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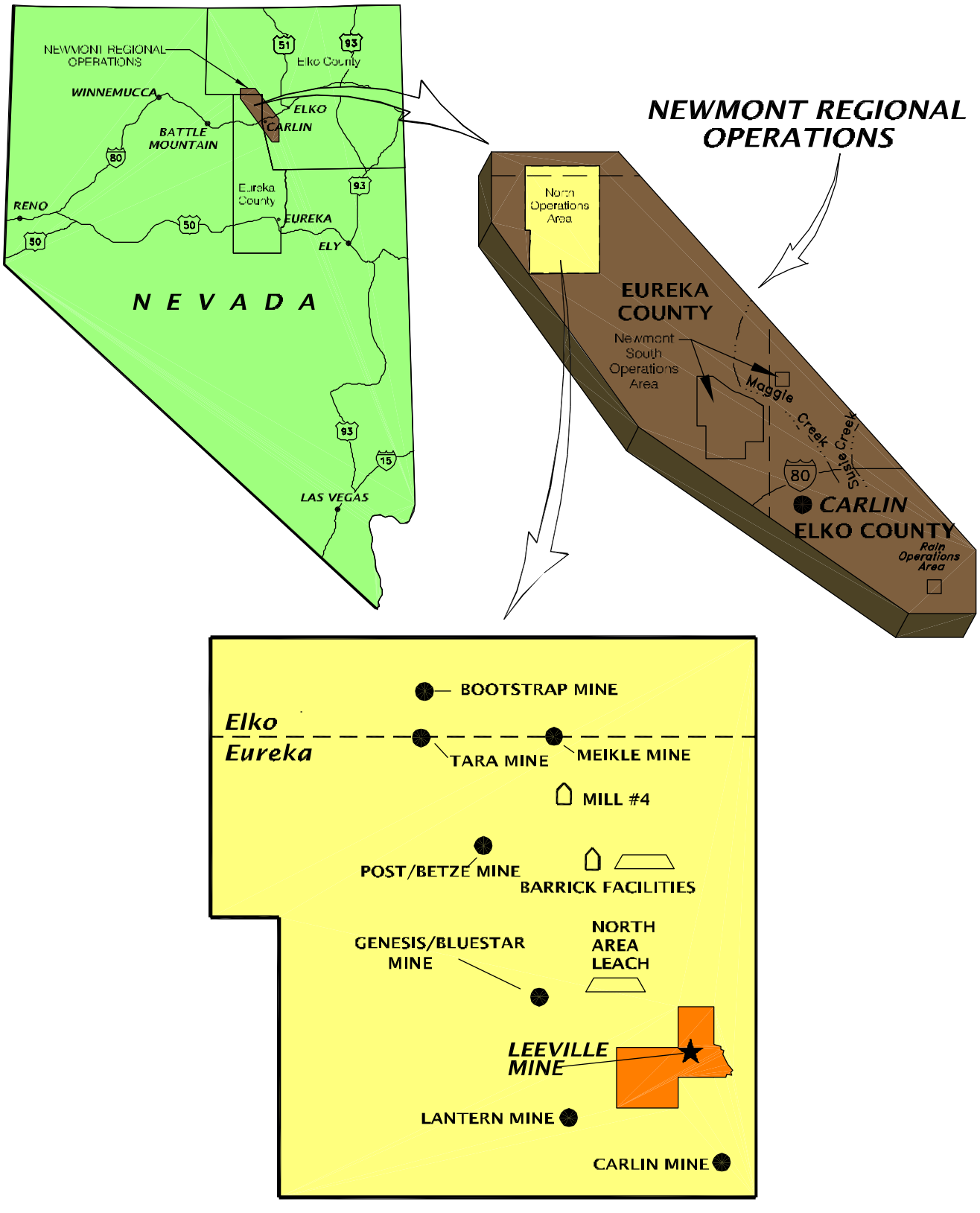
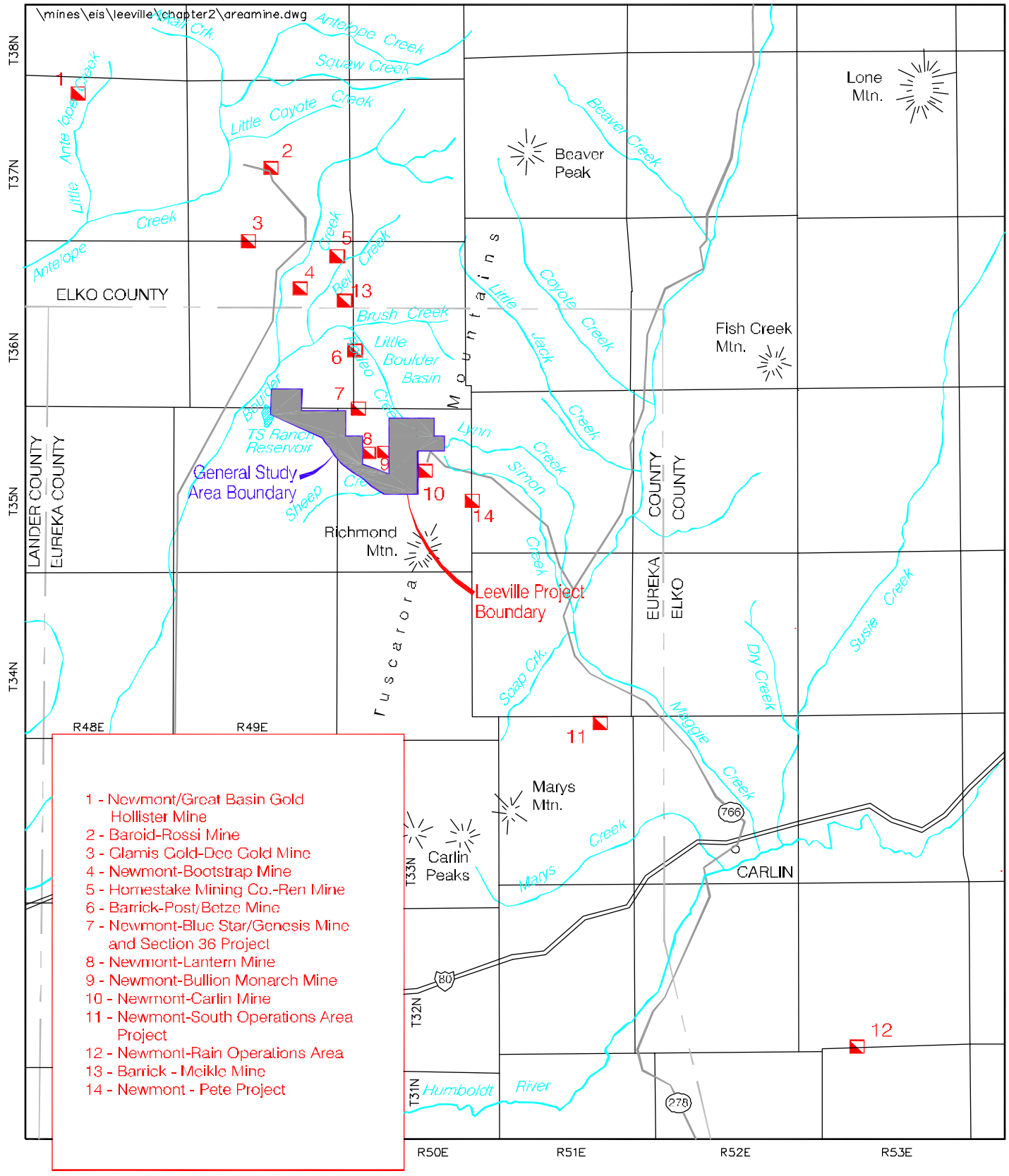


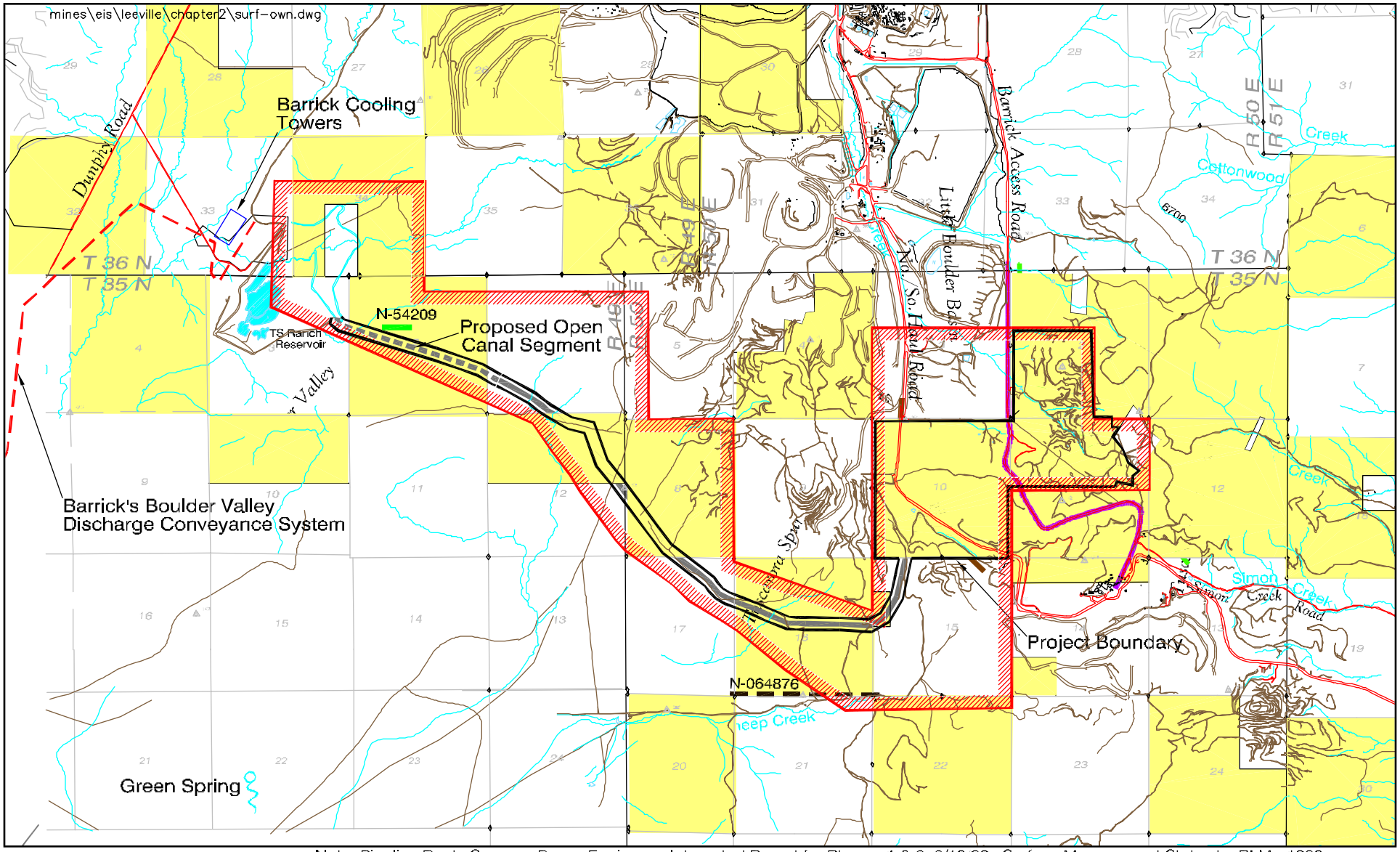
N

General Location Map
Leeville Project
FIGURE 1-1

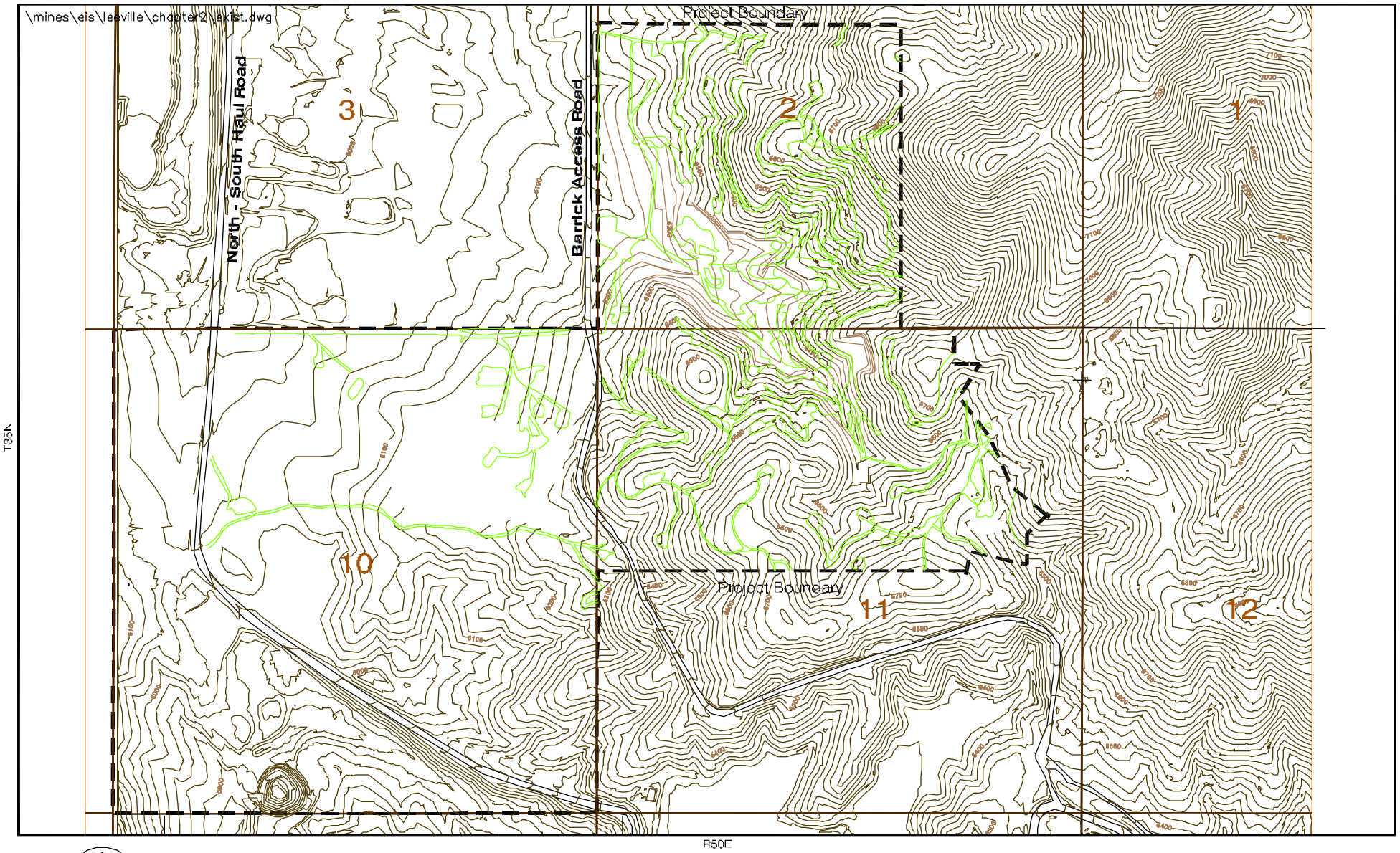


1 - Newmont/Great Basin Gold Hollister Mine
2 - Baroid-Rossi Mine
3 - Glamis Gold-Dee Gold Mine
4 - Newmont-Bootstrap Mine
5 - Homestake Mining Co.-Ren Mine
6 - Barrick-Post/Betze Mine
7 - Newmont-Blue Star/Genesis Mine and Section 36 Project
8 - Newmont-Lantern Mine
9 - Newmont-Bullion Monarch Mine
10 - Newmont-Carlin Mine
11 - Newmont-South Operations Area Project
12 - Newmont-Rain Operations Area
13 - Barrick - Meikle Mine
14 - Newmont - Pete Project

Major Mines in the Carlin Trend
Leeville Project
FIGURE 2-1



Surface and Mineral Ownership/ROW
Leeville Project
FIGURE 2-2



Exploration Disturbance - Leeville Project Area
Leeville Project
FIGURE 2-3

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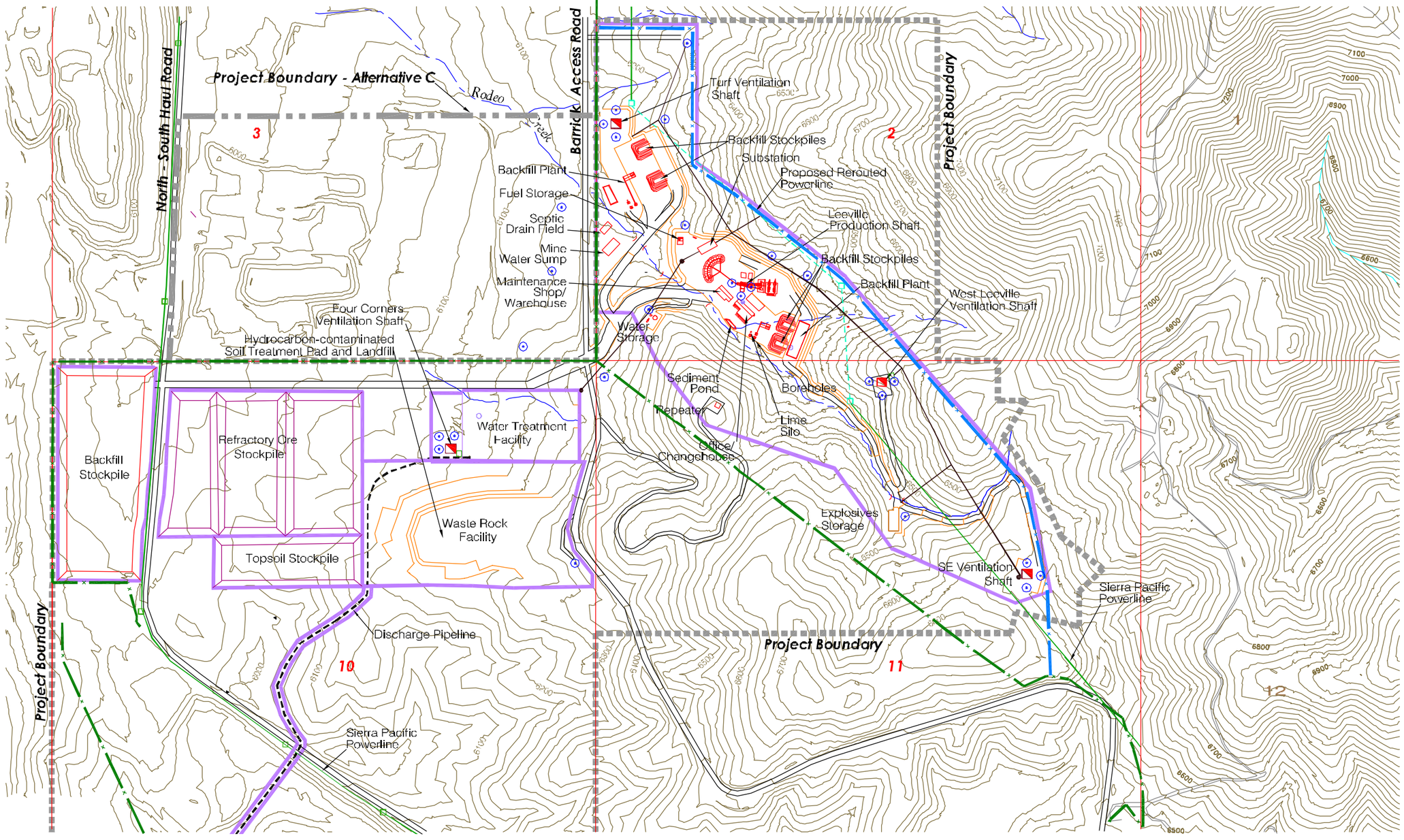


