the Phase I tasks and sub-reports, and will include:

- A description of historic spring conditions
- A range of feasible options for implementing mitigation at the Hines Spring site. Each mitigation option will:
 - Have clearly described goals, objectives, and desired future conditions (goals will include both qualitative descriptions and quantitative measurements)
 - Be tailored to the MOU requirements including establishing the Hines Spring mitigation project as a research and study site. The Hines Spring project will serve as a research project on how to re-establish a damaged aquatic habitat and surrounding marshland. Riparian trees and a selection of riparian herbaceous species will be planted on the banks.
 - Include, where appropriate, planting of willows and cottonwoods and understory vegetation
 - Include an estimate of water requirements
 - Review grazing management planning to ensure sustainability of mitigation alternatives
 - Describe potential benefits, constraints, and impacts
 - Describe proposed monitoring, data analysis, and project management needs. Monitoring will be capable of quantitatively assessing the effectiveness of the mitigation, and determining whether goals are being met.
 - Develop preliminary itemized estimates for the level of work required for each mitigation alternative and associated monitoring and adaptive management measure.

The Phase I report, and all Phase I subreports, will be concurrently submitted to Ecosystem Sciences, the lessee for the area and each of the MOU Parties.

Additional Mitigation Sites

If it is determined that it is infeasible to implement the Hines Spring mitigation measure, or if, after completing Task 1 of Phase I, it is determined that the water supply requirement for the Hines Spring project will be less than 1600 acre-feet per year, then opportunities to use the remaining water will be identified and evaluated by proceeding with Phase II. These opportunities may include alternative measures that would be implemented in the Hines Spring area.

Phase II – Site survey and general site assessments

Task 1: Otis Bay will inspect maps and aerial photos and conduct field visits as needed to survey the Owens Valley for potential off-site mitigation measures. Potential sites identified during the survey will be added to the following on-site and off-site measures identified in the MOU and by ICWD:

On-site Mitigation:

Fish Springs
Big and Little Seely Springs
Big and Little Blackrock Springs
Hines Spring (alternative measures)

Off-site Mitigation:

Shorebird and waterfowl habitat east of Diaz Lake
Enhancement of a wetland at Calvert Slough
Shorebird and wildlife habitat at Warren Lake
Fish Spring east of Hwy 395
South of Little Seely Spring
Northeast of Big Pine
North of Calvert Slough
Owens River at Warm Springs Road

Ecosystem Sciences will provide information previously collected at the potential sites or gathered from other sources to Otis Bay and assist in locating those sites, as needed.

Task 2: Otis Bay will conduct general assessments of the potential on-site and off-site mitigation measures identified in Task 1, refine the list of candidate sites with more discrete criteria for a final list of sites, and rank the sites according to feasibility, effectiveness, and potential environmental benefits. Ecosystem Sciences will provide support as needed to Otis Bay. The assessments will include consideration of the following:

- existing extent of wetland at the site (amount of open water and cover and composition of the vegetation)
- potential size of the area that could be mitigated or enhanced

- estimated amount of water needed to accomplish the measure
- water source and method of supply
- type and amount of habitats that would be created
- mitigation objective
- plant and wildlife species expected to benefit from the measure (noting state/federal status)
- potential for weed invasion
- physical measures needed to initiate and maintain the mitigation (e.g. planting, weed removal, diking)
- location of the potential mitigation in relation to other resources (i.e. does the site provide a wildlife corridor between areas?)
- whether the measure would be on-site or off-site mitigation
- whether the measure would be in-kind mitigation (Would it provide the same type of habitat as was lost at Fish Springs, Big and Little Blackrock Springs, and Big and Little Seely Springs)
- potential for the measure to create adverse impacts
- sustainability of the measure
- level and frequency of maintenance required

Task 3: Based on the results of tasks 1 and 2, Otis Bay will identify the work needed to develop plans for the selected additional mitigation sites (e.g., field surveys, vegetation maps). Deliverable: Subreport.

Task 4: Otis Bay will conduct site-specific investigations, as identified in Task 3, for each of the selected additional mitigation sites. Ecosystem Sciences will provide support as needed to Otis Bay. Deliverable: Subreport.

Task 5: Otis Bay will prepare a Phase II report and maps providing the information developed during the assessment of additional mitigation sites (Task 2). Maps will be provided as hard copies, pdf files, and ArcView shape files. The report will describe the mitigation goals, the measures that could be taken at each site, the feasibility and benefits of each mitigation measure, and preliminary recommendations. The Phase II report and all Phase II subreports will be concurrently submitted to ES, the lessees for the areas involved, and each of the MOU Parties.

