UNITED STATES DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

IN-SITU MEASUREMENTS OF SEISMIC VELOCITY AT 27 LOCATIONS IN THE LOS ANGELES, CALIFORNIA REGION

OPEN-FILE REPORT 80-378

Menlo Park, California

1980

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IN-SITU MEASUREMENTS OF SEISMIC VELOCITY AT 27 LOCATIONS IN THE LOS ANGELES, CALIFORNIA REGION

by

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This report is preliminary and has not been edited or reviewed for conformity with Geological Survey standards and nomenclature

CONTENTS

INTRODUCTION

Studies conducted in the San Francisco Bay Region (Gibbs, Fumal and Borcherdt, 1980) have shown that average shear-wave velocity can be readily tied to quantitative estimates of ground motion such as ground amplification and earthquake intensity. Furthermore, when certain physical properties of the geologic materials such as texture, hardness and fracture spacing are observed during geologic mapping, a method can be used to predict shear-wave velocity from the descriptions of geologic units. By measuring shear-wave velocities in key units together with the above data, regional maps depicting the earthquake shaking hazard can be compiled.

The goals of the current program are to provide shear-wave data in the Los Angeles area to compare with that in the San Francisco Bay Region where high-strain intensity data are available. Data from twenty-seven locations are summarized in this report as part of a continuing project to seismically zone the Los Angeles area.

SELECTION AND LOCATION OF SITES

The selection of the first 27 sites (fig. 1) in this study was guided by the availability of other data in the Los Angeles area that are applicable to the overall problem of estimating earthquake ground motions. These data are (1) strong motion records from the 1971 San Fernando earthquake, (2) ground motion recorded from nuclear explosions and (3) geologic mapping (in progress). Sites are selected on the basis of each data set with priority given to the order listed.

DRILLING AND SAMPLING PROCEDURES

At each site selected, a hole 12.4 cm in diameter is drilled to a depth of 30 m using a truck-mounted drill and a rock bit with mud and water circulation. The boring is then cased with 7.6 cm diameter PVC plastic pipe and backfilled with drill cuttings and "pea" gravel. Casing insured accessibility of the hole and provided a secure clamping surface for the seismic probe.

Samples are taken in each of the holes at depths of approximately 3 m, 7.5 m, 30 m, and at boundaries defined by continuously monitoring the drill cuttings and the drill reaction. The type and number of samples taken at each site is determined by the type of material, the number of significant lithologic boundaries, and variations in weathering.

In soils, standard penetration measurements are made and samples are taken using a "Pitcher" core barrel and a "Shelby" thin tube liner. Core barrel samples are also taken in soils with large amounts of hard rock fragments and in firm rock. Samples are obtained in hard rock using a core barrel with a diamond core bit.

RECORDING PROCEDURES

Compressional waves are generated at each site by the vertical impact of a sledge hammer on a steel plate. A signal produced by the opening of a switch attached to the hammer is recorded for determining origin time.

Shear waves are generated using the horizontal traction source introduced by Kobayashi (1959) and discussed by Warrick (1974). Briefly, the method consists of applying a horizontal impact to a large timber (244 x 30 x 18 cm). The timber is placed on a flattened soil surface and held firmly in place by the front wheels of a truck. A steel pipe extends through the timber and supports a 30 kg hammer to which is attached an impact switch. The specially constructed hammer rolls on bearings and moves a distance of 45 cm along the pipe before impacting the timber. The "horizontal traction" source generates a high proportion of S- to P-wave energy. The timber is struck twice, once in each direction. The two impacts reverse the polarity of the S-waves but not the polarity of the smaller amounts of P-wave energy. Comparison of the two signals provides an important tool for identifying the onset of the S-wave.

The timber is offset 2.0 m from the hole and a three-component geophone package (natural frequency 14 Hz) is placed within 9 cm of its center. The signals recorded from the surface geophones are used to monitor the input signals and determine the origin time for the generated S-waves. The arrangement of timber, steel plate, and surface geophone package is illustrated in figure 2.

The P-waves generated by a vertical impact on the steel plate and the S-waves generated by striking the timber in both directions are recorded separately. This procedure is repeated for each 2.5 m interval (closer spacing is sometimes used to obtain a velocity in thin layers) in the drill hole.