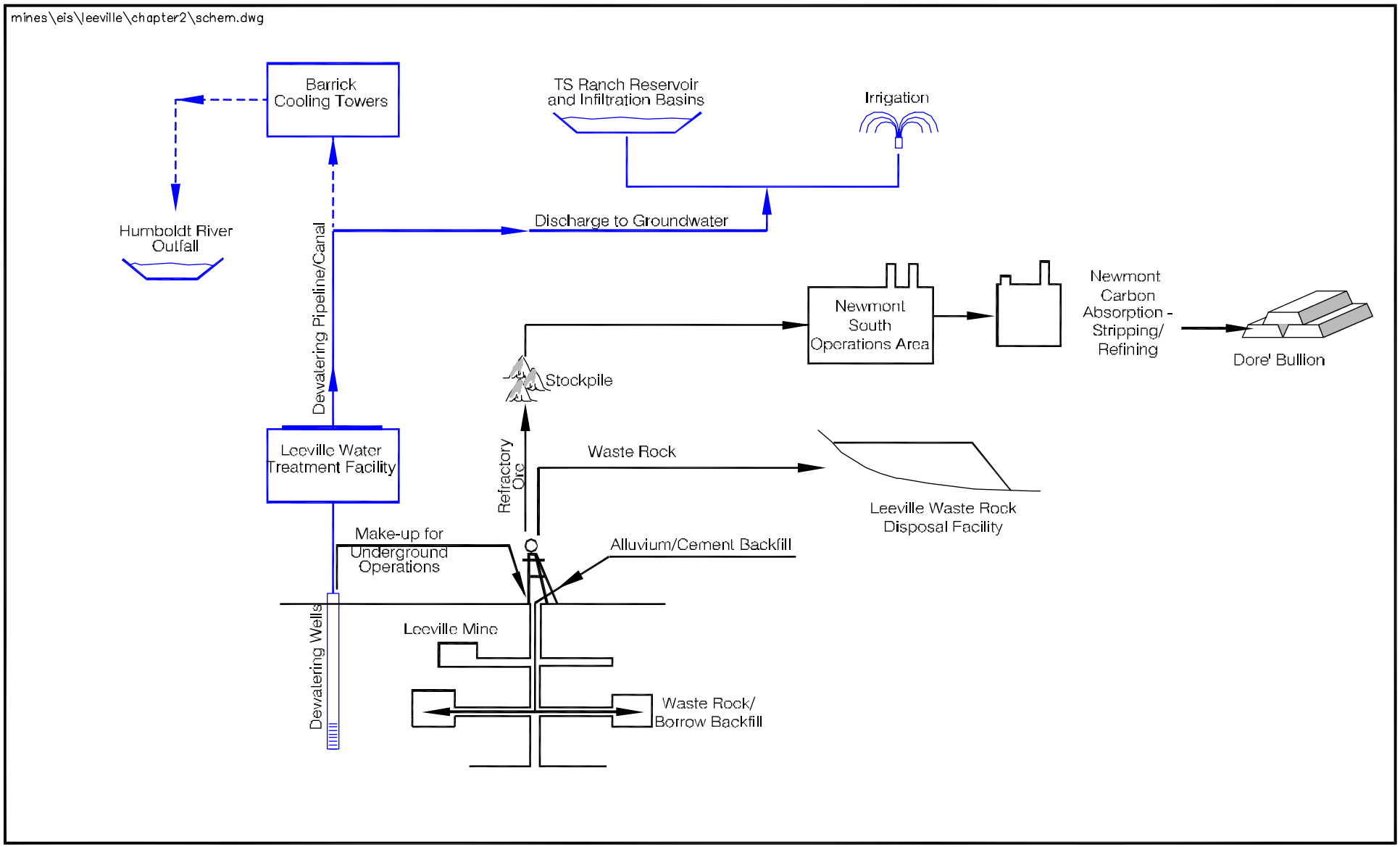
Contour Interval = 25'

N

0 Feet 1000

- Proposed Power Distribution Lines
- Existing Sierra Pacific Powerline
- Rerouted Powerline
- Project Boundary
- Proposed Dewatering Well
- Ditch/Creek and Culvert
- Shaft
- Proposed Facility Boundary
- Proposed Fence
- Existing Fence

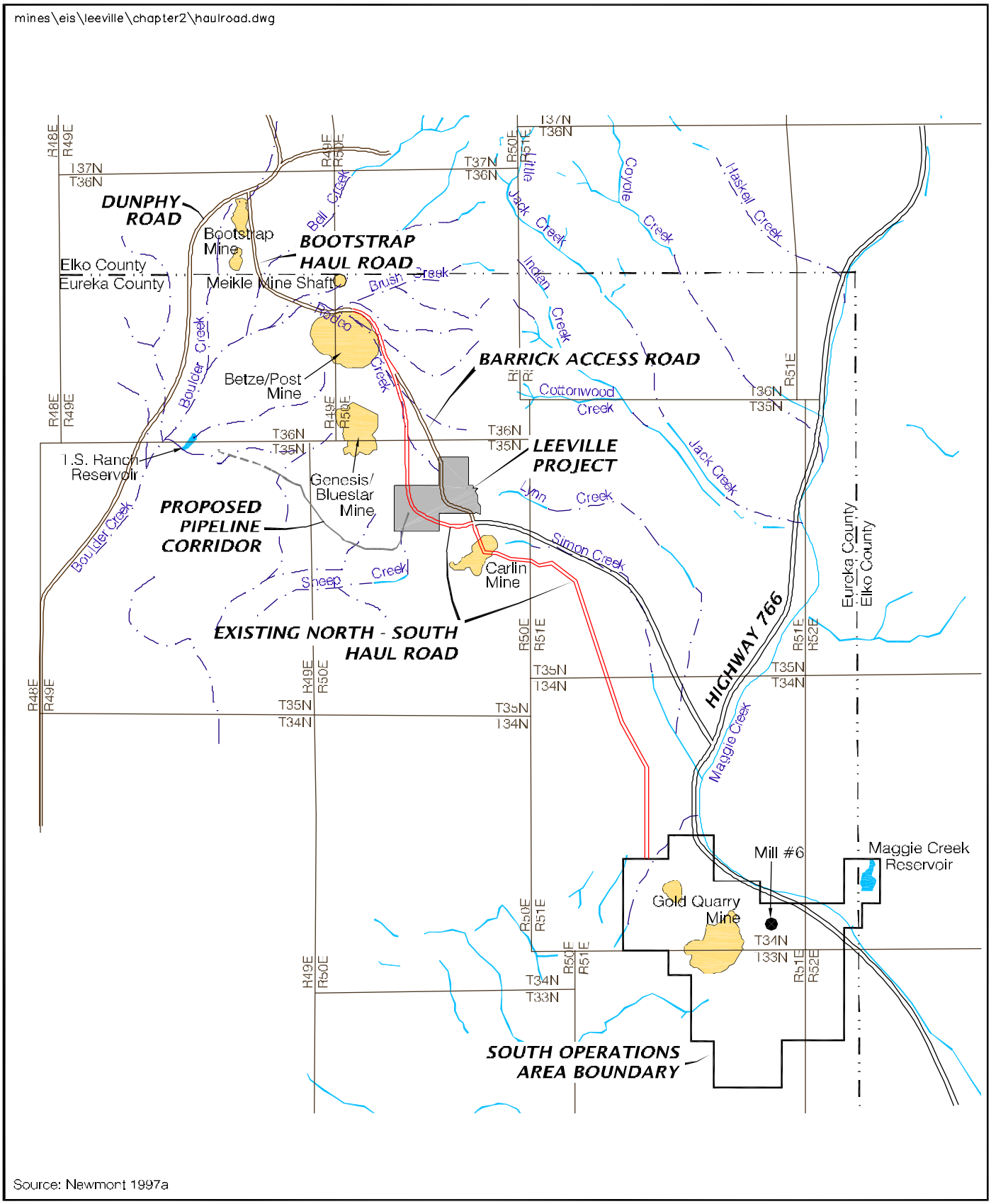
Proposed Operations
Road Network Modification
Leeville Project
FIGURE 2-4



Groundwater Discharge

Requires Authorization of State Engineer

Schematic of Proposed
Mining and Water Handling Operations
Leeville Project
FIGURE 2-5



Source: Newmont 1997a

N

0 Miles 3

North - South Haul Road
Barrick Haul and Access Road
Paved Road
Project Area
Perennial Stream Segment
Intermittent Steam Segment

Haul Road Locations
to South Operations Area
Leeville Project
FIGURE 2-6

mines\eis\leeville\chapter2\dewater.dwg

Barrick Water Treatment Plant/ Cooling Towers

Existing Barrick Cooling Channel

TS Ranch Reservoir

Proposed Open Canal Segment

Proposed Pipeline Corridor

Existing Pipeline

Barrick's Boulder Valley Conveyance System

Discharge

Water Treatment Facility

Project Boundary

NORTH SOUTH HAUL ROAD

BARRICK ACCESS ROAD

DUNPHY ROAD

TO STATE HIGHWAY 766

NORTH SOUTH HAUL ROAD

Boulder Creek

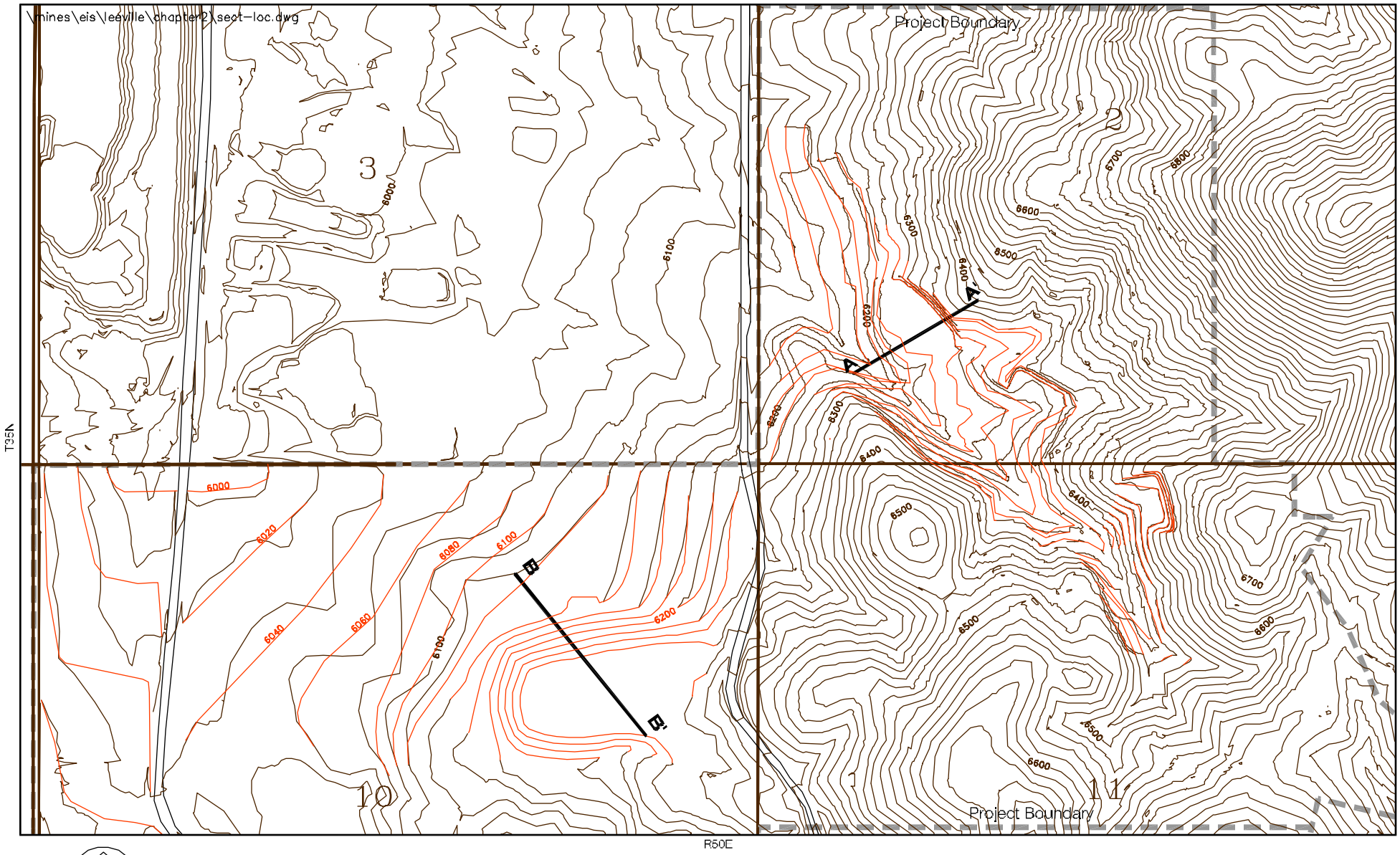
Source: Pipeline information is from Power Engineers Plan Set, 10/97
Note: Contour interval = 100'

N

0 Feet 4000

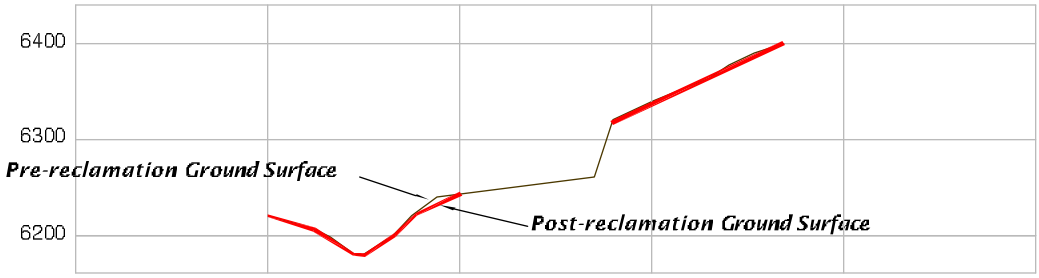
Proposed Pipeline Corridor
Existing Pipeline
Primary Access and Haul Roads
100' Contour

Dewatering Discharge Pipeline Route
Leeville Project
FIGURE 2-7

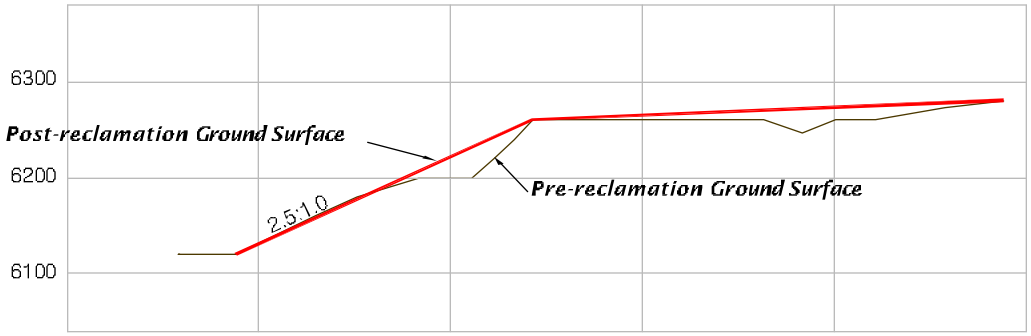


Post-Reclamation Topography
with Cross Section Locations
Leeville Project
FIGURE 2-8

\mines\eis\leeville\chapter2\postxsec.dwg



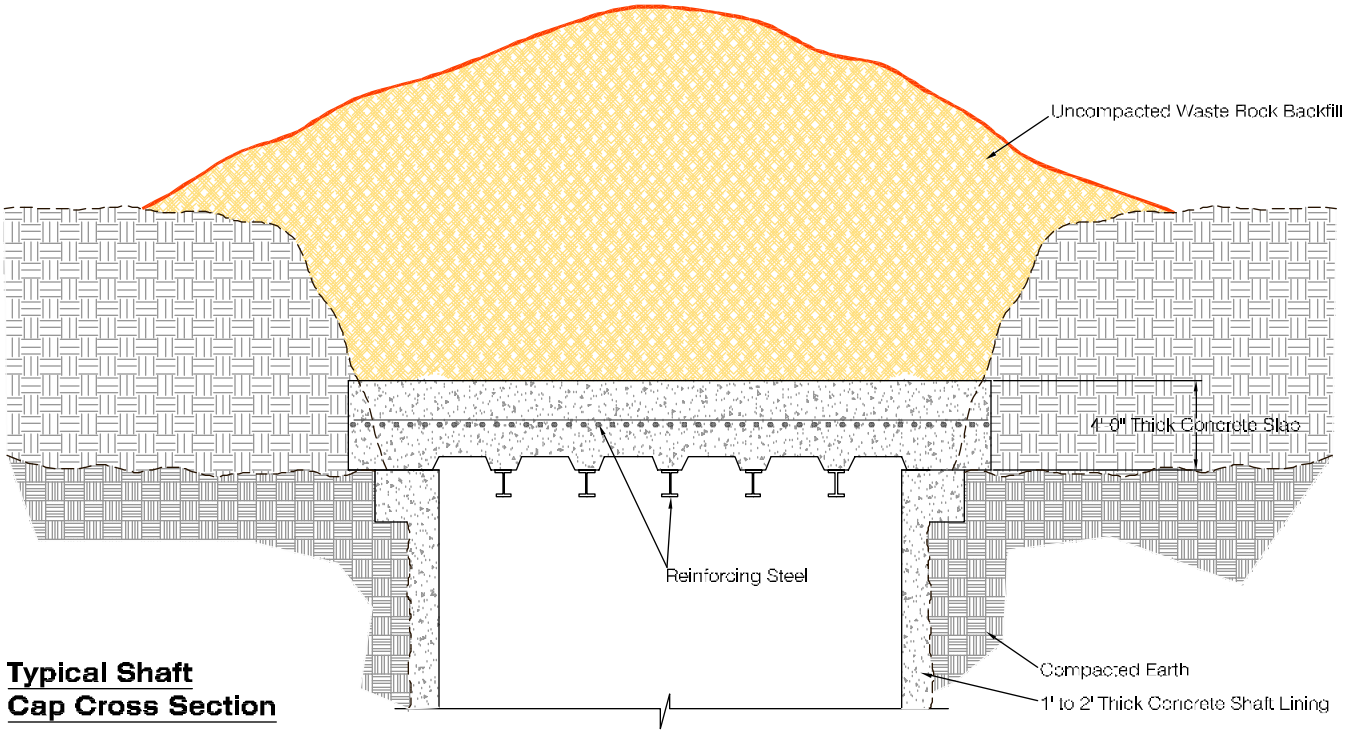
SECTION A-A'
For Cross Section Location See Figure 2-8
Horiz. Scale: 1"=500'



SECTION B-B'
For Cross Section Location See Figure 2-8
Horiz. Scale: 1"=500'

