

# **TRAILS SYSTEM MANAGEMENT PLAN**



**El Dorado Project  
FERC Project No. 184**

**El Dorado Irrigation District**

**October 2007**

# **TRAILS SYSTEM MANAGEMENT PLAN**

**El Dorado Project  
FERC Project No. 184**

**Prepared for:  
El Dorado Irrigation District  
Hydroelectric Watershed Division  
2890 Mosquito Road  
Placerville, California 95667**



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**October 2007**

# TRAILS SYSTEM MANAGEMENT PLAN

## El Dorado Irrigation District

### FERC Project No. 184

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## Acronyms

|              |  |                   |   |
|--------------|--|-------------------|---|
| <b>AB</b>    | Aggregate Base                         | <b>MP</b>         | Milepost                                |
| <b>ADT</b>   | Average Daily Traffic                  | <b>NFS</b>        | National Forest System                  |
| <b>BMP</b>   | Best Management Practice               | <b>OHV</b>        | Off-Highway Vehicles                    |
| <b>CDFG</b>  | California Department of Fish and Game | <b>RWQCB</b>      | Regional Water Quality Control Board    |
| <b>EID</b>   | El Dorado Irrigation District          | <b>SUA</b>        | Special Use Authorization               |
| <b>ENF</b>   | Eldorado National Forest               | <b>SUP</b>        | Special Use Permit                      |
| <b>ERC</b>   | Ecological Resources Committee         | <b>SPI</b>        | Sierra Pacific Industries               |
| <b>EPA</b>   | Environmental Protection Agency        | <b>SWRCB</b>      | State Water Resources Control Board     |
| <b>FERC</b>  | Federal Energy Regulatory Commission   | <b>TSMP</b>       | Transportation System Management Plan   |
| <b>FPA</b>   | Federal Power Act                      | <b>Trails SMP</b> | Trails System Management Plan           |
| <b>FS</b>    | Forest Service                         | <b>USDA</b>       | United States Department of Agriculture |
| <b>FSM</b>   | Forest Service Manual                  | <b>USFS</b>       | United States Forest Service            |
| <b>GIS</b>   | Geographic Information System          | <b>USGS</b>       | United States Geological Survey         |
| <b>GPS</b>   | Global Positioning System              | <b>UTL</b>        | Unable To Locate                        |
| <b>LTBMU</b> | Lake Tahoe Basin Management Unit       | <b>WEPP</b>       | Water Erosion Prediction Project        |
| <b>MOU</b>   | Memorandum of Understanding            |                   |   |

## Abbreviations

|                                   |   |
|-----------------------------------|---|
| <b>Condition 58</b>               | One of the FPA section 4(e) conditions for licensing the El Dorado Hydroelectric Project which requires the licensee to prepare a Trails System Management Plan |
| <b>Project 184</b>                | El Dorado Hydroelectric Project (FERC No. 184)  |
| <b>Exhibit-K Drawing</b>          | Drawings which are included in the FERC license   |
| <b>FERC Project No. 184</b>       | El Dorado Hydroelectric Project   |
| <b>Forest Service</b>             | United States Department of Agriculture, Forest Service   |
| <b>Licensee</b>                   | Owner and operator of the El Dorado Hydroelectric Project FERC license  |
| <b>Licensee-Maintained Trails</b> | USFS Trails deemed the primary responsibility of the licensee   |
| <b>Non-System Trails</b>          | USFS Unclassified Trails  |
| <b>Project-Related Trails</b>     | USFS Trails used to access the El Dorado Project  |
| <b>System Trails</b>              | USFS Classified Trails  |

## **1.0 - Introduction**

This plan is designed in accordance with the Federal Energy Regulatory Commission (FERC) Order Issuing a New License on October 18, 2006 for the El Dorado Hydroelectric Project (FERC No. 184, Project 184 or El Dorado Project). Appendix A – Section 4(e) Condition No. 58 (Condition 58) of the new license requires the licensee to submit a Trails System Management Plan (Trails SMP) and a Five-Year Trail Maintenance and Capital Improvement Plan to the FERC within one year of license issuance which would be no later than October 18, 2007. As required by Condition 58, this Trails SMP was prepared in consultation with the United States Forest Service (Forest Service).

### ***1.1 - Purpose and Implementation of the Trails System Management Plan and the Five-Year Capital Improvement Plan***

Pursuant to Condition 58, the Trails SMP must be approved by the Forest Service and it must include a map showing the location of all trails, both Forest Service system (classified) and Forest Service non-system (unclassified) trails associated with Project 184. Condition 58 also requires the licensee to identify the season of use and the amount of use by the licensee for each trail annually. Finally, Condition 58 requires the licensee to identify the conditions of the trails, including any construction or maintenance needs.

### ***1.2 - Consultation with the United States Forest Service***

The Trails SMP was prepared by the licensee in consultation with the Eldorado National Forest (ENF) and the Lake Tahoe Basin Management Unit (LTBMU). The ENF administers the majority of federal lands in the vicinity of Project 184 and the LTBMU administers trails leading to Lake Aloha. The following sections summarize important agreements and correspondence between the licensee and the Forest Service concerning the Trails SMP.

#### **1.2.1 - Eldorado National Forest**

On June 23, 2004, the licensee met with representatives of the ENF to discuss the Trails SMP and the Five-year Trail Maintenance and Capital Improvement Plan (Appendix A). A draft Trails SMP scope of work was distributed and discussed at this meeting and technical information was gathered from agency representatives. During this meeting the licensee and the Forest Service reviewed the project area maps and agreed to a list of project trails deemed the primary responsibility of the licensee (referred to hereafter as “licensee-maintained trails”). It was also agreed that the in-field data collection effort (Needs Assessment) would be limited to those trail segments identified as licensee-maintained trails.

#### **1.2.2 - Lake Tahoe Basin Management Unit**

The Pacific Crest Trail from Echo Lake trailhead to the Lake Aloha Trail is located on federal lands administered by the LTBMU. The LTBMU Representative, Ms. Lori Alessio, provided input concerning this trail; however, the ENF provided the lead role in overseeing licensee compliance with Condition 58.

### **1.3 - Introduction to the Trails System Management Plan**

Listed below are the major topics that the Trails SMP must address, at a minimum. These are summarized from Condition 58 and are listed in the order in which they are addressed in the Trails SMP. This Trails SMP is laid out in three principal sections and three appendices, as follows:

- ◆ *Section 2.0 – Project Trails:* This section includes maps of all Forest Service trails associated with Project 184. It also identifies which trails require Special Use Authorization. The section identifies the season of use and the amount of use annually for each trail.
- ◆ *Section 3.0 – Maintenance Needs, Erosion Prevention, and Control:* This section addresses erosion and maintenance measures on all licensee-maintained trails. This section also outlines the federal, state, and county guidelines and Best Management Practices designed to reduce trail erosion.
- ◆ *Section 4.0 – Summary:* This section summarizes the overall condition of licensee-maintained trails.

#### *References*

- Appendix A*     *Five-Year Trail Maintenance and Capital Improvement Plan*
- Appendix B*     *Summary Agency Correspondence*
- Appendix C*     *Needs Assessment Worksheets (available on request)*

#### **1.3.1 - Use of Geographic Information Systems (GIS) and Global Positioning Systems (GPS)**

All of the maps included with this report were produced from digital spatial data using GIS software. The locations of most of the Forest Service system trails (see section 2.0) had been previously documented by the Forest Service using GPS equipment and software. The locations of these trails were identified on the maps using data collected by the Forest Service. Conversely, most of the project-related Forest Service non-system trails had not been previously located using GPS equipment. As such, these trails were documented using GPS equipment and software as part of the in-field Needs Assessment performed on all licensee-maintained trails from June through February 2006.

As required by Condition 58, all mapping was completed using GPS instrumentation. All GPS data was collected using a Lieca G20 GPS receiver. Satellite GPS positions were only recorded when Positional Dilution of Precision (PDOP) values were less than or equal to a value of 8.0. Due to canopy cover and/or terrain interference or high PDOP values, GPS data could not always be collected. In these cases, which occurred on approximately 43 percent of the project trails, aerial photo interpretation was used in lieu of GPS collection in order to provide a continuous representation of the trail. This is a common problem during GPS collection in forested and mountainous terrain. The aerial photography used for heads-up digitizing of these trails was flown in July 2003 and georeferenced by AirPhotoUSA. The stated positional accuracy of this photography is five to eight feet.

**Table 1-1 Comparison of Condition 58 Text and the Trails SMP**

| Section 4(e) Condition 58 Text  | Where is this requirement addressed in the Trails SMP?   |  |
|---|--|--|
| <p>Within 1 year of license issuance, the licensee shall file with FERC a Trails System Management Plan that is approved by the FS for the trails that are needed for Project operations and are located on or affect National Forest System lands. The licensee shall implement the plan upon approval. At a minimum the Plan shall:</p> | <p>The new FERC license was issued on October 18, 2006.</p>  |  |
|   | <p>1. Include a map showing the location of all trails, both FS system (classified) trails and FS non-system (unclassified) trails associated with the Project.</p>  | <p>Figures 2-1 through 2-7</p>   |
|   | <p>2. Map trail locations using global positioning system (GPS), software, pre- and post-processing standards, collection standards, and data dictionary approved by the FS, to ensure that data collected meets national standards.</p> | <p>Figures 2-1 through 2-7</p>   |
|   | <p>3. Identify the season(s) of use and the amount of use by the licensee for each trail annually.</p>   | <p>Tables 2-1 and 2-2</p>  |
|   | <p>4. Identify the condition of the trails described above, including any construction or maintenance needs.</p>   | <p>Appendix A</p>  |
| <p>Once the plan is completed, adjustments to the Project boundary may need to be made to include some of the trails.</p>   |  | <p>Ongoing</p>   |
| <p>Every 5 years, the licensee shall prepare a 5-year plan identifying maintenance and reconstruction needs for trails required for Project operations. The licensee shall file the plan with FERC after approval by the FS. All trail maintenance and construction shall meet FS specifications and best management practices.</p>       |  | <p>Appendix A, Exhibit A, will be updated as part of the annual road and trail maintenance meeting with EID and the Forest Service. See also Appendix A, Section V of the Transportation System Management Plan.</p> |

## 2.0 - Project Trails

This section begins with a discussion of the Forest Service special use authorization process, including tables that describe all project-related trails requiring Forest Service authorization and maps showing the locations of those trails. The discussion concerning Forest Service Special Use Authorization is not required as part of Condition 58; however, it is included per the request of the Forest Service. The second part of the section includes a detailed discussion of the licensee-maintained project trails and a summary of the Needs Assessment data collected on each trail.

