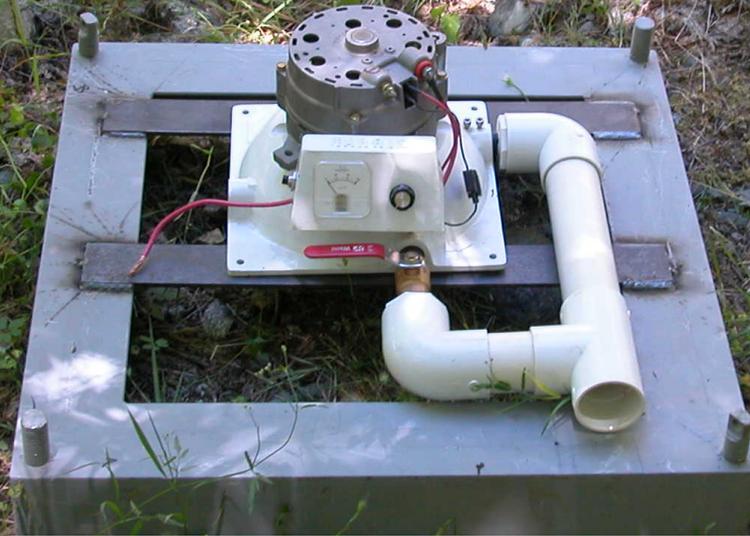


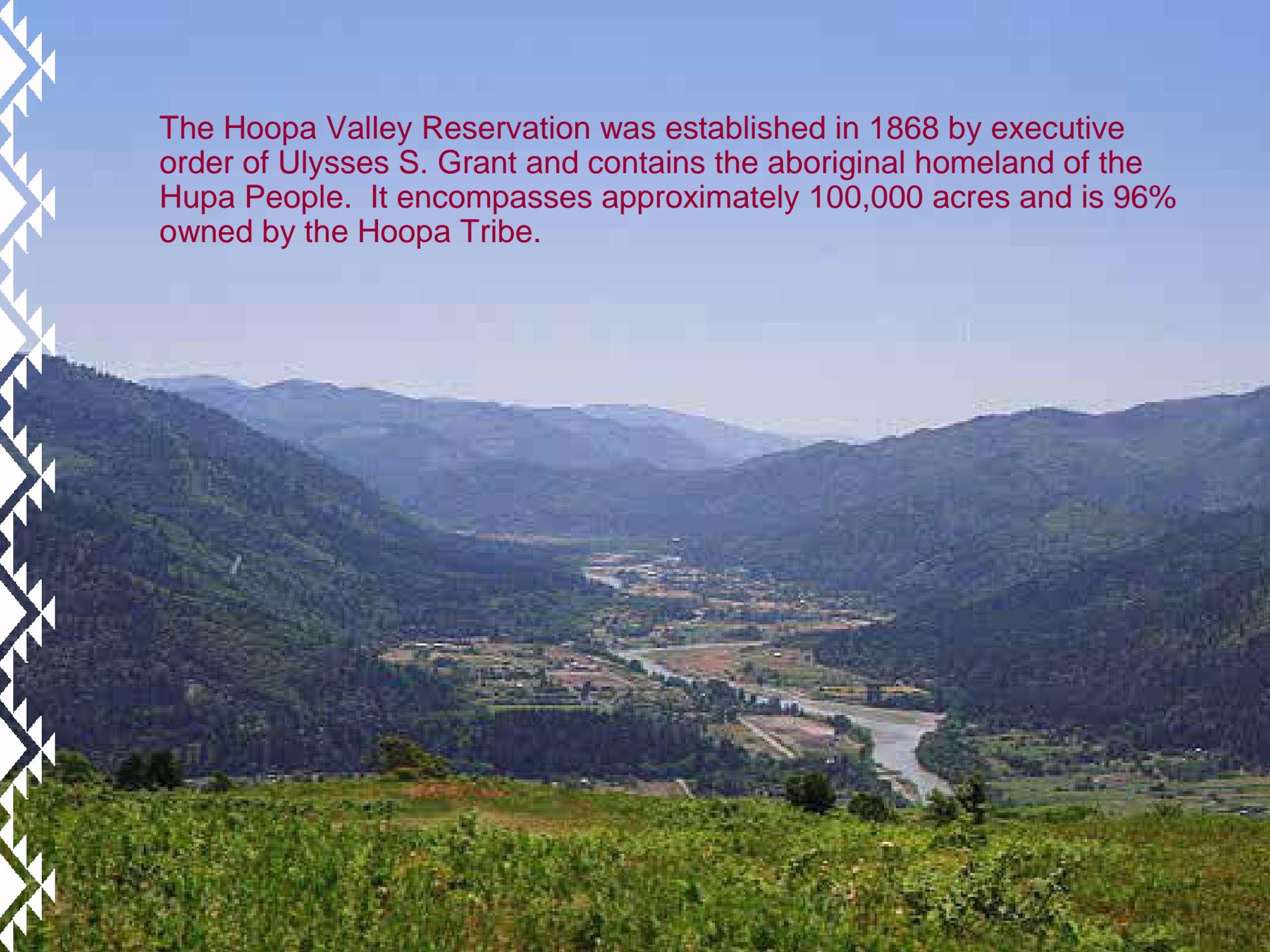
Micro-Hydro Feasibility Study



Hoopla Valley Tribe

Curtis Miller

The Hoopa Valley Reservation was established in 1868 by executive order of Ulysses S. Grant and contains the aboriginal homeland of the Hupa People. It encompasses approximately 100,000 acres and is 96% owned by the Hoopa Tribe.