Two downhole geophones were used in this study. One has an inflatable diaphragm and a delinometer which under most circumstances permits orientation of the horizontal geophones from the surface. Proper orientation (parallel and perpendicular to the source) aides in identifying the onset of the S-wave. A second downhole geophone was used as a backup instrument in several holes in this study. This geophone has a spring clamping mechanism and cannot be oriented from the surface. Both instruments detect three components of motion.

The signals from the downhole and surface seismometers and the impact switches are recorded on photographic paper. The velocity unit-impulse response of the recording system is essentially flat from 2 Hz to above 100 Hz. A detailed description of the recording instrumentation is presented by Warrick and others (1961). The recording oscillograph is modified for this project by adding 500 Hz galvanometers and increasing the paper speed to 46 cm/sec.

REDUCTION OF GEOLOGIC DATA

Description of Samples

Portions of each of the samples are examined and described in the laboratory. The terms used for the descriptions are summarized on figure 3. The sample descriptions are presented in the left-hand columns of figures 26-52.

The soil samples are described using the field techniques of the Soil Conservation Service and those specified for the Unified Soil Classification System. Descriptions include soil texture, color, amount and size of coarse grains, plasticity, dry and wet consistency, and moisture condition. Texture refers to the relative proportions of clay, silt, and sand particles less than 2 mm in diameter. The dominant color of the soil and prominent mottles are determined from the Munsell soil color charts.

Descriptions of rock samples include rock name, weathering condition, color, grain size, hardness, and fracture spacing. Classifications of rock hardness and fracture spacing are those used by Ellen and others (1972) in describing hillside materials in San Mateo County, CA. The weathering classification is modified from that used by Aetron-Blume-Atkinson (1965) in describing Tertiary sedimentary rocks in the foothills of the Santa Cruz Mountains, CA.

Geologic Log

Geologic logs are complied for each hole using the field log and descriptions of the samples (figures 26-52). The field log is based on the reaction of the drill rig, a continuous record of drill cuttings, preliminary on-site inspection of samples, and inspection of nearby roadcuts and gullies.

Most information needed for describing relatively well-sorted soils and such properties of rock as lithology, color, and hardness are readily obtained from cuttings. Inspection of samples and nearby outcrops is also necessary to determine the nature of poorly sorted materials and to determine fracture spacing. Reaction of the drill rig is also useful in determining degree of fracturing as the rate of penetration in rock is highest for very closely fractured and crushed materials and drilling roughness generally is at a maximum in closely to moderately fractured rock. In-situ consistency of soil is determined largely from standard penetration measurements and rate of drill penetration.

Density Measurements

Values for density are required to calculate elastic moduli from measurements of seismic velocity. Densities were measured for the diamond core samples and most of the penetration samples by weighing a small piece of sample and obtaining its volume by the mercury displacement method. A different procedure was used for very friable materials such as grus or poorly-sorted materials which necessitated using a large sample. A section was cut from the Shelby tube containing the sample, its height and diameter measured and the sample extruded for weighing.

While the accuracy of the density measurements is generally sufficient for calculation of elastic moduli, a number of the samples used to obtain densities were not entirely representative of the material in-situ. Penetration samples were somewhat disturbed and many had dried out before measurements could be made. Densities of hard rock obtained using intact fragments may be higher than in-situ densities by approximately 0.1 - 0.2 gm/cc, depending on the amount and openness of fractures.

REDUCTION OF SEISMIC DATA

Identification of Shear Wave Onset

To aid in the identification of the shear wave arrivals, the signals recorded in the drill hole from impacting the timber in opposite directions are superimposed and drafted on a common time base (figs. 53-79). The S-wave group is easily identified when displayed in this manner, by a 180° phase inversion. The onset of the S-wave is chosen as the start of the first clearly inverted phase in the group. The interpretation proceeds from the bottom record, to the top using phase correlation at each recording depth. The onset of the S-wave arrival (arrows) and the first peak of the S-wave arrival (dots) are identified for each depth and are indicated on figures 53-79 for each site.

It was not possible at every site to control the orientation of the downhold seismometer package because of high viscosity drilling mud left in the hole; hence, the relative amounts of S-wave energy recorded on the two horizontal seismometers vary with depth. The S-wave arrival is generally most easily identified on the horizontal seismogram with the largest amplitudes (e.g., see fig. 59). Comparison of the signals recorded on the horizontal sensors with that recorded on the vertical sensor shows that the S-wave energy generated by the horizontal traction source is at least twice as large as the P-wave energy.

