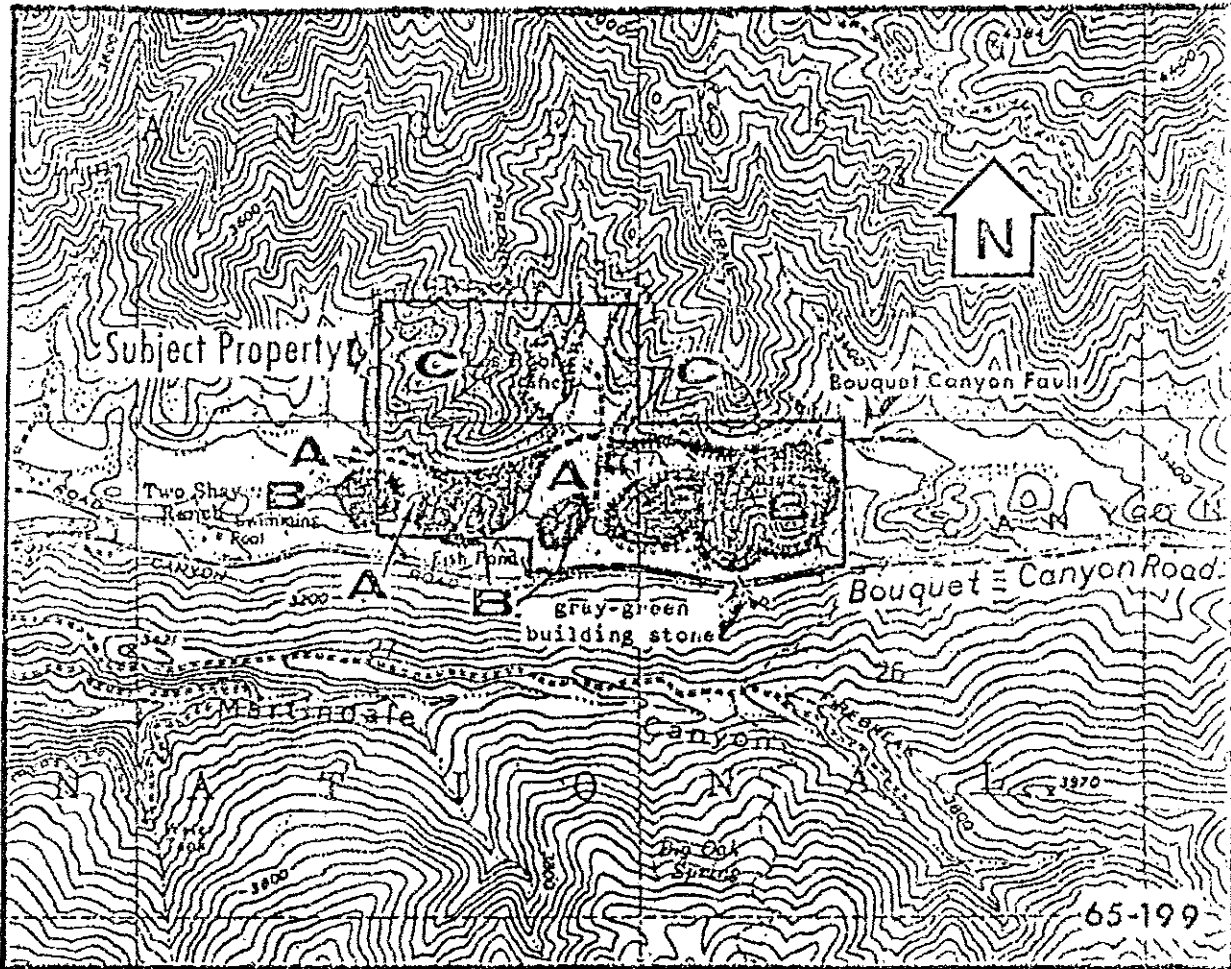


LOCATION AND GEOLOGIC ANALYSIS MAP

BQCANCO RANCH



This Map is Not a Survey of the Property.

SCALE 1"=2000'

Explanation:



Alluvium; easily excavated.



Pelona schist; rippable even in deep cuts.