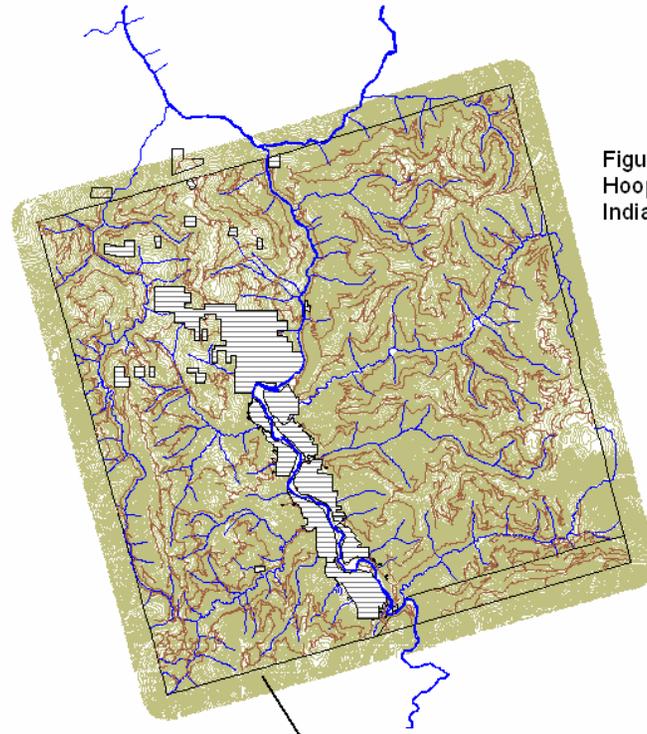


Figure 1. Location of the Hoopa Valley Indian Reservation

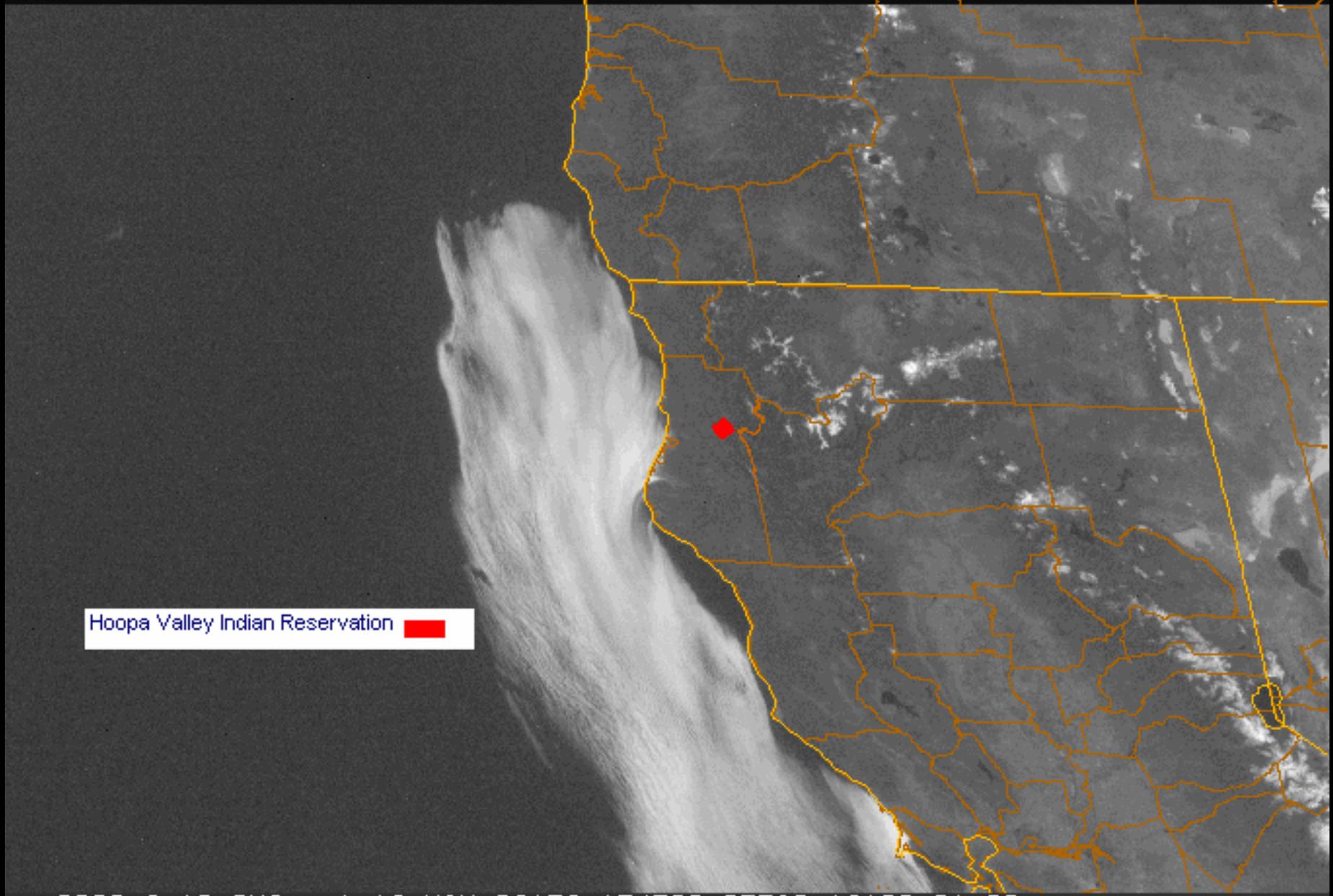
Hoopa Valley
Indian Reservation

California



San Francisco

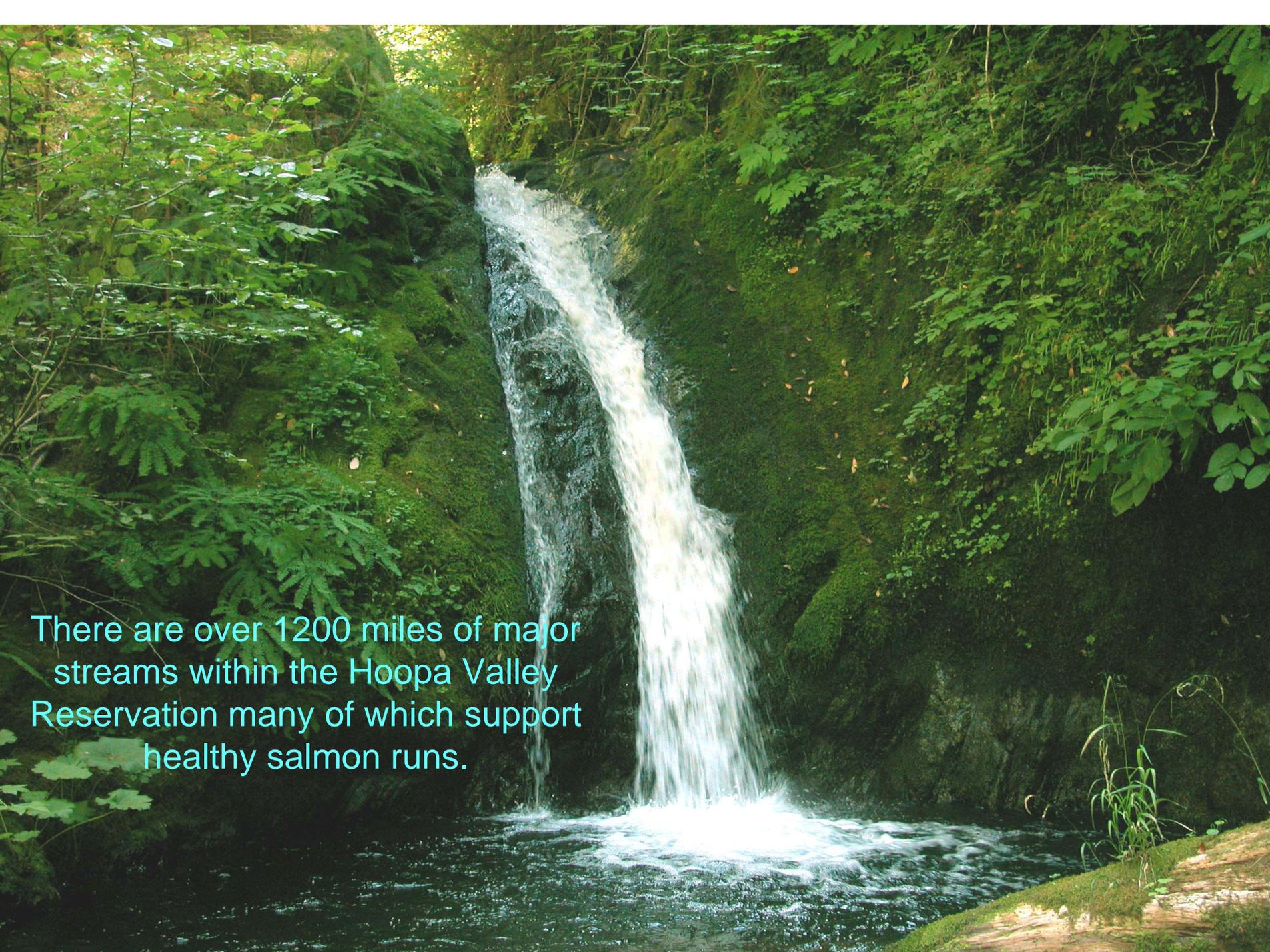




Hoopa Valley Indian Reservation ■

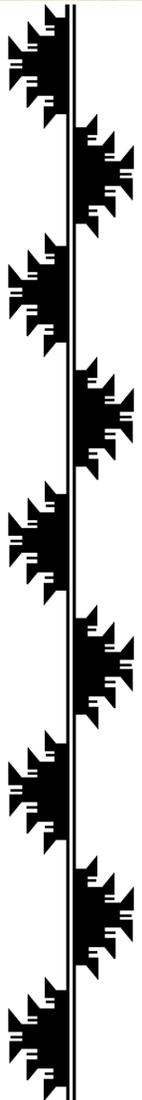
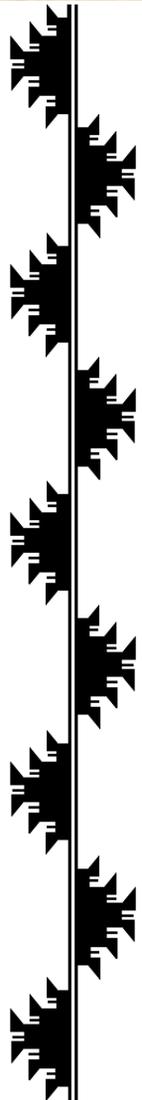
Hoopla Valley





There are over 1200 miles of major streams within the Hoopa Valley Reservation many of which support healthy salmon runs.

Chinook Salmon, Coho and Steelhead Trout comprise a large portion of the Hupa diet and the key to good health



Objectives of Project

- Assess the potential for developing micro-hydro electricity on 7 tributaries within the Reservation
- Assess the potential for economic benefits to the Tribe



Things to evaluate

- Topography of stream course
 - determining head and distance
- Terrain – road construction, pipeline
- Stream flow and dynamics - power
- Access to creeks - maintenance
- Distance of electrical transmission
- Route of electric lines







Instability

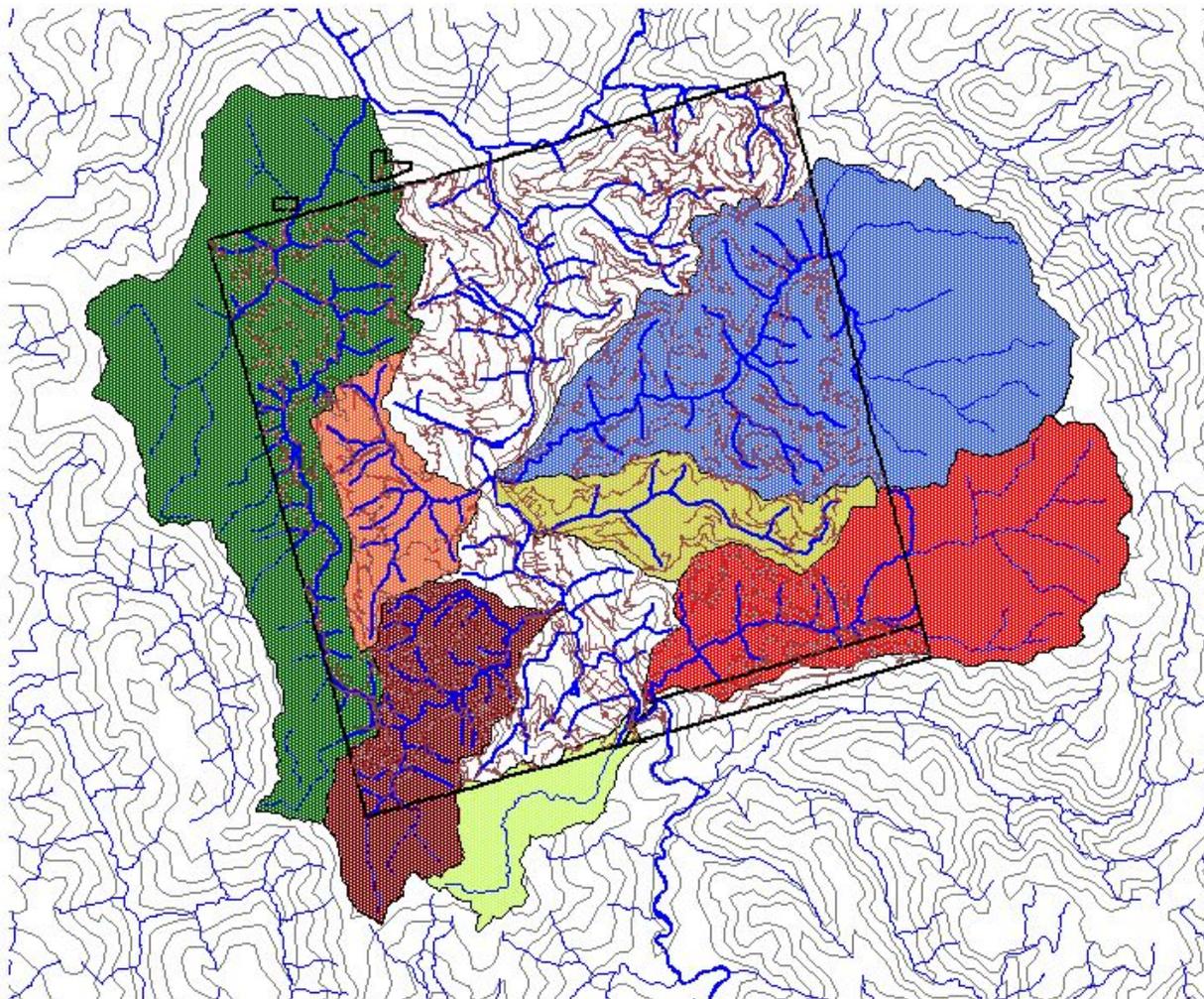


General Criteria

- Low in watershed
- Existing access
- Close to valley
- Stable terrain
- Sufficient stream flow