Post-Reclamation Cross Sections
Leeville Project
FIGURE 2-9

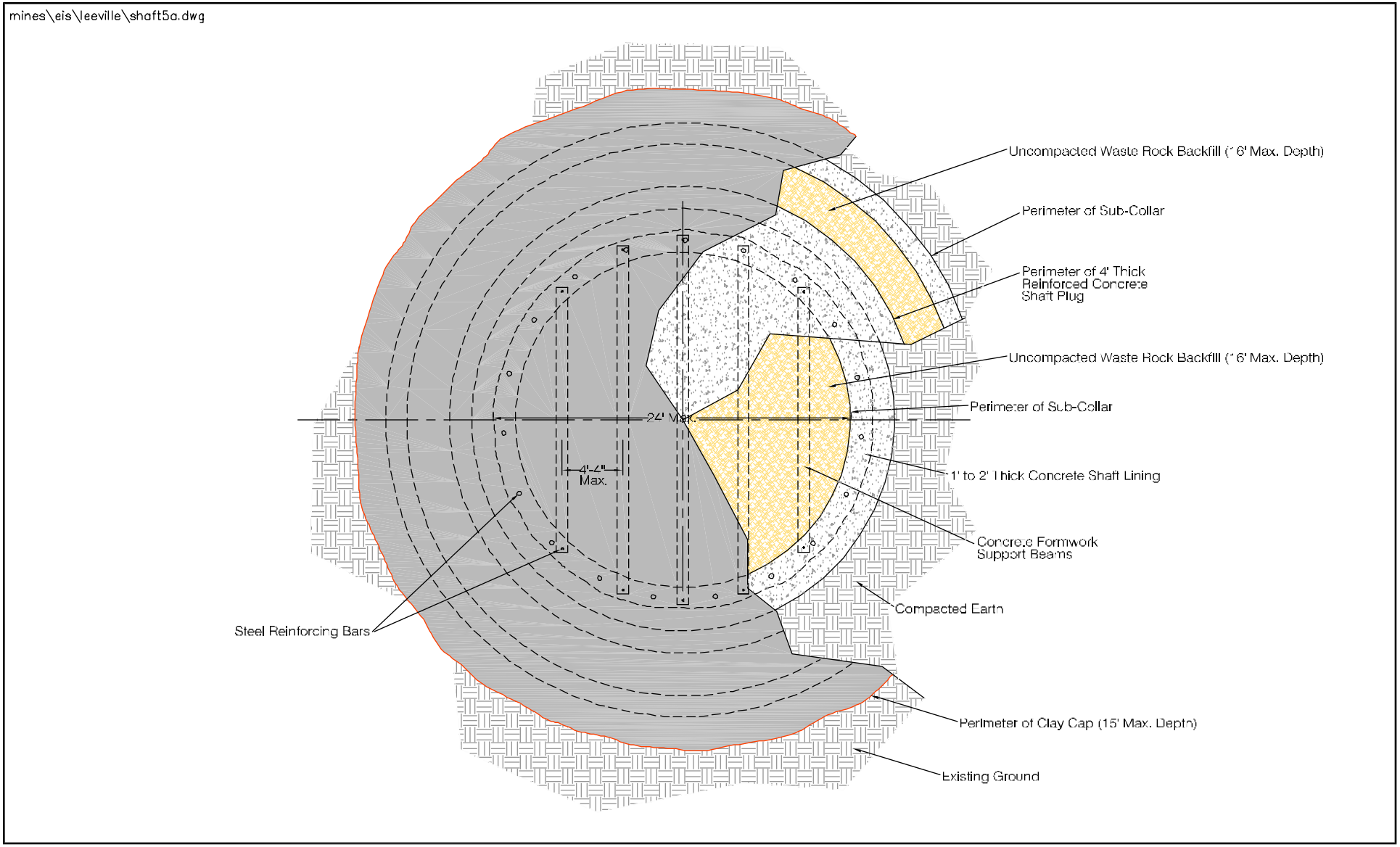
mines\eis\leeville\chapter2\shaft4a.dwg



Typical Shaft Cap Cross Section

0 Feet 50

Typical Shaft Cap Cross Section
Leeville Project
FIGURE 2-10



Conceptual Shaft Cap Plan
Leeville Project
FIGURE 2-11

mines\eis\leeville\cadpro\chapter2\alt-c.dwg

Project Boundary - Alternative C

North - South Haul Road

Barrick Access Road

Rodeo Creek

Refractory Ore Stockpile Base

Hydrocarbon-contaminated Soil Treatment Pad and Landfill

Refractory Ore Stockpiles

Waste Rock Disposal Facility

Backfill Plant

Fuel Storage

Septic Drain Field

Mine Water Sump

Maintenance Shop/ Warehouse

Water Storage

Turf Ventilation Shaft

Backfill Stockpiles

Substation

Proposed Rerouted Powerline

Leeville Production Shaft

Backfill Stockpiles

Backfill Plant

West Leeville Ventilation Shaft

Project Boundary

Sediment Pond

Repeater

Boreholes

Lime Silo

Office/ Changehouse

Explosives Storage

SE Ventilation Shaft

Sierra Pacific Powerline

Topsoil Stockpile

Water Treatment Facility

Four Corners Ventilation Shaft

Backfill Stockpile

Discharge Pipeline

Project Boundary

Sierra Pacific Powerline

Project Boundary

1 2 3 10 11 12

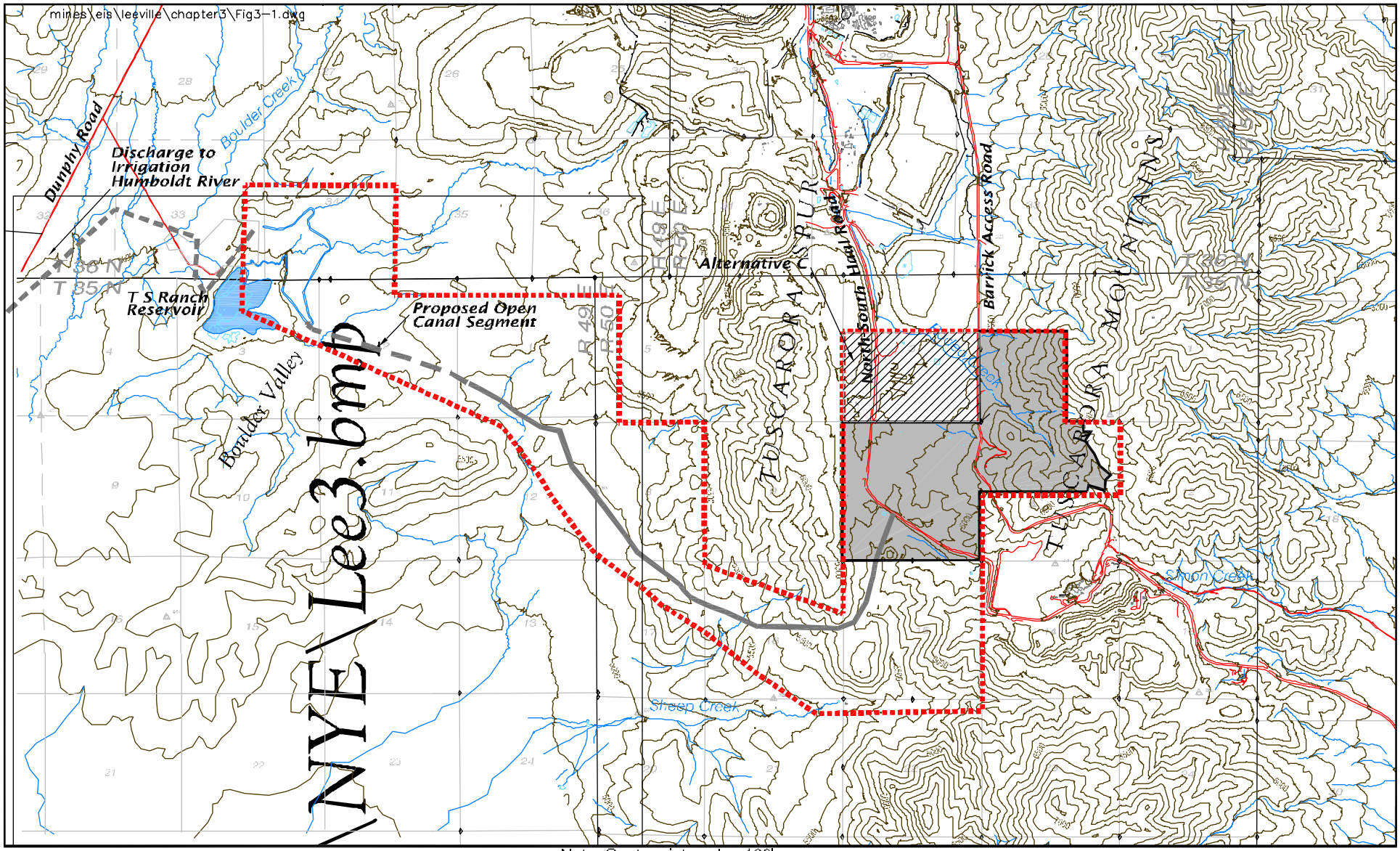
Contour Interval = 25'

N

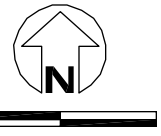
0 Feet 1000

- Proposed Power Distribution Lines
- Existing Sierra Pacific Powerline
- Rerouted Powerline
- Project Boundary
- Project Boundary - Alternative C
- Ditch/Creek and Culvert
- Shaft
- Proposed Facility Boundary
- Proposed Fence
- Existing Fence

Alternative C
Leeville Project
FIGURE 2-12



Note: Contour interval = 100'

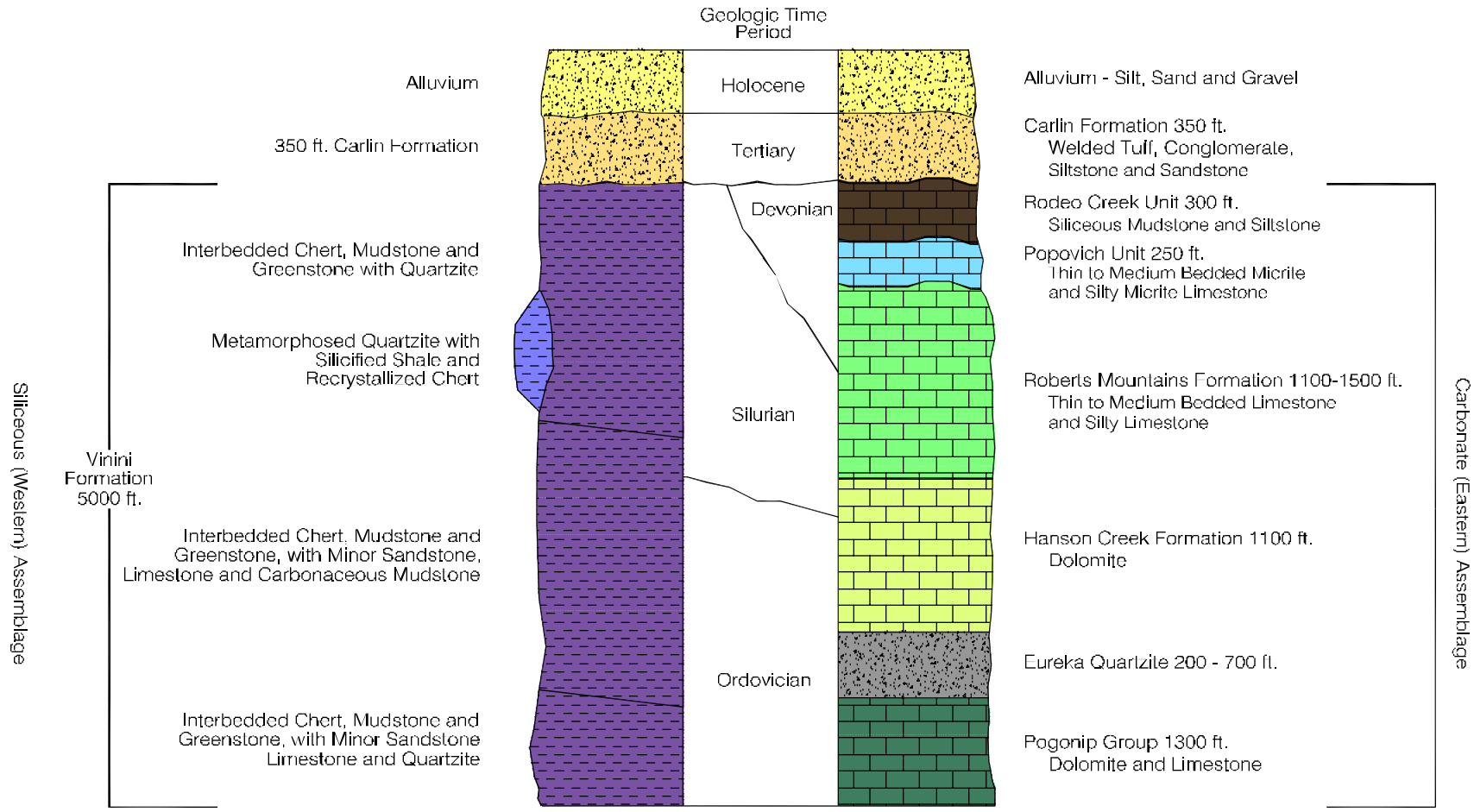


Legend

- General Study Area Boundary (Geology and Minerals, Paleontology, Soil, Vegetation, Invasive Nonnative Species and Cultural Resources)
- Leeville Project Area
- Alternative C Project Area
- Pipeline Route
- Main Access Road
- Discharge/Existing Pipeline

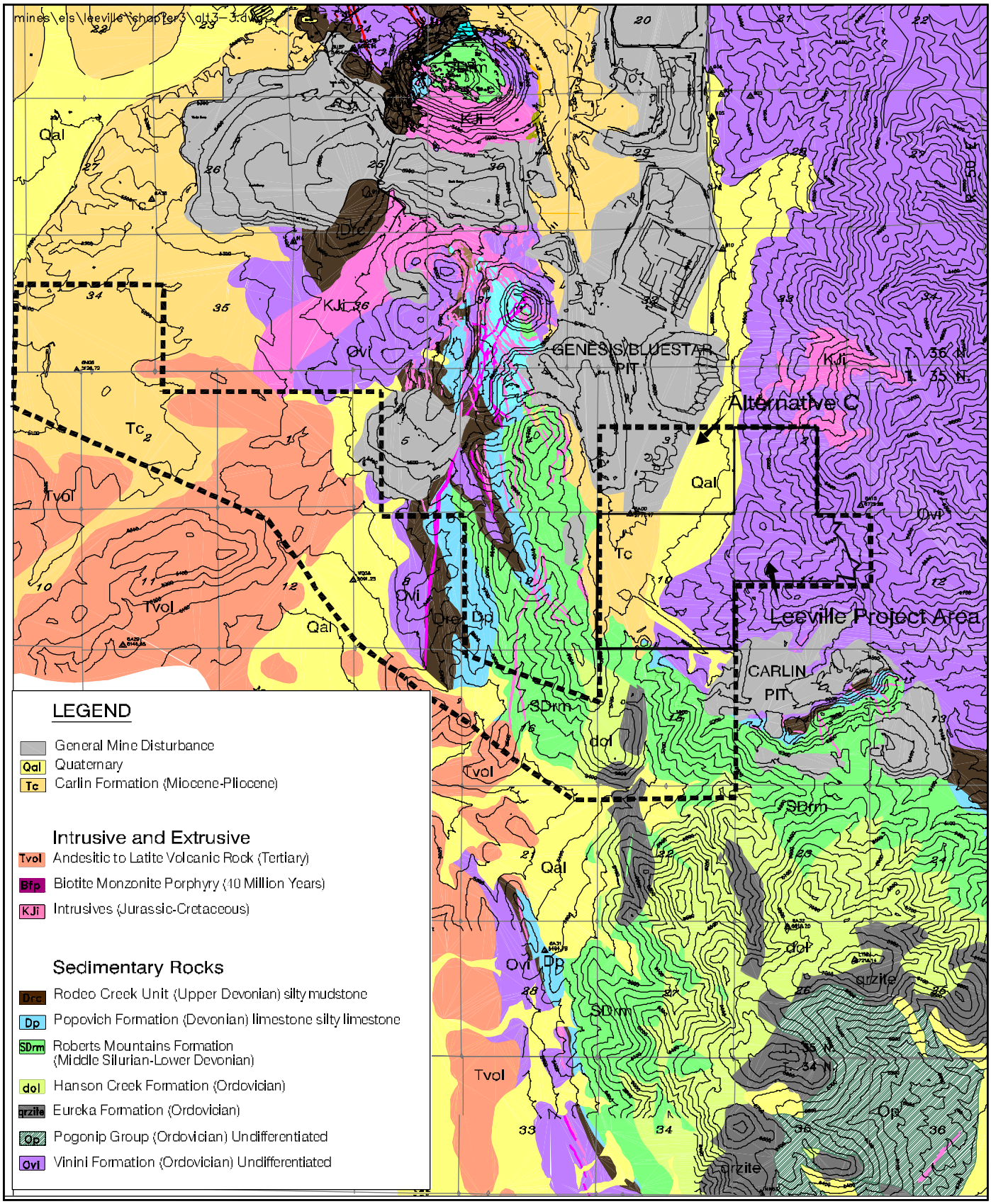
General Study Area
Leeville Project
FIGURE 3-1

\mines\eis\leeville\chapter3\fig3-2.dwg



Source: Jackson, et al. 1997; Radtke 1985

General Stratigraphic Section
Leeville Project
FIGURE 3-2



Source: Newmont 1999a.

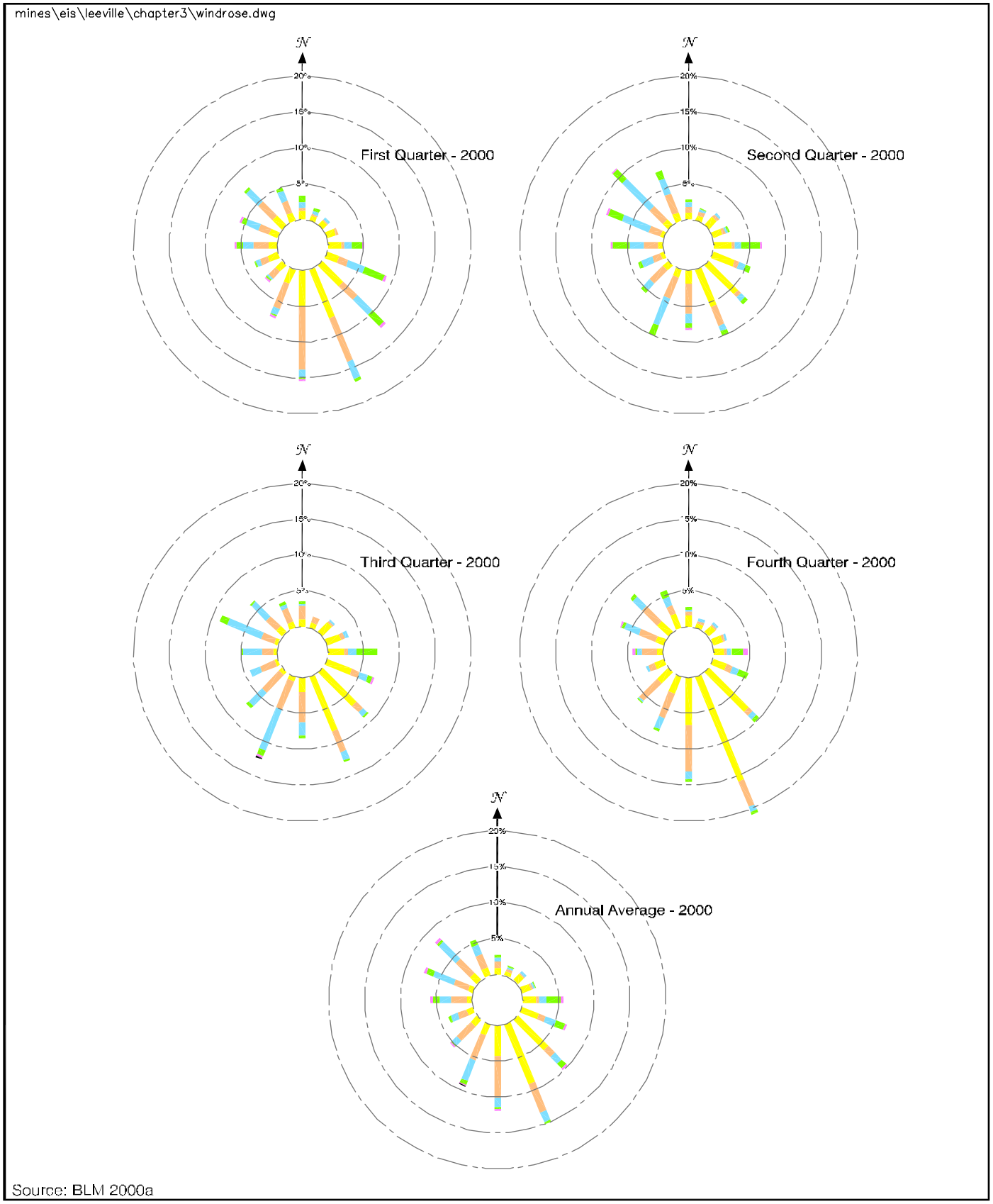
N

0 Mile 1

Contour Interval = 100'