### 2.1 - Forest Service Trails Management Terms, Conditions, and Requirements

Project 184 is located on the South Fork of the American River (SFAR) and its tributaries in the counties of El Dorado, Alpine, and Amador, California. Most of the trails associated with Project 184 are accessed via secondary Forest Service roads that branch off of the nearby highways and county-maintained roadways. The condition and management of the trails on National Forest System (NFS) lands that are used to access Project 184 are the primary focus of this Trails SMP.

There are ten trails totaling 9.167 miles located on NFS lands that are used to access Project 184. These include four “system” (classified) and six “non-system” (unclassified) trails. According to the Eldorado National Forest *Land and Resource Management Plan* (1988), a Forest Service “system” trail is included in the planning process and is listed in the National Forest database with a designated Forest Service number (e.g., 17E39). The management of system trails considers a variety of resource issues including timber, recreation resources, visual quality, and wildlife area prescriptions.

The “non-system” (unclassified) trails are not included in the Forest Service database as classified but they are inventoried and are included in a separate database. Each of the project-related non-system trails used to access Project 184 are maintained to prevent damage to National Forest resources. Table 2-1 lists all of the non-system project-related trails that are considered the primary responsibility of the licensee (licensee-maintained trails). Table 2-2 lists additional system trails that are used to access Project 184. The Forest Service system trails will not be maintained by the licensee. Tables 2-1 and 2-2 also include administrative trail information.

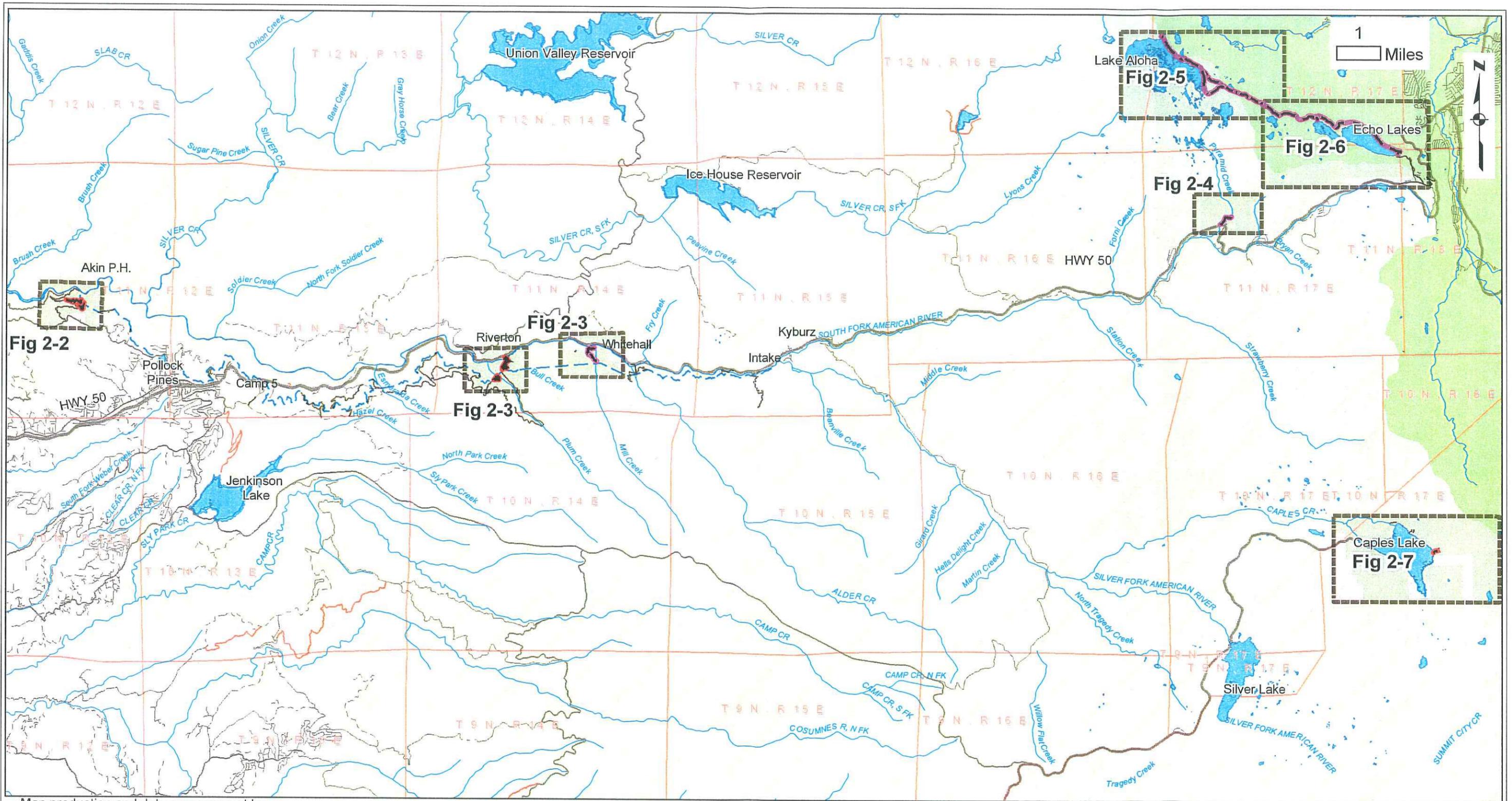
Figures 2-1 through 2-7 display all of the system and non-system trails used to access Project 184. The trails highlighted in red with a solid black line denote the licensee-maintained trails and the trails highlighted in red with black dashes denote the project-related system trails that are used to access the Project.

Table 2-1 Matrix of Licensee-Maintained Project-Related Trails

| Trail Number   | Trail Name        | Length | Width | Jurisdiction | Surface Type | Start             | Terminus           | Summer Average Daily Traffic | Winter Average Daily Traffic | Public Use (y/n) | Maintained By* | Remarks/Location |
|--|-------------------|--------|-------|--------------|--------------|-------------------|--------------------|------------------------------|------------------------------|------------------|----------------|------------------|
| T41  | Woods Creek       | 0.22   | 18"   | USFS         | Native       | Woods Parking Lot | Woods Creek Bridge | 6/year                       |                              | yes              | EID            |                  |
| T71  | Bull Creek        | 0.9    | 24"   | USFS         | Native       | Bull Creek Tract  | Camp 2             | 1/week - 6/month             |                              | yes              | EID            |                  |
| T72  | Plum Creek Siphon | 0.36   | 20"   | USFS         | Native       | Camp X Road       | Plum Siphon        | 6/year                       |                              | no               | EID            |                  |
| T91  | North Penstock    | 0.5    | 20"   | USFS         | Native       | 12N34H            | Penstock           | 6/year                       |                              | no               | EID            |                  |
| T92  | South Penstock    | 0.25   | 24"   | USFS         | Native       | 12N34H            | Penstock           | 6/year                       |                              | no               | EID            |                  |
| T93  | Mill Creek        | 0.63   | 66"   | USFS         | Native       | Randall Tract     | Mill Creek         | 6/year                       |                              | no               | EID            |                  |
| *All trails will be maintained to prevent resource damage. |                   |        |       |              |              |                   |                    |                              |                              |                  |                |                  |
|  |                   |        |       |              |              |                   |                    |                              |                              |                  |                |                  |
|  |                   |        |       |              |              |                   |                    |                              |                              |                  |                |                  |

Table 2-2 Matrix of Additional Project-Related Trails Authorized by USFS Regulation (36 CFR 261-70)

| Trail Number | Trail Name         | Length | Width | Jurisdiction | Maintenance Level | Surface Type | Start      | Terminus        | Summer Average Daily Traffic | Winter Average Daily Traffic | Public Use (y/n) | Authorized by Existing License (y/n) | Remarks/Location |
|--------------|--------------------|--------|-------|--------------|-------------------|--------------|------------|-----------------|------------------------------|------------------------------|------------------|--------------------------------------|------------------|
| 2000         | Pacific Crest      | 5.3    | 24"   | USFS         | 3                 | Native       | Echo Lake  | Heather Lake    | 1/week                       |                              | yes              | no                                   |                  |
| 17E25        | Pyramid Creek Loop | 0.5    | 24"   | USFS         | 2                 | Native       | Highway 50 | Gaging          | 1/week                       | 1/week                       | yes              | no                                   |                  |
| 17E39        | Aloha              | 0.5    | 24"   | USFS         | 2                 | Native       | 2000       | Lake Aloha      | 1/week                       |                              | yes              | no                                   |                  |
| 17E40        | Aloha Desolation   | 0.67   | 24"   | USFS         | 2                 | Native       | 17E39      | PCT 2000        | 1/year                       |                              | yes              | no                                   |                  |
|              | Boat Dock Spur     | 0.007  | 20"   | USFS         | 2                 | Native       | 2000       | Upper Echo Lake | 1/week                       |                              | yes              | no                                   |                  |



Map production and data management by:



2004 Adobe Trail ~ Placerville, California 95667  
 (530) 626-1964 ~ at\_price@pacbell.net

**Legend**

- T91 Licensee-Maintained Trails
- 17E25 System Trails
- Eldorado National Forest
- Lake Tahoe Basin Mgt. Unit
- Private Land
- Figure2-Sheet-Boundaries