Hoopla Valley Hydrosheds



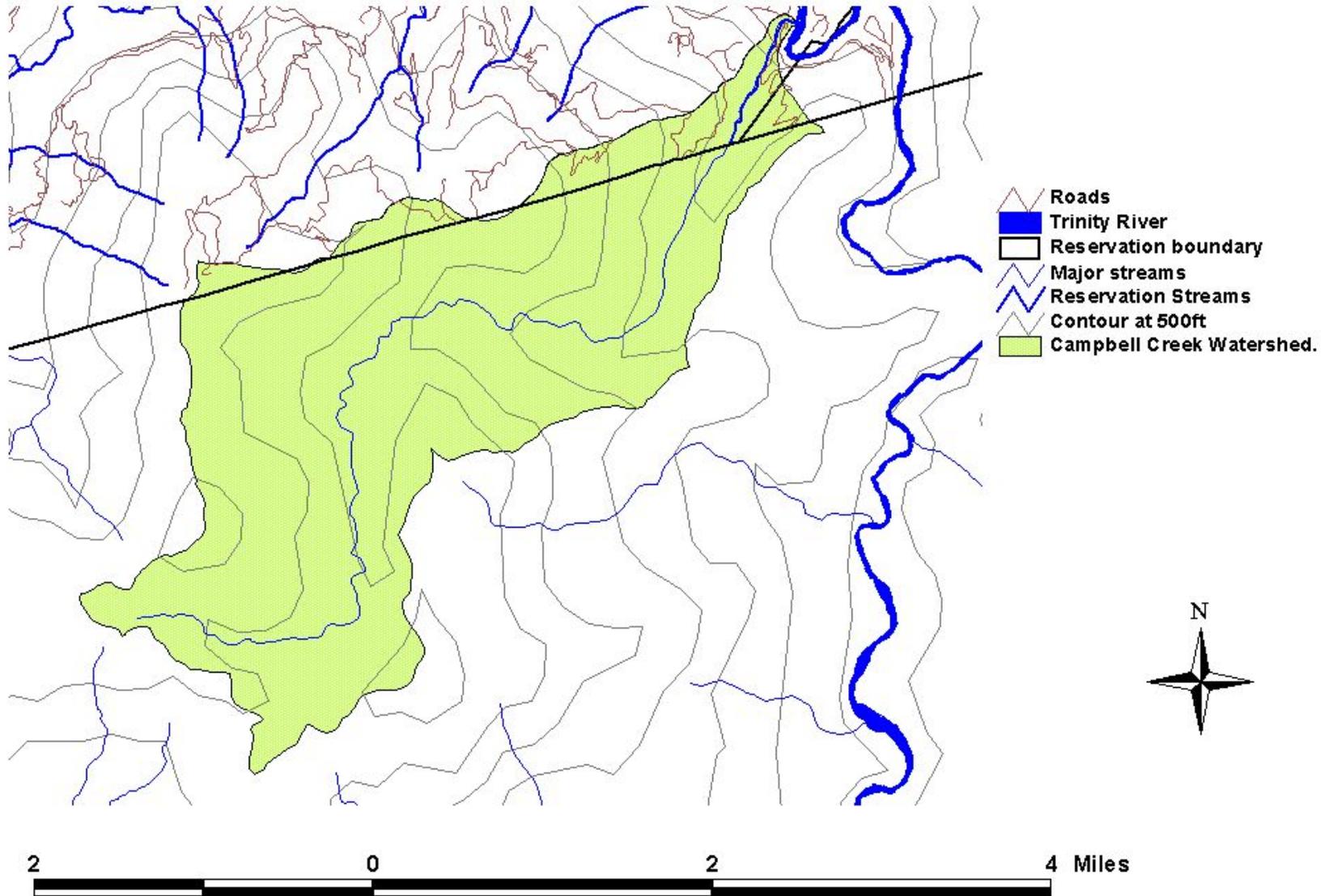
- △ Roads
- Trinity River
- Reservation boundary
- △ Major streams
- △ Reservation Streams
- Campbell_shed.shp
- Tish Tang Watershed
- Tish Tang Hydro Area
- Hostler Watershed
- Supply Creek Watershed
- Pine Creek Watershed
- Socktish Watershed
- Mill Creek Watershed
- △ Contour at 500ft



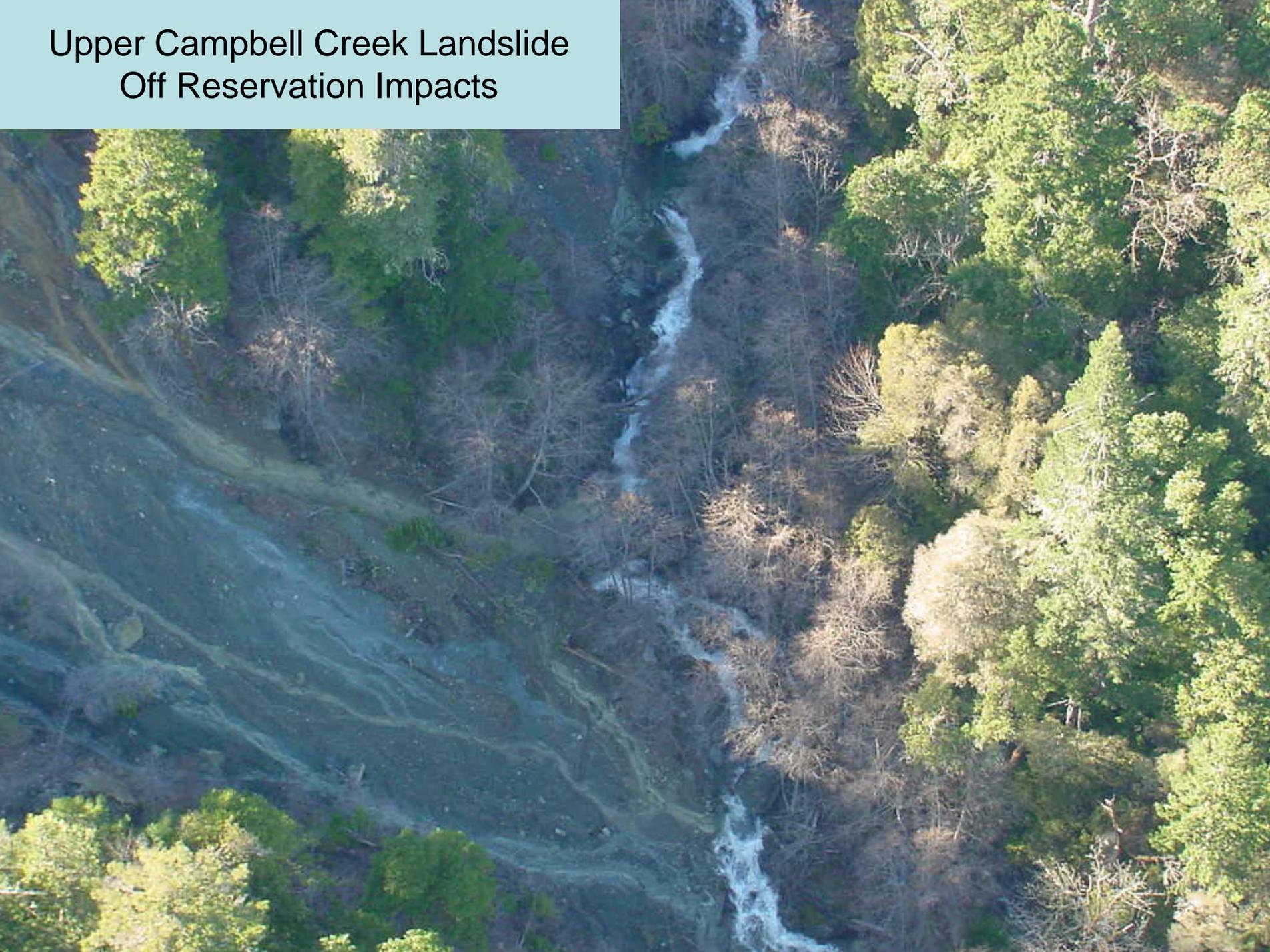
7 0 7 14 Miles

A scale bar showing distances in miles. The bar is divided into segments of 7 miles each, with a total length of 14 miles. The markings are at 7, 0, 7, and 14 miles.