General Study Area Boundary

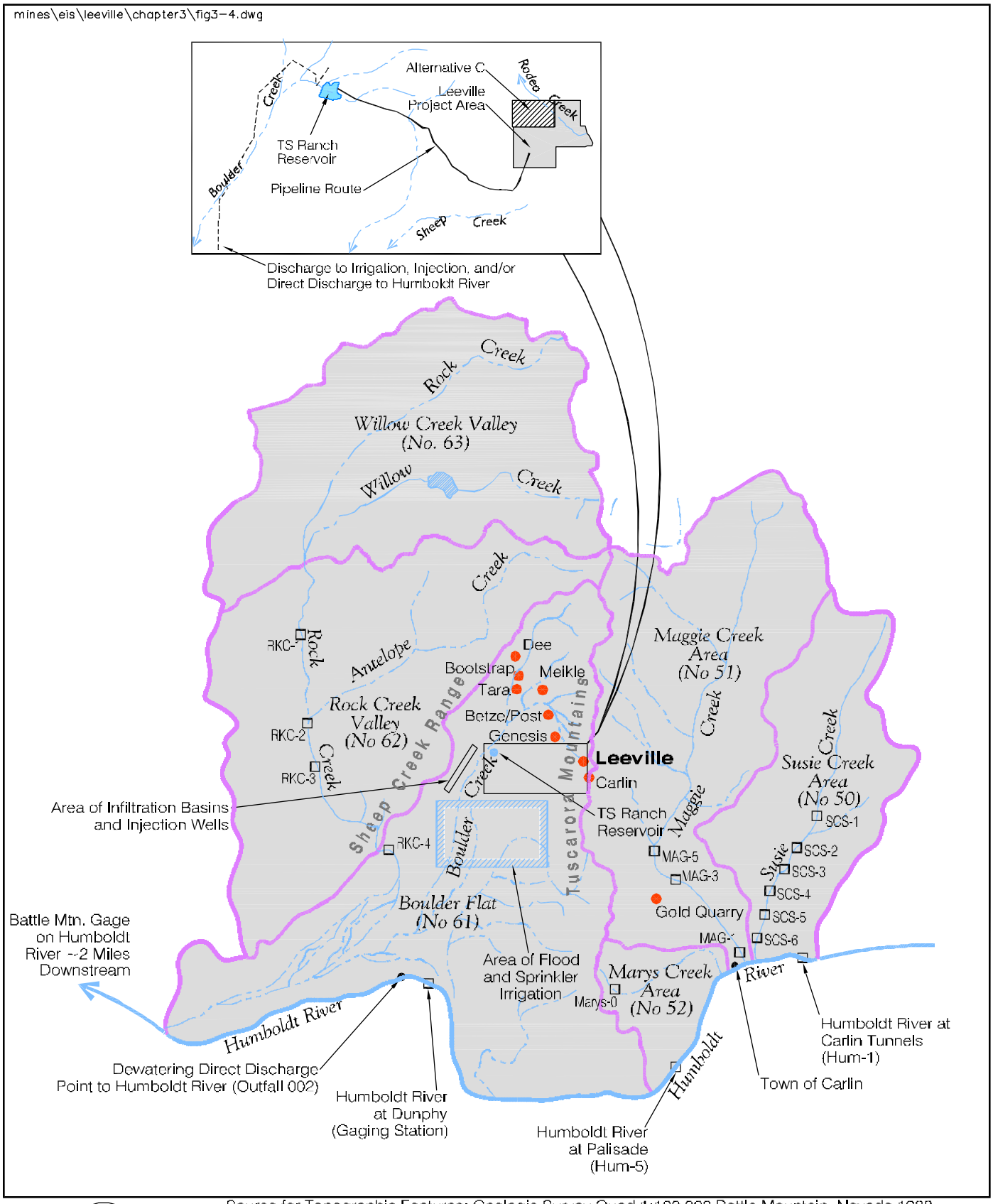
Surface Geology
Leeville Project
FIGURE 3-3



Wind Speed Class

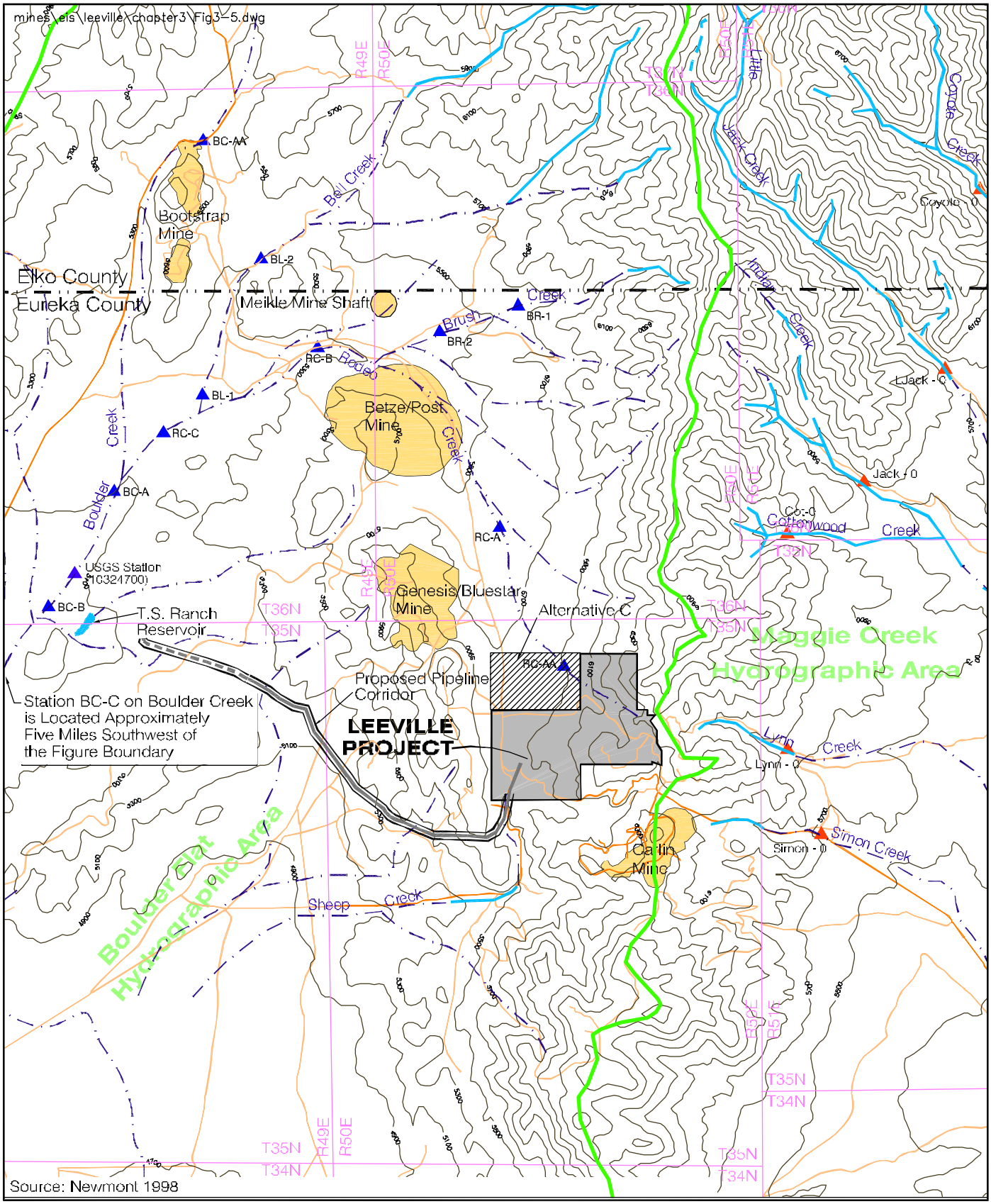
- 0-3 MPH
- 3-7 MPH
- 7-12 MPH
- 12-18 MPH
- 18-24 MPH
- >24 MPH

Wind Rose
Leeville Project
FIGURE 3-4



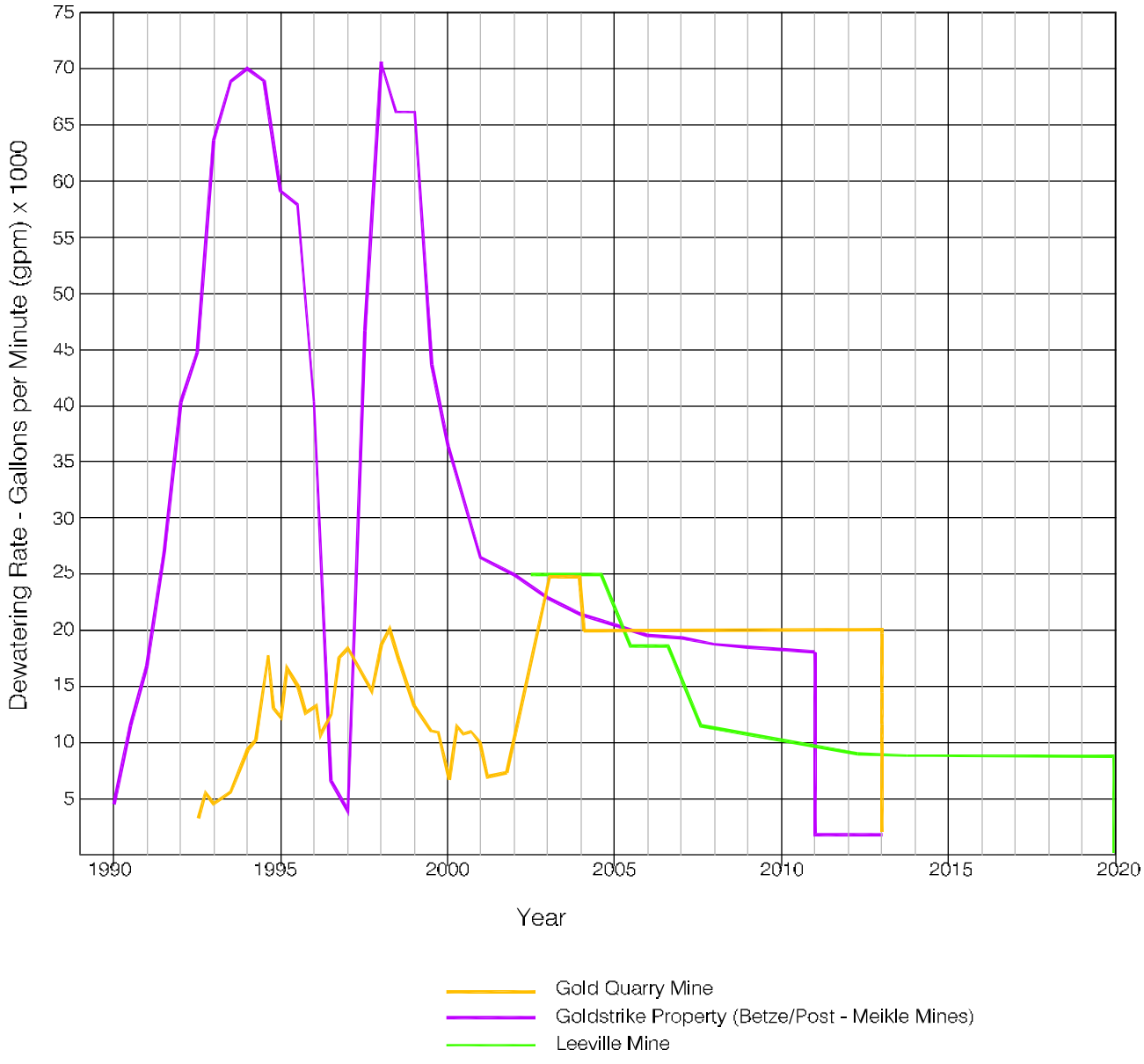
Source for Topographic Features: Geologic Survey Quad 1:100,000 Battle Mountain, Nevada 1988

Regional Surface Water Drainages
Leeville Project
FIGURE 3-5



Surface Water Monitoring Sites
Leeville Project
FIGURE 3-6

mines\eis\leeville\chapter3\gw-flow.dwg



Note: Additional pumping would occur at the end of the dewatering period for each mine (1000-2000 gpm) for several years for mine closure related activities

Source: HCI 1999b; BLM 2000a.; Pettit 2001.

Dewatering Rates for Three Major Mines in Carlin Trend
Leeville Project
FIGURE 3-7

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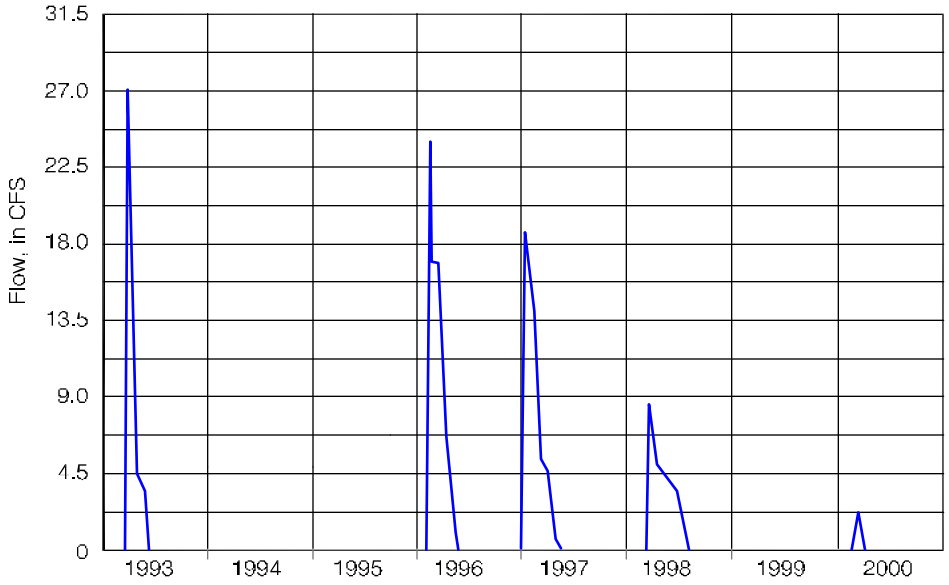
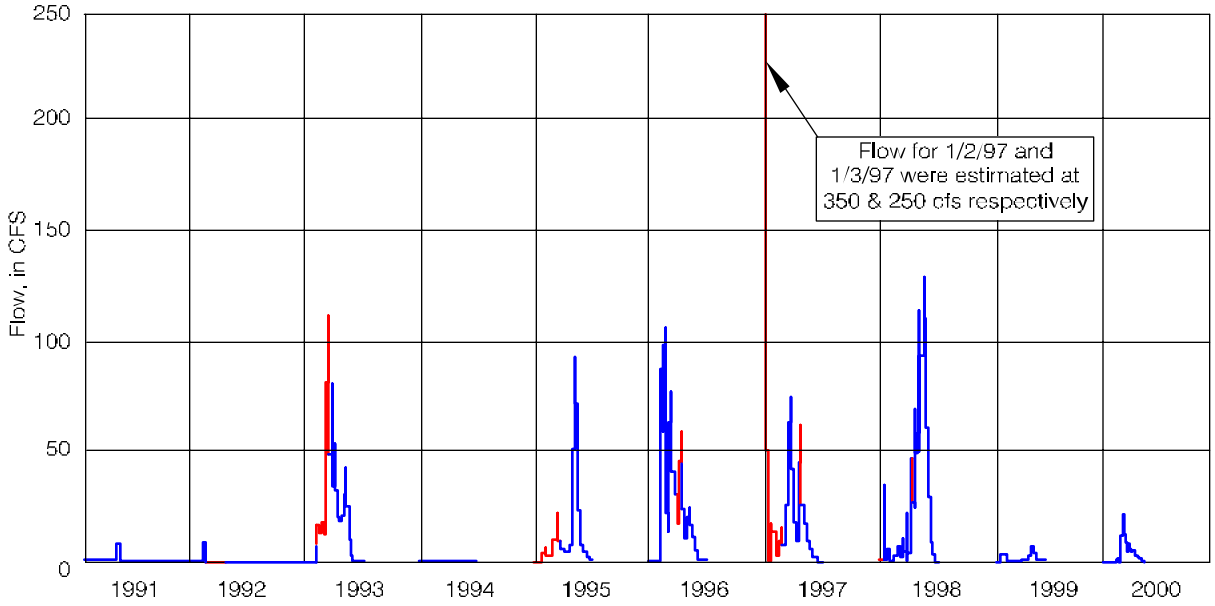
Rodeo Creek , NV
Station Number: RC-C



Note: See Figure 3-6 for Station Locations.

Boulder Creek Near Dunphy, NV
Station Number: 10324700



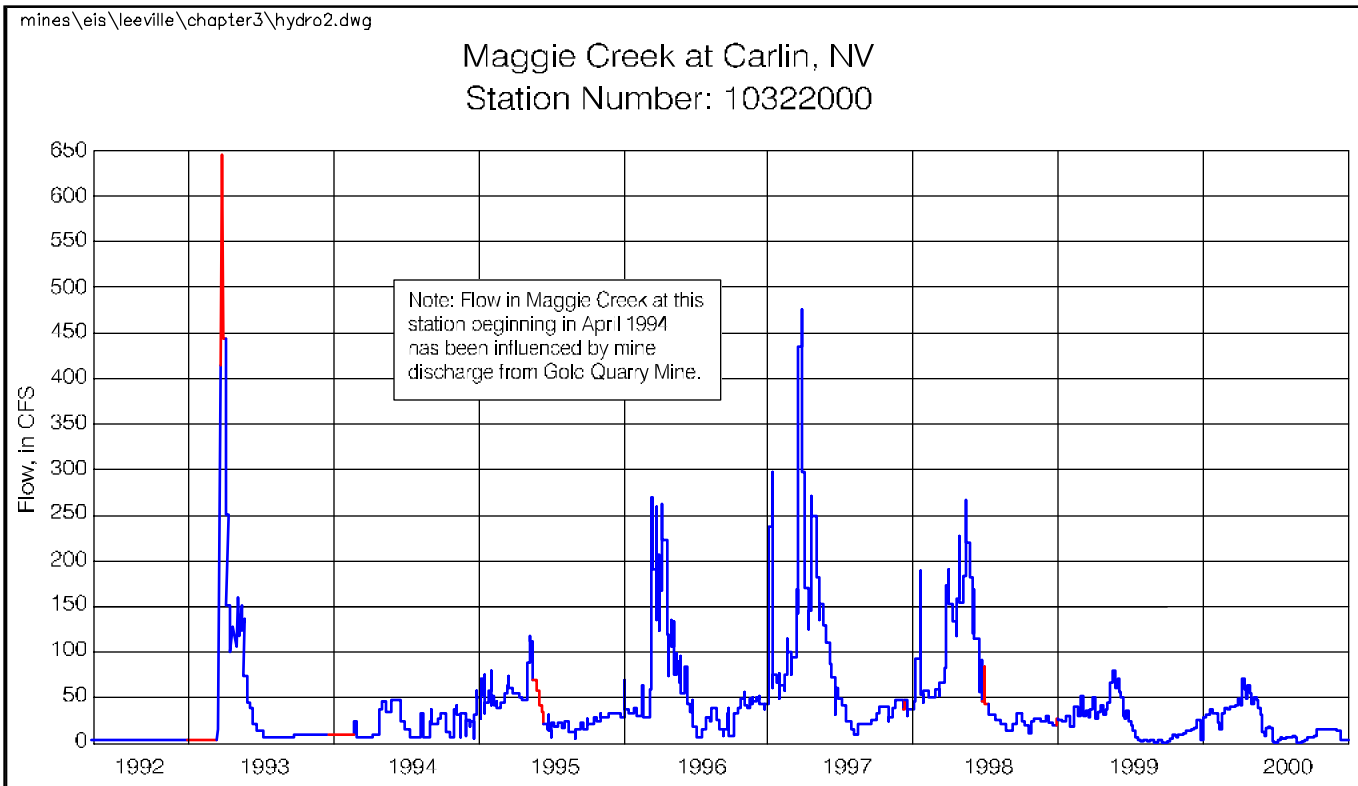
Source: USGS Electronic file from Internet (http://nv.usgs.gov/); Barrick 1999

