RECLAMATION PLAN

FOR

ROUNDTOP MOUNTAIN QUARRY

LAKE COUNTY, CALIFORNIA

Prepared for:

COUNTY OF LAKE PLANNING DEPARTMENT
LAKEPORT, CALIFORNIA 95453

By:

SCHERF & RAU, INC.
100 N. PINE ST.
UKIAH, CALIFORNIA 95482
Job No. 89-227

Pursuant to:

Use Permit 89-35

Dated:

NOVEMBER 27, 1989

Note: This is a hybrid report updating the Reclamation Plan prepared by Gennis & Associates for the County of Lake in September, 1979. Portions of that document are quoted verbatim, as indicated by the symbol (1). Minor additions, corrections or revisions are enclosed in brackets. The document in its entirety is on file with the Lake County Planning Department.

SCHERF & RAU, INC.
LAND SURVEYORS AND CONSULTING ENGINEERS
100 N. PINE STREET, P. O. BOX M • UKIAH, CALIFORNIA 95482

JOSEPH J. SCHERF, L. S.
GEORGE C. RAU, C. E.
FAX # (707) 463-2729
• (707) 462-6536

November 28, 1989
Job. No. 89-227

County of Lake
Attn: Mr. Steve Zalusky
Permit Compliance Officer
255 N. Forbes St.
Lakeport, CA 95453

RE: RECLAMATION PLAN FOR ROUNDTOP MOUNTAIN QUARRY
USE PERMIT NO. 89-35

Dear Steve,

Enclosed please find 5 copies of the reclamation plan which we have prepared in accordance with the conditions of approval for Use Permit No. 89-35.

We are proceeding with the engineering plans and should have them completed in approximately 2 months.

We appreciate the information and assistance which you have provided us during the preparation of the plan.

Very truly yours,

George C. Rau

George C. Rau

Registered Civil Engineer No. 21,908
Registered Geotechnical Engineer No. 710
Expiration Date: 9-30-93

GCR:ow

RECLAMATION PLAN
PREPARED IN THE FORMAT OF
CALIFORNIA DIVISION OF MINES & GEOLOGY
FORM NO. SP-51

OWNER, OPERATOR AND AGENT

1) APPLICANT

Bill & Beverly Van Pelt
P.O. Box 1250
Clearlake Oaks, CA 95423
Phone: (707) 998-1115

2) NAME OF MINERAL PROPERTY:

Roundtop Mountain

3) PROPERTY OWNERS, OR OWNERS OF SURFACE RIGHTS:

Parcel 12-066-03:
Margaret B. Jorgensen
353 Arboleda Drive
Los Altos, CA 94022
Phone: (415) 948-4152

Parcel 12-066-12
Margaret B. Jorgensen, 1/2

Dorothy M. & William H. Leavitt
[Address has been requested]

Parcel 12-066-24
Hitchcock Bros. Cinders
11011 Van Dorn Res. Rd.
Middletown, CA 95461
(707) 987-3722

4) OWNERS OF MINERAL RIGHTS:

Same as Owners of Record

5) LESSEE:

Same as #1 above

6) OPERATOR:

Same as #1 above

7) AGENT OF PROCESS:

Frank Bacik
Rawles/Hinkle/Carter/Behnke/Oglesby
169 Mason St.
Ukiah, CA 95482
(707) 462-6694

LOCATION

8) EXTENT OF MINED LANDS INVOLVED BY THIS OPERATION:

This reclamation plan covers approximately 150 acres of Roundtop Mountain, located about one-half mile southeast of Thurston Lake and three miles west of Lower Lake, in Lake County (west one-half of Section 5, Township 12 North, Range 7 West, Mount Diablo Meridian). The land is currently identified by Assessor's Parcel Nos. 12-066-03, 12-066-12 and 12-066-24. (See Figure 3, Assessor's Parcel Map. See also Appendix 1 for the deeds to these parcels.)

9) ACCESS ROUTE TO THE OPERATION SITE:

The quarry is accessed by Point Lakeview Drive, about one mile northwest of Highway 29. The address of record is 13329 Point Lakeview Road.

10) LOCATION AND VICINITY MAP:

See Figures 1 and 2.

DESCRIPTION

11) MINERAL COMMODITY MINED: (1)

Volcanic cinders.

12) GEOLOGIC DESCRIPTION: (1)

Regional Perspective

The Hitchcock Brothers [Point Lakeview Rock & Redi-mix] quarry is in the Coast Ranges which is [sic] noted for its complex geology and active and potentially-active faults.

