

## Appendix B-8

### LAKE TAHOE RESTORATION PROJECTS ESTIMATED DIRECT COSTS & KEY MILESTONE DATES

Cold Creek/High Meadow

**Project Name:** Ecosystem Restoration      **Agency:** USFS - LTBMU  
**Prepared by:** Stephanie Heller      **Phone:** 530.543.2838      **EIP #:** 400

**Identify estimated costs of eligible reimbursement expenses:**

<b>1.</b>	<b>Planning, Environmental Assessment and Research Costs</b> (specialist surveys, reports, monitoring, data collection, analysis, NEPA, etc.)	\$ <u>232,000</u>	<u>12</u>	%
<b>2.</b>	<b>Direct Labor (Payroll) to Perform the Project</b>	\$ <u>1,030,000</u>	<u>54</u>	%
<b>3.</b>	<b>Project Equipment</b> (tools, software, specialized equipment, etc.)	\$ <u>70,000</u>	<u>4</u>	%
<b>4.</b>	<b>Travel</b> (including per diem where official travel status required to carry out project, such as serve as COR, experts to review reports, etc.)	\$ <u>8,000</u>	<u>&lt;1</u>	%
<b>5.</b>	<b>Official Vehicle Use</b> (pro rata cost for use of Official Vehicles when required to carry out project)	\$ <u>20,000</u>	<u>1</u>	%
<b>6.</b>	<b>Cost of Contracts, Grants and/or Agreements to Perform the Project</b>	\$ <u>275,000</u>	<u>15</u>	%
<b>7.</b>	<b>Other Direct Costs</b> (direct labor for agency personnel to do project procurements; COR; PI; personnel assigned as NEPA lead; personnel assigned to review contracted surveys, designs/drawings, reports, etc.; project manager and/or project supervisor; and contracted costs for project manager and/or project supervisor if contracted separately)	\$ <u>75,000</u>	<u>4</u>	%
<b>8.</b>	<b>Indirect Costs</b>	\$ <u>190,000</u>	<u>10</u>	%
	<b>TOTAL*:</b>	\$ <u>1,900,000</u>	<u>100</u>	%

**Estimated Key Milestone Dates:**

Milestones/Deliverables:	Date:
Ecosystem Assessment complete	December 2006
Ecosystem Restoration Plan 25% complete	May 2007
NEPA for High Meadows complete	October 2007
Construction Plans and Specifications for High Meadows complete	February 2008
<b>Phase I Construction begin</b>	July 2008
<b>Phase I Construction complete</b>	October 2009
Phase II Construction begin	July 2009
Phase II Construction Complete	October 2010
Post project monitoring complete:	2013

**Bold type represents milestones accomplished with Round 8 funding.**

## APPENDIX I

### LAKE TAHOE CAPITAL PROJECT PROPOSAL

**Project Name:** Cold Creek/High Meadow Ecosystem Restoration Project  
**Capital Focus Area:** Watershed Restoration and Habitat Improvement  
**EIP #:** 400  
**Lead Agency:** USFS  
**Contact:** Stephanie Heller  
**Threshold:** WQ, SC, V, F, W, SR, R  
**Phone Number:** 530-543-2838  
**Threshold Standard:** WQ 1-6, SC2, V 1&4, F2-4, W1, SR3, R1  
**Email Address:** sheller@fs.fed.us  
**Is this a multi-year Project?** (If “Yes”, describe in the Detailed Project Description below number of years or phases and which year the requested funding will cover)  
**Total Project Cost:** \$4,600,500  
**Funding Request in this Round:** \$1,900,000  
**yes**

#### **Project Summary (maximum 200 words):**

The LTBMU conducted a comprehensive Ecosystem Assessment and Restoration Plan for the Cold Creek watershed, with special attention to High Meadows (the Project Focus Area). As part of the assessment the LTBMU determined past, present, and desired ecosystem conditions and developed conceptual restoration solutions. Upon completion of the Ecosystem Assessment (Round 6), the LTBMU will conduct the NEPA planning process (Round 7), develop an Ecosystem Restoration Plan, that includes 100% construction plans and specifications for the Project Focus Area (Round 7), and implement selected projects to restore natural physical and biological processes that sustain healthy ecosystem function in the Cold Creek watershed (Phase 1- lower meadow restoration-Round 8, Phase 2 - upper meadow and fen restoration - Round 9).