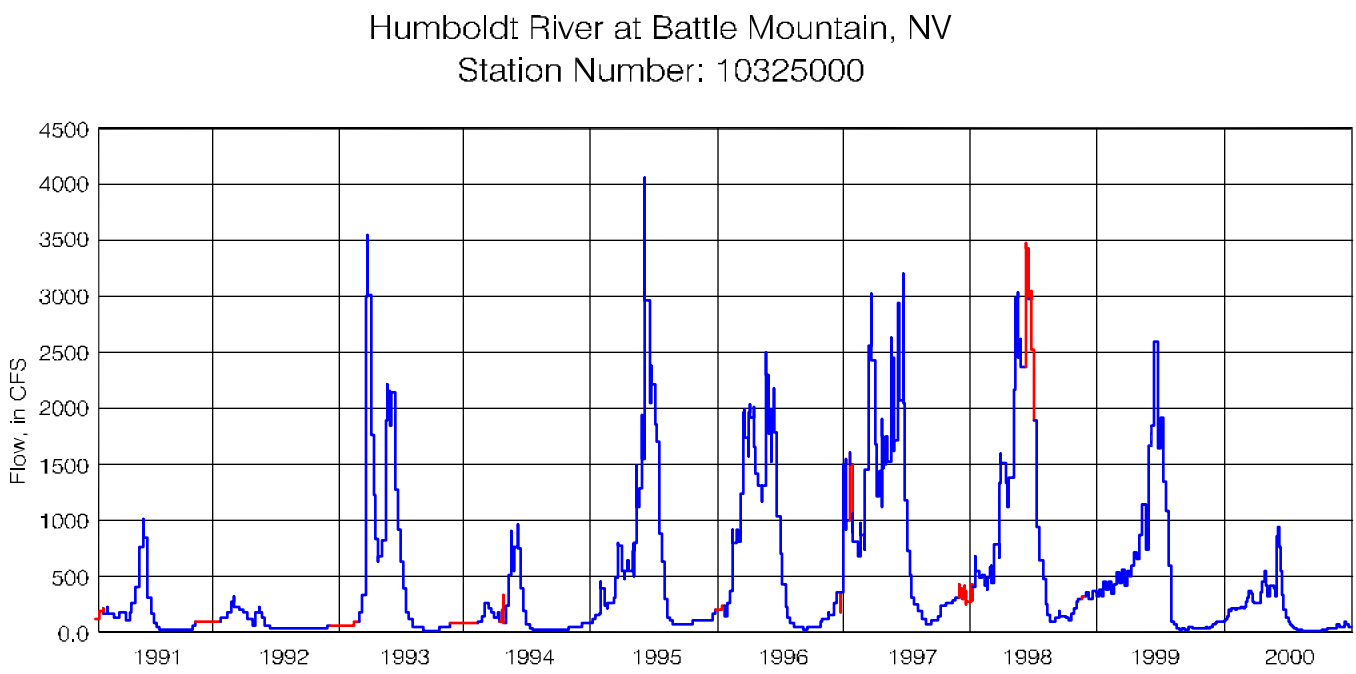
Legend

CFS Cubic Feet per Second
Daily Mean Streamflow
Estimated Streamflow

Hydrographs of Boulder Creek and Rodeo Creek
Leeville Project
FIGURE 3-8

mines\eis\leeville\chapter3\hydro2.dwg



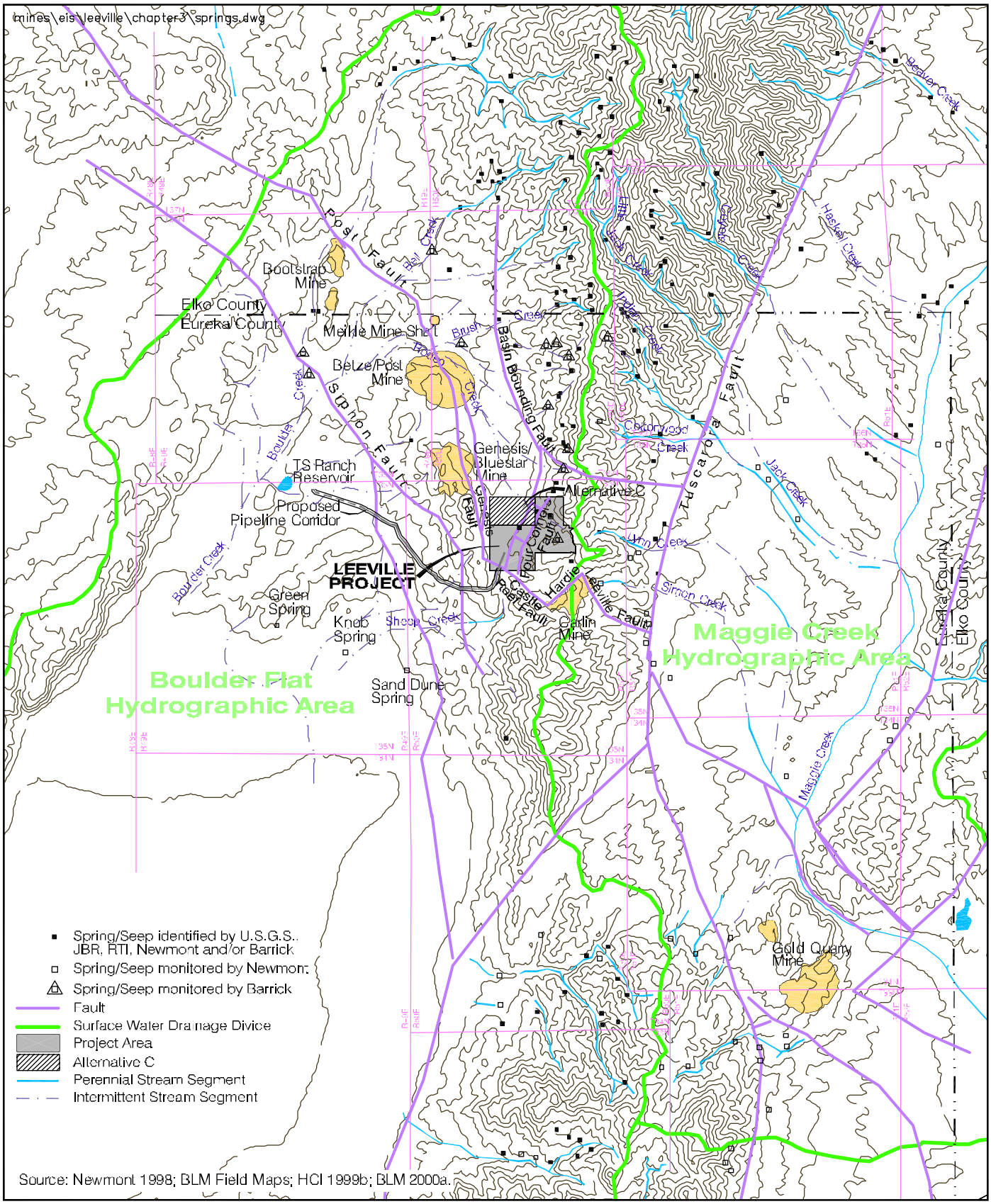


Source: USGS electronic file from Internet (http://nv.usgs.gov/)

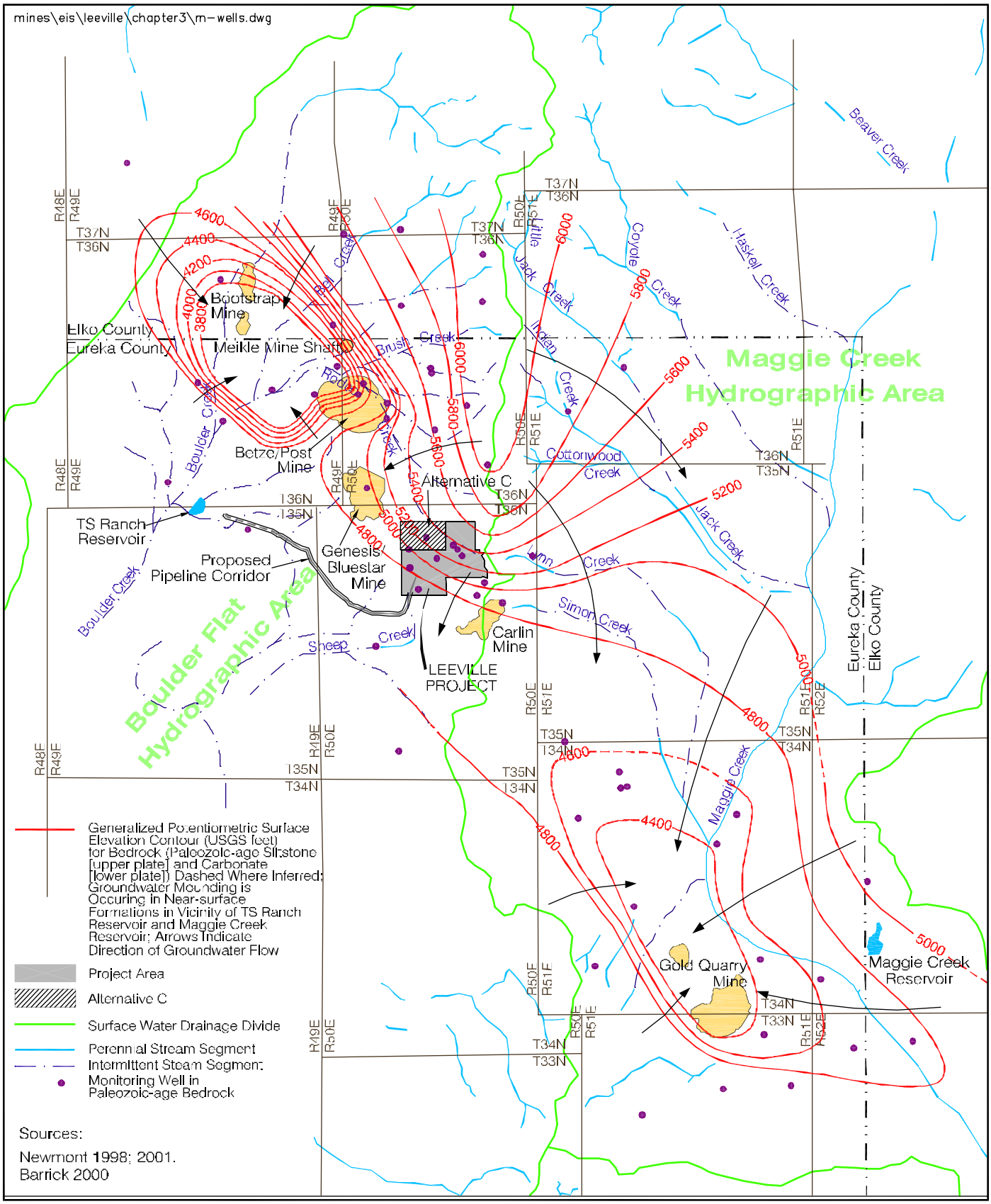
Legend

CFS Cubic Feet per Second
Daily Mean Streamflow
Estimated Streamflow

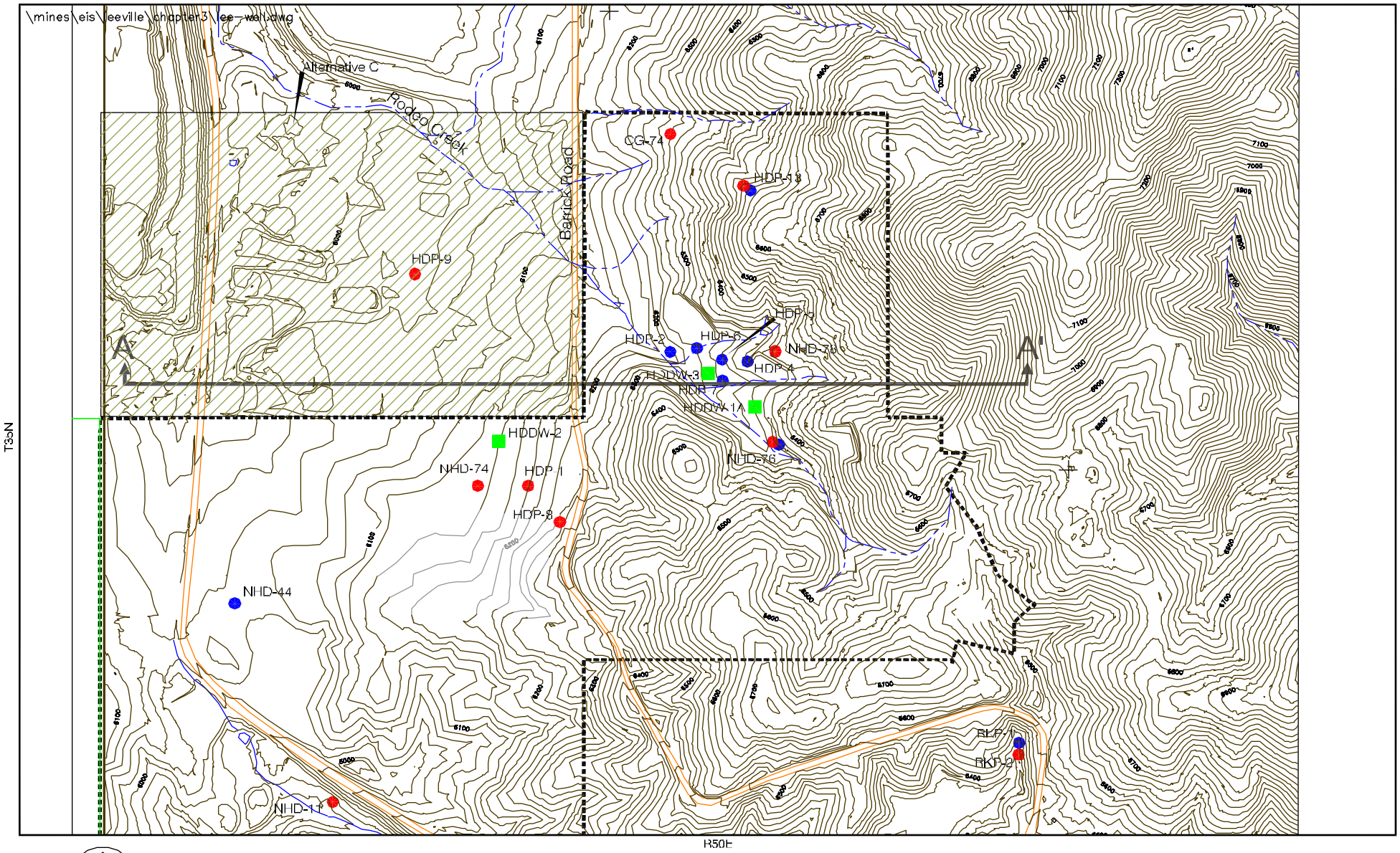
Hydrographs of Maggie Creek and Humboldt River
Leeville Project
FIGURE 3-9



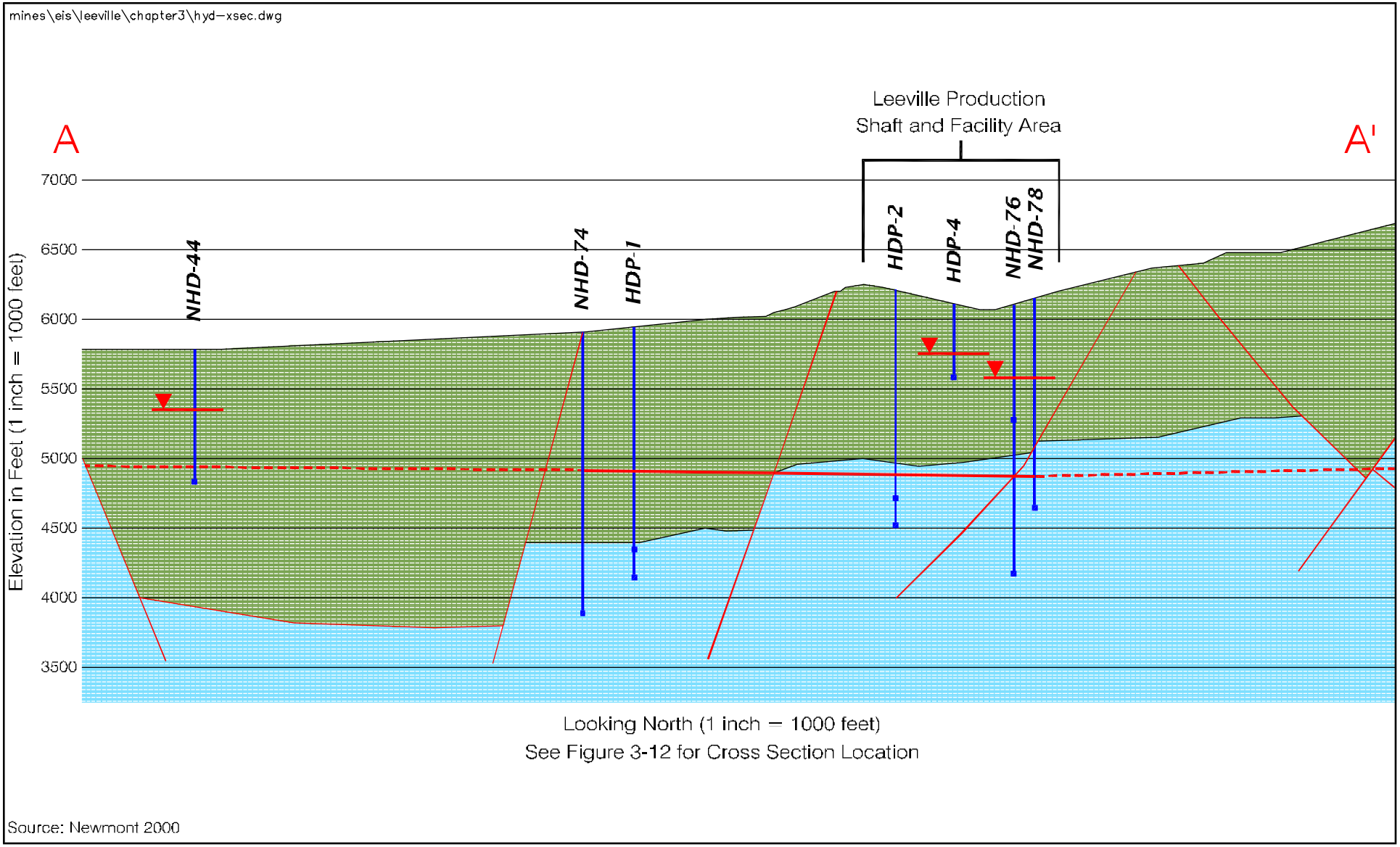
Spring/Seep Sites
Leeville Project
FIGURE 3-10



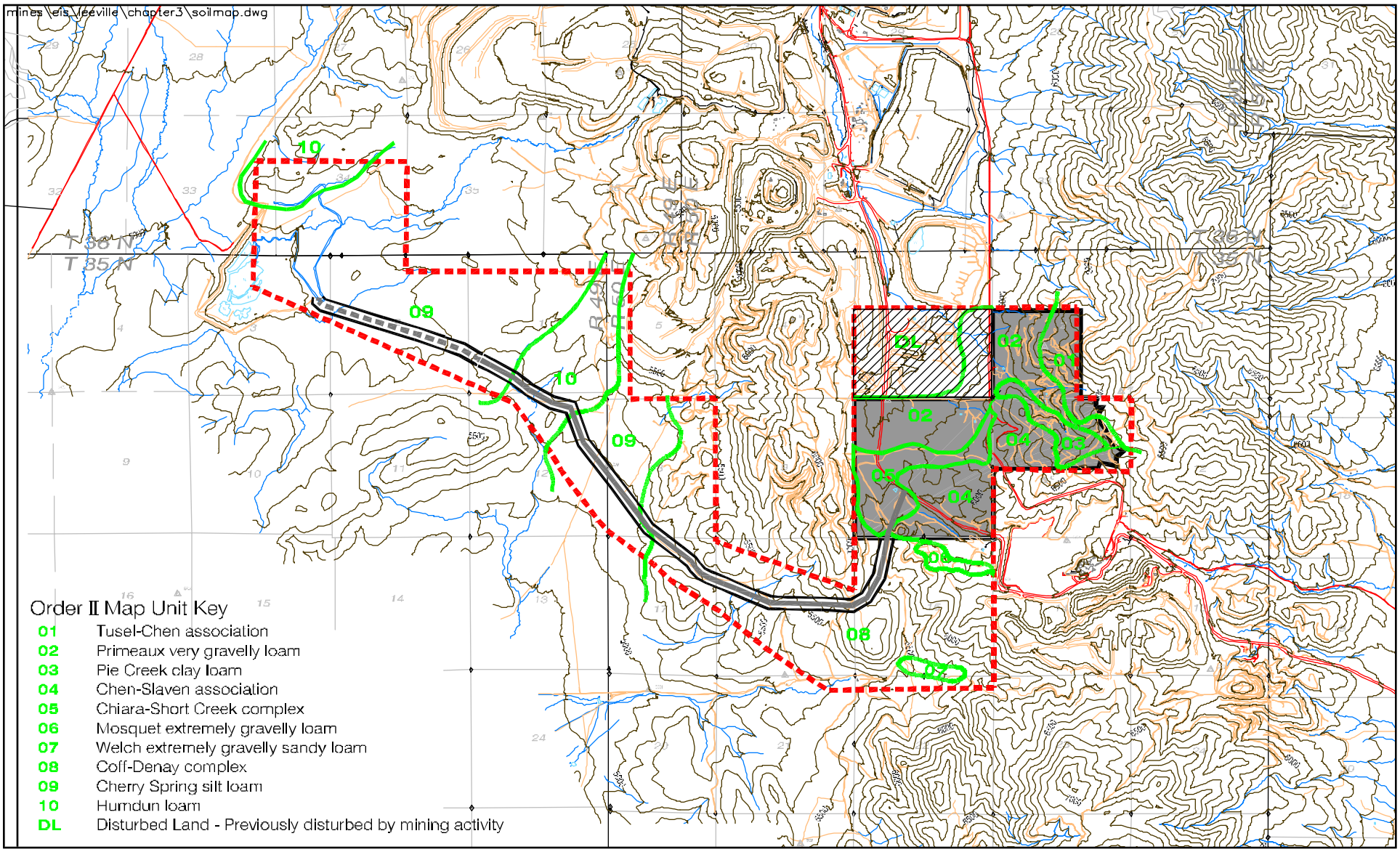
Regional Monitoring Wells and
Bedrock Potentiometric Surface
Leeville Project
FIGURE 3-11



Leeville Area Monitoring Wells
Leeville Project
FIGURE 3-12



Hydrogeologic Cross Section
Leeville Project
FIGURE 3-13



Source: Illustrated Map Units are from Order II Survey RCI 1998.