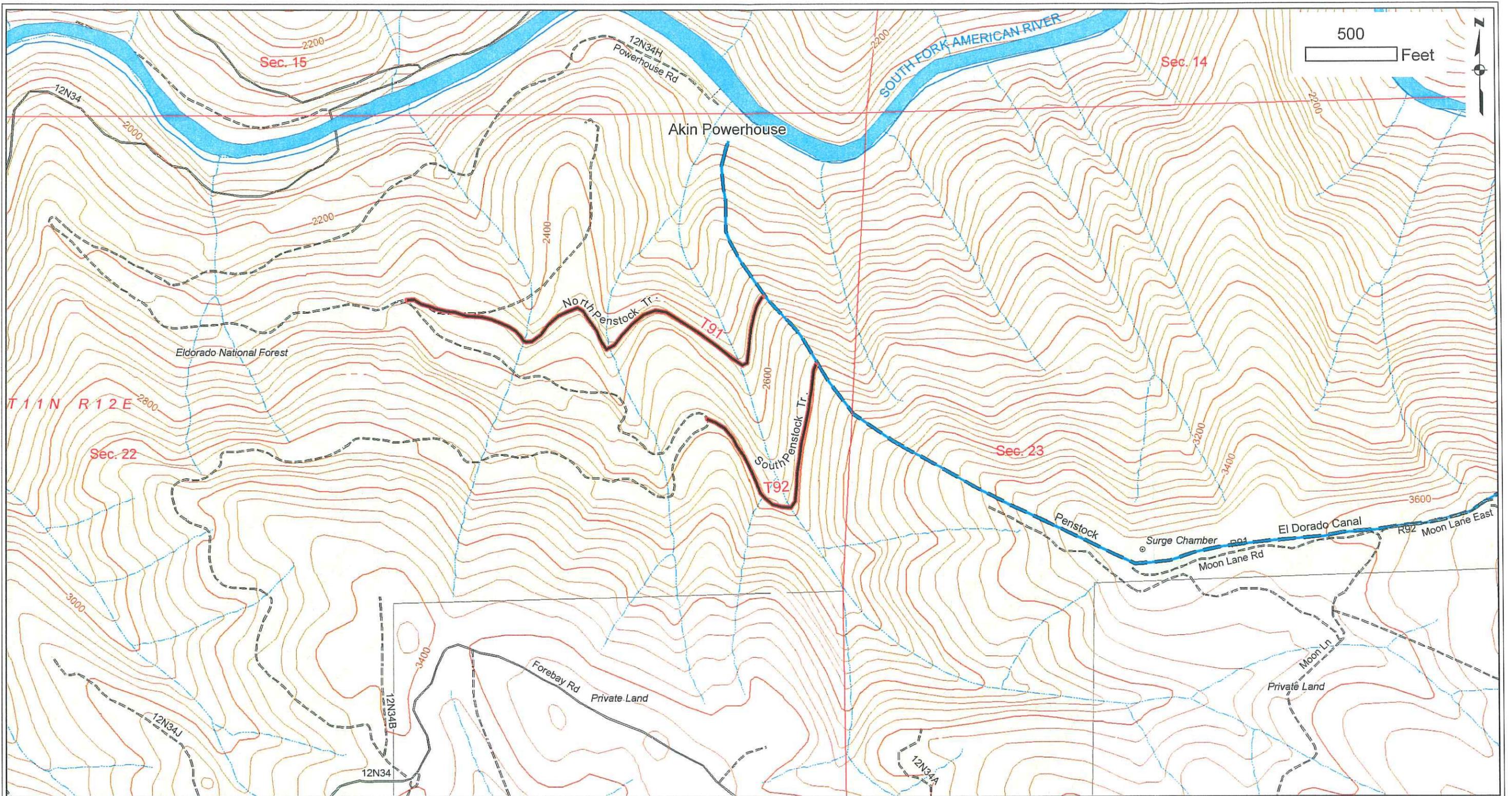
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 (530) 622-4513

**FERC Project 184  
 Trails System  
 Management Plan**

**PROJECT TRAILS**  
 Index for Figures 2-2 thru 2-7

Date: August 4, 2005  
 Pg 2-\_\_ Rev.: 2.2

**Figure 2-1**



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**Legend**

-  Licensee-Maintained Trails
-  System Trails
-  El Dorado Canal
-  Eldorado National Forest
-  Private Land



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**FERC Project 184  
Trails System  
Management Plan**

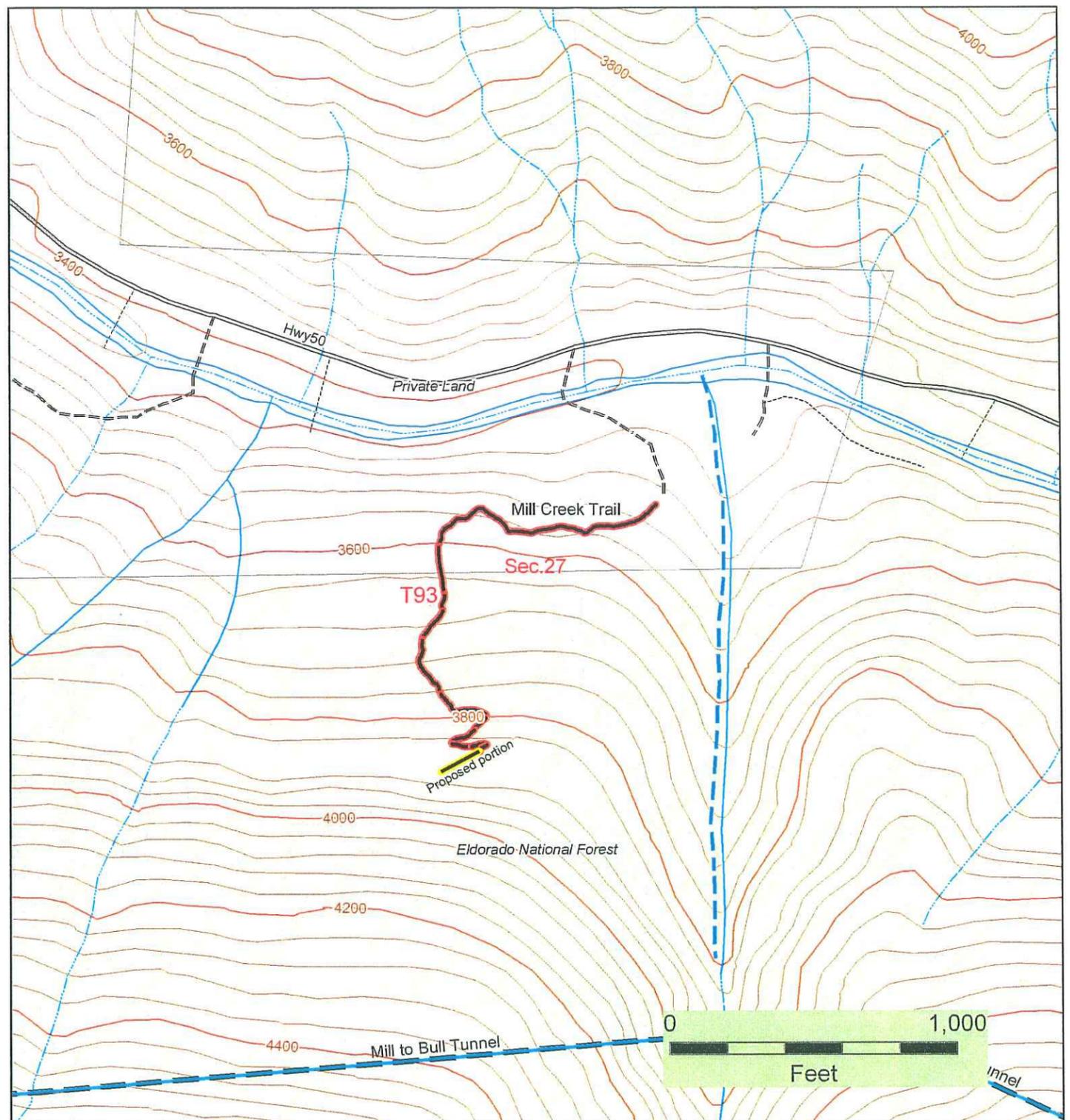
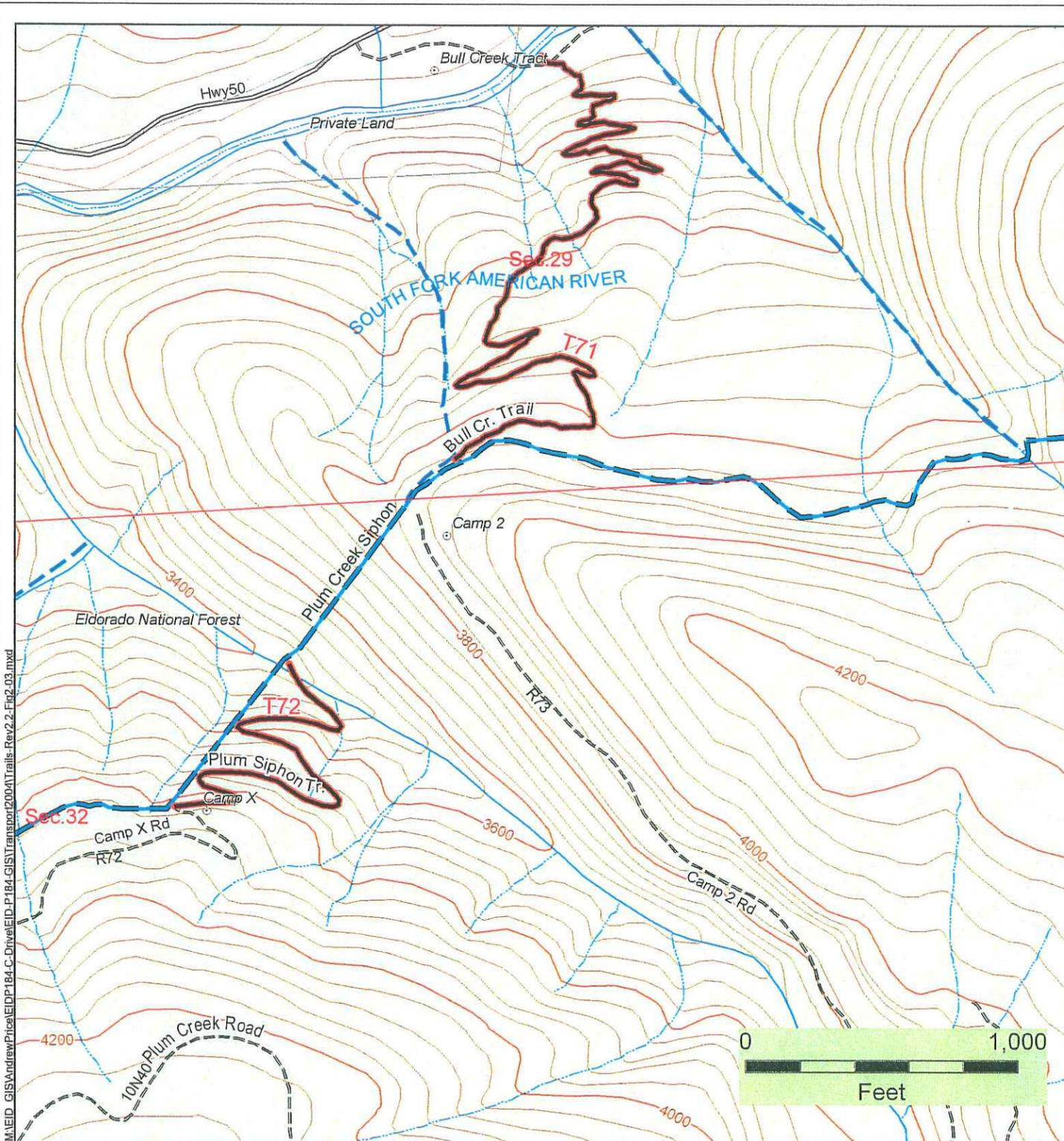
**PROJECT TRAILS**