On many of the horizontal seismograms some P-wave energy prior to the onset of the S-wave is apparent. Some P-wave energy is generated by the horizontal traction source and some probably results from conversion of S to P at seismic boundaries. In some cases the polarity of this P-wave energy is reversed and careful consideration of the entire record section is required to identify the S-arrival. In general, the onset of the S-wave is easier to identify at sites underlain by the various types of soil than for sites underlain by the more consolidated rock units.

Travel Times and Average Velocities

To determine the travel time for the S-wave onset identified from the record sections (figs. 53-79), the following times are measured with respect to a 100 Hz time code signal recorded on the records:

1) t_1 time of break in signal from impact switch

2) t_2 onset time of S-wave arrival on inline uphole geophone

3) t_3 onset time of identified S-wave arrival on downhole sensors

The time considered to be the origin time for the S-wave recorded on the downhole sensor is the onset time of the S-arrival on the uphole inline sensor. To reduce the uncertainties in determining this origin time, an average travel time from the source to the uphole geophone (t_A) is determined from the set of values, $t_2 - t_1$, measured at each depth.

The travel time for the first S-arrival is given by

$$t_s \equiv (t_3 - t_1) - t_A.$$

A corrected S-wave travel time (t_{s_c}), corresponding to the travel time for a vertical ray path, is computed from $t_{s_c} \equiv t_s + t_c$ where t_c corresponds to a timing correction (cosign of the angle of ray incidence) due to the distance the plank is offset from the center of the hole (usually 2.0 m). Average velocities from the surface are determined by dividing the corrected travel time by the corresponding depth. The travel time for the first S-peak is determined similarly. The origin corrections ($t_2 - t_1$), the travel times of the first S-arrival and the first S-peak (t_s), the corrected travel times for the first S-arrival and the first S-peak (t_{s_c}), and the average corresponding velocities computed at each site are presented in tables 1-27.

The travel times for the P-waves generated by a vertical impact on a steel plate are determined in the same way as for the S-waves, except that the origin time for the P-wave is given by the impact switch and no origin correction is necessary. The travel times, the corrected travel times, and the average velocities for the P-waves are also presented in tables 1-27.

Interval Velocities and Elastic Moduli

Calculation of interval velocities and elastic moduli requires determination of depth intervals over which the velocity is approximately constant within the uncertainty of the travel-time measurements. To determine these depth intervals, the travel time data (tables 1-27) are plotted as a function of depth (figs. 80-106) and the geologic logs (figs. 26-52) are simplified and displayed graphically on the travel time curves (figs. 80-106). Depth intervals for velocity determinations are selected on the basis of distinct changes in slope of the travel time plots and evidence for lithologic boundaries. For those geologic materials with S-velocities greater than 350m/sec, the intervals are required to contain at least four travel time

measurements to avoid determining a velocity from a travel time differential due in large part to measurement error.

Velocities are calculated for each of the selected intervals (tables 28-54) from the slope of the linear regression line which best fits the travel time data in a least squares sense (Borcherdt and Healy, 1968, eqs. 3.1-3.5). The equation of the linear-regression line which best fits, in a least-squares sense, a sample of n pairs of time-depth coordinates $(x_1,t_1),....(x_n,t_n)$ is

$$t(x) = a + b\,(x - \bar{x})$$

where $$\bar{x} \equiv \frac{1}{n}\sum_{i=1}^{n} x_i \quad , \quad a \equiv \frac{1}{n}\sum_{i=1}^{n} t_i \quad ,$$

the intercept is $$\text{INCPT} \equiv \frac{1}{n}\sum_{i=1}^{n} t_i - b\bar{x} \quad , \text{ and}$$

the slope is $$b \equiv \sum_{i=1}^{n} w_i t_i$$

with $$w_i = (x_i - \bar{x})/D \text{ and } D \equiv \sum_{k=1}^{n}(x_k - \bar{x})^2$$

The desired velocity (VEL) is given by V = 1/b. Assuming the standard statistical model (Borcherdt and Healy, 1968), the 68.3 confidence level, uncertainty interval (UNC INT) for the velocity is estimated by

$$\left(\frac{1}{b+S_b} \, , \, \frac{1}{b-S_b}\right) \quad ,$$

where

$$S_b \equiv \frac{1}{(n-2)D}\sum_{i=1}^{n} (t_i - t(x_i))^2$$

is the standard error of the regression coefficient.