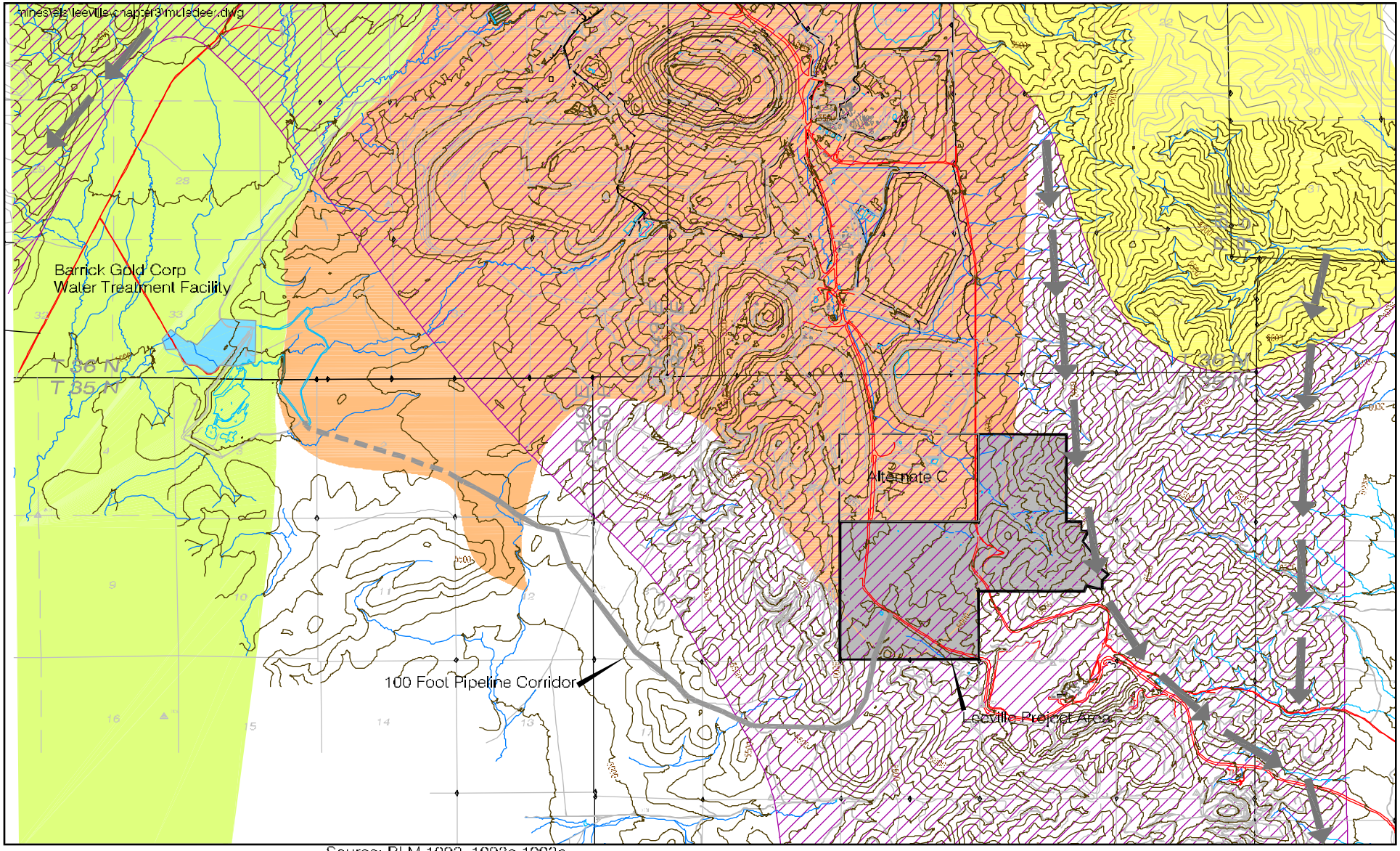
N

0 Mile 1

Legend

- Soil Survey Boundary
- Map Unit Boundary
- 01 Map Unit Symbol (See Table 3-19)
- Project Area
- Alternative C
- Proposed Pipeline Corridor

Order II Soil Map
Leeville Project
FIGURE 3-14



Source: BLM 1992, 1993a 1993c.

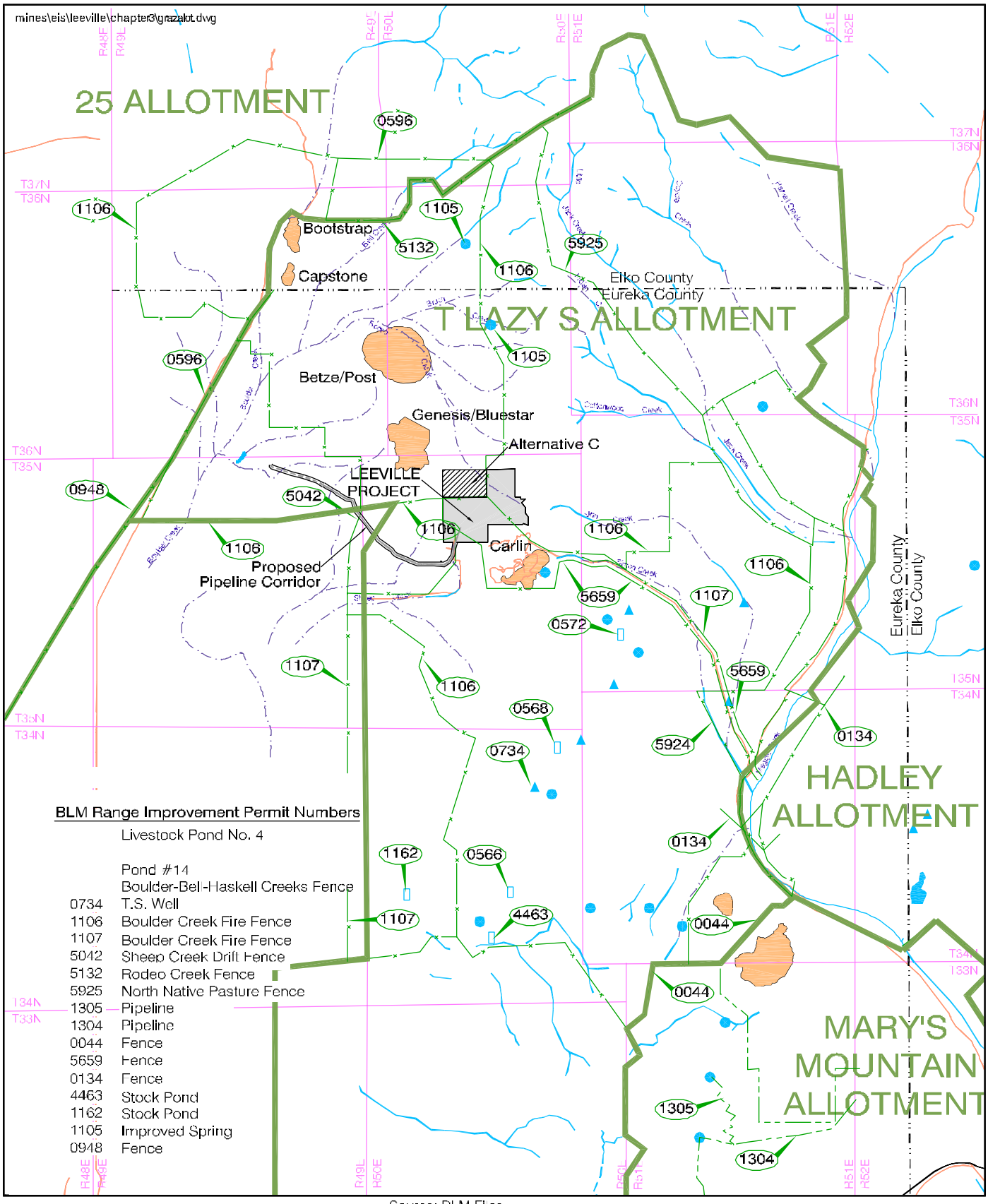
N

0 Mile 1

Legend

- Mule Deer Transitional Range
- Crucial Mule Deer Summer Range
- Crucial Pronghorn Antelope Winter Range
- Crucial Pronghorn Antelope Summer Range
- Project Area
- Migration Routes
- 100 Foot Pipeline Corridor
- Open Canal Segment
- Alternative C Boundary

Mule Deer and
Pronghorn Antelope Habitat
Leeville Project
FIGURE 3-15



Source: BLM Files

Grazing Allotments and Selected Range Improvements
Leeville Project
FIGURE 3-16

mines\eis\leeville\chapter3\recreate.dwg

IDAHO
NEVADA

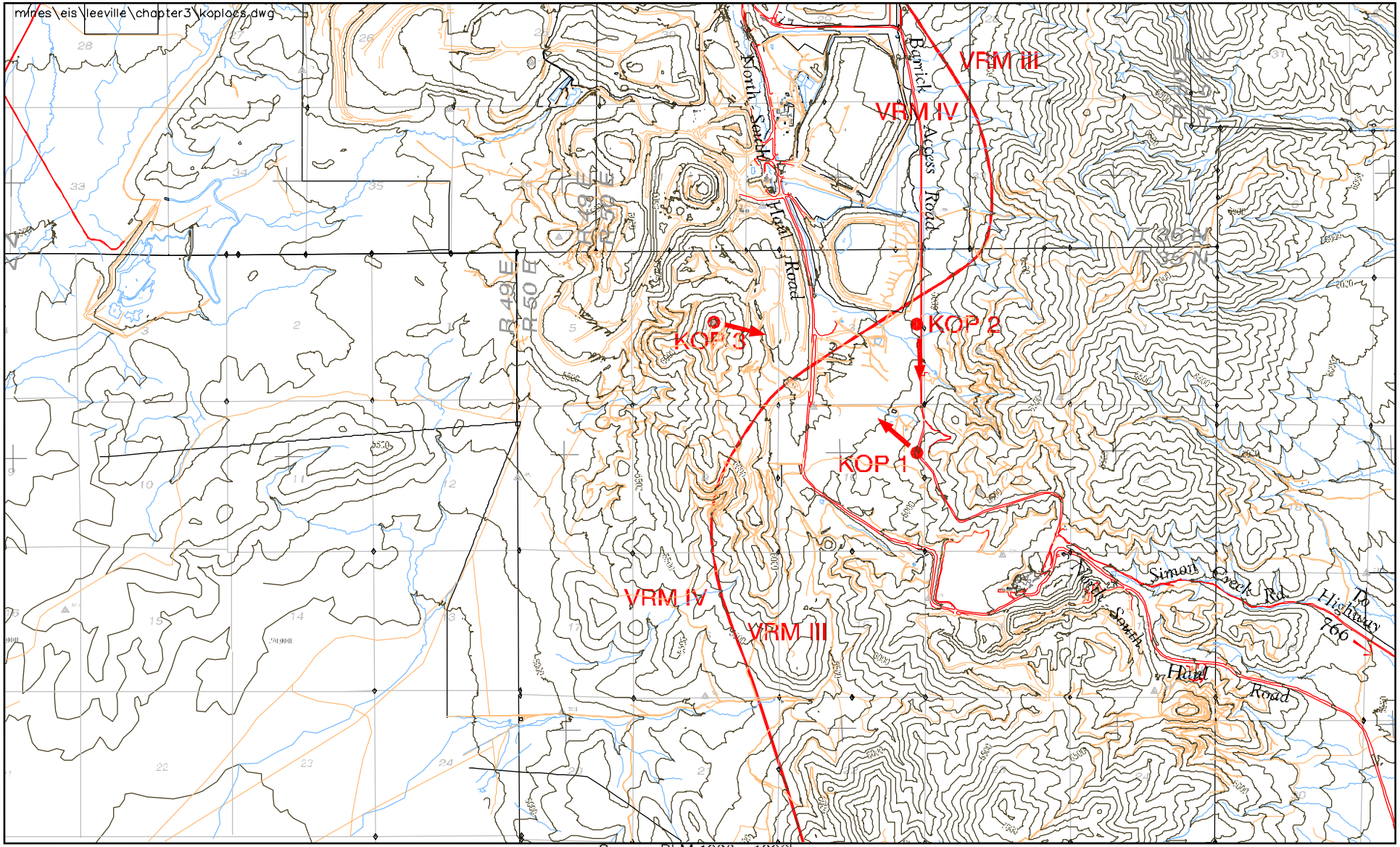
South Fork Owyhee River
Owyhee Canyon
South Fork Owyhee River
Sheep Creek Reservoir
Duck Valley Indian Reservation
Jarbidge
Pine Creek
Big Bend
Salmon Falls Creek
JARBIDGE WILDERNESS 113,167 Acres USFS
Salmon Falls Creek
Badlands
Texas and Opal Springs
Wild Horse Crossing
Rough Hills
Wilson Reservoir
Wild Horse
Jack Creek
Humboldt National Forest Boundary
Marys River
Boies Reservoir
Crittenden Reservoir
Humboldt National Forest Boundary
Lye Creek
Santa Rosa Paradise Peak
HUMBOLDT COUNTY
ELKO COUNTY
Little Humboldt River
Chimney Creek Reservoir
Tabor Creek
California Trail Back County Byway
Willow Creek Reservoir
LEEVILLE PROJECT
Maggie Creek
WELLS
Angel Lake
Angel Creek
EAST HUMBOLDT WILDERNESS 36,900 Acres USFS
NEVADA
UTAH
WINNEMUCCA
Water Canyon
HUMBOLDT COUNTY
PERSHING COUNTY
LANDER COUNTY
EUREKA COUNTY
Carlin Canyon Historical Wayside
ELKO
Power House Picnic Area
RUBY MTNS WILDERNESS 90,000 Acres USFS
Rye Patch Reservoir
MILL CITY
Rye Patch Reservoir
VALMY
Humboldt River
BATTLE MOUNTAIN
BEOWAWE
CARLIN
South Fork
South Fork Canyon
South Fork Indian Reservation
Thomas Canyon
Terraces Picnic Area
South Pequop
Bluebell Not Recommended For Further Consideration
RUBY MOUNTAINS WILDERNESS
Ruby Crest National Recreation Trail
Goshute Peak
Red Spring Not Recommended For Further Consideration
Zunino/Jiggs Reservoir
Cedar Ridge Not Recommended For Further Consideration
Humboldt National Forest Boundary
RYE PATCH
Mill Creek
PERSHING COUNTY
LANDER COUNTY
Ruby Lake National Wildlife Refuge
Ruby Marsh
ELKO DISTRICT BOUNDARY
ELKO COUNTY
WHITE PINE COUNTY
PERSHING COUNTY
CHURCHILL COUNTY

N
0 Miles 15

Sources: 1. Nevada Department of Transportation 1995/1996
2. The Wilderness Society 1989
3. Nevada Division of State Parks 1992

- (C) Campground
- (F) Fishing Area
- (R) Recreation Area
- (S) Special Recreation Management Area
- (W) Wilderness Study Area
- (I) Interpretive Site
- Wilderness Area

Recreation and Wilderness Areas
Leeville Project
FIGURE 3-17



Source: BLM 1986a, 1986b.

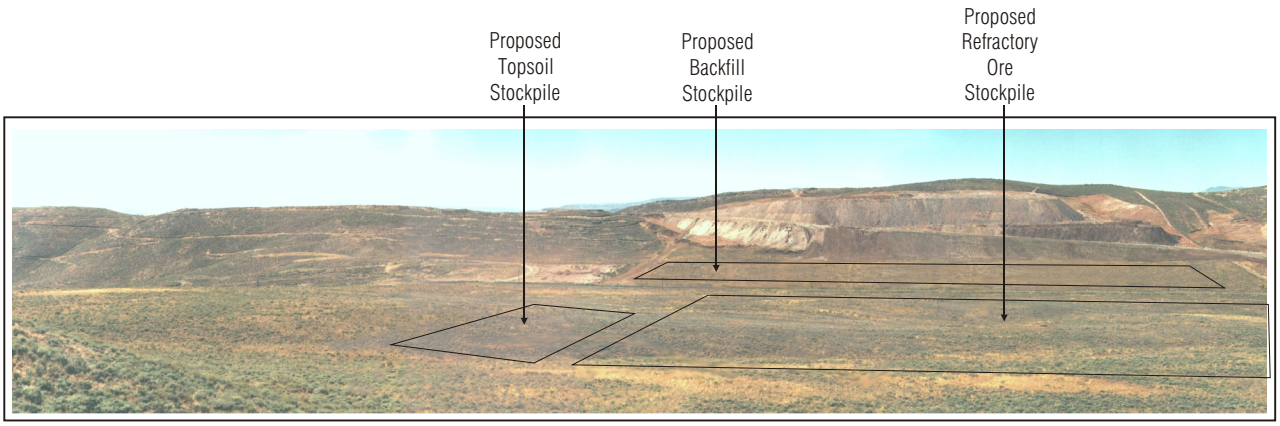
N

0 Feet 5000

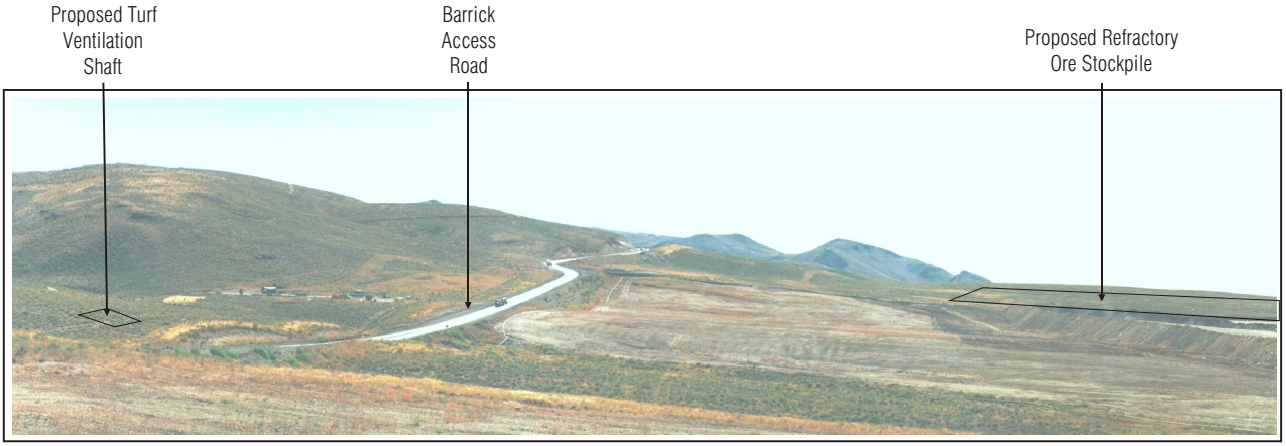
Legend

- Key Observation Point
- Visual Resource Management (VRM) Boundary

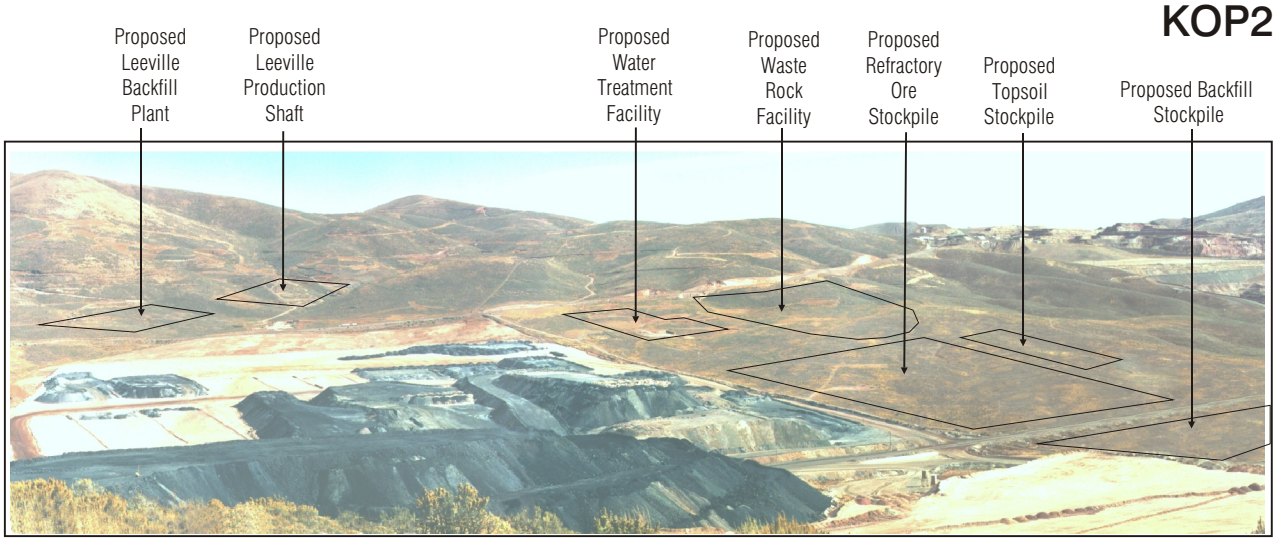
VRM Class Boundary and KOP Locations
Leeville Project
FIGURE 3-18