**Akin Powerhouse Area, T91, T92**

Date: August 4, 2005

Pg 2- Rev.: 2.2

**Figure 2-2**



MAEID\_GISAndrewPrice\EIDP\184.C-Drive\EIDP\184.C-Drive\GIS\Transport\2004\Trails\_Rev2-2\_Fig2-03.mxd



El Dorado Irrigation District  
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 (530) 622-4513

- T93 Licensee-Maintained Trails
- 17E25 System Trails
- Eldorado National Forest
- Private Land



**Trails System Management Plan**

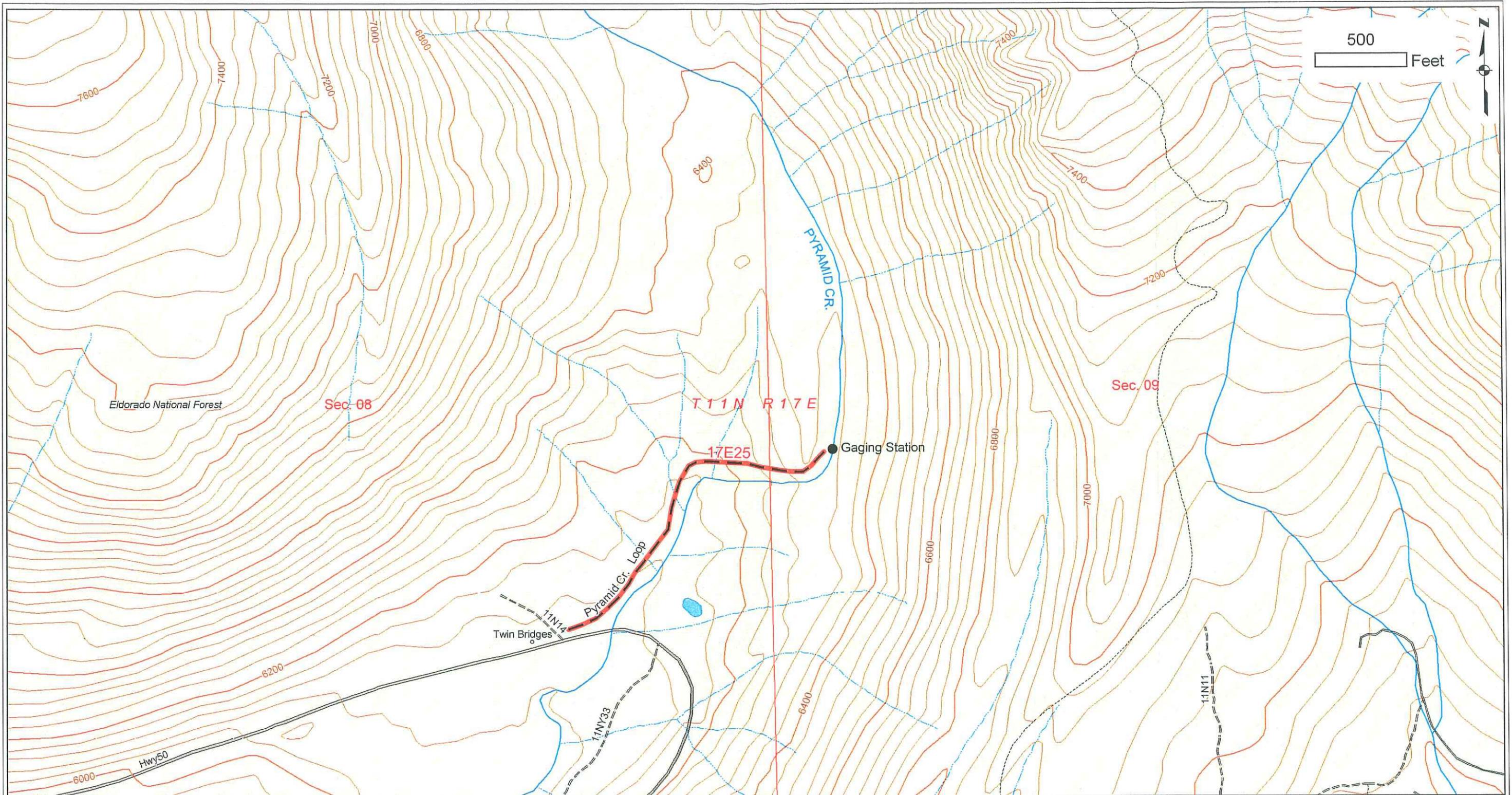
**PROJECT TRAILS**

Camp 2 Area, T71, T72, T93

Date: July 19, 2007

Pg 2-\_\_ Rev.: 2.3

-DRAFT-  
Figure 2-3



Map production and data management by:



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2004 Adobe Trail ~ Placerville, California 95667  
(530) 626-1964 ~ at\_price@pacbell.net

**Legend**

- T91 Licensee-Maintained Trails
- 17E25 System Trails
- El Dorado Canal
- Eldorado National Forest
- Private Land

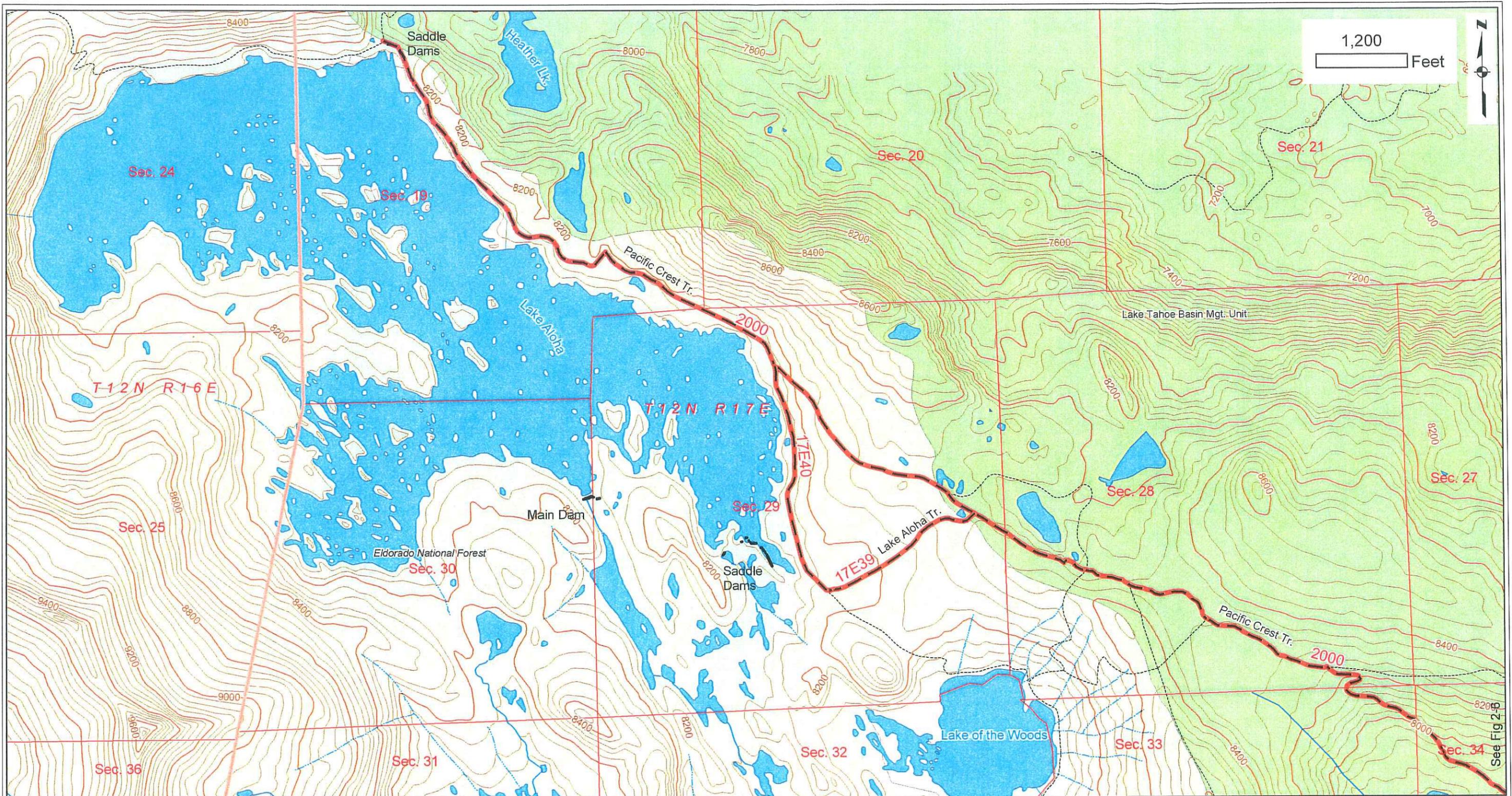


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**FERC Project 184  
Trails System  
Management Plan**