For these depth intervals with measurements of density (ρ), the shear modulus (SHEAR MOD, M) and bulk modulus (BULK MOD, K) is calculated (tables 28-54) using

$$M = \rho V_s^2$$

and $$K = \rho V_p^2 - \frac{4}{3} M .$$

Poisson's ratio (σ) is calculated (tables 28-54) using

$$\sigma = \frac{\left(\frac{V_p}{V_s}\right)^2 - 2}{2\left(\frac{V_p}{V_s}\right)^2 - 2}$$

SUMMARY

Seismic velocities have been measured in the near surface geologic materials at 27 locations in the Los Angeles and Oxnard-Ventura, California, areas. S-wave and P-wave measurements were made at 2½ m intervals in drill holes to a depth of 30 m. Geologic logs were compiled by continuously monitoring drill cuttings and by analysis of cored samples. Density measurements were made from samples for the calculation of elastic moduli.

Previous studies in the San Francisco Bay region (Gibbs et al., 1980) have shown that average shear velocity can be correlated with ground motion amplification recorded from nuclear explosions and with observed intensities from the 1906 earthquake. A detailed study using shear velocity data from 59 locations (Fumal, 1978) has shown that certain physical properties of the near surface geologic materials can be used to predict velocity. Measurements of shear velocity at a number of strategic locations will permit extrapolation of results from the San Francisco Bay region to the Los Angeles region.

