KUC South End GW Permits

1) Barney's Canyon, UGW 350001

2) Copperton Concentrator, UGW 350017

3) Bingham Canyon Reservoirs, UGW 350006

4) Bingham Canyon Mine and Water Collection System, UGW 350010


Heap Leach Pads
Barney's Canyon Mine
Leach Water Ponds
Melco Mine
Copperton Concentrator Facilities

Barney's Canyon

- The Ground Water Permit was renewed in 2008.
- However, active mining ceased in Dec. 2001 and only leaching of 3 of the remaining ore piles continues.
- A final mine closure plan for Ground Water is due one year prior to final closure.
- Complete closure of the mine is anticipated to take place in 2013.

State Ground Water Permits and the CERCLA/NRDC process

- Under the three party agreement (State, Federal and KUC), State Groundwater Rules are used to regulate KUC's ongoing operations through several groundwater permits.
- Currently KUC South End operations are regulated by three permits including:

  1) The Copperton Concentrator

  2) The Bingham Canyon Reservoirs;

  3) The Bingham Canyon Mine and Leach Collection System;

Copperton Concentrator

- Monitoring well network used to determine any ground water impacts from operation of the Concentrator.
- Tailings pipeline is permitted "by rule", however, appropriate spill prevention and countermeasures are followed.
- Concrete containment and inspections of all liquid handling facilities decrease the potential for any possible contamination.
- Lined process water pond with leak detection.


COPPERTON CONCENTRATOR FACILITIES
Ore Storage A-Frame
Process Water Ponds
SAG Mill
Concentrate Clarifier and Thickener Structures

Bingham Canyon Reservoirs

- Currently permits both the Large and Small Reservoirs at the Bingham Canyon site.
- The reservoirs capture and store poor quality meteoric water from the entire mine as well as storm water runoff.
- The reservoirs are double lined with a leak detection system and are monitored regularly.

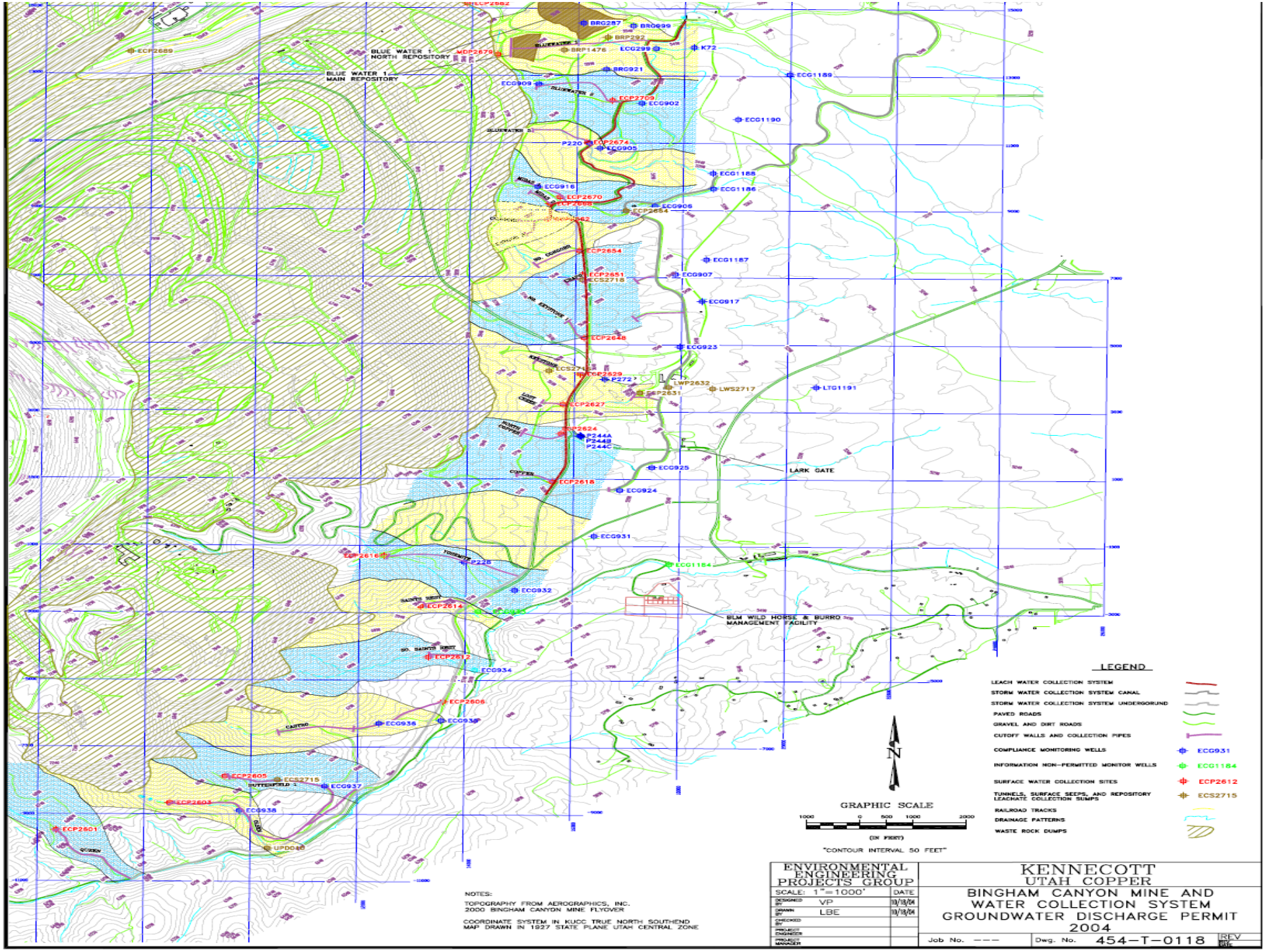
Large Reservoir at Bingham Creek.
View: East