**PROJECT TRAILS**

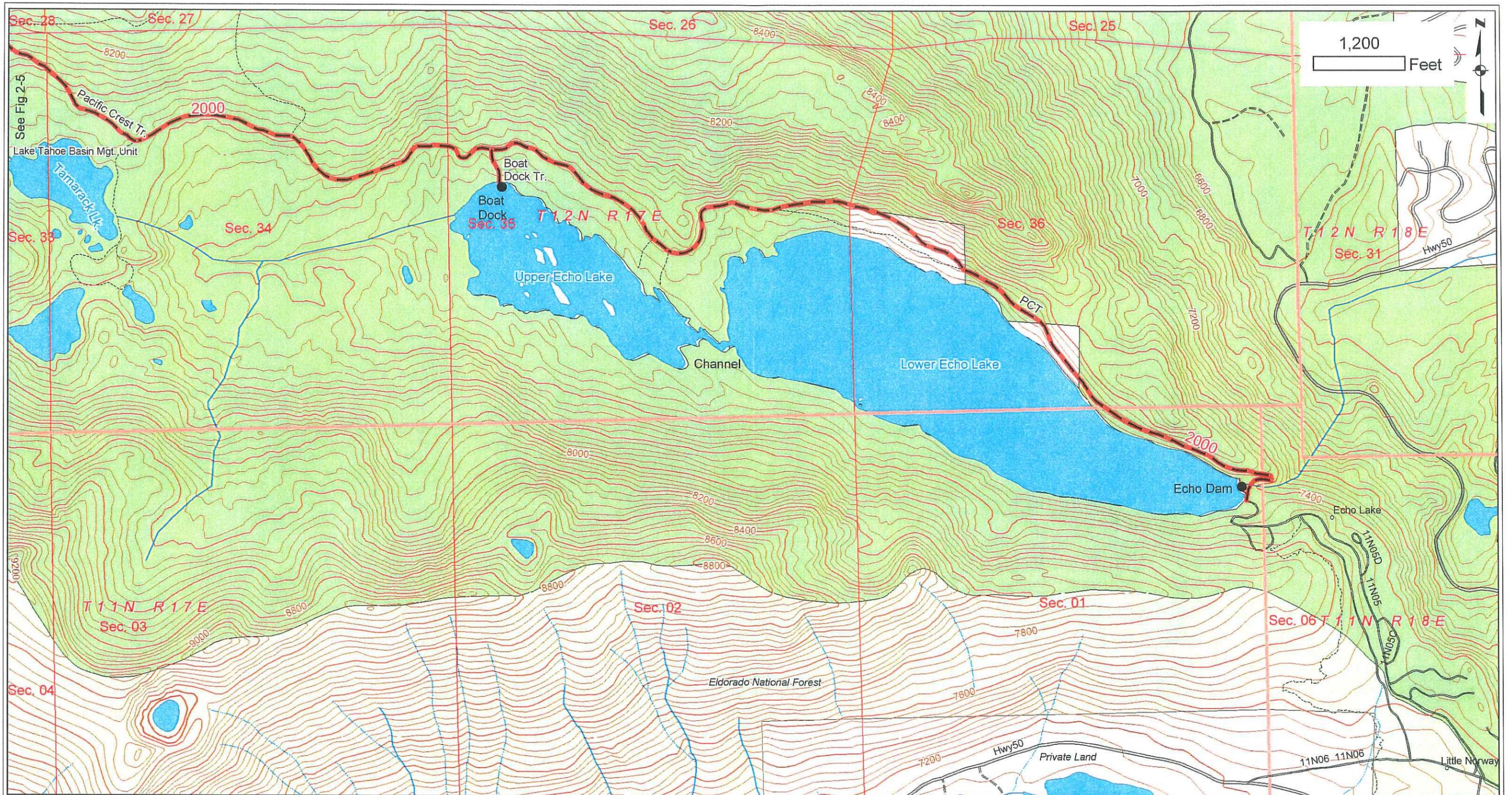
Pyramid Cr., Twin Bridges, 17E25  
Date: August 4, 2005  
Pg 2-\_\_ Rev.: 2.2 **Figure 2-4**



El Dorado Irrigation District  
 2890 Mosquito Road, Placerville, CA  
 (530) 622-4513

- System Trails
- Licensee-Maintained Trails
- Eldorado National Forest
- Private Land
- Lake Tahoe Basin Mgt. Unit

FERC Project 184  
 Trails System  
 Management Plan  
**PROJECT TRAILS**  
 Lake Aloha, 17E39, 2000  
 Date: August 6, 2007  
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**-DRAFT-**  
**Figure 2-5**



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**Legend**

- T91 Licensee-Maintained Trails
- 17E25 System Trails
- Eldorado National Forest
- Lake Tahoe Basin Mgt. Unit
- Private Land



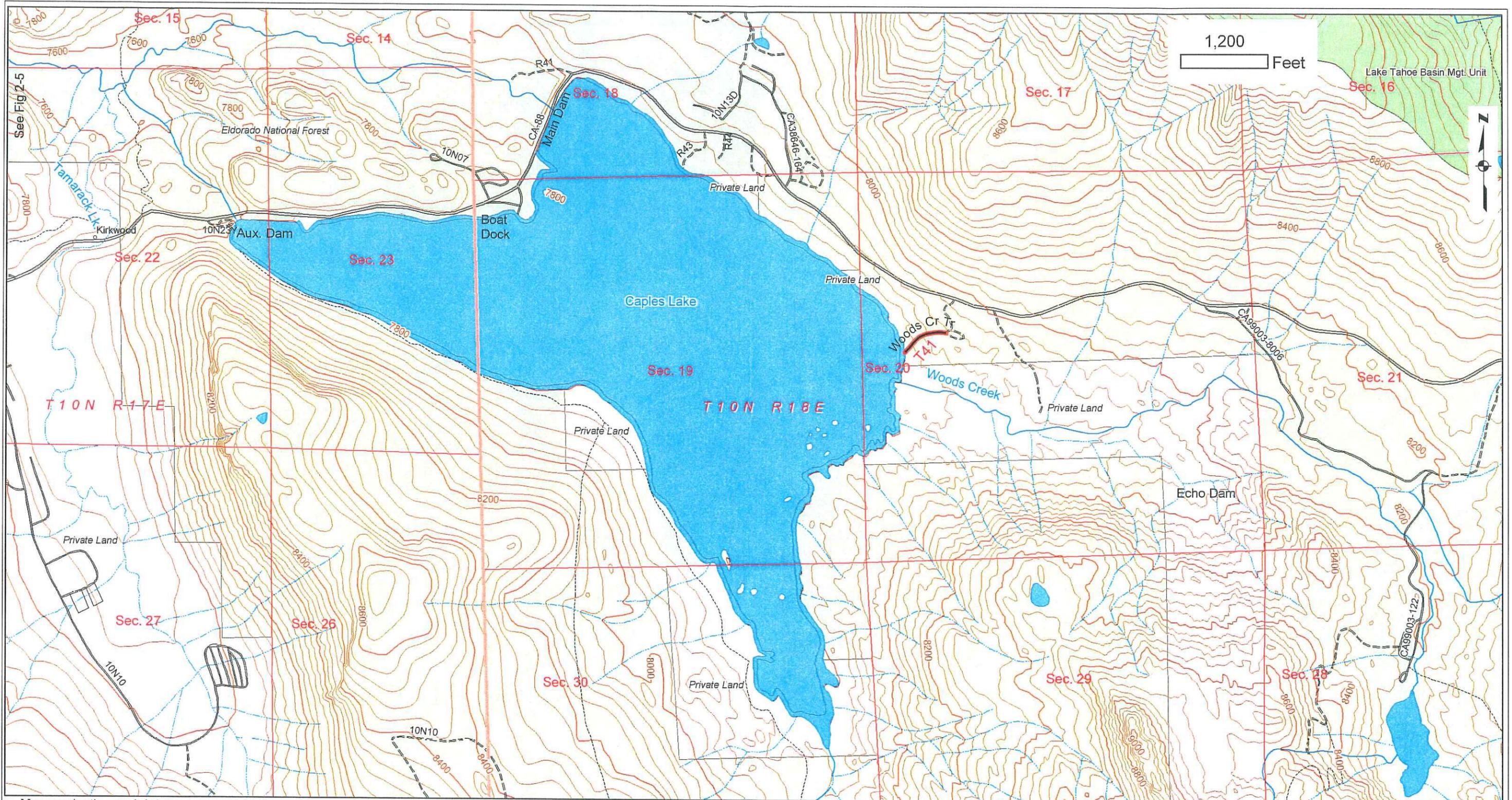
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**FERC Project 184  
Trails System  
Management Plan**

**PROJECT TRAILS  
Echo Lakes, 2000**

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**Figure 2-6**



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**Legend**

-  Licensee-Maintained Trails
-  System Trails
-  Eldorado National Forest
-  Lake Tahoe Basin Mgt. Unit
-  Private Land



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**FERC Project 184  
Trails System  
Management Plan  
PROJECT TRAILS  
Caples Lake, T41**

Date: August 4, 2005  
Pg 2- Rev.: 2.2

**Figure 2-7**

## 2.1.1 - Forest Service Special Use Authorization(s) Needed for Project 184 Trails

As noted above, the following discussion concerning Forest Service Special Use Authorization is not required as part of Condition 58; however, it is included per the request of the Forest Service.