Campbell Creek Watershed

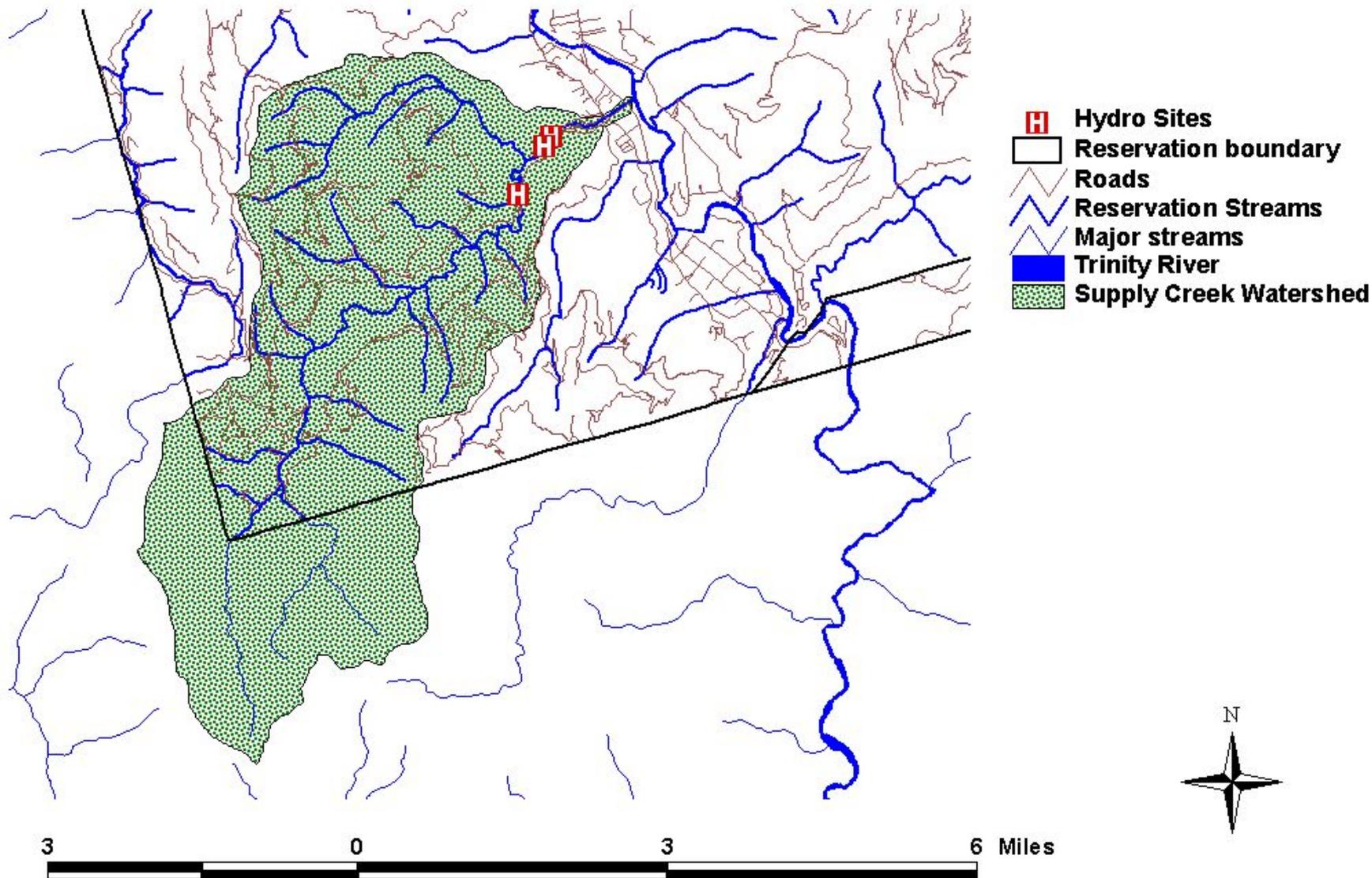


Upper Campbell Creek Landslide Off Reservation Impacts

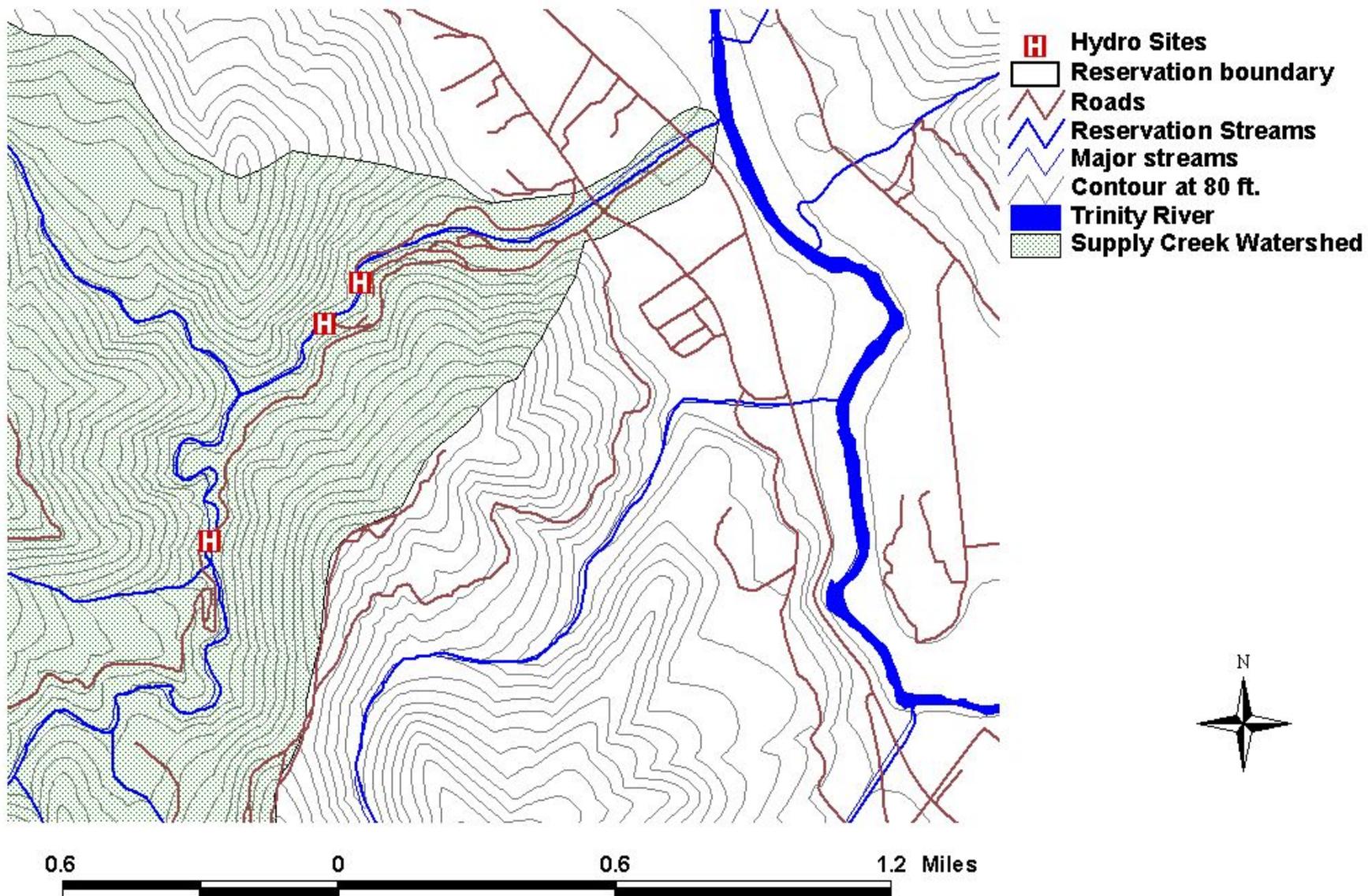




Supply Creek Watertshed



Lower Supply Hydro sites





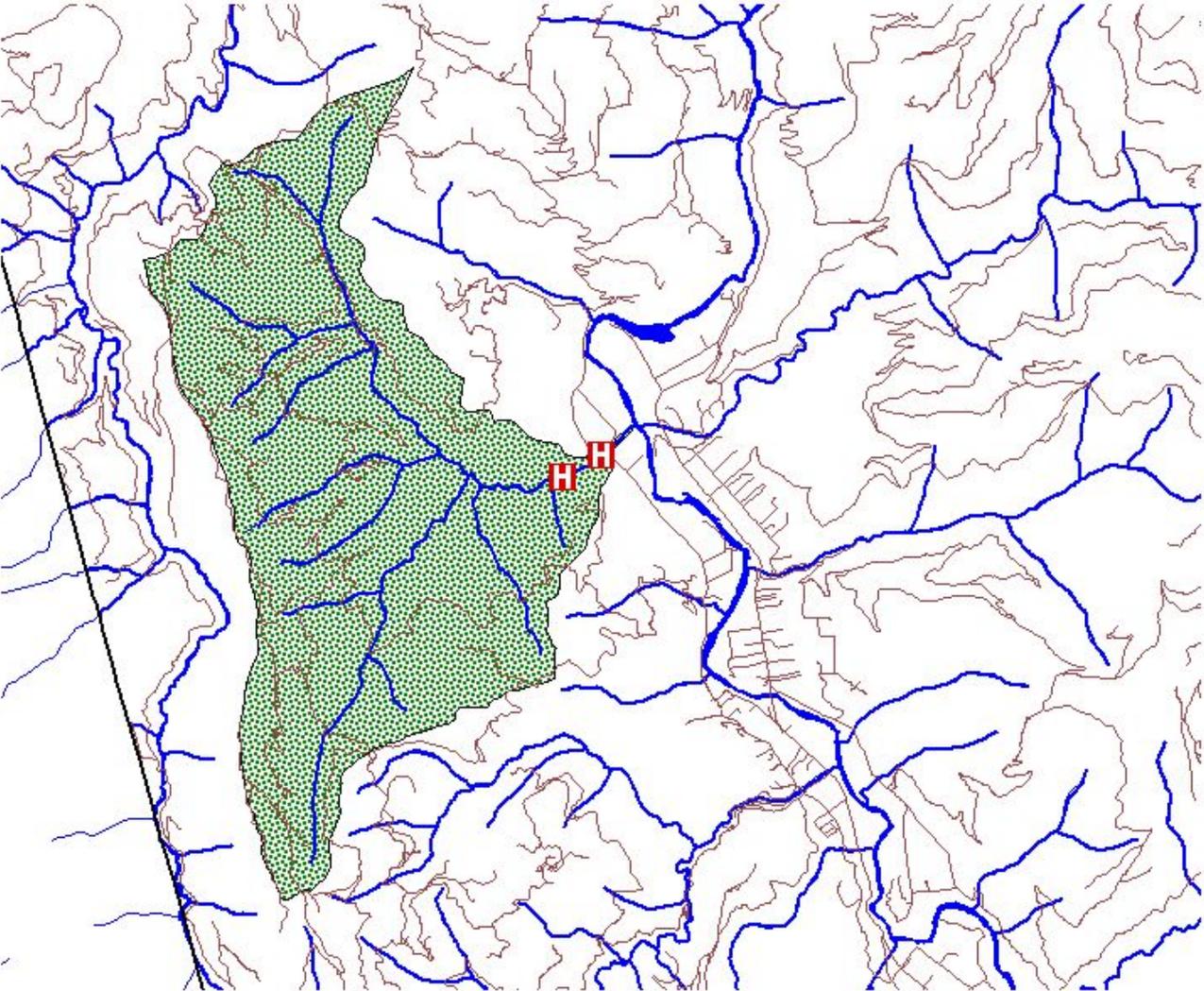






Gradient 160 feet per 1000

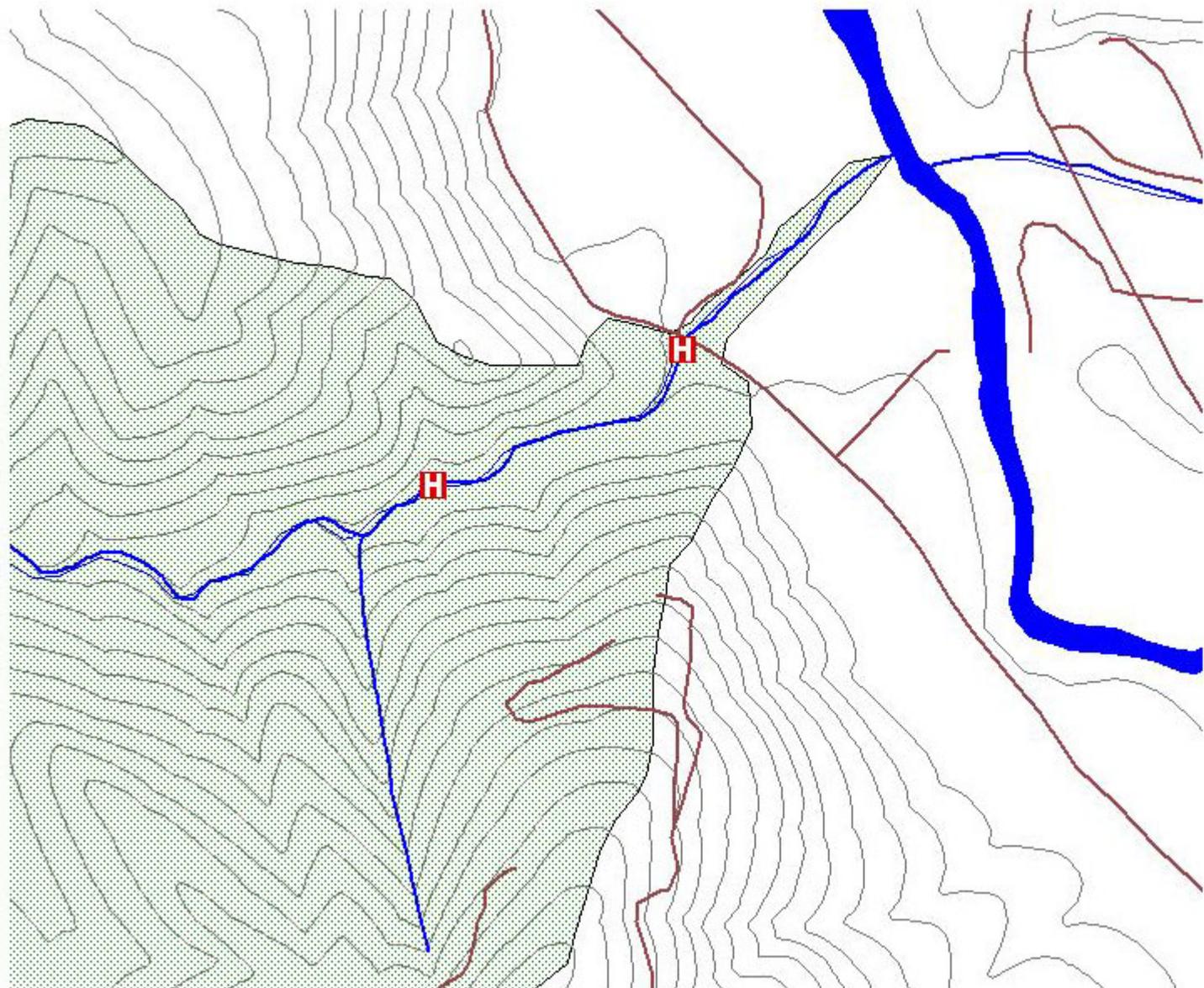
Soctish Watershed



-  Hydro Sites
-  Reservation boundary
-  Roads
-  Reservation Streams
-  Major streams
-  Trinity River
-  Soctish Watershed



Lower Soctish Hydro Sites



-  Hydro Sites
-  Reservation boundary
-  Roads
-  Reservation Stream
-  Major streams
-  Trinity River
-  Contour at 80 ft.
-  Soctish Watershed