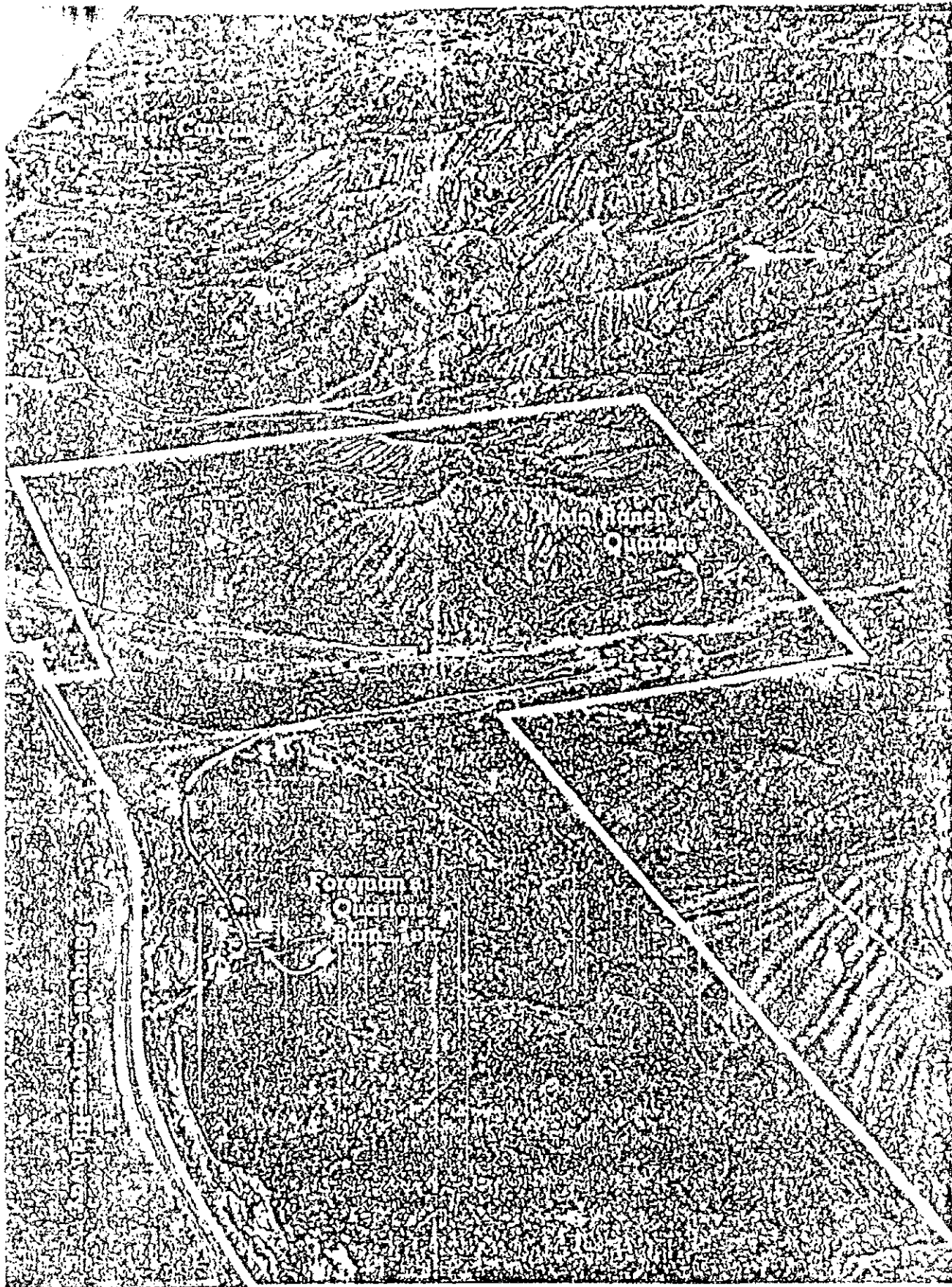
Locality of schist suitable for building stone.



Quartz diorite; easily graded near the surface; probably rippable in deep cuts. Possible sub-base source.



Fault



Aerial View of Property

STONE GEOLOGICAL SERVICE, INC.
 CONSULTING GEOLOGISTS
 10720 VENTURA BOULEVARD
 WOODLAND HILLS, CALIFORNIA

TRIANGLE 3-7382
 DIAMOND 8-0868

November 22, 1965
 65-199

Subject: Preliminary Geologic Report,
 Bocanco Property,
 Twin Oaks Ranch, Bouquet Canyon
 (248 Acres)

Bocanco
 5400 Lemona Avenue
 Van Nuys, California

Attention: Mr. Robert C. Ohm

Gentlemen:

This report presents our opinions relating to geologic factors affecting residential development of the Bocanco property, and the potential for a source of building stone. Our latest examination of the property was on November 5, 1965.