Clear Lake, which occupies a down-faulted block within these mountains, is 1 1/2 miles east [north] of the quarry.

Jurassic to Eocene sedimentary, igneous and metamorphic rocks of the Franciscan Assemblage form the "basement" of the region and may have a total thickness exceeding 50,000 feet. Less structurally and lithologically complex sedimentary rocks of the Great Valley rocks are contemporaneous in age. No conformable sedimentary contact between these two rock groups has been observed. In all locations mapped, they are separated by faults of fault-bounded serpentinite and basic intrusive rocks. These fault features mark a major regional, structural discontinuity separating the two formations. This regional discontinuity is thought to be due to large scale thrust faulting which placed the Great Valley Sequence above the Franciscan Assemblage. Younger, Tertiary (about 2 million to 65 million years ago) and Quaternary (up to about 2 million years ago) volcanic and sedimentary rocks unconformably overlie both the Franciscan Assemblage and Great Valley Sequence.

Of the Quaternary rocks, the Clear Lake Volcanics are the most significant to the project area. They cover a region of approximately 160 square miles, mainly south and west of Clear Lake, ranging from 2 million years in age in the south at Pine Mountain and becoming progressively younger to the north near Clear Lake where the most recent activity is about 10,000 years ago.

The Clear Lake volcanics occur primarily as domes and flows with minor pyroclastic rocks and consist of rhyolite, dacite, andesite and basalt. Geologic structures in the region are dominated by northwest trends. A series of thrust plates, normal high angle faults and right-lateral strike-slip faults bound most of the major geologic units in the region.

Local Geology

Roundtop Mountain is a somewhat symmetrical cinder cone mapped by the U.S. Geological Survey as "Olivine Basalt of Roundtop Mountain." Volcanic flows mapped as "Dacite of Thurston Creek" surround Roundtop Mountain. The local geology is mapped in: Open File Report 76-751, Preliminary Geologic Map and Cross-Section of the Clear Lake Volcanic Field.

Although not exposed within two miles of the quarry, the Franciscan Assemblage most likely underlies the quarry. Thickness of the volcanics is estimated at 1,000 to 2,000 feet based on surficial geology and limited drill hole data.

The rock in the quarry is Quaternary and consists of basaltic pumice, scoria, and volcanic bombs. A small portion of the quarry has been hydrothermally altered with secondary mineralization. The youthful morphology of this

cone and volcanostratigraphic relationships indicate the age of Roundtop Mountain to be less than 50,000 years old. Precise potassium argon dating of basaltic rocks in the Clearlake Volcanic field has not been successful.

Roundtop Mountain is one of seven similar andesitic to basaltic cones which lie on a north-south alignment from Jago Bay to the east end of High Valley. Three of these cinder cones are mined for aggregate, decorative rock, base rock, and fill.

13) ENVIRONMENTAL SETTING: (1)

Existing Land Uses

Walnut growing is the predominant land use within a one and one-half mile radius of the quarry. The remainder of the land (80%) is vacant wildlands, covered predominantly by chaparral. Within one mile of the quarry, there are five scattered residences. A geothermal well, Union Jorgenson #1 drilled to a depth exceeding 10,500 feet, is two miles northwest of the quarry. This geothermal well encountered a non-commercial, high temperature water-dominated resource.

Thurston Lake is one-half mile west [northwest] of the quarry. The lake is relatively undeveloped with only a small cluster of homes at is southern [eastern] end.

Soil

The quarry area is covered by soil of the Pluth Association which is derived from volcanic ash and cinders. The soil is gravelly, slightly acidic, and is shallow to moderately shallow (12 to 36 inches deep). Erosion hazards for this soil are moderate, drainage is excessive and fertility is inherently low. The Pluth Association soils are unsuitable for conifer timber production and have a low suitability for managed range use. Revegetation of the soil without soil fertilization is judged to be poor. [Please refer to No. 27 below for further comments on soil fertility.]

Topography

Roundtop Mountain rises as much as 500 feet above the adjacent terrain with natural slopes averaging 20%. The elevated terrain affords excellent views of Thurston Lake and the Clearlake Highlands [City of Clearlake] area. The elevation in the quarry area ranges from a low of 1,780 feet to a maximum of 2,284 feet MSL.