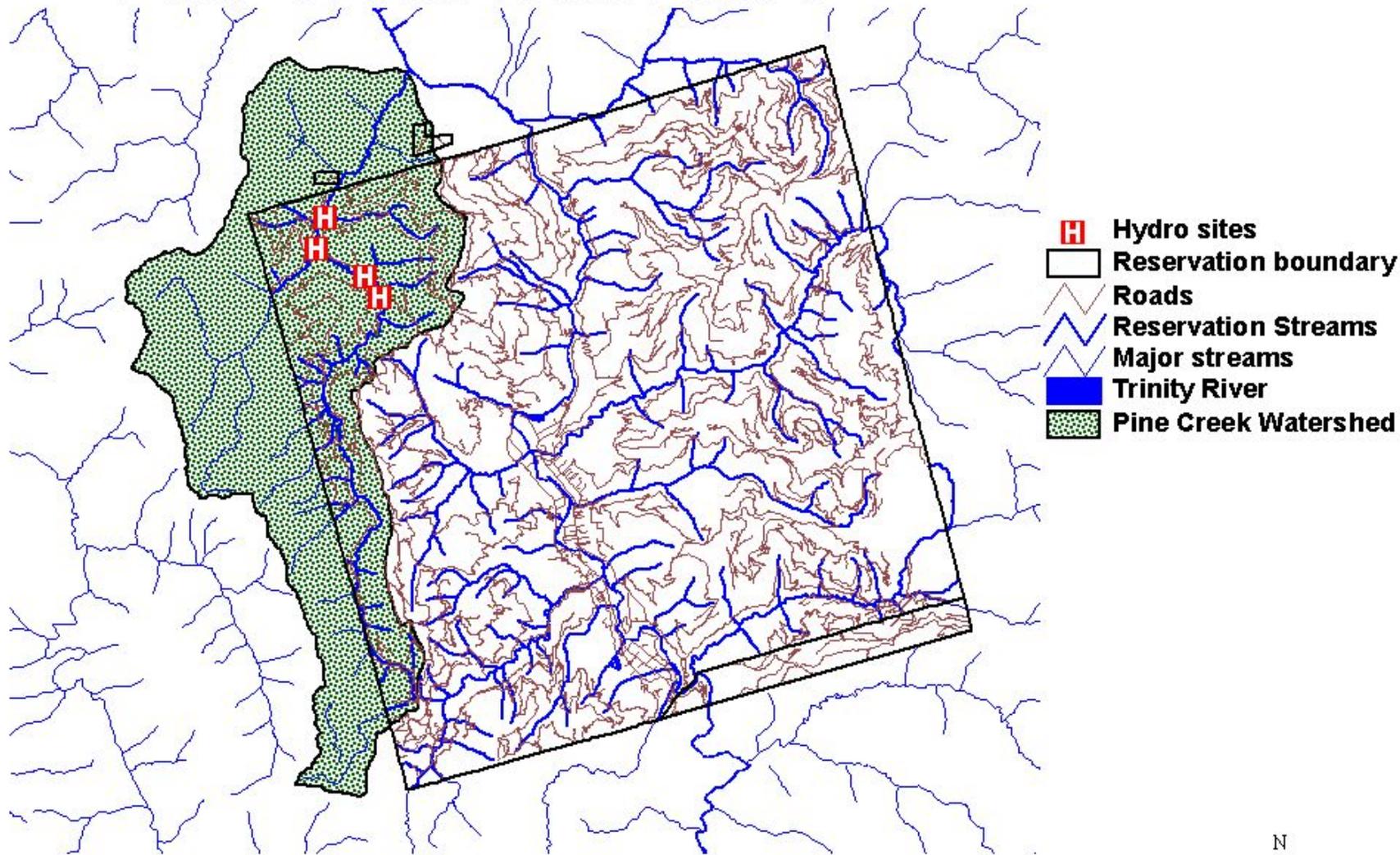


Agricultural
Water





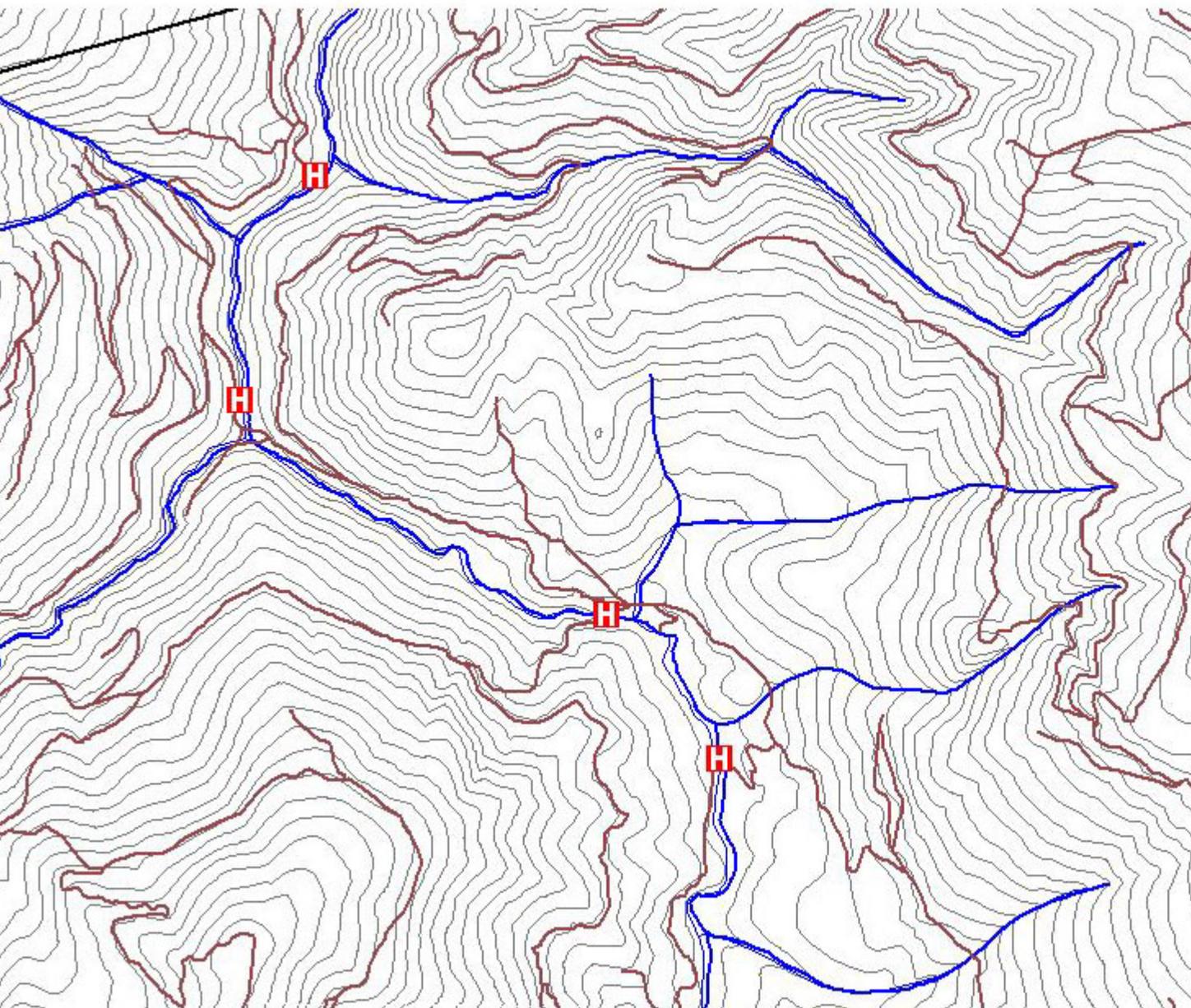
Pine Creek Watershed



- Hydro sites
- Reservation boundary
- Roads
- Reservation Streams
- Major streams
- Trinity River
- Pine Creek Watershed



Pine Creek Hydro Sites



-  Hydro sites
-  Reservation bound
-  Roads
-  Reservation Stream
-  Major streams
-  Trinity River
-  Contour at 80 ft.