#### **Detailed Project Description:**

Over the past 150 years the Cold Creek watershed has been affected by management activities such as timber harvest, livestock grazing, road construction, water diversions, and urban development. These activities have contributed to the degradation of ecosystem function. The High Meadows portion of the Cold Creek watershed was acquired by the LTBMU in 2003. The acquired parcel is characterized by alpine streams and meadows degraded by many years of livestock grazing. The Cold Creek stream channel through High Meadows has suffered incision and disconnection from its floodplain, straightening, loss of riparian vegetation, and general degradation of ecosystem productivity. In response, the following schedule will be followed to achieve the goals and objective listed below. This project began in 2004 with an Ecosystem Assessment and is expected to continue through 2009. Round 8 funding will cover most of the cost of construction of Phase I – restoration of the lower meadow (see Table 1 below). It is expected that a small amount (approx. \$100K) of funding in Round 7 will also be available for construction of Phase I.

- 2004-2006: Ecosystem Assessment Report & Preliminary Restoration Plan
- 2006-2007: Initiate and complete NEPA process (EA) for project focus area
- 2007-2008: Complete Restoration Plan including construction specifications and begin implementation in accordance with above findings (EAR, EA Restoration Plan).
- **2008: Complete Phase I – lower meadow restoration.**
- 2009: Complete Phase II – upper meadow and fen restoration (specific actions to be determined through completion of NEPA in 2007).

### **Describe the goals and objectives of the project:**

The goal of the project is to identify and understand the natural physical and biological processes under which the Cold Creek watershed evolved, identify the impacts that have impaired ecosystem function, and restore those processes and functions.

The objectives are to:

- complete the Ecosystem Assessment by December 2006
- complete the NEPA planning process for the Project Focus Area by October 2007
- complete an Ecosystem Restoration Plan by June 2007
- complete construction plans and specifications for the Project Focus Area by February 2008
- obtain regulatory permits and retain contractual services from a qualified construction firm by summer 2008
- **implement the lower meadow restoration project in 2008**
- implement the upper meadow restoration 2009.

### **Describe the anticipated project accomplishments:**

The Cold Creek/High Meadow Ecosystem Restoration Project will:

- restore four hundred acres of historic forest/meadow/Stream Environment Zone plant and animal community complexes in the watershed
- restore 4-5 miles of Stream Environment Zone
- reduce stream-bank erosion and improve stream water quality
- reconnect the stream channel to its floodplain, raising the water table, improving flood attenuation, and increasing soil moisture retention.
- Improve riparian and aquatic habitat in High Meadow

These accomplishments are consistent with the Sierra Nevada Forest Plan Amendment Riparian Conservation Objective. In particular the following Standards and Guidelines:

100. Maintain and restore the hydrologic connectivity of streams, meadows, wetlands, and other special aquatic features by identifying roads and trails that intercept, divert, or disrupt natural surface and subsurface water flow paths. Implement corrective actions where necessary to restore connectivity.

105. At either the landscape or project-scale, determine if the age class, structural diversity, composition, and cover of riparian vegetation are within the range of natural variability for the vegetative community. If conditions are outside the range of natural variability, consider implementing mitigation and/or restoration actions that will result in an upward trend. Actions could include restoration of aspen or other riparian vegetation where conifer encroachment is identified as a problem.

117. Assess the hydrologic function of meadow habitats and other special aquatic features during range management analysis. Ensure that characteristics of special features are, at a minimum, at Proper Functioning Condition, as defined in the appropriate Technical Reports (or their successor publications): (1) "Process for Assessing PFC" TR 1737-9 (1993), "PFC for Lotic Areas" USDI TR 1737-15 (1998) or (2) "PFC for Lentic Riparian-Wetland Areas" USDI TR 1737-11 (1994).