Vegetation

The quarry is vegetated with chaparral dominated by

four genera of shrubs: Quercus (oak), Adenostoma (chamise), Arctostaphylos (manzanita) and Ceanothus.

Most of Roundtop Mountain is covered by scrub oak chaparral consisting of Scrub Interior Live Oak (Q. wislizenii) and California Scrub Oak (Q. dumosa). Chamise chaparral (Adenostoma fasciculatum) and mixed chaparral consisting of Deerbrush (Ceanothus integerrimus), Common Manzanita (Arctostaphylos spp) and California Scrub Laurel are the dominant vegetation types in the south and west area of the quarry. Chamise and scrub oak chaparral are dominant north and east of the quarry area.

There are no rare or endangered plants reported by the California Native Plants Society in the quarry area. The nearest known location of rare and endangered vascular plants is 1/2 mile southwest [southeast] of the quarry near Highway 29 at Pinkeye Lake which is a vernal pool. The vascular plant reported at Pinkeye Lake is Parvisedum leiocarpum, also known as Lake County Stonecrop.

According to Lake County Planning Department records, there are no significant natural values in the quarry or adjacent areas that qualify as a significant "natural area" for the purposes of the California Natural Areas Coordinating Council nor is the area designated as critical habitat by the California Department of Fish and Game. [This opinion was restated by Steven Zalusky, Lake County Permit Compliance Officer, on October 30, 1989.]

Water

The only permanent surface water in the vicinity of the quarry is Thurston Lake which has no outlet. There are no creeks on or adjacent to the project. There is no developed ground water in the quarry area. The depth to water of wells in the volcanic terrain in the general vicinity of the quarry is 400 to 500 feet. Small amounts of perched water may be available below the surface of Pinkeye Lake but no wells have been drilled. The [1979] applicant has plans to eventually drill a well in A.P. 12-002-11. [This has not been done.]

Rainfall

The mean annual precipitation in the area of the project site is 30" with 95% of the precipitation occurring from October through April.

Archaeology

No systematic archaeological surveys have been conducted in the quarry area. However, the quarry is not in an area of "High Sensitivity" according to Lake County Planning Department Records. There are no reported

archaeological sites in the quarry; the nearest sites being 1/2 mile distance near Thurston Lake and Anderson Marsh.

[Archaeological Services, of Kelseyville, carried out a mixed-strategy archaeological survey of Roundtop Mountain and described the results in a report dated April, 1985. No sites were discovered. The researchers did state that a site or sites may once have existed in the area that has already been quarried. Should significant archaeological remains be discovered within the quarry site in the future, mitigation measures would include temporary suspension of mining operations and notification of a qualified archaeologist.]

Related Environmental Impact Report

An Environmental Impact Report has been prepared for a geothermal project adjacent and to the west of the quarry area: Environmental Impact Report: Thurston Lake Exploratory Project, July, 1977. This report provides a detailed description of the environment in the general area and is on file with the Lake County Planning Department. [See also: Draft Environmental Impact Report, Sulfur Mound Mine Geothermal Prospect, June, 1979 and Final Environmental Impact Report: Wildcat Geothermal Prospect, August, 1979. The Sulfur Mound site is near the junction of highways 29 and 175, northwest of Roundtop Mountain, and the Wildcat Creek site lies almost due west of the mountain near Bottle Rock Road. These documents, too, are on file with the Planning Dept.]

EXISTING SURFACE MINING OPERATION

14) TIME FRAME:

The present operation began in January, 1972, and production has been continuous since then. If the entire mountain consists of materials similar to those thus far encountered, and if future production reaches twice the rate anticipated this year, the reserves could last for 70 years or more.

Since the operation began, it has been governed by the following permits:

1. Use Permit (no #)--June 10, 1971; 2-year term.
2. Use Permit (no #)--Aug. 9, 1973; 2-year term.
3. Use Permit (no #)--Aug. 28, 1975; 5-year term.
4. Use Permit (no #)--Aug. 12, 1980; 5-year term.
5. Use Permit 85-19--Dec. 19, 1985; 3-year term.
6. Interim Use Permit 89-9, May 2, 1989; 6-mo. term.
7. Use Permit 89-35--Sept. 14, 1989; 10-year term.

15) NATURE OF OPERATION:

The operation is continuous.