1 0 1 2 Miles









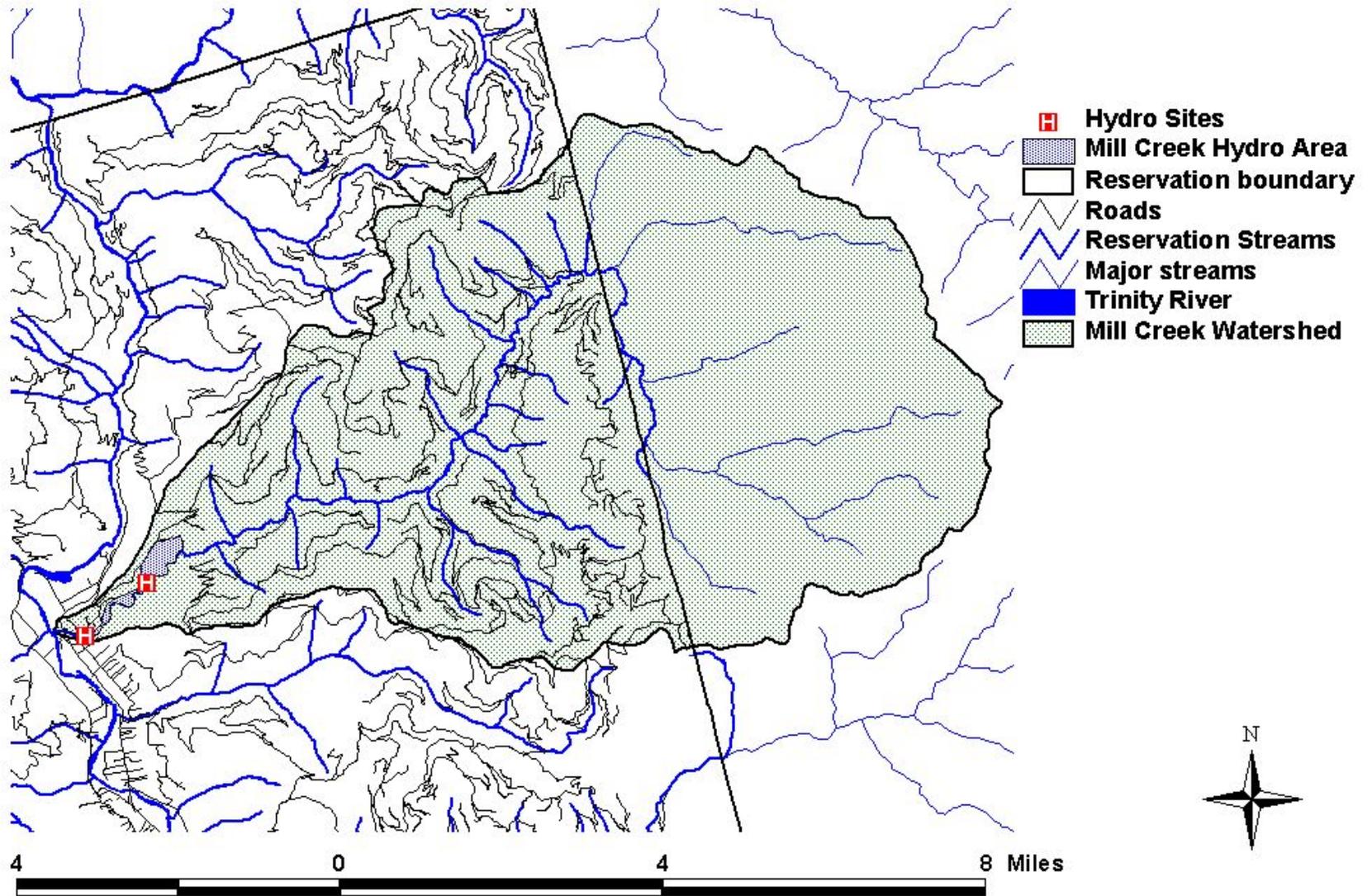
Gradient
80 feet head
per 1000 feet
of stream



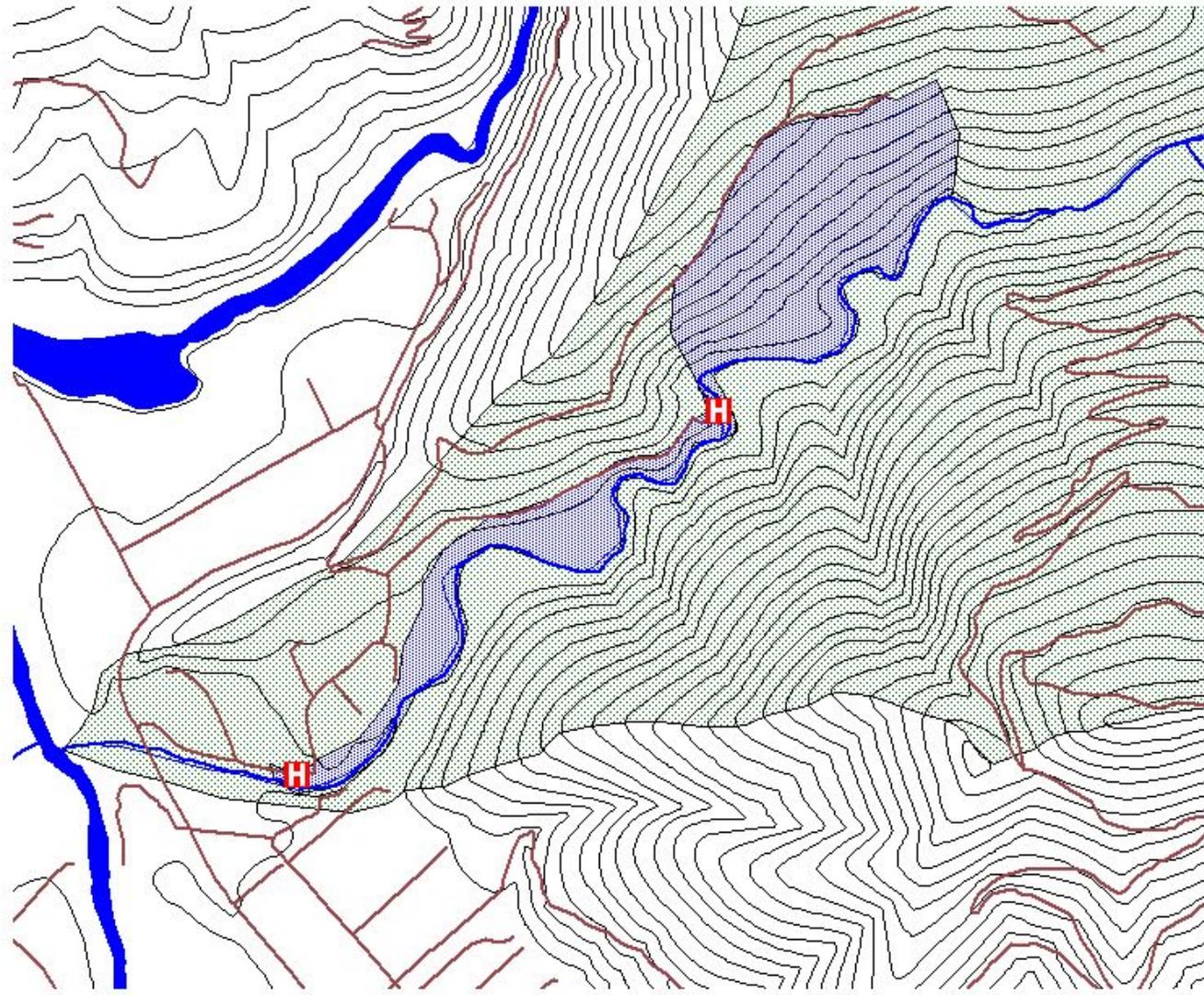




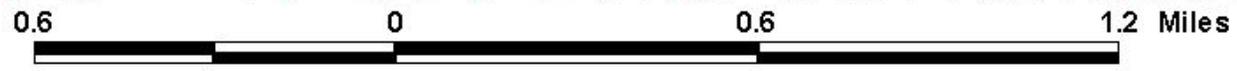
Mill Creek Watershed



Lower Mill Creek



- Hydro Sites
- Reservation boundary
- Roads
- Reservation Streams
- Major streams
- Trinity River
- Contour at 80 ft.
- Mill Creek Hydro Area
- Mill Creek Watershed