KOP1

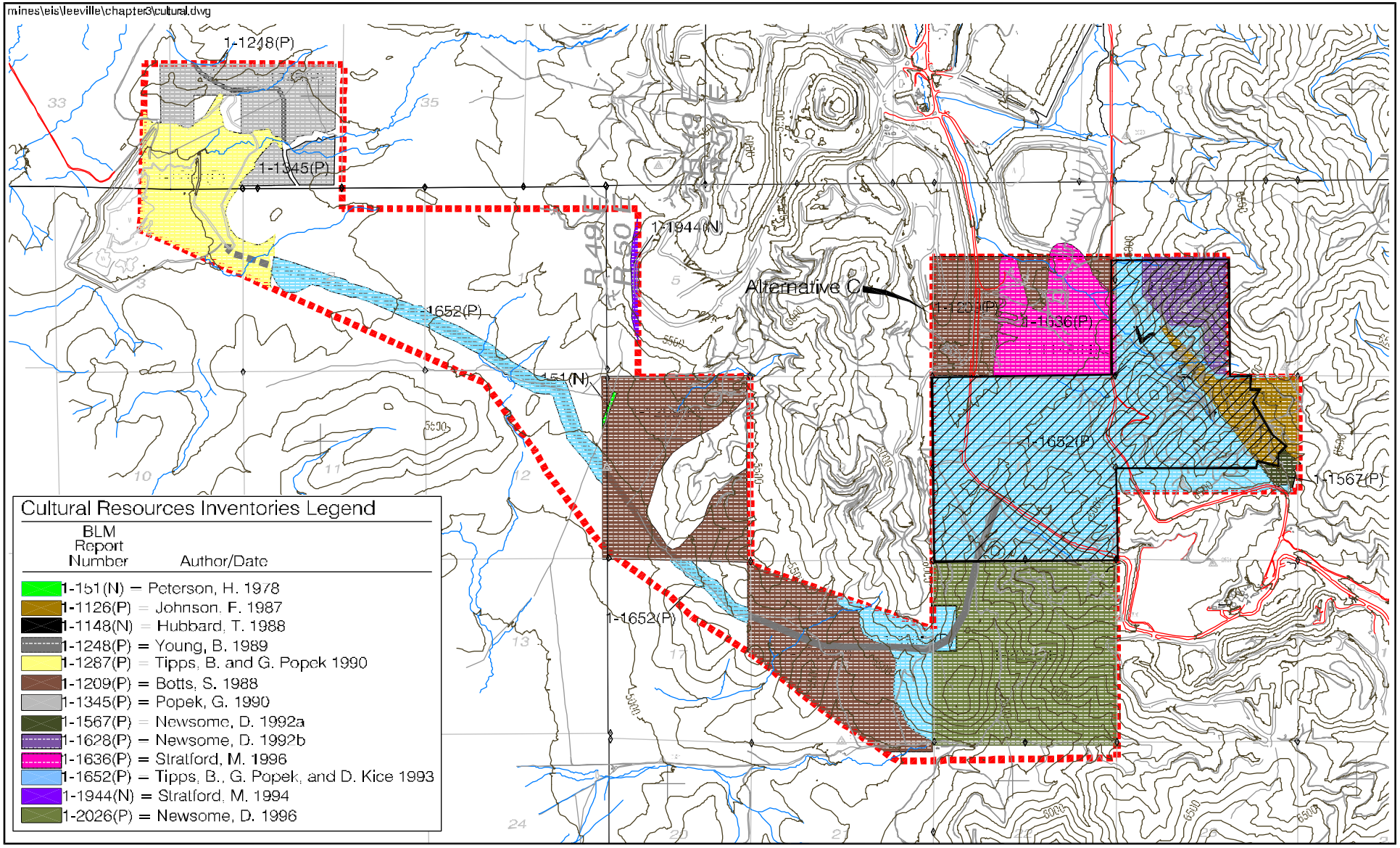


KOP2

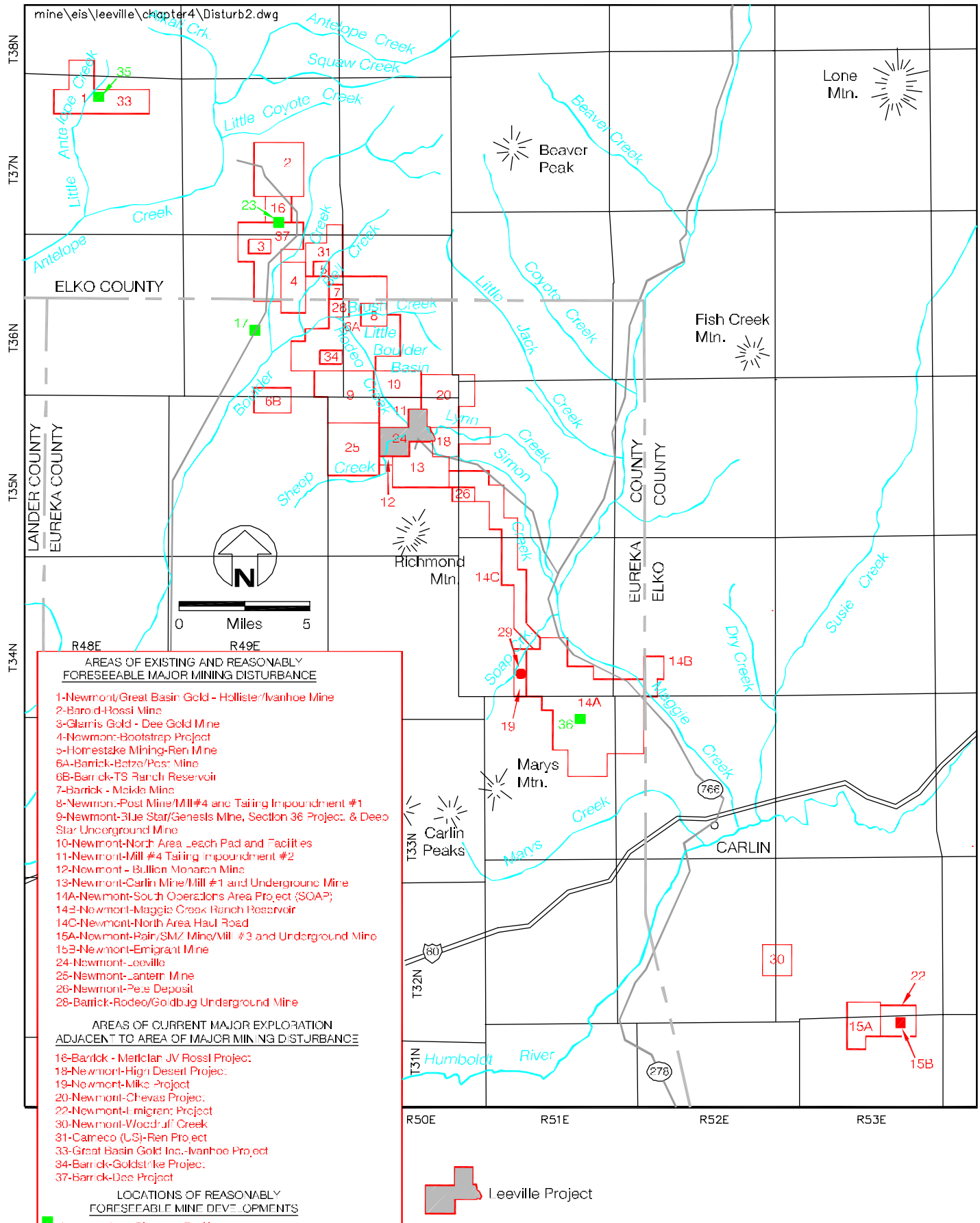


KOP3

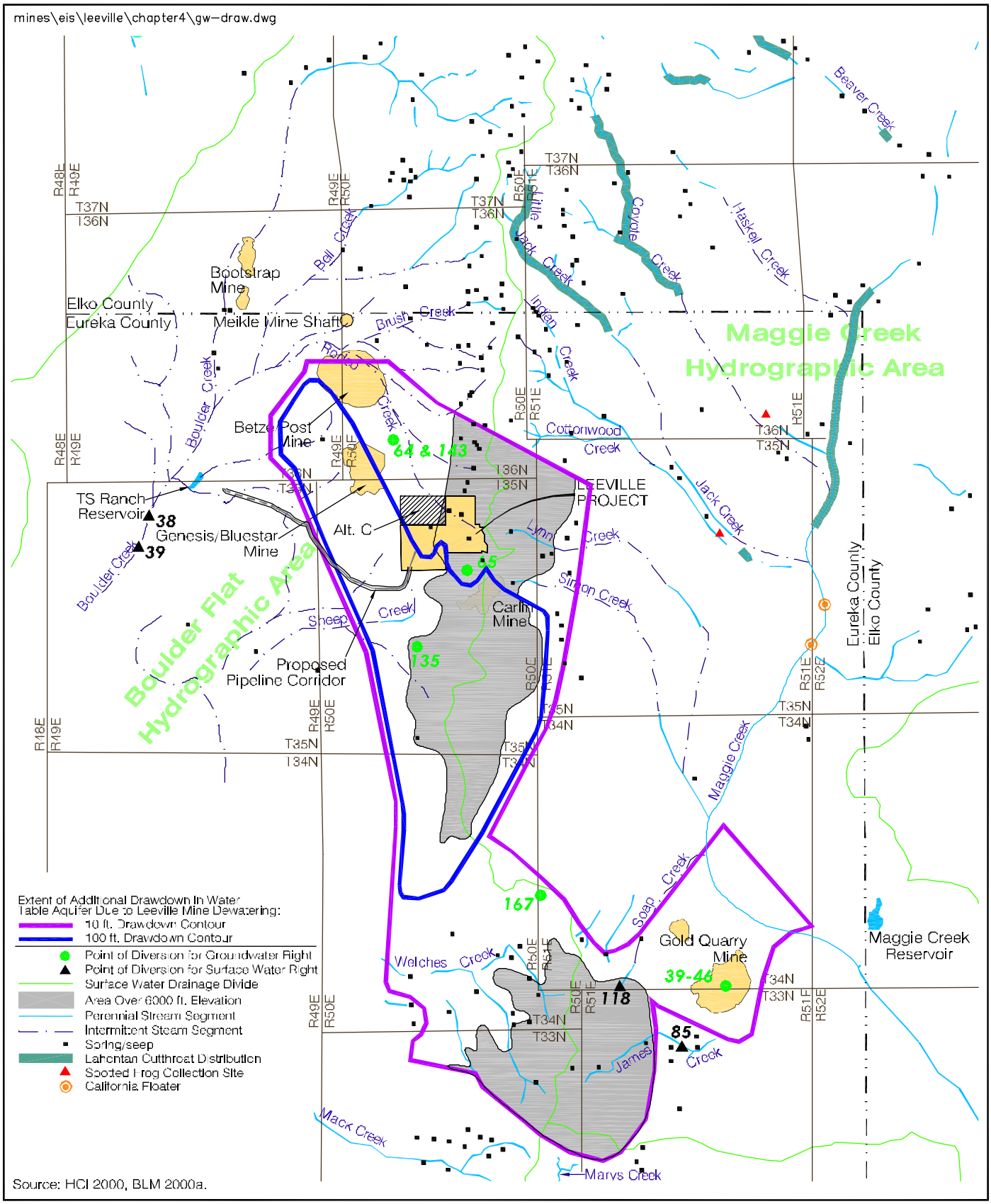
Existing Conditions
Leeville Project
FIGURE 3-19



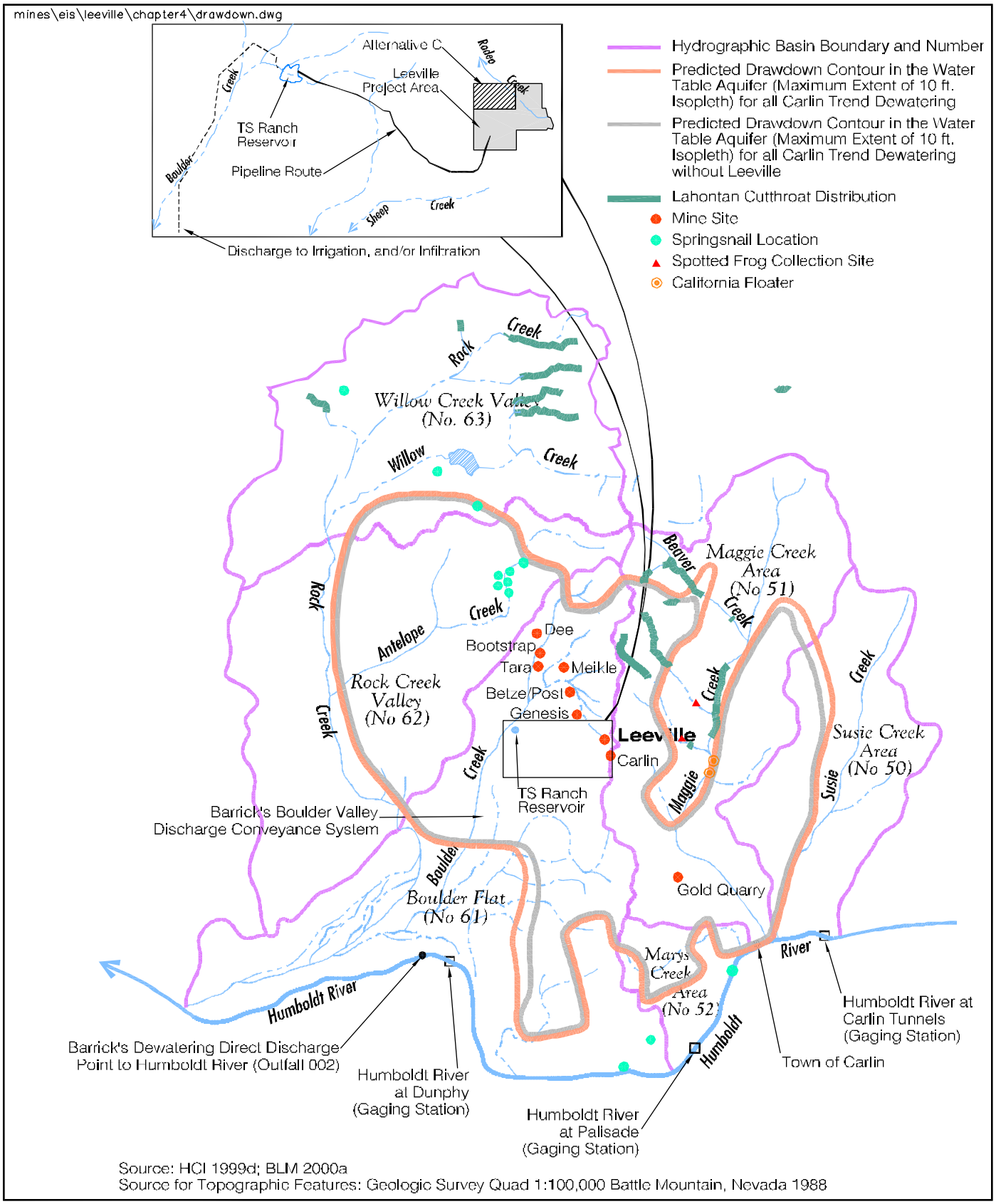
Cultural Resource Research Areas
Leeville Project
FIGURE 3-20



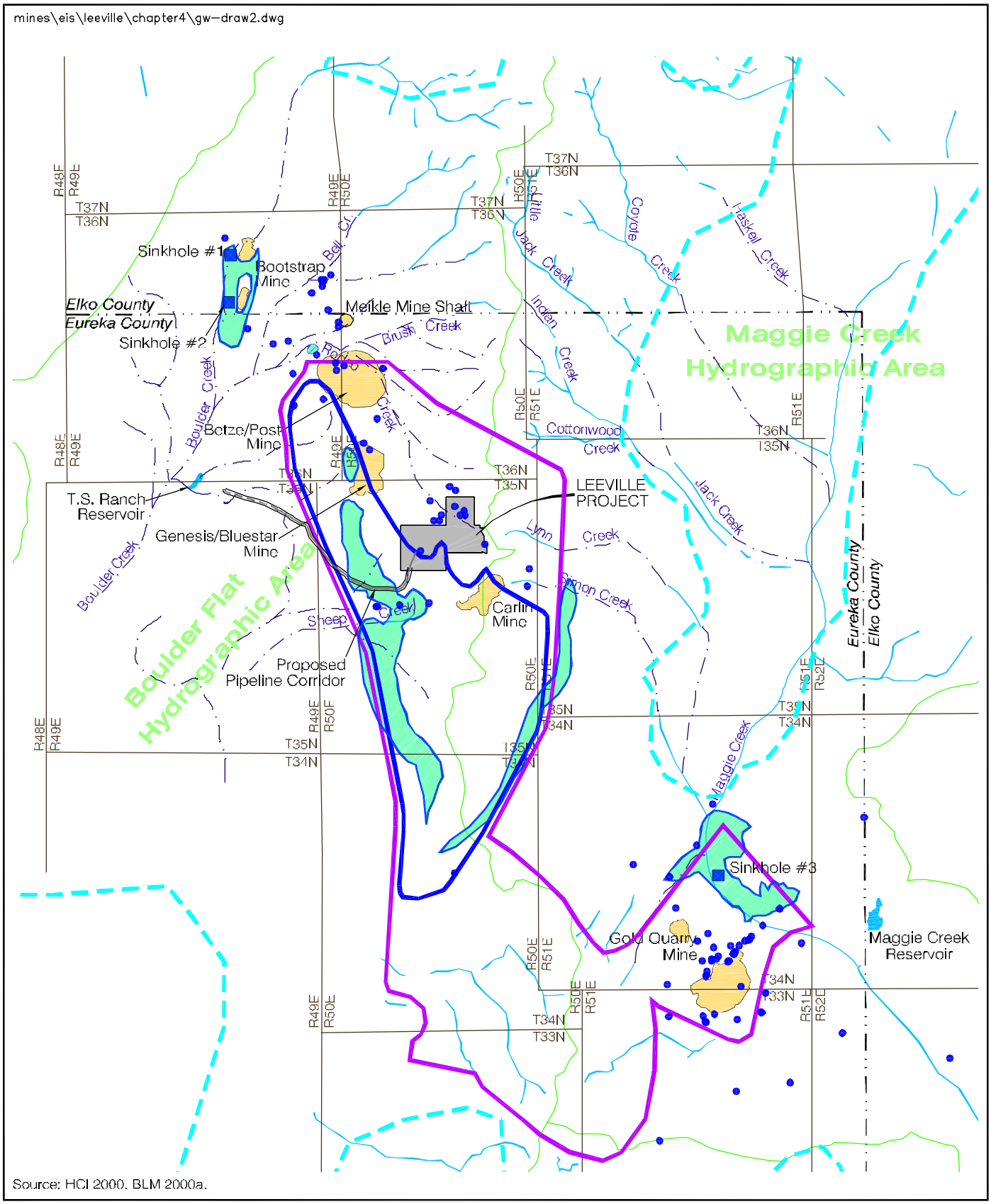
Cumulative Effects Area and
Mining Activity In The Carlin Trend
Leeville Project
FIGURE 4-1