16) OUTPUT:

During the summer of 1989, a crew of two men maintained a production rate of about 1,000 cy per shift. Production is expected to reach 250,000 tons per year when new machinery is in place and the site has been contoured to permit more efficient operation (shorter push for feedstock, shorter haul of product to stockpile). Projected highway work in the vicinity could result in a large increase in sales of road-building materials.

17) TOTAL ANTICIPATED PRODUCTION:

Mineral commodities to be removed:	35 million c.y.
Waste retained on the site:	None.
Waste disposed of off-site:	Concrete waste.
Maximum anticipated depth:	The cone will be lowered by as much as 400 ft., but will still be a prominence (not a pit).

18) MINING METHOD:

The operation is basically a hilltop and sidehill quarry. Blasting is required only when excavation exposes scattered bodies of dense rock, typically once or twice each year.

19A) PROCESSING:

At the time of this writing, the operators are still using the plant that has been in use since 1972. Feed rock, whether friable cinders or blasted rock, is ripped by a D9 dozer and pushed into a slusher, which then conveys the material to a crushing and screening plant. The rock passes over a 7" grizzly, through a jaw crusher, and over screens to a roll crusher before passing over a final set of screens. The crushed and sized material is then transferred to the appropriate stockpile, bucket by bucket, by a front-end loader. Trucks pull up to the stockpiles for loading.

At present the volcanic raw materials are crushed and screened into the following products:

2" to 4" cobbles
1-1/2" red
1-1/2" brown
3/4" red

1/2"
5/16" minus
3/4" Class II base
1-1/2" subbase
Decorative boulders

There is a market for everything that the crushing/screening operation produces, from fine materials to coarse. Some oversized boulders are presently stockpiled on site. Many will be able to pass through the larger jaws of the new crusher, and it is anticipated that the really big ones will be broken down into crusher-sized fragments by other means as a source of the denser feedstock that is required for the production of certain types of base rock.

The new operators plan to install a new crushing/screening plant with greater capacity. The new setup would consist of:

--2 12'x12' feed hoppers
--1 30"x42" jaw crusher
--1 20"x36" jaw crusher
--2 40"x30" roll crushers or cone crushers
--1 6'x16' 2-deck screen
--2 6'x16' 3-deck screens
--1 3'x8' single-deck screen
--1 4'x8' single-deck screen
--9 30" transfer conveyors
--6 30" stacking conveyors
--2 loaders
--D9 dozer
--power plant

At present the proposed plant site is steep, irregular and inconvenient. Accordingly, quarrying is being concentrated in the area where the new facilities are to be located, with an eye to forming a pit floor that will be flat enough and large enough to promote efficiency in day-to-day operation, in terms both of production and of storage of the various grades of product.

In addition to the mining and processing of volcanic cinders, the operators also produce concrete with a small batch plant. Production, which during 1988 was approximately 100-200 cy per month, is presently limited by the lack of large mixing trucks to transport the concrete. The operators expect to acquire additional Redi-mix trucks, and production is expected to increase. (The plant itself is capable of producing 200+ cy per hour.)

The cement batch plant produces a small amount of wastewater from the washing of the mixing trucks; a proper containment area has been set aside for retention and percolation of this wastewater. There is no discharge from

the containment area.

Small amounts of leftover cement are occasionally dumped onto the ground near the plant, in order to clear the trucks. The conditions of the Use Permit require that this leftover material eventually be hauled away to an approved disposal site.

19b) WATER USAGE:

Water usage for the entire operation amounts to approximately 8000 gallons per month. All water is purchased from the Lower Lake Water Co. and hauled to a 10,000-gallon storage tank located on the hillside above the pit. There is sufficient natural moisture in the quarried material that water is not required for dust control during processing. Water is used for dust control on the roads, and in the batching of concrete.

20) CONCURRENT RECLAMATION:

998-115

Reclamation of the Roundtop Mountain quarry will consist essentially of grading the final surface to suitable contours, spreading reserved topsoil, and revegetating. The work cannot proceed concurrently with mining because the entire mountain is to be lowered in stages (maintaining a berm along the south edge as a visual screen for Highway 29). The entire sidehill will be continually reworked as the cinder cone is lowered, and only when at least a portion of the site has reached final grade can the first of the reserved topsoil be replaced. This may be 50 years or more in the future.

21) MAPS, AERIAL PHOTOS:

Figure 4 shows a current aerial view of the site, photographed in November, 1989. The dark line represents the area to be covered in the engineered soil plan, which will also include a topographic map showing the present and future landform configurations.