Lower Mill Creek Site



Est. Gradient 60 feet head
per 1000 foot of stream



Drinking Water
Intake





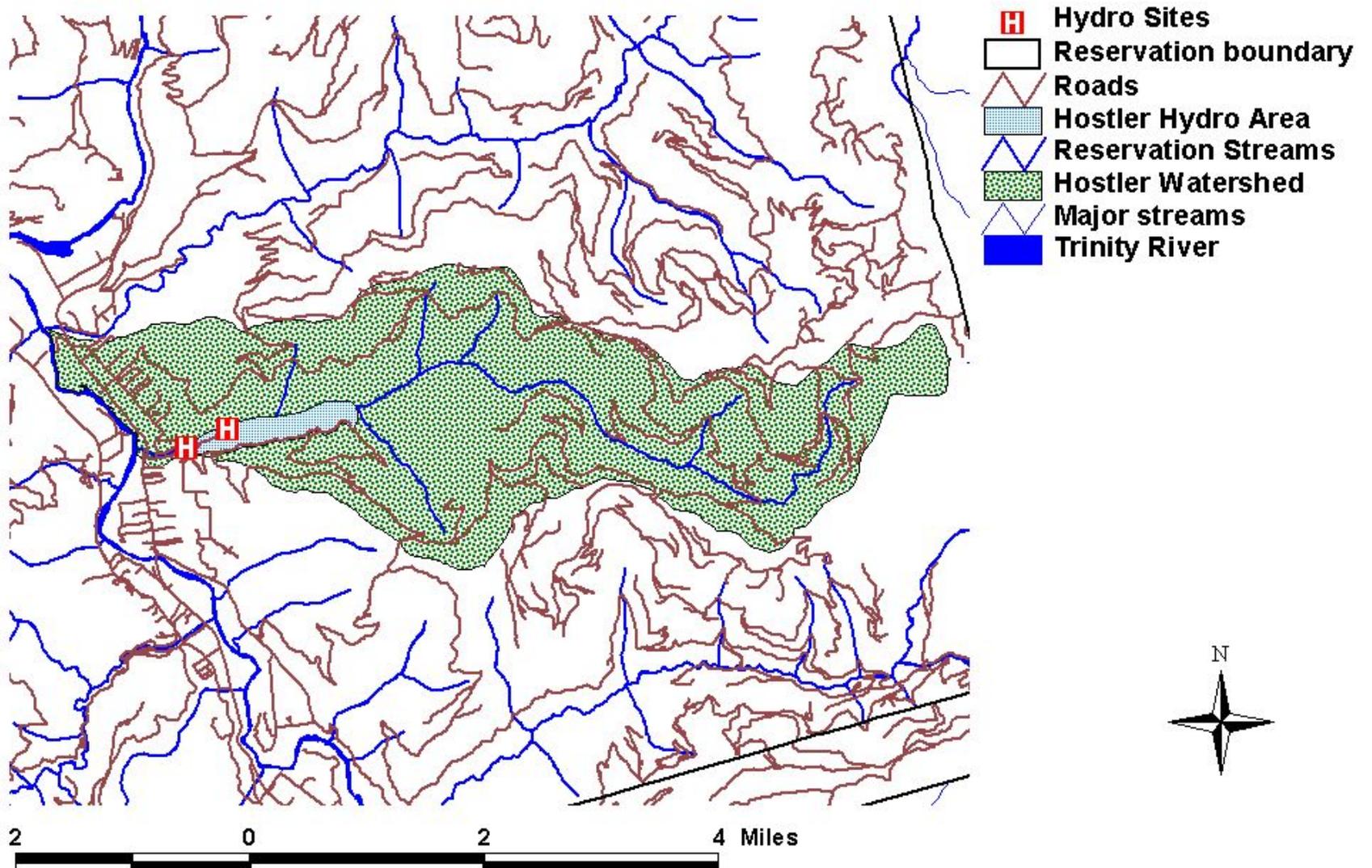


Issues with piping

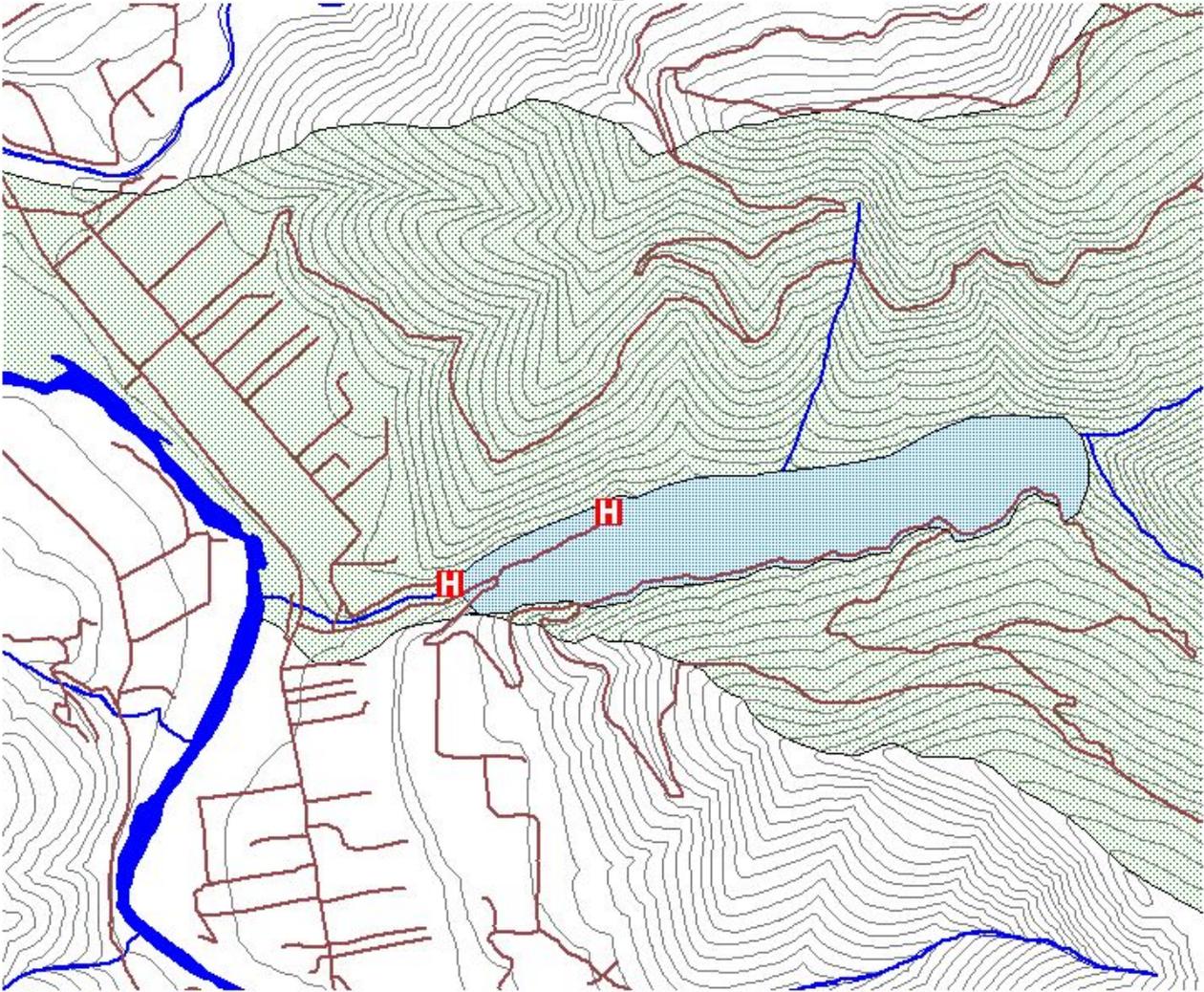




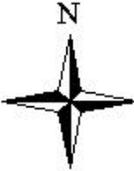
Hostler Creek Watershed



Lower Hostler Hydro Sites



- Hydro Sites
- Reservation boundary
- Roads
- Hostler Hydro Area
- Reservation Streams
- Trinity River
- Contour at 80 ft.
- Hostler Watershed
- Major streams