122. Recommend restoration practices in: (1) areas with compaction in excess of soil quality standards, (2) areas with lowered water tables, or (3) areas that are either actively down cutting or that have historic gullies. Identify other management practices, for example, road building, recreational use, grazing, and timber harvests that may be contributing to the observed degradation.

**Describe the “readiness” of this project to move forward (Environmental documentation, etc.):**

The LTBMU is operating under an existing contract with Swanson Hydrology and Geomorphology (SH&G) to complete a comprehensive Ecosystem Assessment and Restoration Plan. The Ecosystem Assessment will provide a thorough understanding of historic ecosystem function and its current state of impairment. The LTBMU can use this knowledge to proceed with the NEPA planning process from a solid foundation of scientific data.

The LTBMU is also operating under a contract with Dr. Michael L. Morrison, a recognized expert in the field of Wildlife Restoration. Dr. Morrison will develop a Wildlife Restoration Plan in coordination with Watershed Restoration Planning. For the past 2 years Dr. Morrison has conducted surveys for vertebrate and invertebrate species (including small and mid-sized mammals, birds, bats, butterflies, and reptiles and amphibians) in other project areas and at reference points around the Lake Tahoe Basin. His work will provide an empirical assessment of wildlife conditions in the Cold Creek watershed and become a key component to the Ecosystem Restoration, Monitoring and Adaptive Management Plans.

**Describe partnerships for this project. (Include documentation):**

The LTBMU will work closely with the Washoe Tribe of Nevada and California, City of South Lake Tahoe, South Tahoe Public Utilities District, the California Department of Fish and Game, the California Tahoe Conservancy, Sierra Pacific Power Company, the Lahontan Regional Water Quality Control Board, and the Tahoe Regional Planning Agency. These partners will be invited to participate on the Technical Advisory Committee, assist in development of project designs, and review all planning and design documentation.

**Describe the project monitoring that will be implemented as part of this project including:**

- (1) The questions the monitoring program is designed to answer (This is a preliminary list to be refined and expanded once a proposed action has been finalized through the NEPA process.)**

What are the existing hydrologic, geomorphic, and biological conditions of stream segments/floodplains targeted for restoration?

**(2) The monitoring approach**

This Round of funding will establish current condition related to vegetation, water quality, groundwater, macroinvertebrates for restoration planning and pre-project data.

Funding received in future rounds will be used to monitor implementation and effectiveness of this project. This monitoring will involve data collection before, during and after the project.

Existing contracts with SH&G and Dr. Michael Morrison include development of a monitoring plan that will track project effectiveness relative to trends of target physical and biological processes. The results of this continuous long-term monitoring will trigger project maintenance actions when predetermined goals are not met. Some of the key ecological parameters that may be monitored are:

- dynamic stability of fluvial geomorphic processes under a full range of discharges (stream channel dimension, pattern, and profile, stream channel and floodplain connectivity, etc.)
- expansion and self-perpetuation of riparian plant communities
- species composition, number and diversity of benthic macroinvertebrates, small and mid-sized mammals, birds, bats, butterflies, reptiles, and amphibians
- survival and reproduction of species of special concern such as Lahontan cutthroat trout

Implementation monitoring will focus on the use of BMPs during construction and determining if the project was constructed according to design.