ACKNOWLEDGMENTS

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FIGURES

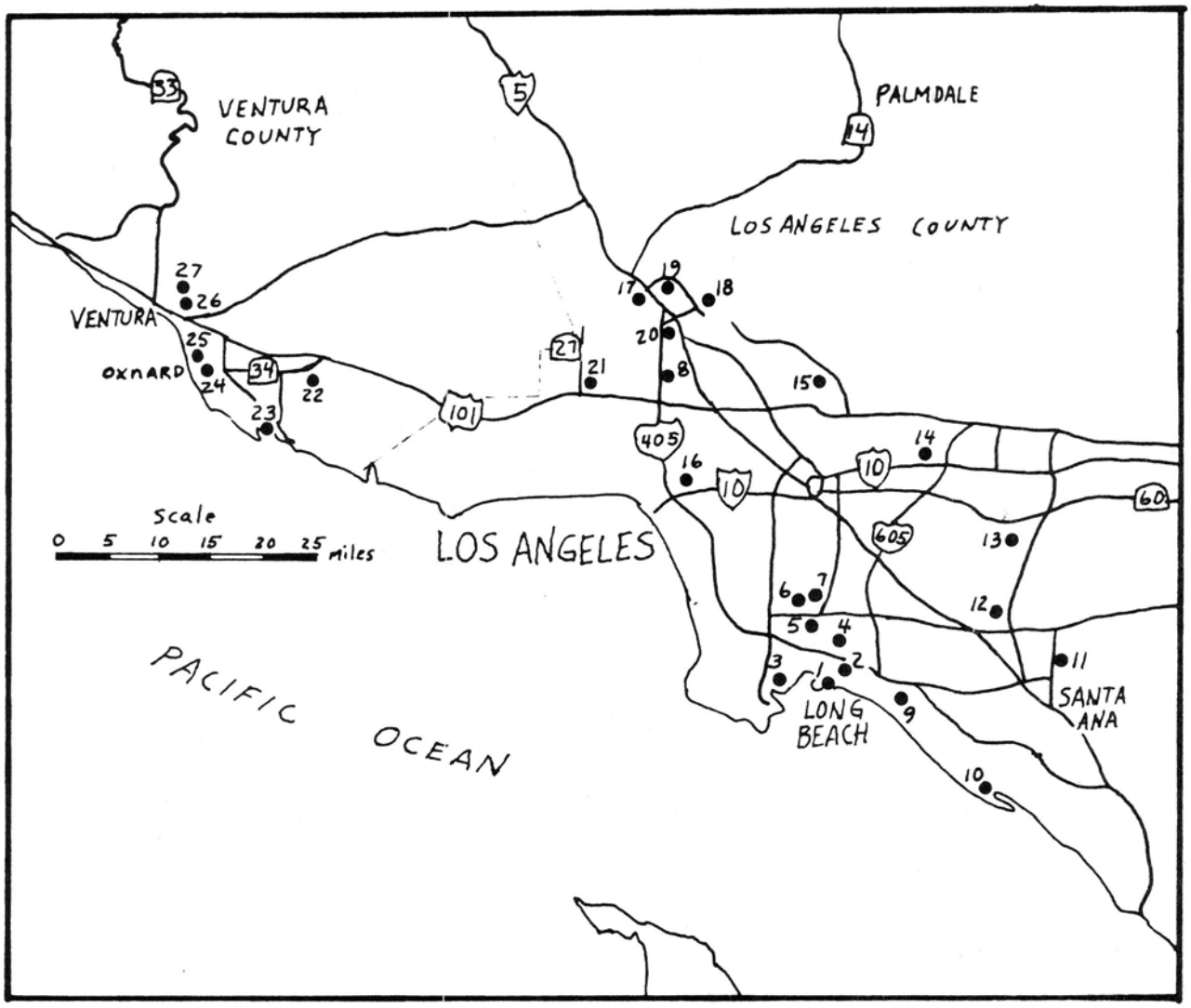


Figure 1. Generalized map of the Los Angeles region showing the approximate locations of shear-wave sites. Detailed locations are shown in figures 4-25.

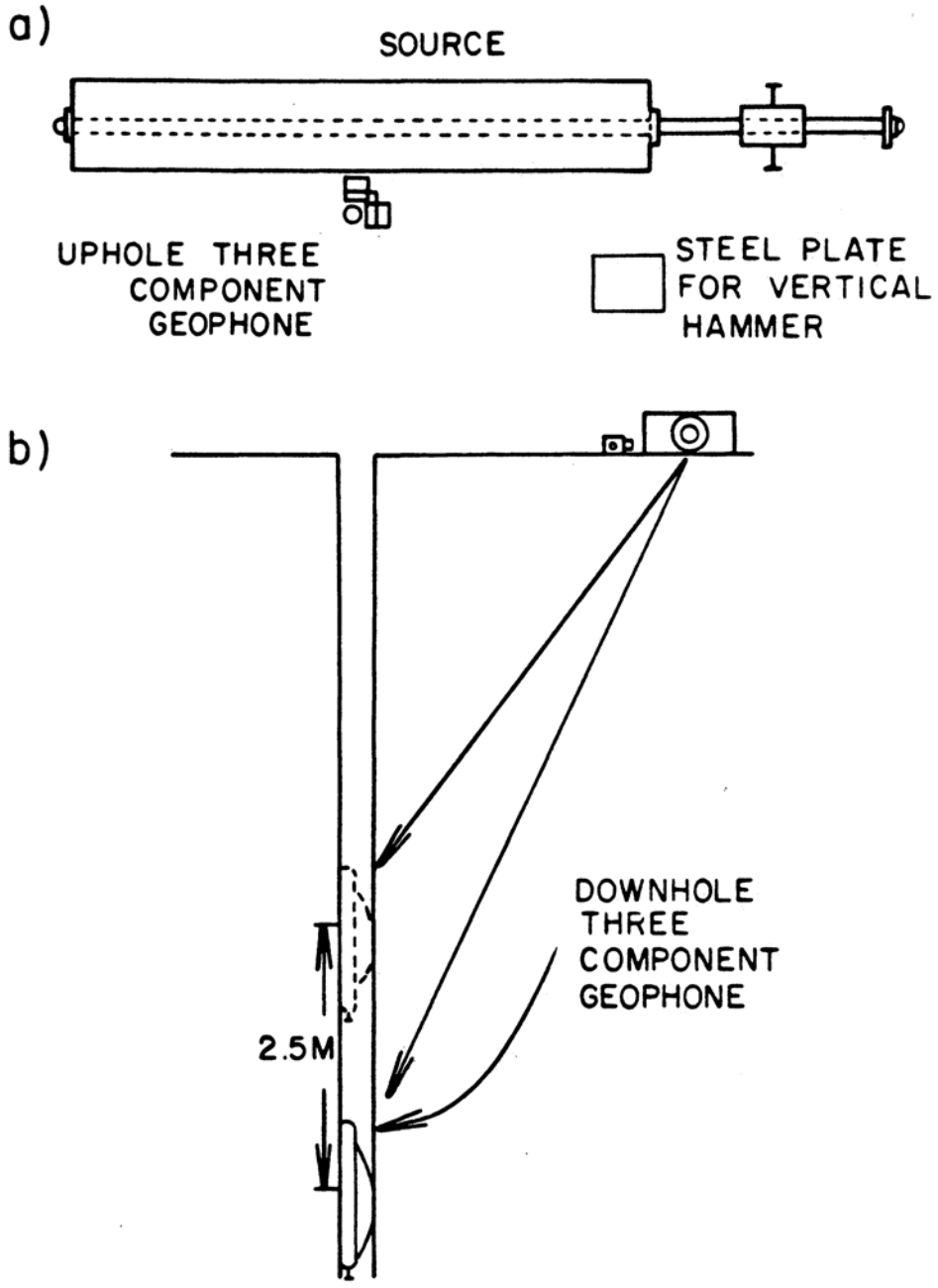
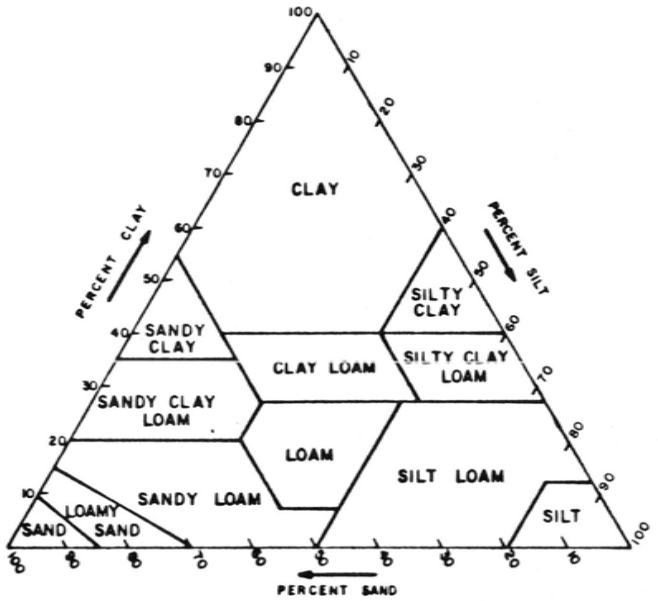