Under the Energy Policy Act of 1992 (Public Law 102-486), licensees are not required to obtain a Forest Service special use authorization for project facilities (trails, roads, diversions, power lines) occupying NFS lands that were licensed as of October 24, 1992. New projects licensed after 1992, or amendments that add NFS lands to existing licenses, do require authorizations from FERC and the Forest Service (FERC Re-Licensing Road Authorizations Position Paper, August 2004). In this case, there are no project-related trails located entirely within the FERC license boundary. Consequently, none of the project-related trails are authorized by the pre-1992 FERC license and therefore all trails located on NFS lands require Forest Service authorization.

A special use authorization allows occupancy, use, rights, or privileges of NFS land or facilities for specified purposes. A Special Use Permit (form FS-7700-41, 10/73) is issued to authorize maintenance, improvement, or reconstruction of a system trail to meet the needs of the applicant or snow removal where applicable. Project trails with no need for public traffic would be authorized using a Private Trail Special Use Permit (FLPMA, form FS-2700-4c, 5/03). A temporary trail use may be authorized using a Temporary Cost-Share Agreement Trail Permit (FLMPA, form FS-2700-4d, 2/99).

### 2.1.1.1 - Forest Service Special Use Definitions

The following definitions apply to those project-related trails requiring a Forest Service special use authorization (e.g., licensee-maintained trails).

*Forest Transportation Facility.* A classified road, designated trail, or designated airfield, including bridges, culverts, parking lots, log transfer facilities, safety devices, and other transportation network appurtenances under Forest Service jurisdiction that is, wholly or partially, within or adjacent to NFS lands.

*Trail.* A travelway generally less than 50 inches wide, designated and managed as a trail. A trail may be classified, unclassified, or temporary.

- (1) **Classified Trails.** Trails wholly or partially within or adjacent to NFS lands that are determined to be needed for long-term foot traffic. These trails are authorized by the Forest Service.
- (2) **Temporary Trails.** Trails authorized by contract, permit, lease, other written authorization, or emergency operation, which are not intended to be part of the forest transportation system and are not necessary for long-term resource management.
- (3) **Unclassified Trails.** Trails on NFS lands that are not managed as part of the forest transportation system, such as; unplanned trails, abandoned travelways, off-road vehicle tracks that have not been designated and managed as trails; and those trails that were once under permit or other authorization and were not decommissioned upon the termination of the authorization.

*Maintenance.* The upkeep of the entire forest transportation facility including surface and shoulders, structures, and such traffic-control devices as are necessary for its safe and efficient utilization.

*Trail Reconstruction.* Activity that results in improvement or realignment of an existing classified trail as defined below:

- (1) *Trail Improvement:* Activity that results in an increase of an existing trail's traffic service level, expands its capacity, or changes its original design function.
- (2) *Trail Realignment:* Activity that results in a new location of an existing trail or portions of an existing trail and treatment of the old trailway.

#### *2.1.1.2 - Special Use Authorization of the El Dorado Hydroelectric Project (FERC No. 184)*

As stated above, all six of the licensee-maintained trails (Table 2-1) require Forest Service authorization through a Special Use Permit (see Table 2-3). This is because all of the non-system project-related trails are located outside the FERC license boundary. The Plum Creek Siphon trail (T72) crosses inside the FERC license boundary in some places but the majority of this trail is situated on NFS lands. As such, the Plum Creek Siphon trail requires Forest Service special use authorization. Forest Service special use permit(s) will be issued to authorize all six of the non-system trails used routinely for project operations.

To the extent allowable by law, the authorizations will likely be issued for the same term as the license. However, should the licensee require future use of a trail on NFS lands not authorized by either the FERC license or a Forest Service special use authorization (i.e., not included in this Trails SMP), then the licensee would apply for the use, and if approved, the appropriate use permit would be issued or amended.

Table 2-3 identifies all project-related non-system trails that are not authorized under the existing FERC license and therefore require Forest Service authorization in the form of a Private Trail Special Use Authorization (non-system trail). Additionally, it identifies those system trails that will be authorized by Forest Service Regulation (36 CFR 261-70).

#### *2.1.1.3 - Forest Service Authorization by Regulation (36 CFR 261-70)*

The Forest Service system trails, such as Pacific Crest Trail, Lake Aloha, and Pyramid Creek Loop will be authorized by Forest Service Regulation (36 CFR 261-70 also see Table 2-3). This allows the licensee the right to use the system trails in the same manner as the public.

**Table 2-3 List of Project-Related Trails Requiring Forest Service Special Use Authorization**

| Trail #* | Trail Name            | Authorized By<br>Forest Service<br>Regulation (36<br>CFR 261-70) | Private Trail<br>Special Use Permit<br>Required |
|----------|-----------------------|--|---|
| 2000     | Pacific Crest         | x  |   |
| 17E25    | Pyramid Creek<br>Loop | x  |   |
| 17E39    | Aloha                 | x  |   |
|          | Boat Dock Spur        | x  |   |
| T41      | Woods Creek           |  | x   |
| T71      | Bull Creek            |  | x   |
| T72      | Plum Creek Siphon     |  | x   |
| T91      | North Penstock        |  | x   |
| T92      | South Penstock        |  | x   |
| T93      | Mill Creek            |  | x   |

\* The "T" trails are non-system trails assigned a temporary numbering system for reference.

### 2.1.2 - FERC Authorized Trail Use versus Forest Service Authorized Trail Use

Should non-routine trail maintenance work be required along a portion of trail inside the FERC license boundary (e.g., hazard tree removal at Plum Creek Siphon Trail) but within the National Forest boundary, the Forest Service, as the landowner, would still require notification and an environmental review process as described in the Project 184 Relicensing Final 4(e) Conditions. The legal authority granted to the Forest Service for this review process would stem from the Federal Power Act (the FERC license) as opposed to Special Use Authorization, but the environmental requirements would be similar (e.g., National Environmental Policy Act, Section 106 of the National Historic Preservation Act, and Endangered Species Act, etc.).

### 2.2 - Licensee-Maintained Project Trails

Of the 9.167 miles of trails on the NFS lands used to access Project 184, approximately 31 percent or 2.86 miles are considered the primary responsibility of the licensee. Table 2-1 lists the Forest Service non-system trails that will be maintained primarily by the licensee. As described above, the Forest Service non-system trails do not have designated trail numbers. To describe these trails in this Trails SMP, an identification number and name was assigned to each non-system trail. For example, T71 on Figure 2-3 refers to a trail used to access Bull Creek.

### **2.2.1 - Average Daily Traffic and Seasons of Use along Project-Related Trails**

Condition 58 requires information about the project-related uses of all trails associated with Project 184 including the seasons of use. This section addresses the project-related uses along both the licensee-maintained non-system and Forest Service system trails. To address project-related uses, Tables 2-1 and 2-2 display the type of use or “Average Daily Traffic” (ADT) for each of the project-related trails. Because many project-related trails are not used on a daily basis, EID’s use may be recorded by week, month, or year.

The season of use was tallied for summer and winter. Summer months generally include March 15 through October 15, depending on elevation and precipitation. Correspondingly, winter months generally begin in mid-October and end by the middle of March. Most of the project-related trails above 4,000-foot elevation are closed during winter months through May due to snow and to prevent damaging the running surfaces.

### **2.2.2 - Conditions of Licensee-Maintained Trails**

Condition 58 requires the licensee to identify the conditions of the licensee-maintained trails, including any construction or maintenance needs. Assessments of the conditions of these trails involved an in-field data recovery effort, or “Needs Assessment”, for all licensee-maintained trails. This field work was conducted from June 2004 through December 2004. Table 2-4 provides a summary of the Needs Assessment data collected for each trail.



## 3.0 - Trails Maintenance Needs, Erosion Prevention, and Control

Forest Service 4(e) Condition 58 requires the licensee to identify the conditions of the trails including construction or maintenance needs. The following section meets the objectives of Condition 58 by (1) describing the Forest Service guidelines designed to prevent erosion of trails in the Project area (e.g., Best Management Practices) and (2) providing an overview of the general principles of trail management to prevent erosion and guide emergency measures in the event of extreme wet periods.

### 3.1 - Forest Service Guidelines, Standards, and Protective Measures

The Forest Service handbook entitled *Water Quality Management for National Forest System Lands in California: Best Management Practices* (USFS BMPs) provides critical guidance for all Forest Service practices and procedures related to water quality management in California. It describes each BMP used for water quality management on all NFS lands in Region 5, which includes California. All of the practices, procedures, and programs outlined in the Forest Service BMPs are in conformance with and comply with the provisions and requirements of the Federal Clean Water Act (PL 92-500) and the United States Environmental Protection Agency (EPA). The Forest Service BMPs are also within the guidelines of the State Water Resources Control Board (Basin Plans) developed by the nine Regional Water Quality Control Boards (RWQCB).