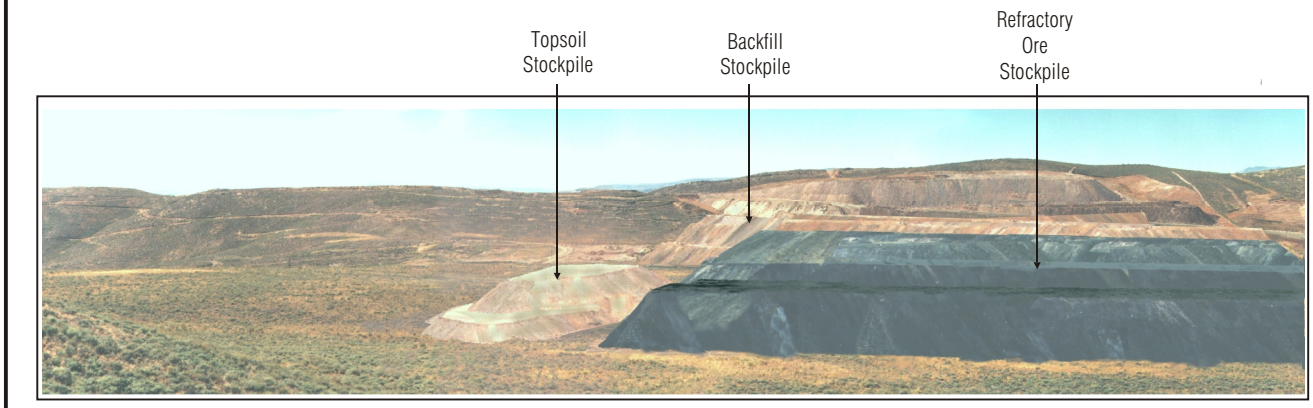
Additional Groundwater Drawdown
In the Water Table Aquifer
Leeville Project
FIGURE 4-2



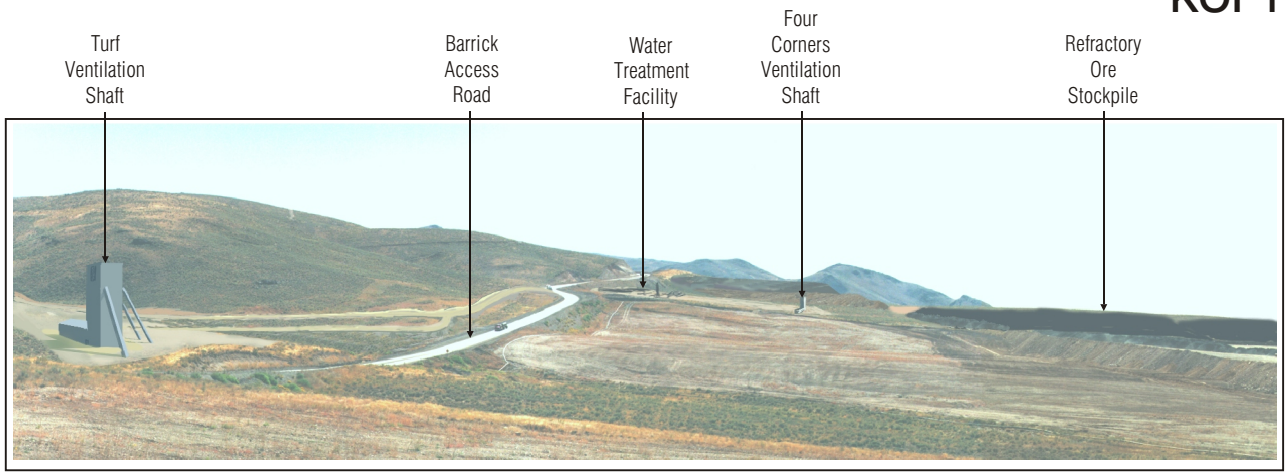
Maximum Lateral Extent of Groundwater Drawdown Area
Leeville Project
FIGURE 4-3



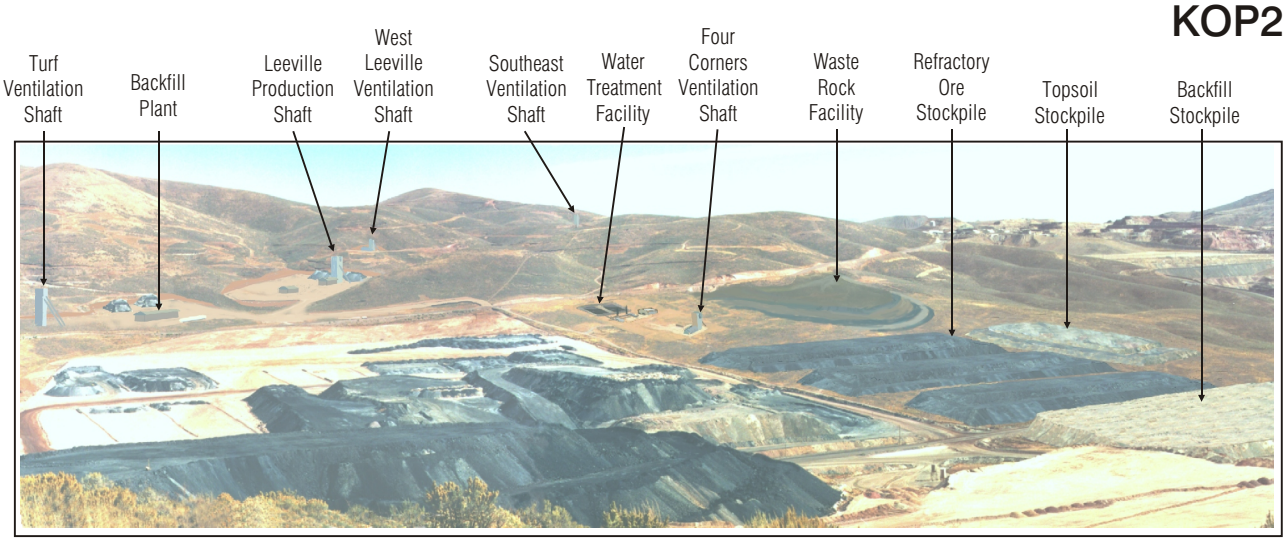
Areas Potentially Susceptible to Sinkhole Development
Leeville Project
FIGURE 4-4



KOP1

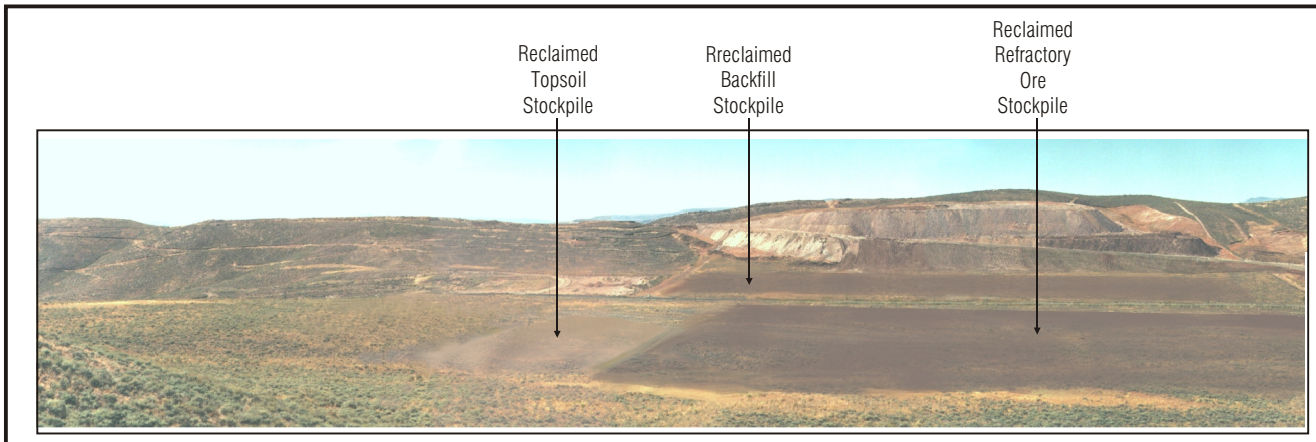


KOP2

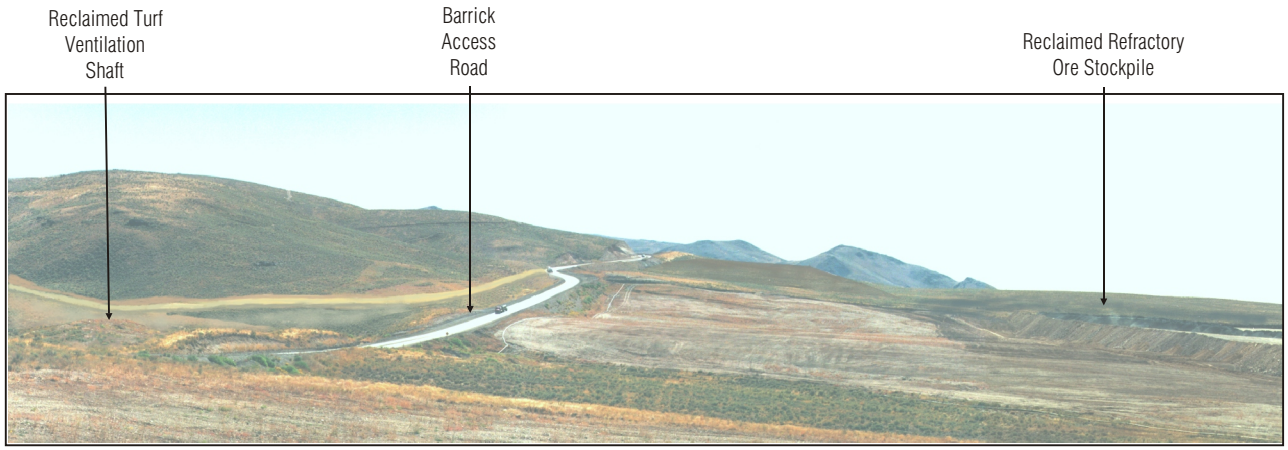


KOP3

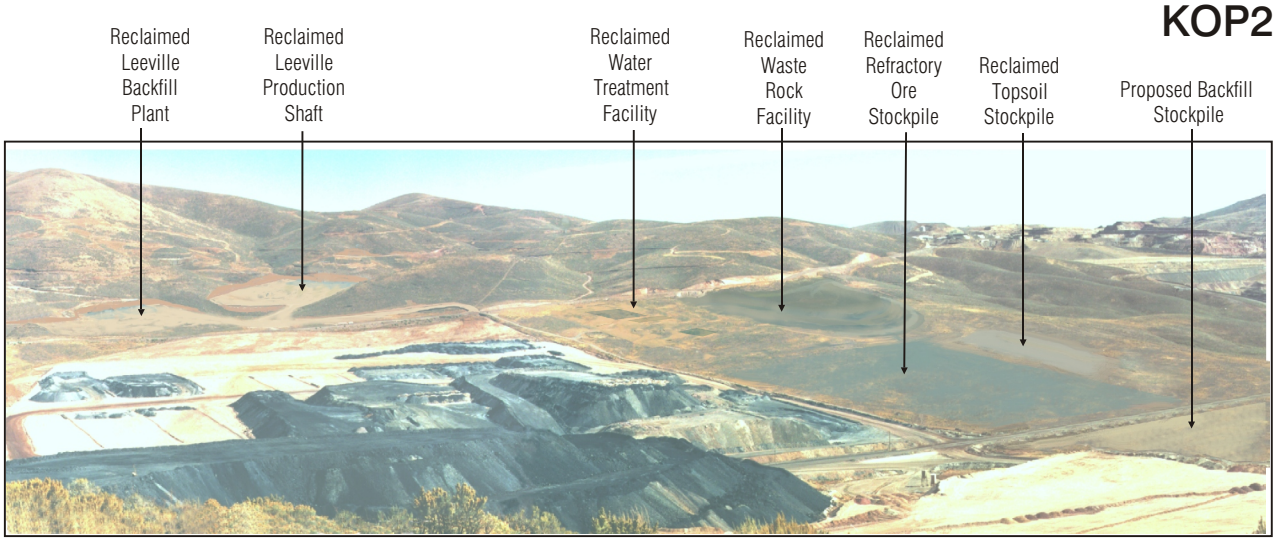
Proposed Mining Conditions
Leeville Project
FIGURE 4-5



KOP1

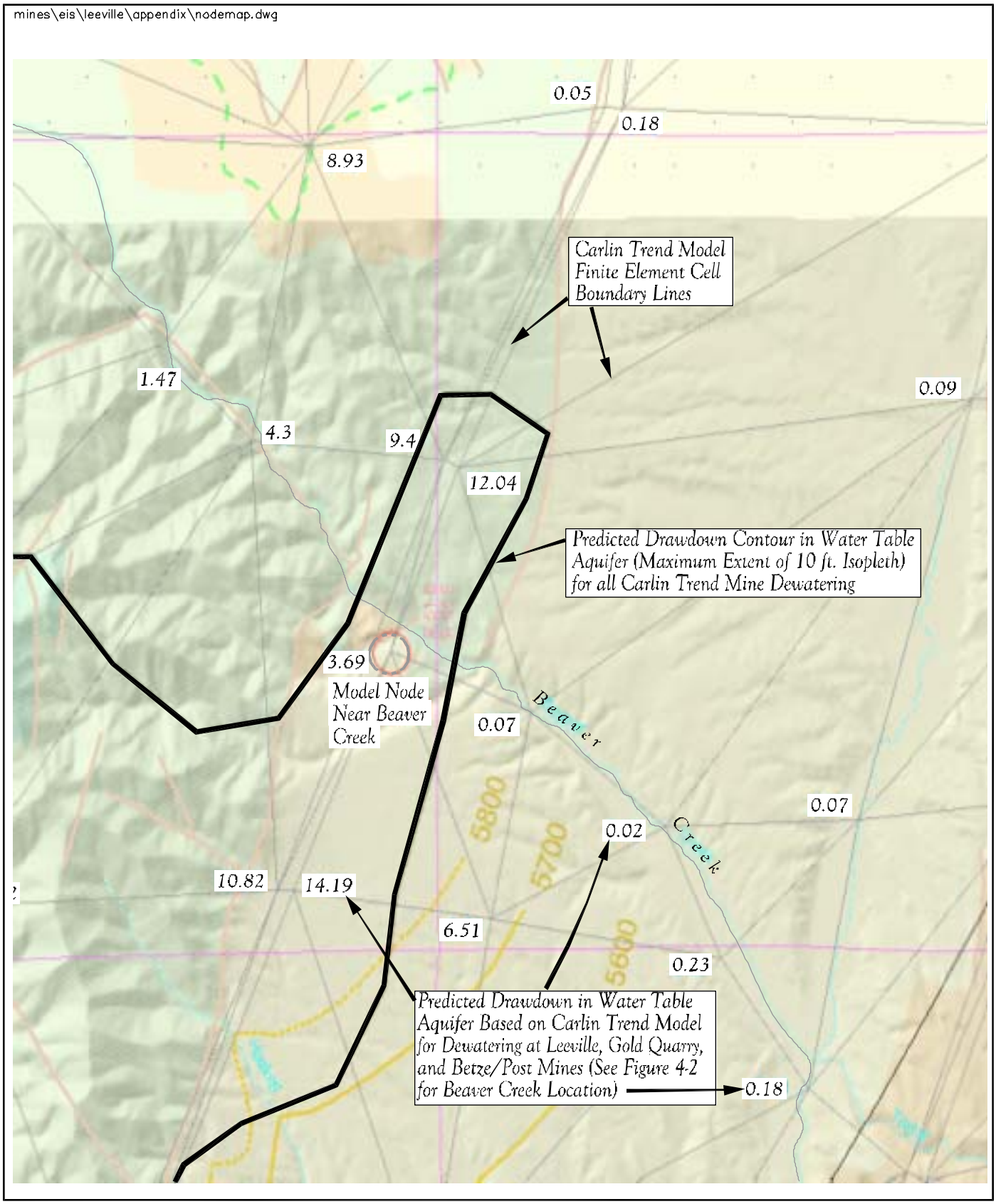


KOP2



KOP3

Reclaimed Conditions
Leeville Project
FIGURE 4-6



Carlin Trend Model Results
in Vicinity of Beaver Creek
Leeville Project
FIGURE B-1

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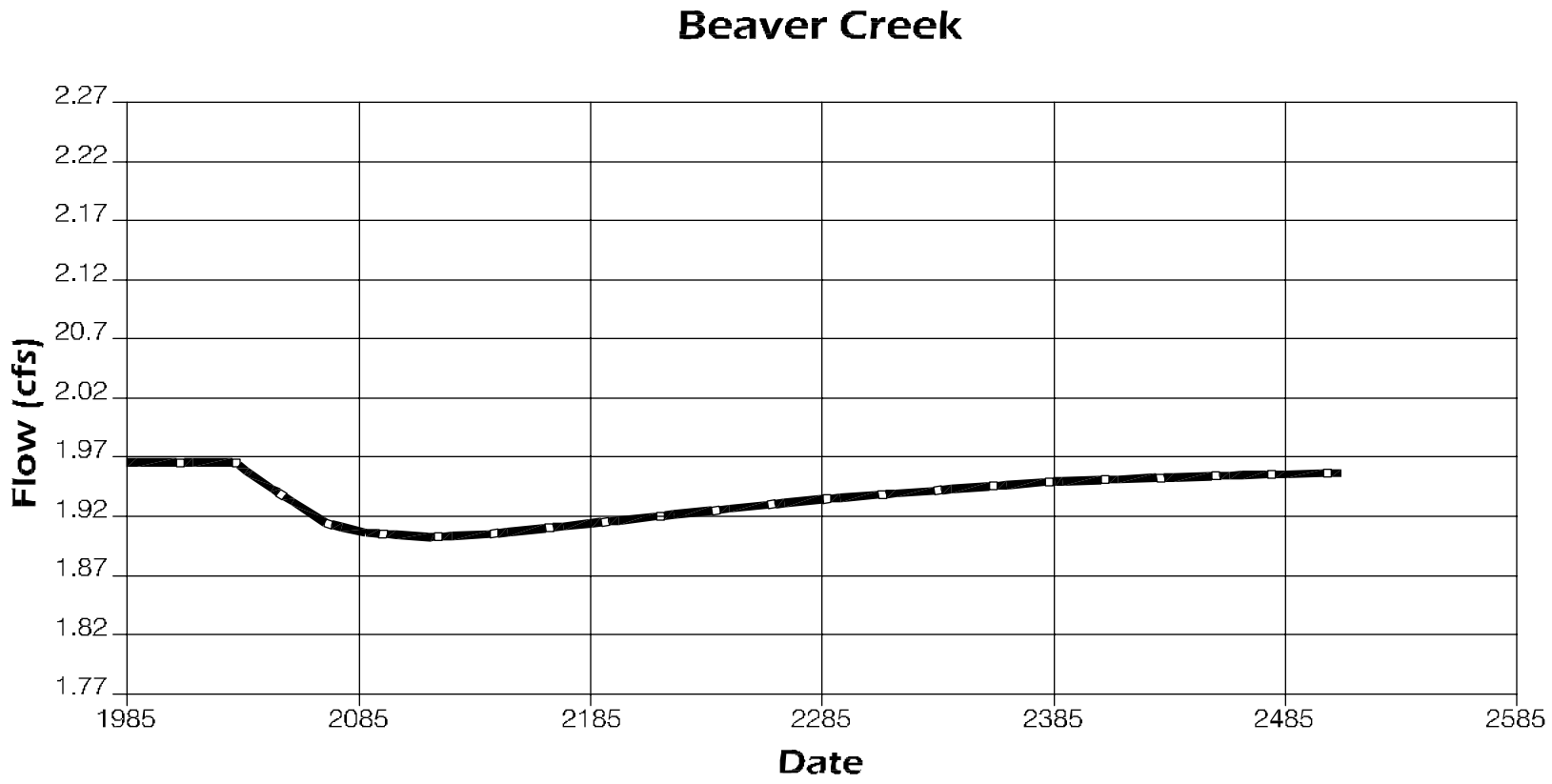

Note: Graph shows change in Beaver Creek base flow as predicted by the Carlin Trend Model for the area shown on Figure B-1 resulting from dewatering at Leeville, Gold Quarry, and Betze/Post mines.

Predicted Change in Beaver Creek
Flow from Mine Dewatering
Leeville Project
FIGURE B-2