Figure 2. Details of field apparatus, (a) hammer and plank and (b) section showing three-component downhole geophone.

DESCRIPTION

Texture: the relative proportions of clay, silt, and sand below 2 mm. Proportions of larger particles are indicated by modifiers of textural class names. Determination is made in the field mainly by feeling the moist soil (Soil Survey Staff, 1951).



Color: Standard Munsell color names are given for the dominant color of the moist soil and for prominent mottles.

Plasticity: estimated from the strength of air dried sample and toughness of thread formed when soil is rolled at the plastic limit (Sowers and Sowers, 1970).

plasticity	dry strength	field test
non plastic	v. low	falls apart easily
slightly	slight	easily crushed
medium	medium	friable with difficulty
highly	high	cannot crush with fingers

DESCRIPTION

Relative density of sand and consistency of clay is correlated with penetration resistance: (Terzaghi and Peck, 1948)

blows/ft.	relative density	blows/ft.	consistency
0-4	v. loose	<2	v. soft
4-10	loose	2-4	soft
10-30	medium	4-8	medium
30-50	dense	8-15	stiff
>50	v. dense	15-30	v. stiff
		>30	hard

CL, MH, etc.: Unified Soil Classification Group Symbol (U. S. Army Corps of Engineers, 1960)

Rock hardness: response to hand and geologic hammer: (Ellen et al., 1972)

hard - hammer bounces off with solid sound
firm - hammer dents with thud, pick point dents or penetrates slightly
soft - pick point penetrates
friable material can be crumbled into individual grains by hand.

Fracture spacing: (Ellen et al., 1972)

cm	in	fracture spacing
0-1	0-1/2	v. close
1-5	1/2-2	close
5-30	2-12	moderate
30-100	12-36	wide
>100	>36	v. wide

Weathering: (Actron-Blume-Atkinson, 1965)
Fresh: no visible signs of weathering
Slight: no visible decomposition of minerals, slight discoloration
Moderate: slight decomposition of minerals and disintegration of rock, deep and thorough discoloration
Decomposed: extensive decomposition of minerals and complete disintegration of rock but original structure is preserved.