RECLAMATION PLAN

22) AREAS TO BE RECLAIMED:

The original report prepared by Gennis & Associates indicates the areas to be reclaimed. The new Engineering Plan, to be completed by March 14, 1990, will include updated maps and aerial photos.

23) ULTIMATE PHYSICAL CONDITION OF SITE

The engineered soil plan will include details on the ultimate physical condition of the site. As presently envisioned, the quarry area would ultimately be a smooth planar surface of approximately 105 acres bordered by stable, revegetated cut slopes. The planar surface would be largely a 2% slope, suitable for residential sites or for such agricultural uses as walnut orchards. Point Lakeview Drive and Highway 29 would provide ample access to the reclaimed site.

In accordance with the conditions of Section E.5 of Use Permit 89-35, the operators are negotiating for an inflation-adjusted bond of $100,000 to be maintained to assure reclamation of the quarry.

24) ZONING & GENERAL PLAN:

Zoning

The area of the quarry itself is currently zoned RL (Rural Lands, 20 acre minimum). The purpose of this designation is to provide for resource-related and residential uses of the county's remote undeveloped lands, which are often characterized by steep topography, fire hazards and limited access. There are no proposed interim uses other than mining that would require further consideration of zoning regulations.

A very small portion of parcel 12-066-03 lies within an area designated A (Intensive Agriculture, 40 acre minimum). However, this land is almost entirely covered by walnut orchards, which under the terms of the lease may not be disturbed.

In addition, the extreme northern portion of the quarry area, lying between Point Lakeview Road and the access road to Mrs. Jorgensen's property, falls within an area zoned RL-SC (scenic corridor). These few acres were cleared a number of years ago, before the scenic corridor designation was in place, in order to provide a stockpile area. This area shows clearly on the aerial photograph in the Gennis report, but for some reason is not included within the boundaries of that report's reclamation plan. The current plan extends the boundary to include the additional acreage.

General Plan

The Lake County General Plan reflects no changes in the zoning classifications presently in force within Section 5. The site will ultimately be contoured, topsoiled and revegetated, and thus would be suitable for any of the uses permitted under the zoning classifications presently required by the general plan (orchards, residential parcels, etc.).

25) NOTIFICATION OF OWNERS:

All owners of a possessory interest in the land have been notified of the present and projected mining activity on their properties. The properly signed acknowledgments will be filed with the County as they are received.

26) SOIL SALVAGE PLAN:

Use Permit No. 89-35 (Section B.1) stipulates that vegetation shall be removed only from areas where active mining is to occur during any one year, and then only in areas contiguous to the existing cleared areas. This means that topsoil will be generated incrementally, over a span of decades. A preliminary plan prepared by Taggart Engineering in June, 1985 estimated that something like 300,000 c.y. of topsoil would be needed to reclaim the site.

Section E.3 of the use permit mandates that topsoil shall be stockpiled on-site in sufficient amounts to allow soil to be spread out over the finished mine grade to an average depth of at least two feet. No matter where these topsoil stockpiles are initially established, they will have to be moved--possibly several times--as Roundtop Mountain is lowered to final grade.

The engineered soil plan, to be submitted by March 14, 1990, will contain the details of how the soil is to be handled during the course of the mine's operation.

27. METHOD OF RECLAMATION:

The Roundtop Mountain cinder quarry will be developed in accordance with a finish grading plan, which will be developed over the next few months. It is anticipated that this new plan will be a variation of the one prepared by Gennis & Associates (on file with the Lake County Planning Department).

As mining in a given area approaches final grade, the operators will use standard construction surveying techniques to ensure that excavation is carried no deeper than necessary. Thus no backfilling would be required.

When the mine finally ceases operation, all quarrying and processing equipment will be removed. The slopes of the reclaimed site will be engineered to eliminate danger to the public in the future. Because the mining and processing operation does not produce any contaminants, there will be no chemical pollution of surface run-off or ground water. There will be no residual hazards remaining from the mining operation.

Due to the nature of the site, the Engineering Plan will not need to address the issues of the rehabilitation of pre-mining drainage or treatment of stream beds and stream banks to control erosion and sedimentation.

Revegetation of Roundtop Mountain will not begin until the topsoil is spread over finish grade several decades from now. Present technology relies on a hydromulch technique, in which a mixture of seeds is combined with water, wood fibers, fertilizer, and dye (for application density control) and then sprayed over the surface to be treated. This technique has a good track record and may be even more highly developed by the time reclamation of Roundtop Mountain takes place.