The Forest Service BMPs are divided into eight resource management sections (e.g., Timber Management, Range Management). Of the eight resource management topics, the section entitled “Synopsis for Road and Building Site Construction Practices” is the most relevant to trail maintenance of Project 184. There are 28 Forest Service BMPs listed in the “Index for Road and Building Site Construction Practices” and 20 of these are deemed relevant to management of the Project trails. These include:

1. General Guidelines for the Location and Design of Roads (index #1)
2. Erosion Control Plan (index #2)
3. Timing of Construction Activities (index #3)
4. Stabilization of Road Slope Surfaces and Spoil Disposal Areas (index #4)
5. Road Slope Stabilization Construction Practices (index #5)
6. Dispersion of Subsurface Drainage from Cut and Fill Slopes (index #6)
7. Control of Road Drainage (index #7)
8. Timely Erosion Control Measures on Incomplete Road and Stream Crossing Projects (index #9)
9. Construction of Stable Embankments (Fills) (index #10)
10. Control of Sidecast Material During Construction and Maintenance (index #11)
11. Servicing and Refueling Equipment (index #12)
12. Control of Construction and Maintenance Activities Adjacent to Stream Management Zones (index #13)
13. Controlling In-Channel Excavation (index #14)
14. Diversion of Flows Around Construction Sites (index #15)
15. Bridge and Culvert Installation (index #17)
16. Disposal of Right-of-Way and Roadside Debris (index #19)

17. Specifying Riprap Composition (index #20)
18. Maintenance of Roads (index #22)
19. Obliteration or Decommissioning of Roads (index #26)
20. Surface Erosion Control at Facility Sites (index #28)

### **3.2 - Measures to Control Erosion on El Dorado Project Trails**

Table 3-1 lists drainage features along all six of the licensee-maintained project trails. These features should be inspected routinely to identify measures needed to minimize potential erosion of the trails.

At a meeting held between the Forest Service and EID on April 4, 2005, it was agreed that EID would not be responsible for maintaining the trails up to the standards required for public use on licensee-maintained, non-system trails. Consequently, the Forest Service specifications for trail maintenance, which are designed to address public use, will not be included as part of this Trails SMP. However, all project-related trails will be maintained to prevent damage to natural resources per the Forest Service Special Use Authorization. Section D-9 of the Forest Service Special Use Authorization states:

*Revegetation of Ground Cover and Surface Restoration.* The holder shall be responsible for prevention and control of soil erosion and gullying on lands covered by this authorization and adjacent thereto, resulting from construction, operation, maintenance, and termination of the authorized use. The holder shall so construct permitted improvements to avoid the accumulation of excessive heads of water and to avoid encroachment on streams. The holder shall revegetate or otherwise stabilize all ground where the soil has been exposed as a result of the holder's construction, maintenance, operation, or termination of the authorized use and shall construct and maintain necessary preventive measures to supplement the vegetation.

Table 3-1 Trails Drainage Data

| Trail Number | Trail Name        | Milepost | Size of Culvert | Dip | Waterbar | Ditch | Ford | Bridge | Hydrologic Connectivity | Needs Replacing/Upgrading Data                                      |
|--------------|-------------------|----------|-----------------|-----|----------|-------|------|--------|-------------------------|---|
| T41          | Woods Creek       | 0.21     |                 |     |          |       |      | X      | Yes                     | Bridge to be repaired or removed within two years of Plan approval. |
| T71          | Bull Creek        |          |                 |     |          |       |      |        |                         |   |
| T72          | Plum Creek Siphon |          |                 |     |          |       |      |        |                         |   |
| T91          | North Penstock    | 0.07     |                 |     | X        |       |      |        |                         | On access road to towers  |
|              |                   | 0.26     |                 |     |          |       | X    |        | Yes                     | Natural ford  |
|              |                   | 0.43     |                 |     |          |       | X    |        |                         | Concrete diversion  |
| T92          | South Penstock    | 0.16     |                 |     |          |       | X    |        | Yes                     | Natural ford  |
|              |                   | 0.23     |                 |     |          |       | X    |        | Yes                     | Natural ford  |
| T93          | Mill Creek        |          |                 | X   | X        |       |      | X      | Yes                     |   |

### **3.2.1 - General Principles of Erosion Prevention and Control**

The prevention of erosion involves certain principles for project management that will be observed at all times. This section provides general guidelines and principles for erosion prevention, which include the following:

1. Equipment should not be operated when trail or surface conditions indicate excessive damage could occur to soil resources.
2. Erosion prevention required along Project 184 trails may be adjusted depending on ground and weather conditions and runoff.
3. Erosion prevention and control features shall be kept current immediately preceding expected seasonal periods of precipitation or runoff.

### **3.2.2 - Emergency Trail Maintenance and Erosion Control Measures**

Periods of extreme run-off could result in trail, bank, or waterbar failure. When it is safe to proceed, the following actions should be taken to control erosion and prevent excessive damage to project-related trails. Care should be taken not to cause collateral damage to trails while accessing sites.

1. Take immediate action by deploying resources needed to prevent continued failure;
2. Employ erosion prevention methods (e.g., spread certified weed-free straw) to stabilize soil;
3. Notify the Forest Service of the nature of failure and actions taken; and,
4. The licensee will designate a representative to coordinate emergency activities with the Forest Service.

## 4.0 - Summary

To fulfill the requirements of Forest Service 4(e) Condition 58, the licensee conducted an in-field conditions assessment or “Needs Assessment” of those trails that were deemed the primary responsibility of the licensee. In general, the project-related trails and trails features (e.g., gates and bridges) are functional.

The data and information collected during the needs assessment were used to compile Sections 2 and 3 of this Trails SMP. These sections include more detailed information and analysis. Listed below are summary statements of the needs assessment data.

- There are a total of ten Forest Service trails, equaling approximately 9.167 miles, used to access the El Dorado Hydroelectric Project. Of these, about 31 percent, or 2.86 miles of trails, are considered the primary responsibility of the licensee (licensee-maintained trails). All 2.86 miles are non-system (unclassified) trails.
- One waterbar is located along the licensee-maintained trail at North Penstock and it does not need to be replaced.
- There is one bridge located on a licensee-maintained trail at Woods Creek and another located on the licensee-maintained trail at Mill Creek. Neither of these bridges needs to be replaced.
- One gate is located along the licensee-maintained trail to Bull Creek. This gate does not need to be replaced or upgraded to meet Forest Service standards.

Appendix A lists the maintenance and capital improvement needs for Project 184 trails. It is important to note that the proposed schedule for capital improvements can change dramatically depending on field conditions. As described in Appendix A, an annual meeting will be held between EID and Forest Service representatives to periodically update maintenance and capital improvements for project trails.

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*Appendix A*

**Five-Year Trail Maintenance and Capital Improvement Plan for Project-Related  
Trails on National Forest System Lands  
El Dorado Project (FERC Project No. 184)**

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## *Appendix A*

### **Five-Year Trail Maintenance and Capital Improvement Plan for Project-Related Trails on National Forest System Lands**

El Dorado Project  
FERC Project No. 184

#### El Dorado Irrigation District

This appendix describes the results of an in-field “Needs Assessment” that was performed from June 2004 through February 2006 along all project-related trails located on National Forest System lands identified as the primary responsibility of the licensee (licensee-maintained trails). The Needs Assessment included an evaluation of the trail surfaces, drainage systems, and trail features such as gates, signs, and bridges to determine whether they met the criteria for Forest Service standards per the *Forest Service Manual* (FSM 7730) and the *Forest Service Engineering Handbook* (1968). The Needs Assessment was not performed on any Forest Service system trails because these will be maintained by the Forest Service.

This appendix begins with a narrative description of the condition of each licensee-maintained trail followed by a proposed schedule for recommended trail improvements in Exhibit A-1. It is important to note that the recommended upgrades as outlined in Exhibit A-1 should be field verified prior to project implementation. The conditions of trails and trail features are subject to constant change depending on weather and, as a result, the Needs Assessment represents a ‘snapshot’ view of the trail conditions. Similarly, the priorities for trail improvements should be re-evaluated in the event of extreme weather (e.g., flood) or other catastrophic events (e.g., wildfire, landslide).

The Five-Year Trail Maintenance and Capital Improvement Plan should be re-examined as part of the annual maintenance meeting for the Transportation System Management Plan (per TSMP Appendix A: Section V.A.) to identify the capital needs based on current trail conditions.

#### *A.1 Five-Year Priorities for Trail Improvements*

Exhibit A identifies the priorities for trail improvements for the first five years beginning one year following FERC approval of the Trails SMP and as described in the following schedule:

- Year One: To be implemented within one year following FERC approval of the Trails SMP.
- Year Two: To be implemented within two years following FERC approval of the Trails SMP.
- Year Three: To be implemented within three years following FERC approval of the Trails SMP.
- Year Four: To be determined.
- Year Five: To be determined.

The recommended trail improvements were prioritized based on three criteria including:

- 1) **Safety** - The safety of EID and Forest Service personnel as well as public safety is considered the first priority. All recommended improvements (e.g., removal and replacement of the steps and catwalk into the diversion) that are considered “safety issues” are listed in the first year of upgrades.
- 2) **Environmental/Resource Damage** - This criterion refers to conditions that could result in adverse impacts to watersheds, streams, aquatic habitats, archaeological sites, and/or other environmental resources. The majority of the recommendations for trail improvements (e.g., improving drainage or retaining walls) are made to prevent adverse impacts to environmental resources. This prioritization criterion is further divided based on the following categories:
  - Trail position in relation to perennial streams (e.g., closer to perennial stream = higher priority)
  - Trail grade (e.g., steeper grade = higher priority)
  - Drainage facilities (conditions and spacing of drainage facilities to meet Forest Service standards)
  - Visible evidence of resource damage

When a recommended improvement is addressed in more than one category, the priority rating for that improvement is higher.

- 3) **Mission** - This criterion refers to adverse impacts on the mission or objectives of either EID or the Forest Service (e.g., failure or collapse of a culvert could cause significant delays in access to critical El Dorado Project facilities).