Photo 2-1

Date: 8/30/2001

Bingham Canyon Mine and Collection System

- A monitoring well network is used to detect any further contamination of the principal Salt Lake Valley Aquifer.
- Effectiveness Studies and Source Controls have been completed under the permit to minimize any future threats of groundwater pollution.
- Cessation of active leaching in 1999-2000
- East-side cutoff walls
- The permit requires KUC to provide a mine closure plan
- The Closure plan specifies
  - long term maintenance
  - minimization of groundwater pollution, primarily acid mine drainage.



NOTES:

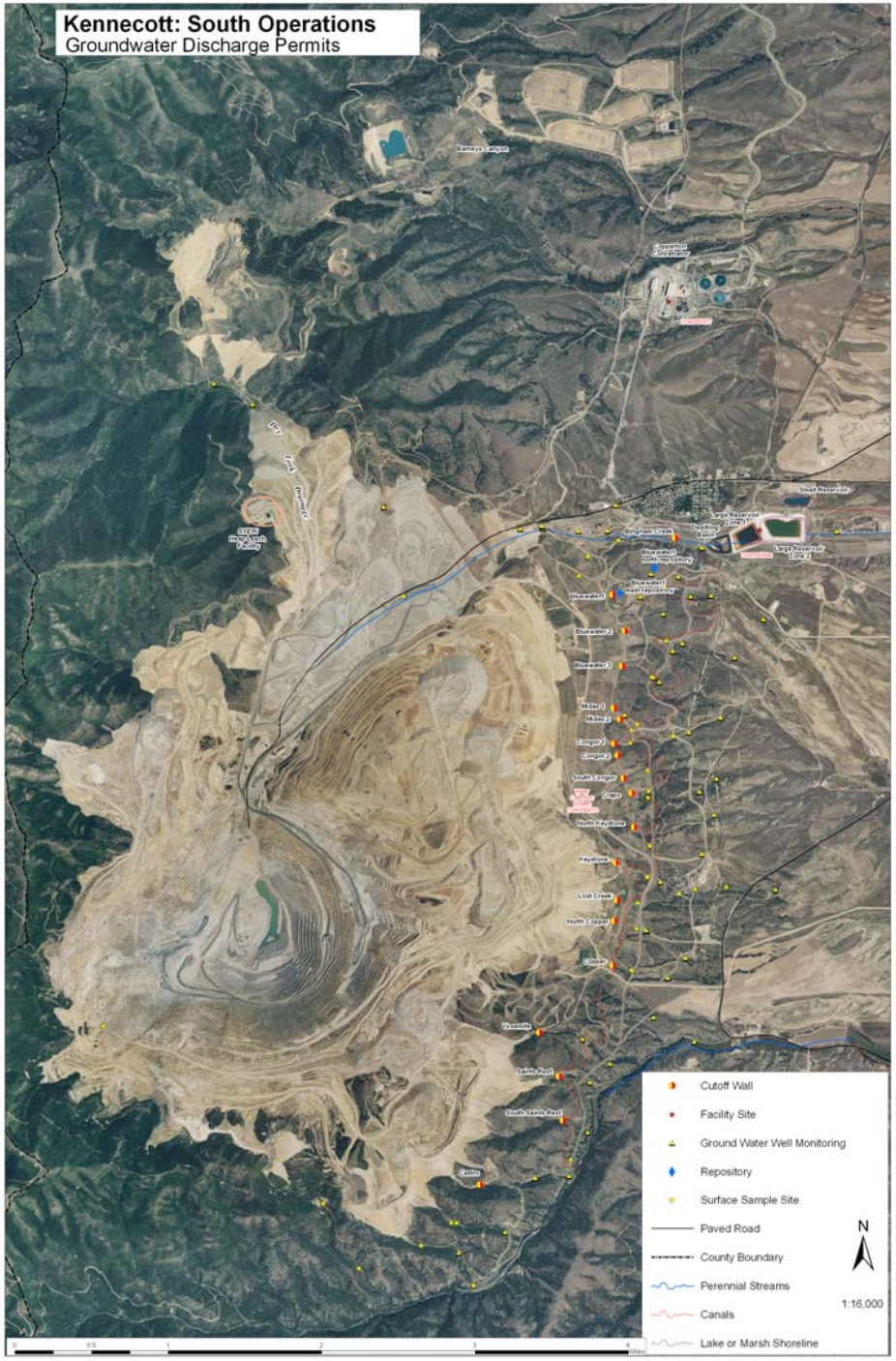
TOPOGRAPHY FROM AEROGRAPHICS, INC.
2000 BINGHAM CANYON MINE FLYOVER

COORDINATE SYSTEM IN KUCC TRUE NORTH SOUTHEND
MAP DRAWN IN 1927 STATE PLANE UTAH CENTRAL ZONE

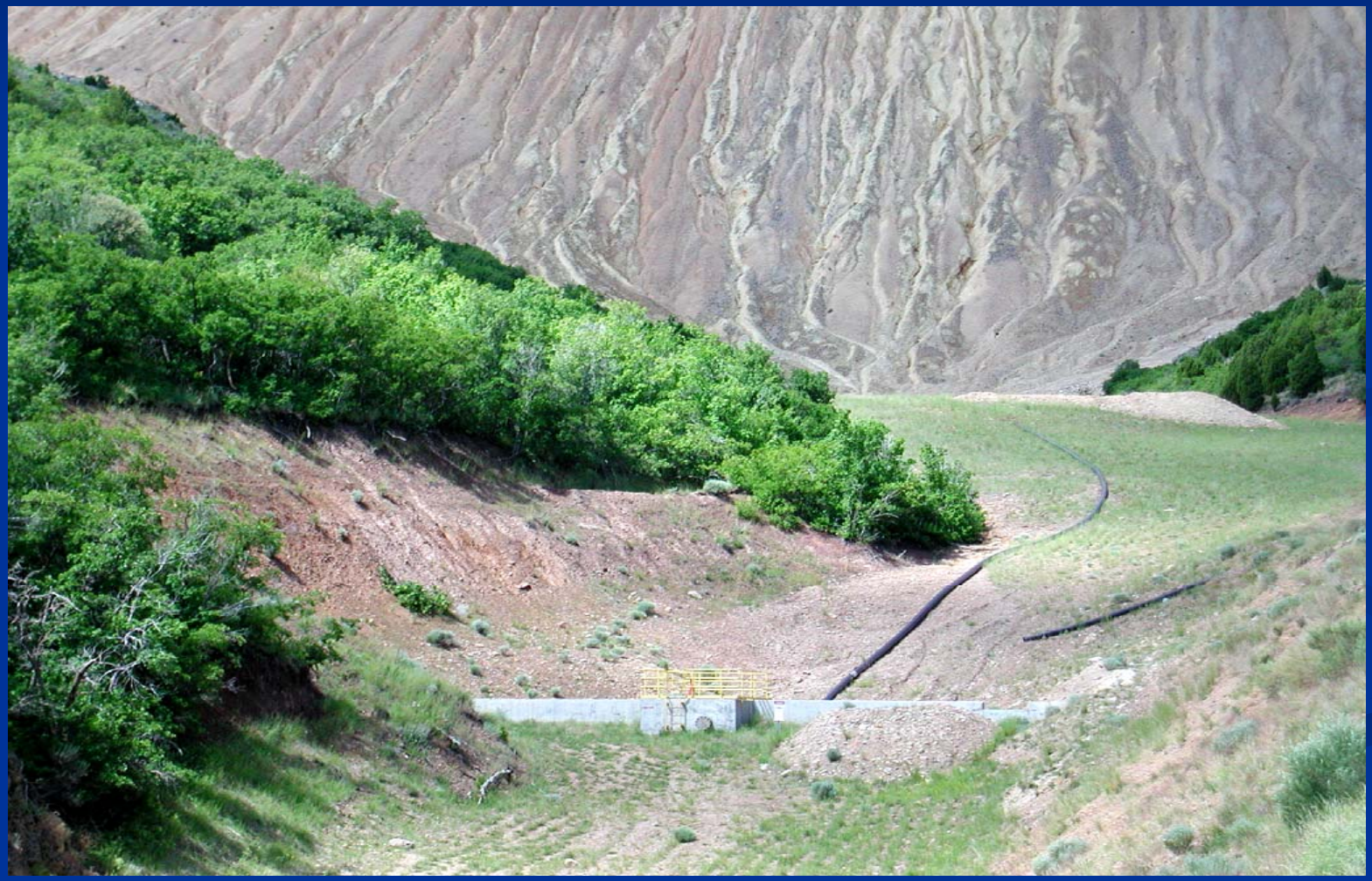
ENVIRONMENTAL ENGINEERING PROJECTS GROUP		
SCALE: 1"=1000'		DATE
DESIGNED BY	VP	10/18/04
DRAWN BY	LBE	10/18/04
CHECKED BY		
PROJECT ENGINEER		
PROJECT MANAGER		