Since no revegetation is anticipated for at least the next half-century, there is no practical reason to engage a specialist for the purpose of developing a full-blown revegetation plan at this time. However, we have consulted with an organization that specializes in the revegetation of harsh sites with woody plants. We anticipate engaging one of their experts to review the vegetation and soils on Roundtop Mountain. The Engineering Plan will include information about methods which have been successful in reintroducing native species in such areas as The Geysers. We feel that our consultant will demonstrate that the quarry could be successfully revegetated even using today's techniques.

Evidence that selected plants can survive given the area's topography, soil and climate can be seen in the fact that the two areas of scalped soil now on site have spontaneously revegetated with a decent covering of native plants, entirely without seeding, fertilization, watering or other intervention by man, over a period of six or seven years.

28) SHORT TERM PHASING:

Short-term phasing is not anticipated on this project.

29) EFFECTS OF RECLAMATION ON FUTURE MINING:

Roundtop Mountain is an isolated site, and whatever reclamation measures are put into effect in the future are expected to have no effect on any other mining activity.

Figure 1 - PROJECT LOCATION MAP

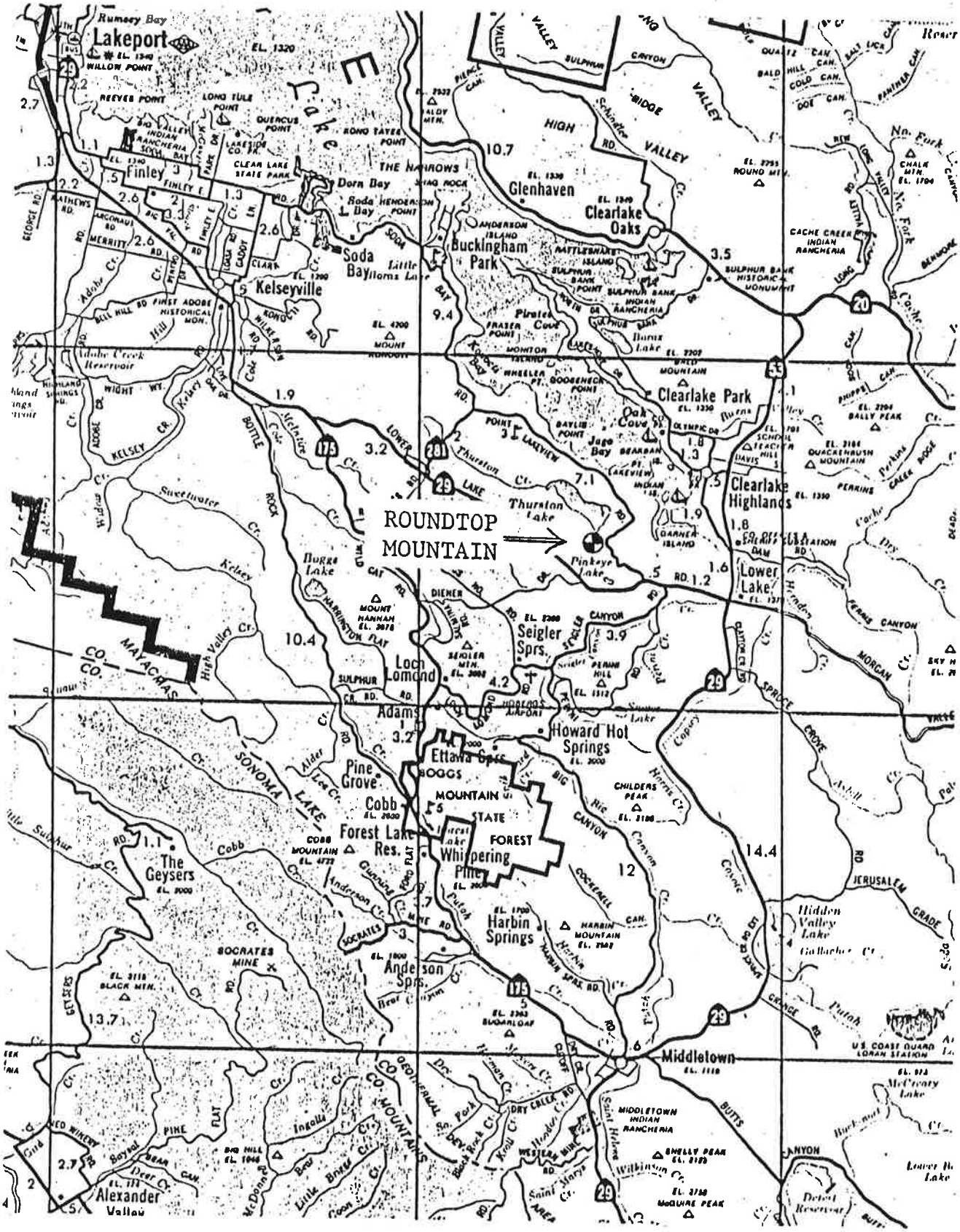


Figure 2 - PROJECT VICINITY MAP

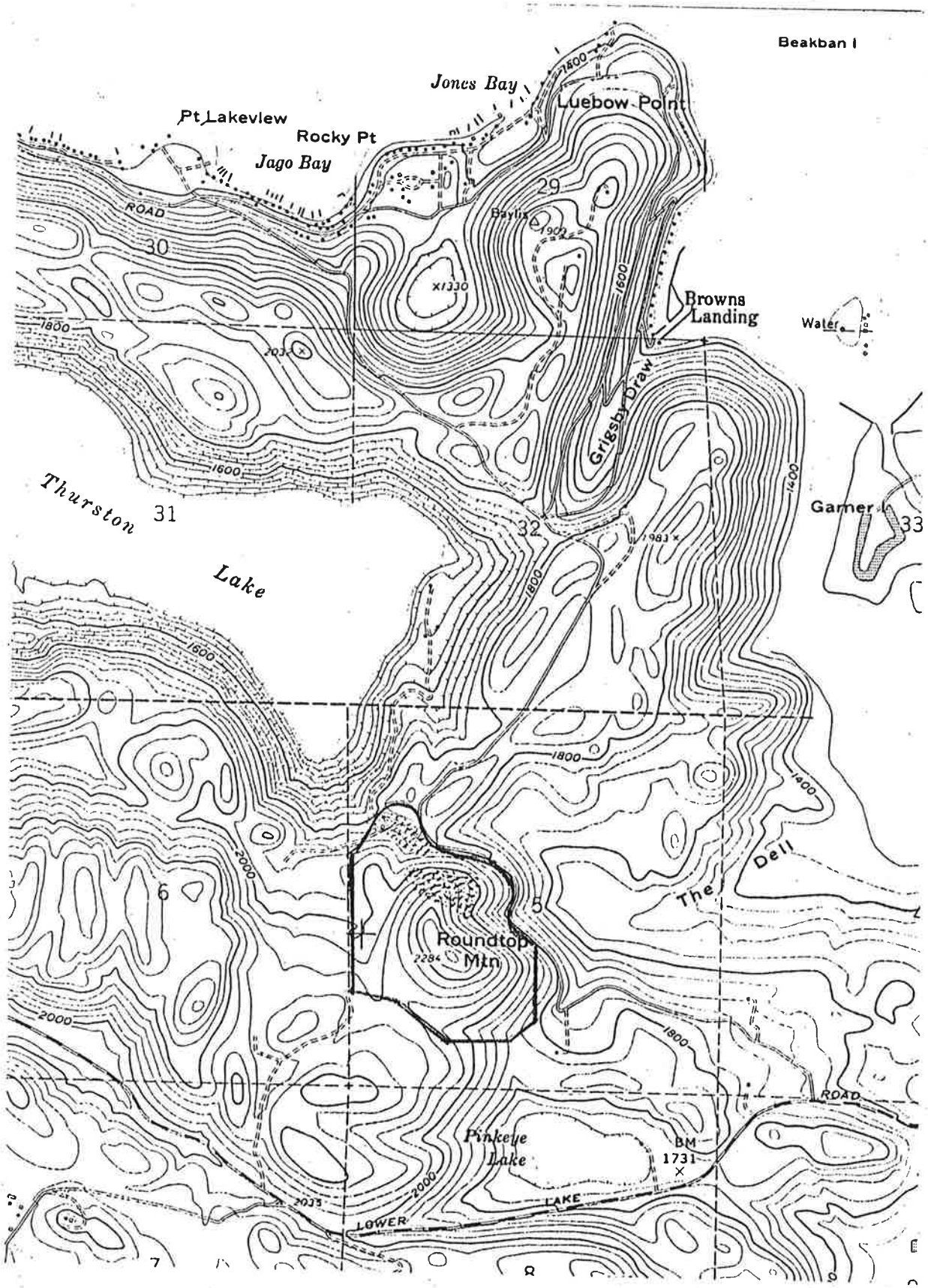
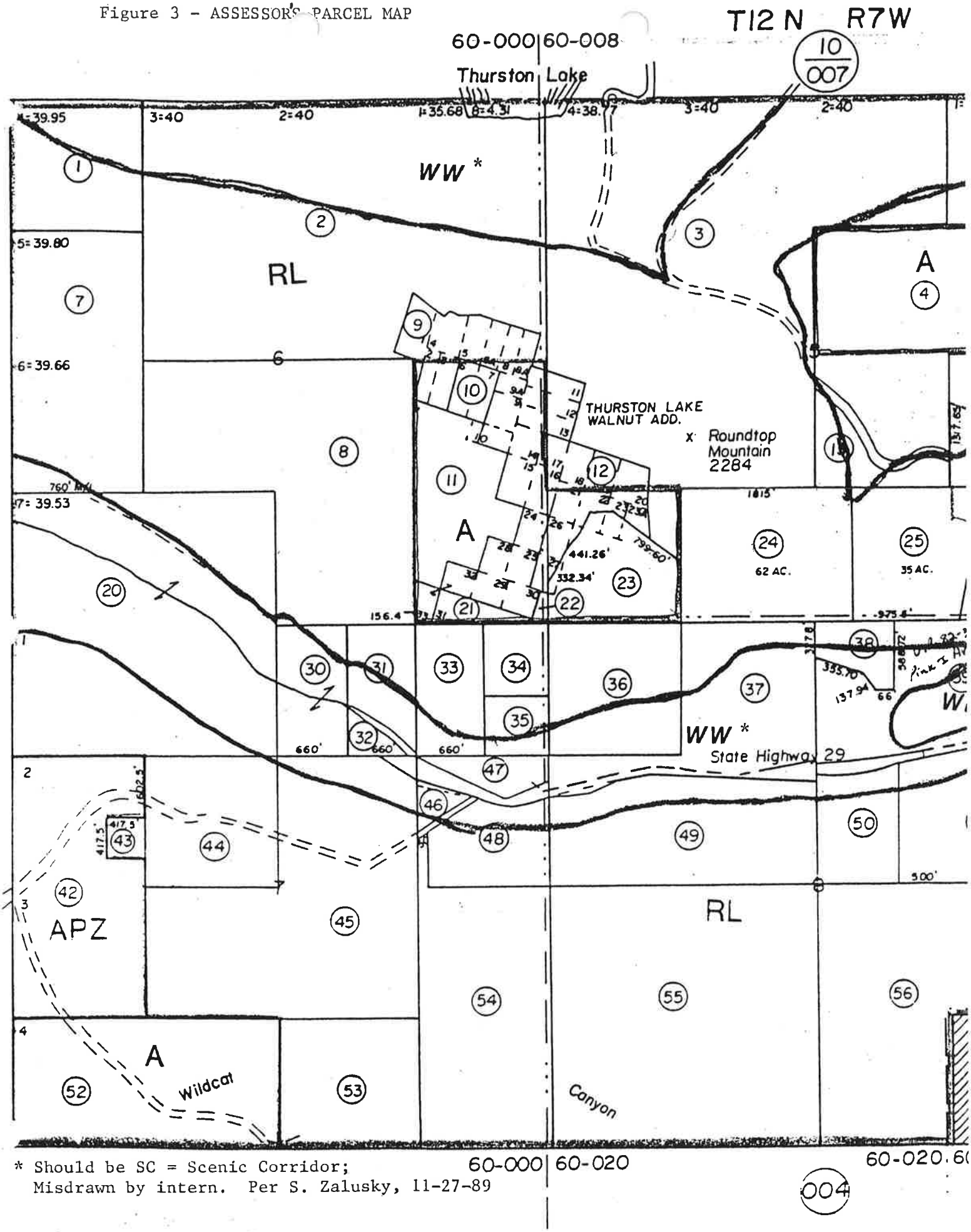


Figure 3 - ASSESSOR'S PARCEL MAP



* Should be SC = Scenic Corridor;
Misdrawn by intern. Per S. Zalusky, 11-27-89

Figure 4 - APPROXIMATE RECLAMATION PLAN BOUNDARY