Entrenched
Barrier



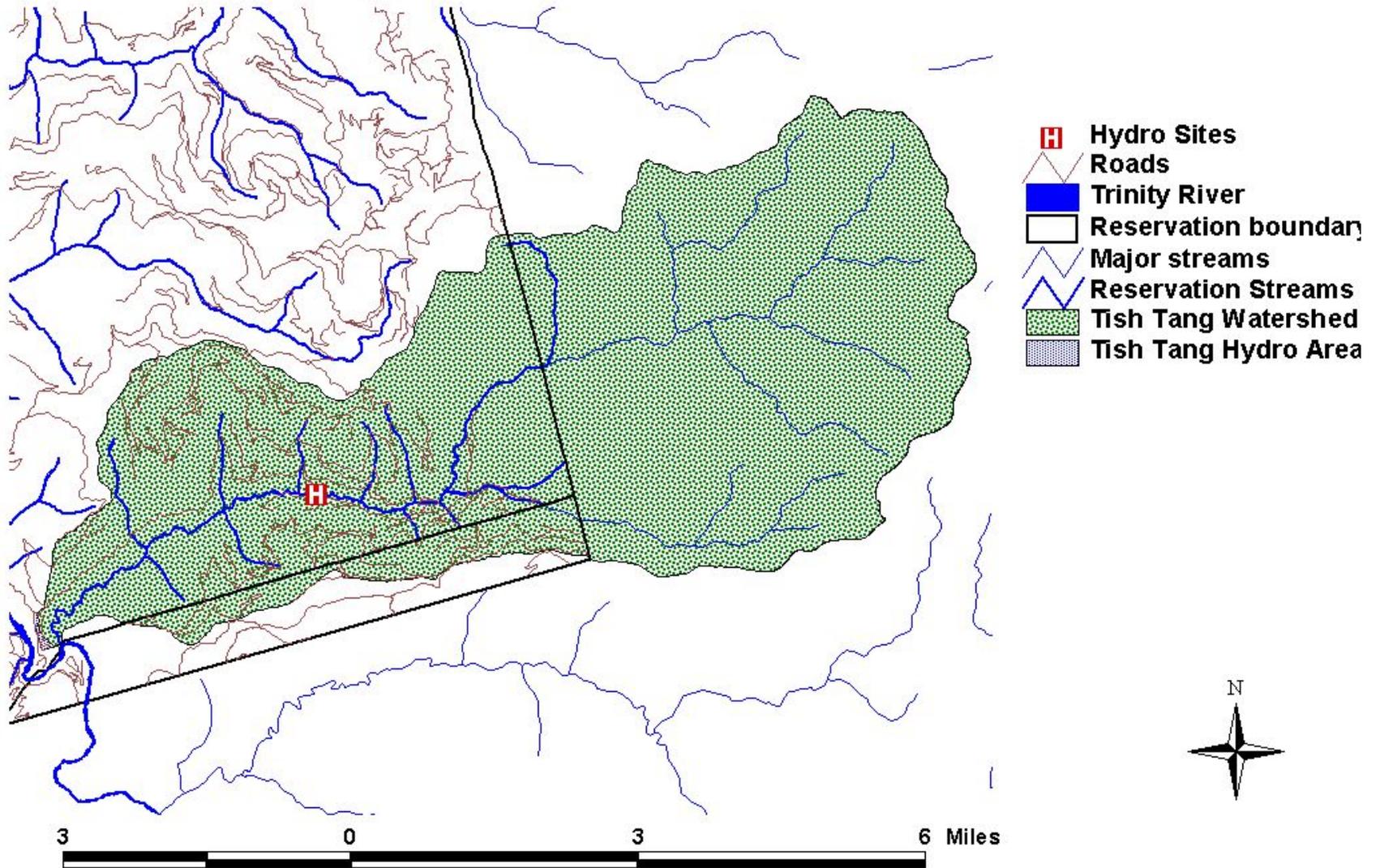
Steep Gradient

Est. 160 feet head
per 1000 feet stream

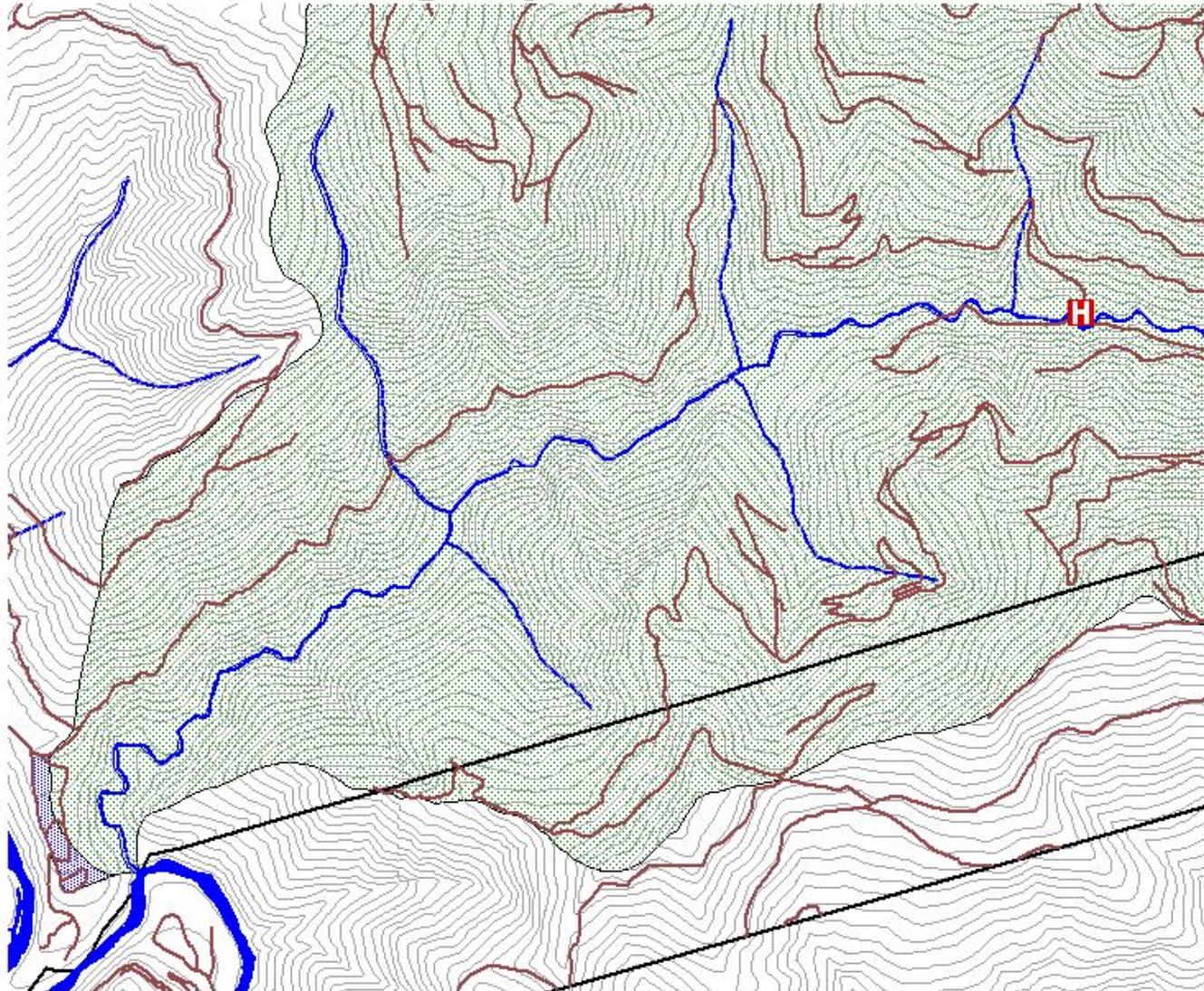




Tish Tang Watershed



Tish Tang Hydro Sites



-  Hydro Sites
-  Roads
-  Trinity River
-  Reservation boundary
-  Major streams
-  Contour at 80 ft.
-  Reservation Streams
-  Tish Tang Watershed
-  Tish Tang Hydro Area



1 0 1 2 Miles

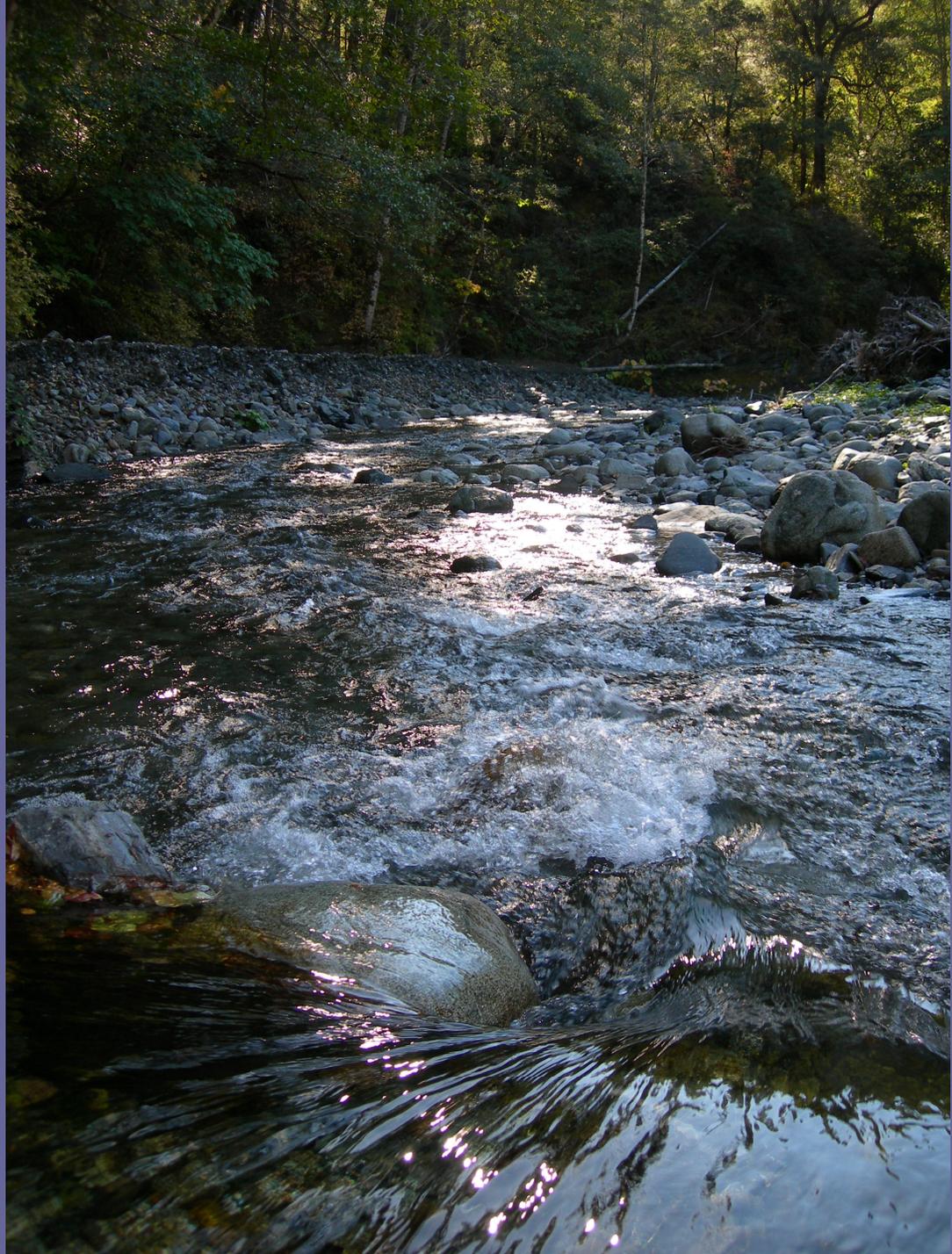
A horizontal scale bar with four segments. The first segment is labeled '1', the second '0', the third '1', and the fourth '2 Miles'.





Gradient

80 feet head
per 1000 foot
of stream



Upper Site



Steep gradient

200 feet head per
1000 foot of stream







Cultural Sites

Wrap up

- Do we have potential – YES
- Substantial investment – YES
- Cost benefit – potentially high benefit