### **(3) Whether this project monitoring fits in to a larger monitoring or research program?**

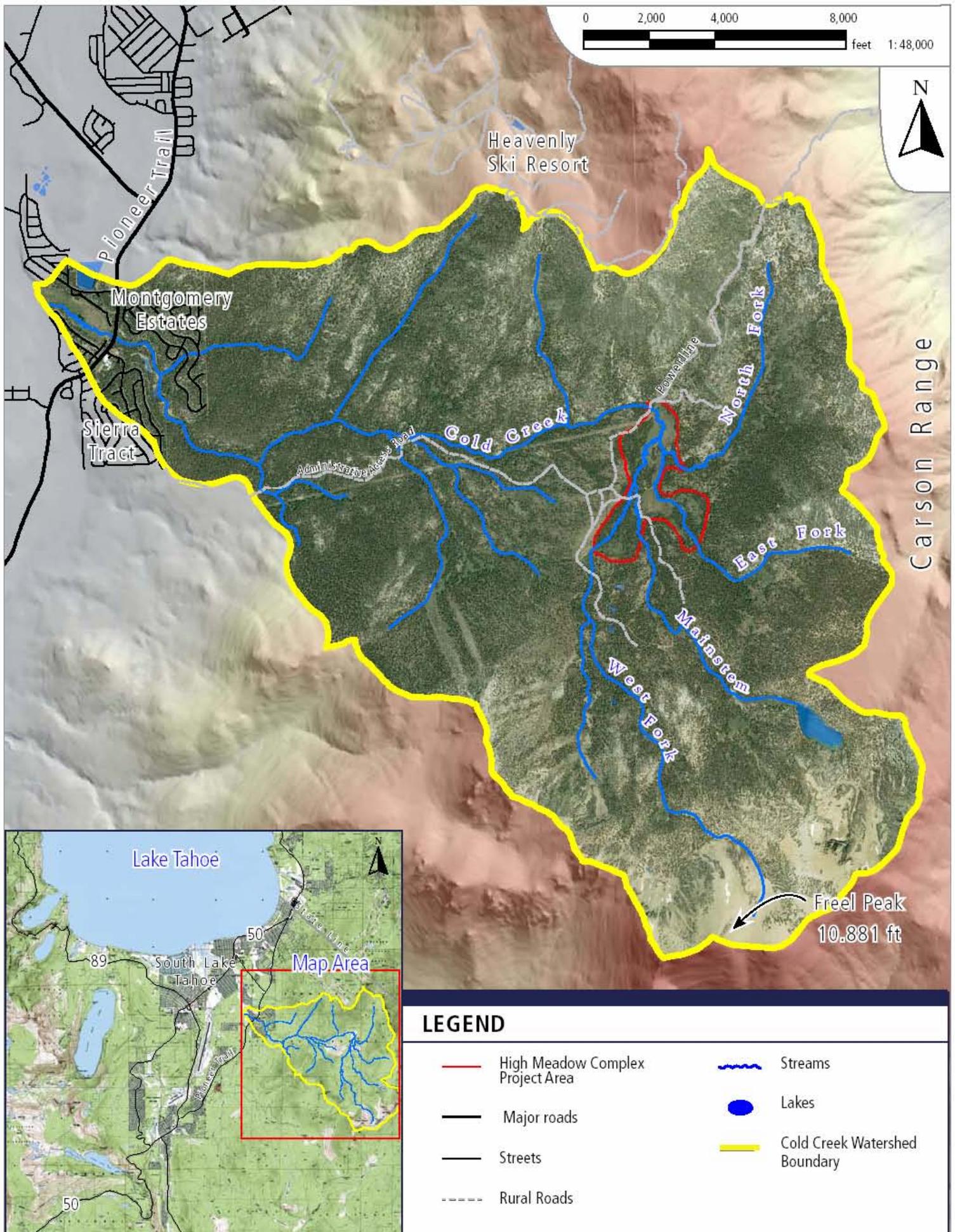
Part of LTBMU Forest Plan monitoring program, as described in LTBMU 5 Year Plan, 2006

#### **Describe how the project results will be communicated and made-available to the public.**

Results/accomplishments summarized in Annual Forest Monitoring Program Report, as well as project-specific monitoring reports. Project-specific monitoring reports will be produced one to five years after project implementation, depending on the variables being monitored and the questions to be answered.

The information created from this project will be disseminated to three audiences: 1) the general public, 2) other resource agencies, and 3) the broader scientific community. The audiences will be informed respectively through the USFS website, public/interagency meetings, and peer-reviewed publication.