Phase III – Preparation of final mitigation plans for selected additional mitigation sites and Hines Spring

TASK 1: Ecosystem Sciences and Otis Bay will conduct a presentation(s) for the lessees and the MOU Parties presenting the results of the Phase I and Phase II work and preliminary recommendations as to the content of the final mitigation plans, including the allocation of the 1,600 AFY between mitigation actions to be taken at Hines Spring and/or at the additional mitigation sites, schedules, responsible parties, management actions, and monitoring. Seek input from the lessees and the MOU Parties and, if possible, reach agreement concerning the content of the mitigation plans. (The lessees and MOU Parties will be given two weeks following the presentation(s) to submit written comments.)

Deliverables: (1) Document containing preliminary recommendations; (2) report presenting the written comments received during consultation(s) with lessees and MOU Parties and describing the areas of consensus and/or disagreement.

TASK 2: Ecosystem Sciences and Otis Bay will prepare draft mitigation plans for the additional mitigation sites and Hines Spring and concurrently submit to the MOU Parties and lessees. The MOU Parties and lessees will be asked to submit written comments on the plans within 2 weeks of the distribution of the draft plans. Deliverables: Draft mitigation plans.

TASK 3: Ecosystem Sciences and Otis Bay will prepare final plan and responses to comments. Deliverable: Final mitigation plans, including an appendix presenting written comments received from lessees and MOU Parties concerning draft mitigation plans and responses to the comments.

TASK 4: LADWP will describe the potential adverse impacts that could be associated with the mitigation plans either in terms of known, likely, or the level of risk to determine the most appropriate CEQA route. Deliverable: CEQA documents prepared by LADWP.

TASK 5: Ecosystem Sciences will revise grazing management plans for Hines Spring and/or the additional mitigation sites if needed to be consistent with final mitigation plans for these areas. Deliverable: Report describing modifications to grazing management plans for leases.

Task 6: Ecosystem Sciences and LADWP will submit CEQA documentation and final mitigation plan recommendations to the LADWP Board of Water and Power Commissioners, and, if necessary, to the Inyo County Board of Supervisors, concerning the mitigation measure to be implemented at Hines Spring and/or the measure or measures to be implemented at any additional sites. Copies to be provided to the MOU Parties and lessees.

Budget

LABOR	PERSON	MANDAYS	COST
	Otis Bay	By subcontract	\$100,000
	F. Smith	By subcontract	\$10,000
	W. Platts	10	\$8,800
	M. Hill	30	\$24,000
	Support Staff	60	\$28,800
Labor Subtotal			\$171,600
EXPENSES			
Lodging			\$6,500
Food			\$3,200
Mileage			\$3,500
Air Travel			\$1,200
Car Rental			\$850
Telephone/Fax			\$250
Reproductions			\$550
Printing			\$3,500
Photographic			\$500
Equipment Rental			\$250
Field Expenses			\$800
Expenses Subtotal			\$21,100
TOTAL			\$192,700

2004 Time Line – Hines Spring and Additional Mitigation

Week	4/11	4/25	5/9	5/23	6/13	6/27	7/11	7/25	8/8	8/22	9/5	9/19	10/10	10/24	11/7	11/28	12/5	12/12	12/19	12/26	1/2	1/9
PHASE I																						
Task 1	█	█	█	█																		
Task 2				█																		
Task 3	█	█	█	█																		
Task 4	█	█	█	█																		
Task 5					█																	
Task 6	█	█	█	█	█																	
Task 7				█	█	█																
Review							█	█														
Phase II																						
Task 1							█															
Task 2								█	█	█												
Task 3											█											
Task 4											█	█	█	█								
Task 5															█							
Phase III																						
Task 1																█						
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Task 3																			█	█		
Task 4																				█	█	
Task 5																					█	
Task 6																						█

Project Completion Dates: Phase I completed on 7/30/04: Phase II completed on 11/12/04: Phase III completed on 1/14/05

LADWP, the County of Inyo and Ecosystem Sciences, Inc. have reviewed this work plan and have reached agreement on its contents.

Gene L. Coufal
Manager, LADWP Aqueduct Business Group

Date

Greg James
Director, Inyo County Water Department

Date

Mark Hill
Ecosystem Sciences, Inc.

Date