The improvements recommended for safety purposes are considered the highest priority and are listed under the first year (Year One). In addition, trail improvements that could affect the mission of EID are also considered high priority and thus are also placed in the first year (Year One).

In order to reduce move-in and move-out costs and therefore provide a more cost-effective Trail Maintenance and Capital Improvement Plan, lower priority projects are sometimes included with higher priority projects.

## *A.1 Summary of Trail Conditions and Recommendations for Improvements*

As noted above, the following evaluation of licensee-maintained trails was performed between June and February 2006 and is based on a detailed assessment of trail conditions. Copies of the Needs Assessment field data sheets are included in the Trails SMP as Appendix D. The "T" numbering system (e.g., T41) is a temporary numbering system assigned to the licensee-maintained trails for reference.

### T41: Woods Creek Trail

**Condition:** This trail is primitive and difficult to follow. The rocky nature of the terrain has caused recreation users to take numerous paths through the rocks to access Caples Lake. There has been some minor erosion to the tread in places. There are no drainage facilities along the trail, with the exception of a wood and concrete bridge on Woods Creek. Brushing, logging out, and hazard tree removal are not needed at this time.

**Recommendation:** None.

### T71: Bull Creek

**Condition:** There are six retaining walls constructed of wooden 2" x 12" boards that have dry rot and are failing. There are a dozen or so locations where users shortcut the switchback, causing secondary trails with slopes between 25 percent and 45 percent. These shortcuts are gullying and causing erosion. The tread and clearing limits are in good shape with minor maintenance required.

**Recommendation:** Replace retaining walls where resource damage occurs. The use of native materials (e.g., rock and logs) may be economical as well as desirable. Eliminate shortcut at switchbacks. Repair gullies and scatter brush, logs, or rocks to discourage further use.

### T72: Plum Creek Siphon

**Condition:** Although this trail cuts through grades between 8 percent and 25 percent, the tread remains in good shape. For the most part, the tread is grown over with grasses and brush. There are over 25 downed logs that fell across the trail, making access to the siphon very difficult. Sections of the trail are difficult to follow due to the downed logs, brush, and lack of defined tread.

**Recommendation:** Leave the trail in this condition until access is required. Logging out and brushing will be required to accommodate heavy use.

### T91: North Penstock

**Condition:** This 300-foot trail begins as part of the access road to the power lines. At station 3+00 the trail splits from the road. The trail cuts across steep terrain in some places (30 percent grades), but due to rocky and cobble-like soils, very little erosion is taking place. At station 3+00 the grades are flat to  $\pm$  two percent. Tread is up to six-feet wide but grown over with vegetation.

There are two rock retaining walls and both are serviceable but in need of some repairs. The steps with catwalk that access the diversions at station 22+70 are completely rotted out and could be a hazard.

**Recommendation:** Keep trail in existing condition until environmental damage is detected. Remove and replace the steps and catwalk into the diversion. Some minor rock placement is to repair the retaining wall at the diversion.

T92: South Penstock

**Condition:** This trail is in good condition for its intended use. The trail fords through small drainages but there is little foot traffic and it has had no apparent effect on these drainages. There is a six-foot section of trail that has sloughed off, narrowing the tread down to 10 to 16 inches.

**Recommendation:** Repair sloughed section with small retaining wall. There is adequate native rock in the area to build a 2-foot high x 6-foot long retaining wall.

T93: Mill Creek

**Condition:** Overall, this trail is in good condition. The trail has a clear and defined tread. Maintenance conditions are minimal and do not hinder access and use. The trail consists of native soils with grasses and a few rushes and sedges growing in the lower portion. Rills and erosion are present in the upper portion at switchbacks where few drainage structures are present. Most waterbars are working properly; however, a few waterbars above the bridge in the lower portion are filling with sediment. In the lower portion below the bridge, water is draining down the north side of the trail, incising the trail and creating a permanent drainage path. The bridge is in good condition and shows no sign of degradation.

**Recommendation:** Install water diversion structures along the switchback and on the lower portion of the trail to dissipate flow and decrease erosion/incision of the trail. Maintain the waterbars and remove sediment build-up to allow proper functioning.

## Exhibit A

## Five-Year Trail Maintenance and Capital Improvement Plan Year One

| Number | Name        | Action                                | Criteria Addressed             |
|--------|-------------|---------------------------------------|--------------------------------|
| T71    | Bull Creek  | Replace and/or repair retaining walls | Protection of N.F.S. Resources |
| T41    | Woods Creek | Mark trail with blazes or cairns      | Define trail location.         |

## Year Two

| Number | Name           | Action   | Criteria Addressed             |
|--------|----------------|--|--------------------------------|
| R91    | North Penstock | Repair and/or replace catwalk at diversion   | Safety                         |
| R91    | North Penstock | Repair rock retaining wall   | Protection of N.F.S. lands     |
| T93    | Mill Creek     | Install water diversion structures on lower portion of the trail, where trail erosion/incision is occurring. | Protection of N.F.S. resources |
| T41    | Woods Creek    | Repair or remove Woods Creek Bridge.   | Safety                         |

## Five-Year Trail Maintenance and Capital Improvement Plan

### Year Three

| Number | Name           | Action  | Criteria Addressed         |
|--------|----------------|---|----------------------------|
| T92    | South Penstock | Repair sloughed section with small retaining wall | Protection of N.F.S. lands |

### Year Four

| Number  | Name | Action | Criteria Addressed |
|---------|------|--------|--------------------|
| PENDING |      |        |                    |

### Year Five

| Number  | Name | Action | Criteria Addressed |
|---------|------|--------|--------------------|
| PENDING |      |        |                    |

This Trail Maintenance and Capital Improvement Plan will be updated annually at the EID/ Forest Service meeting held to discuss road and trail maintenance and improvements (see the Transportation System Management Plan, Appendix A: Section V). The suggested priorities could change based on current conditions.

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*Appendix B*

**Agency Consultation**

- Final meeting notes - Transportation and Trails System Management Plan, June 23, 2004
  - Field inventory trails (trails deemed to have some or all EID maintenance responsibility) July 10, 2004
  - E-mail to K. Quidachay from C. Oswald regarding trails SUP, March 30, 2005
  - Draft meeting notes - Trails System Management Plan, April 4, 2005
  - E-mail to K. Quidachay from C. Oswald regarding draft trails maintenance meeting notes, May 11, 2005
  - E-mail from K. Quidachay to B. Walker regarding responses to comments on Trails SMP, August 6, 2007.
-

**Appendix B: Agency Consultation for the Trails System Management Plan**

| CONTACT  | DATE      | TOPIC OF CONSULTATION   |
|--|-----------|---|
| EID, USFS, and EN2 Resources, Inc.   | 6/23/2004 | Final Meeting Notes, Transportation and Trails System Management Plan                     |
| EID, USFS, and EN2 Resources, Inc.<br>Email from C. Oswald to K. Quidachay | 8/31/2004 | Field Inventory Trails (Trails deemed to have some or All EID maintenance responsibility) |
| Email from C. Oswald to K. Quidachay                                       | 3/30/2005 | Trails SUP  |
| EID, USFS, and EN2 Resources, Inc.   | 4/4/2005  | Draft Meeting Notes, Trails System Management Plan  |
| Email from C. Oswald to K. Quidachay                                       | 5/11/2005 | Draft Trails Maintenance Meeting Notes  |
| Email from K. Quidachay to B. Walker                                       | 8/6/2007  | Responses to comments on draft Trails SMP.  |

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*Appendix C*

**Needs Assessment Worksheets  
(Available on request)**

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FEDERAL ENERGY REGULATORY COMMISSION  
Washington, D. C. 20426

CC: Downey  
Murphy  
Carcoran  
Jagers  
Megerditchian  
EYmam

OFFICE OF ENERGY PROJECTS

Project No. 184-135--California  
El Dorado Project  
El Dorado Irrigation District.

Mr. Steven Setoodeh  
El Dorado Irrigation District  
2890 Mosquito Road  
Placerville, CA 95667

JAN 14 2008

Subject: Trails System Management Plan

Dear Mr. Setoodeh:

This is in reference to the Trails System Management Plan (plan) you filed on October 15, 2007, pursuant to U.S. Forest Service 4(e) Condition 58 included as a part of Order Issuing New License for the El Dorado Project.<sup>1</sup> The project is located primarily on the North Fork of the American River and the Silver Fork of the American River in El Dorado, Alpine, and Amador County, California. Condition 58 states as follows:

Within 1 year of license issuance, the licensee shall file with FERC a Trails System Management Plan that is approved by the FS for the trails that are needed for Project operations and are located on or affect National Forest System lands. The licensee shall implement the plan upon FS approval. At a minimum, the Plan shall:

1. Include a map showing the location of all trails, both FS system (classified) trails and FS non-system (unclassified) trails associated with the Project.
2. Map trail locations using a global positioning system (GPS), software, pre- and post-processing standards, collection standards and data dictionary approved by the FS, to ensure that data collected meets national standards.
3. Identify the season(s) of use and the amount of use by the licensee for each trail annually.

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<sup>1</sup> 117 FERC ¶62,044.

4. Identify the condition of the trails described above, including any construction or maintenance needs.

The plan includes each to the specified components. You indicate that, as required by the license, every 5 years you will prepare a 5-year plan identifying maintenance and reconstruction needs for trails required for project operations. The licensee shall file the plan with FERC after approval by the FS. All trail maintenance and construction shall meet FS specifications and best management practices. You have agreed to prepare such a plan. By letter dated October 10, 2007, the FS states that the plan is approved.

The plan fulfills the requirements of the license, specifically FS condition 58. Thank you for providing this plan. If you have any questions concerning this matter please call Brian Romanek at (202) 502-6175.

Sincerely,



Brian Romanek  
Environmental Protection Specialist  
Land Resources Branch  
Division of Hydropower Administration  
and Compliance