Our investigation included (a) a field reconnaissance (b) examination of aerial photographs, and (c) a review of data in our files relating to the area.

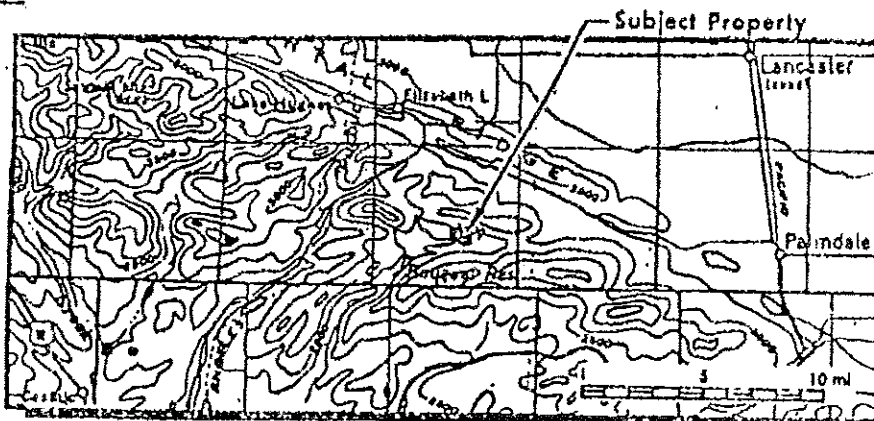
SUMMARY

The property can be developed for residential purposes.

There is a source of Bouquet Canyon building stone on the property.

DESCRIPTION OF PROPERTY

Location



The property is located in Bouquet Canyon, about midway between Saugus and Palmdale along Bouquet Canyon Road.

The location and topography of the property and surrounding area are shown on the Location and Geologic Analysis Map accompanying this report.

Topography

The property includes gently sloping terrain in the south portion (along and adjacent to the floor of Bouquet Canyon), generally moderately sloping terrain in the northwest and east portions (on the ridges and hillsides), and some locally steep slopes on the ridges.

The maximum difference in elevation within the property is about 400 feet. Drainage is directed generally southward along canyons and gullies toward the channel of Bouquet Canyon (along the south edge of the property).

A residence and associated structures are present in the northern part of the property; there are several farm buildings and corrals in the southeastern part. The lower-lying valley areas have been cultivated. Ridges are covered by low chaparral; oak trees are present locally.

GEOLOGIC SETTING

The property is underlain by three main formations. These are (1) alluvium, which veneers the bedrock consisting of (2) quartz diorite, and (3) Pelona schist. Sandy soil and deeply weathered rock mantle the surface in most places.

The Bouquet Canyon fault zone, a major structural feature of the area, separates the quartz diorite from the schist. The distribution of these rock units and the fault zone are shown on the Location and Geologic Analysis Map accompanying this report.

(Continued on Page 3)

November 22, 1965

65-199

Bouquet Canyon Fault Zone

The Bouquet Canyon fault zone trends east-west across the central portion of the property. This zone is steeply inclined toward the north. Within the zone there are slivers of a sedimentary rock formation not present elsewhere on the property. The main fault within the zone is characterized by several feet of intensely sheared and chemically altered rock. The Pelona schist (on the south side of the fault) is extensively sheared and fractured for several tens of feet from the main fault.

Although the area is faulted, as are most parts of southern California, the majority of these faults do not constitute an unusual earthquake hazard. The Bouquet Canyon fault appears to be inactive; the San Andreas fault, however, (which passes about four miles north of the property) has had a long history of seismic activity.

Pelona Schist

The Pelona schist underlies the low hills to the south of the Bouquet Canyon fault. This rock is the source of the building stone quarried in nearby areas to the west. It consists mainly of thin-bedded muscovite-quartz-albite schist.

Most of the unweathered rock is medium gray to brownish gray. Stains of dull yellow-brown to red-brown iron-oxide are present in the weathered rock.

The rock is characterized by a highly developed platy schistosity (cleavage or splitting facility) that parallels bedding. The bedding is typically inclined northward at a moderate to high angle.

(Continued on Page 4)

November 22, 1965

65-199

Less abundant types of schist present within the property include (1) gray-green actinolite-chlorite schist (2) quartzite schist, and (3) talc schist. The location of the gray-green variety (more abundant in the quarries to the southwest) present within the property is shown on the attached Location and Geologic Analysis Map.

The Pelona schist should cause little or no grading difficulty. The use of standard grading equipment should be feasible, even in deep cuts. No blasting should be necessary.