#### **Include an 8 ½ X 11 map depicting the project.**



**FIGURE 1.1:** Aerial photograph showing Cold Creek Watershed and project area.

**Table 1. Cost Estimates for Phase One Project Implementation (based on 2005 costs)**

ITEM	ACTION	QUANTITY	UNITS	UNIT COST	TOTALS	PAY ITEM TOTALS
<b>1</b>	<b>SITE PREPARATION</b>					<b>\$112,500</b>
	MOBILIZATION	1	LS	\$85,000	\$85,000	
	CLEARING AND GRUBBING	1	LS	\$22,500	\$22,500	
	BOUNDARY FENCING	1,000	LF	\$5	\$5,000	
<b>2</b>	<b>EROSION CONTROL</b>					<b>\$27,700</b>
	SILT FENCING	3,000	LF	\$6	\$18,000	
	STOCKPILE WINTERIZATION	1	LS	\$2,500	\$2,500	
	SANDBAG DAMS TYPE 'B'	6	EA	\$1,200	\$7,200	
<b>3</b>	<b>CONSTRUCTION ACCESS</b>					<b>\$256,923</b>
	TEMP. ACCESS, WATERING, DUST CONTROL	154,615	SF	\$1.50	\$231,923	
	CONSTRUCTION BRIDGES	5	EA	\$5,000	\$25,000	
<b>4</b>	<b>CONSTRUCT NEW CHANNEL</b>					<b>\$517,732</b>
	SANDBAG DAMS TYPE 'A'	8	EA	\$3,000	\$24,000	
	EXCAVATE NATIVE MATERIAL	2,373	CY	\$30	\$71,190	
	SUPPLY & STOCKPILE CHANNEL SUBSTRATE	1,129	TON	\$60	\$67,740	
	PLACE CHANNEL SUBSTRATE	1,129	TON	\$6	\$6,774	
	SALVAGE AND PLACE SOD	102,576	SF	\$3	\$307,728	
	FLUSH NEW CHANNEL	1	LS	\$10,000	\$10,000	
	WILLOW POLES AND STAKES	1	LS	\$7,500	\$7,500	
	SOD IRRIGATION & DUST CONTROL	1	LS	\$12,800	\$12,800	
	FASCINE PLACEMENT	1	LS	\$10,000	\$10,000	
<b>5</b>	<b>ROCK GRADE CONTROL</b>					<b>\$100,000</b>
	GRADE CONTROL WEIRS	10	EA	\$10,000	\$100,000	
<b>6</b>	<b>FILL EXISTING CHANNEL</b>					<b>\$256,208</b>
	DEWATERING	1	LS	\$10,000	\$10,000	
	CHANNEL FILL	5,034	CY	\$12	\$60,408	
	IMPORT OF SOIL (INCLUDING DIVERSION FILL)	3,210	CY	\$30	\$96,300	
	CHANNEL CONNECTIONS	1	LS	\$40,000	\$40,000	
	STANDARD CHANNEL PLUGS	12	EA	\$2,500	\$30,000	
	FINAL FLOW DIVERSION	1	LS	\$4,500	\$4,500	
	TRIM, SALVAGE AND REPLANT EXISTING VEGETATION	1	LS	\$15,000	\$15,000	
<b>7</b>	<b>CONSTRUCT INSET TERRACE</b>					<b>\$165,522</b>
	EXCAVATE NATIVE MATERIAL	1,355	CY	\$30	\$40,650	
	SOD HANDLING	41,624	SF	\$3	\$124,872	
<b>8</b>	<b>DISABLE EXISTING DIVERSIONS</b>					<b>\$43,517</b>
	DISABLE EXISTING DIVERSION STRUCTURES	5	EA	\$300	\$1,500	
	FILL EXISTING DIVERSION CHANNELS (ASSUMES NO ROADS REQ'D)	549	CY	\$36	\$19,764	
	STABILIZE AND REVEGETATE CHANNELS	14,835	LF	\$1.50	\$22,253	
<b>9</b>	<b>CONSTRUCTION MONITORING AND STAKING</b>					<b>\$60,000</b>
	CONSTRUCTION MONITORING AND STAKING	1	LS	\$60,000	\$60,000	
					<b>SUBTOTAL</b>	<b>\$1,540,101</b>
					25% CONTINGENCIES	\$385,025
					<b>PHASE 1 TOTAL</b>	<b>\$1,925,126</b>