KENNECOTT
UTAH COPPER
BINGHAM CANYON MINE AND WATER COLLECTION SYSTEM GROUNDWATER DISCHARGE PERMIT 2004

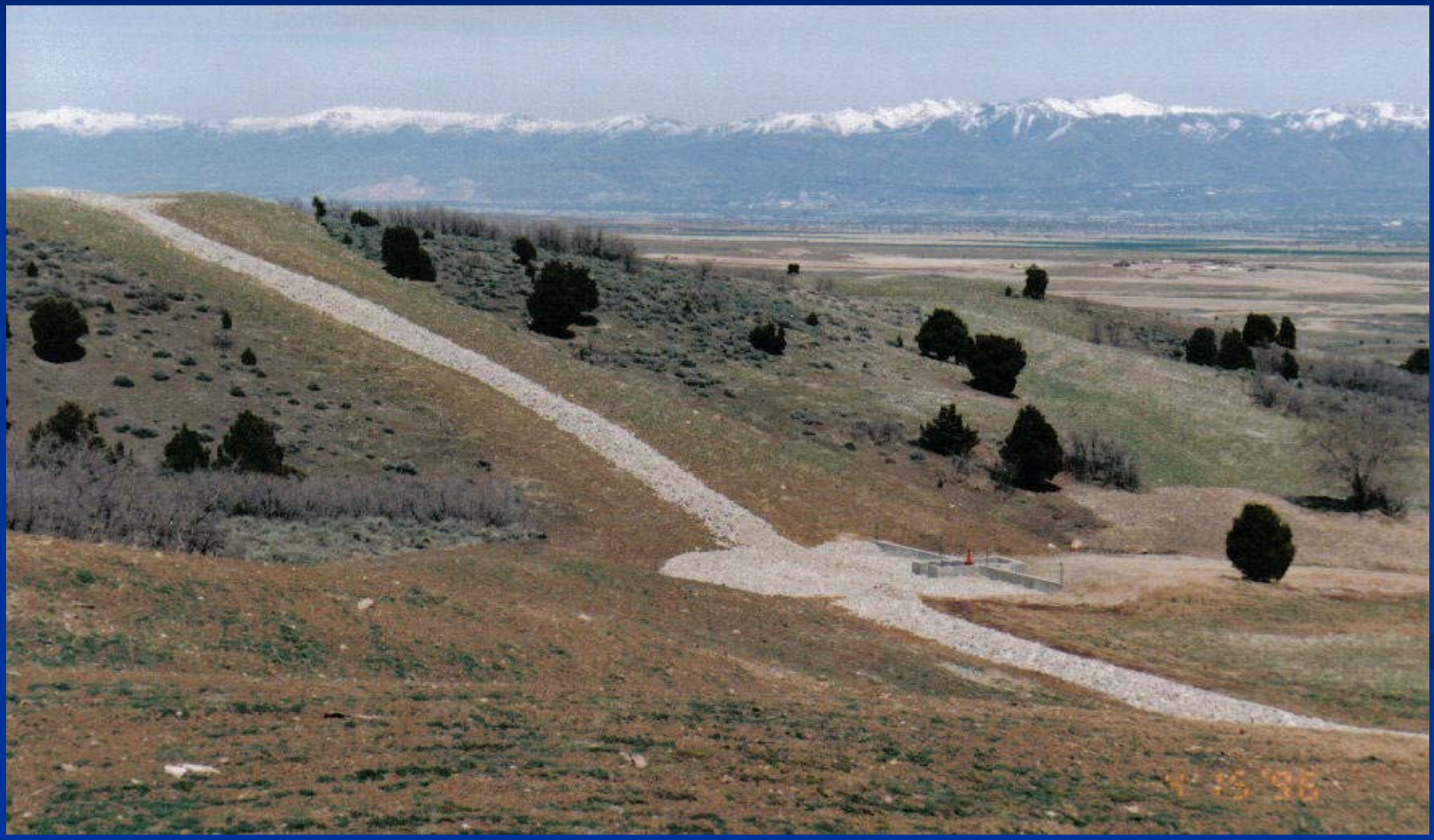
Job No. --- Dwg. No. 454-T-0118 REV

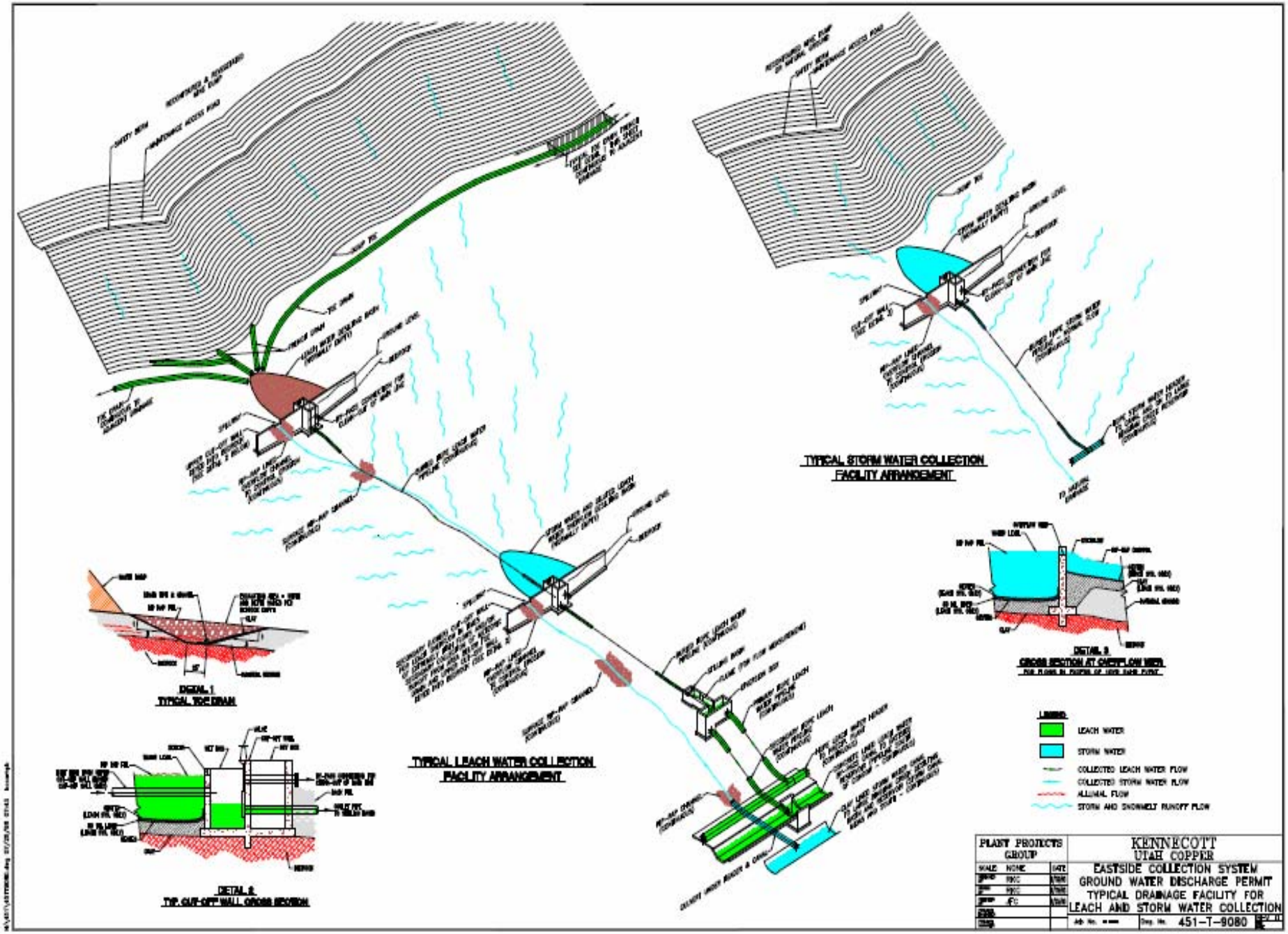

Kennecott: South Operations
Groundwater Discharge Permits
Cutoff Wall
Facility Site
Ground Water Well Monitoring
Repository
Surface Sample Site
Paved Road
County Boundary
Perennial Streams
Canals
Lake or Marsh Shoreline
N
1:16,000

Yosemite Cutoff Wall



Toe Drains




TYPICAL STORM WATER COLLECTION FACILITY ARRANGEMENT
TYPICAL LEACH WATER COLLECTION FACILITY ARRANGEMENT
DETAIL 1 TYPICAL TOE DRAIN
DETAIL 2 TYP. CUT-OFF WALL CROSS SECTION
DETAIL 3 CROSS SECTION AT CHIMPLOW WASH
LEGEND
LEACH WATER
STORM WATER
COLLECTED LEACH WATER FLOW
COLLECTED STORM WATER FLOW
ALLUVIAL FLOW
STORM AND SNOWMELT RUNOFF FLOW
PLANT PROJECTS GROUP
KENNECOTT UTAH COPPER
EASTSIDE COLLECTION SYSTEM
GROUND WATER DISCHARGE PERMIT
TYPICAL DRAINAGE FACILITY FOR LEACH AND STORM WATER COLLECTION
SCALE: NONE
Dwg. No. 451-T-9080

South End Collection Pipeline

Summary

- The State has 3 ground water permits overseeing KUC South End operations, plus Barney's Canyon.
- Source controls, best available technology and ground water monitoring limit the potential for future contamination to the Salt Lake Valley aquifer.