Slopes cut in schist at $1\frac{1}{2}:1$ for residential development should perform in a substantially satisfactory manner providing schistosity or bedding planes are not undercut.

South-facing slopes cut at $1:1$ to moderate height for residential development should be feasible in some areas.

Quartz Diorite

Light-colored hornblende quartz diorite underlies the area to the north of the Bouquet Canyon fault zone. Most of this rock (also called D. G.) is medium-grained and structurally massive. Locally it contains a layered structure that dips northward at a moderate to high angle.

As a result of extensive weathering, the rock breaks readily in coarse-grained sand. This sand would probably be suitable for sub-base material.

No grading difficulty is likely in cuts of moderate depth. Deep cuts are probably feasible but additional studies (especially seismic studies) are recommended to verify this.

The quartz diorite should perform in a substantially satisfactory manner in cut slopes made at $1\frac{1}{2}:1$ for residential development. Deeply weathered rock will be subject to erosion.

(Continued on Page 5)

November 22, 1965

65-199

Some 1:1 cuts, if made in firm quartz diorite, should be feasible for residential development up to moderate heights.

Siltstone

Dark brownish-gray siltstone is present in narrow slivers along the Bouquet Canyon fault zone. This siltstone appears to be part of the Martinez formation displaced by the faulting. It crops out over a large area to the west of Bouquet Reservoir. The siltstone is extensively sheared and will perform poorly in cut slopes.

Alluvium

Sandy stream deposits overlie bedrock in the lower-lying areas. The maximum thickness of the deposits was not determined; however, it is probably at least a few tens of feet thick.

BUILDING STONE (PELONA SCHIST)

Availability

A large quantity of rock suitable for building stone is available from the southern portion of the low hills along the south edge of the property.

The general localities of this schist suitable for building stone are shown on the Location and Geologic Analysis Map. However, only one of the locations has gray-green schist similar in character to the most attractive rock being quarried to the southwest in Bouquet Canyon.

Except for this source of gray green rock, in most of the other locations the schist has a brownish stain which makes it less desirable. Near the fault zone the deeper weathering and the extensive fracturing make the schist unsuitable for building stones.

(Continued on Page 6)

Overburden Removal

Little overburden removal would be necessary along the southern edge of the hills. Northward, however, the thickness of deeply weathered rock increases to about 20 or 30 feet, along the northern edge of the hills.

Size of Quarried Stone

In the suitable quarry sites (shown on the map) the schist would split readily into rectangular slabs about one to two inches thick, by one-half to two feet wide, by one to three feet long. The edges of the slabs follow relatively straight joint surfaces which are nearly at right angles to the bedding or slab faces.

Because of extensive fracturing near the fault, suitable building stone probably would not be found within 400 feet of the Bouquet Canyon fault.

CONCLUSIONS AND RECOMMENDATIONS

1. The property is geologically suitable for development by cut-and-fill grading operations. A source of building stone is present.
2. One good source of gray-green Bouquet Canyon stone is available close to the road. Most of the sources of stone would provide schist with brown iron stain. A detailed topographic map should be made to provide data for calculating the volume of gray-green stone.
3. The bedrock which underlies the hilly portions (about two-thirds of the entire property) should excavate readily to moderate depths. We recommend additional study to determine if deep cuts in the quartz diorite would be feasible without blasting.

The gently sloping alluvial portion (about one-third of the entire property) could be developed with minimal grading.

(Continued on Page 7)

November 22, 1965

65-199

4. Permanent cut slopes made at 1½:1 should perform in a substantially satisfactory manner. Some cuts in the bedrock may be feasible at 1:1 to moderate heights. In the Bouquet Canyon fault zone, rock of poor stability would be encountered.
5. The earthquake risk on the property is not significantly greater than in, say, nearby Palmdale or Saugus. However, special foundation study should be made prior to placing any large structures in the fault zone.
6. Dense development in the bedrock areas would require off-site disposal of sewage effluent because of the low permeability of most of the bedrock.
7. Surface drainage must be handled in an appropriate manner.
8. A more detailed geologic study would be needed to evaluate the suitability of specific grading plans. Subsurface exploration, as well as a large-scale topographic map are needed to determine the quantity of building stone available on the property.

Very truly yours,

STONE GEOLOGICAL SERVICE, INC.

By Perry E. Ehlig, Ph.D.
Perry E. Ehlig, Ph.D., Engineering
Geologist

And by Richard Lung
Richard Lung, Engineering Geologist

PLE:RL/imp

Encl: Location and Geologic Analysis Map