Figure 3. Definitions of terms used for descriptions of sedimentary deposits and bedrock materials.

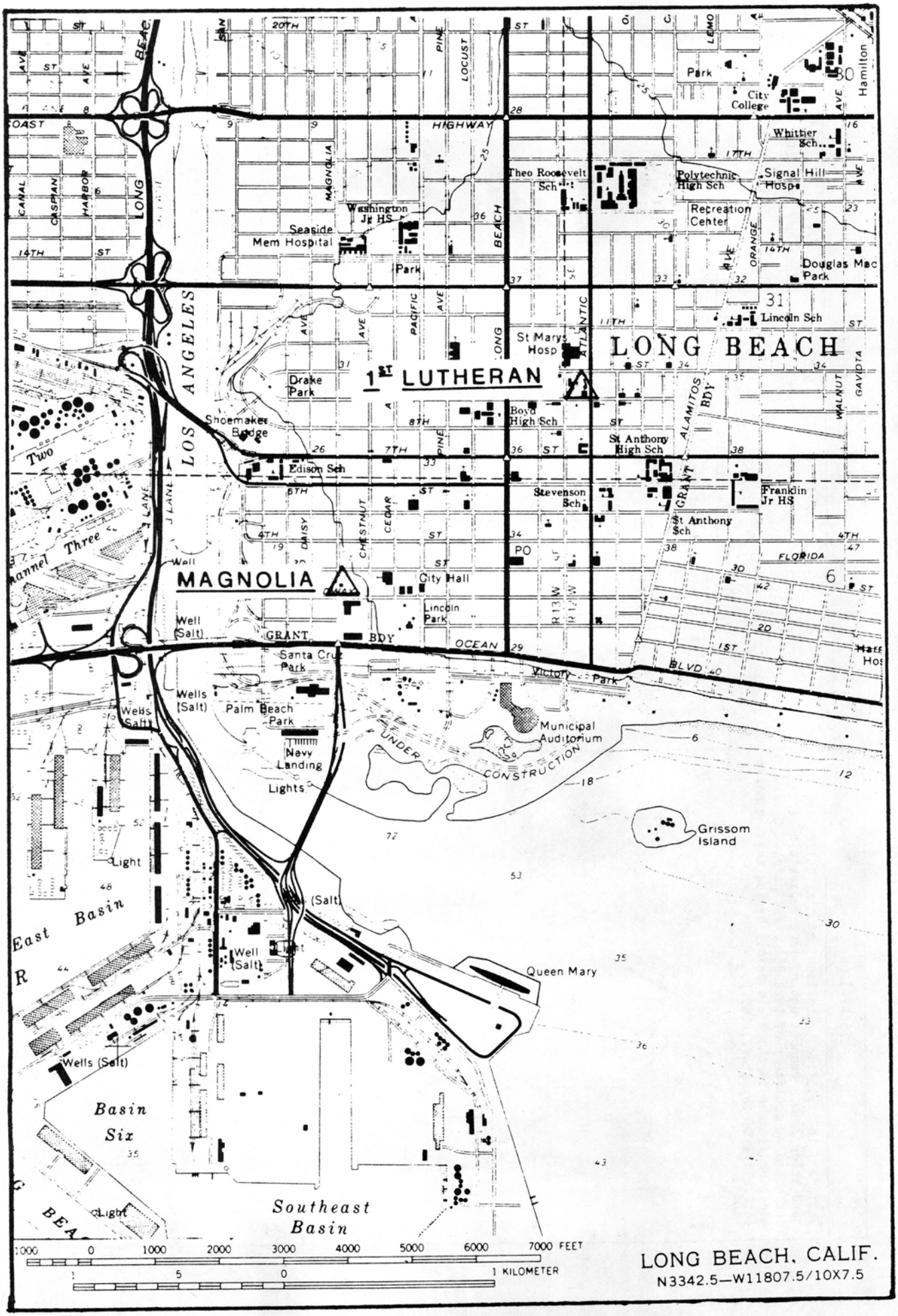
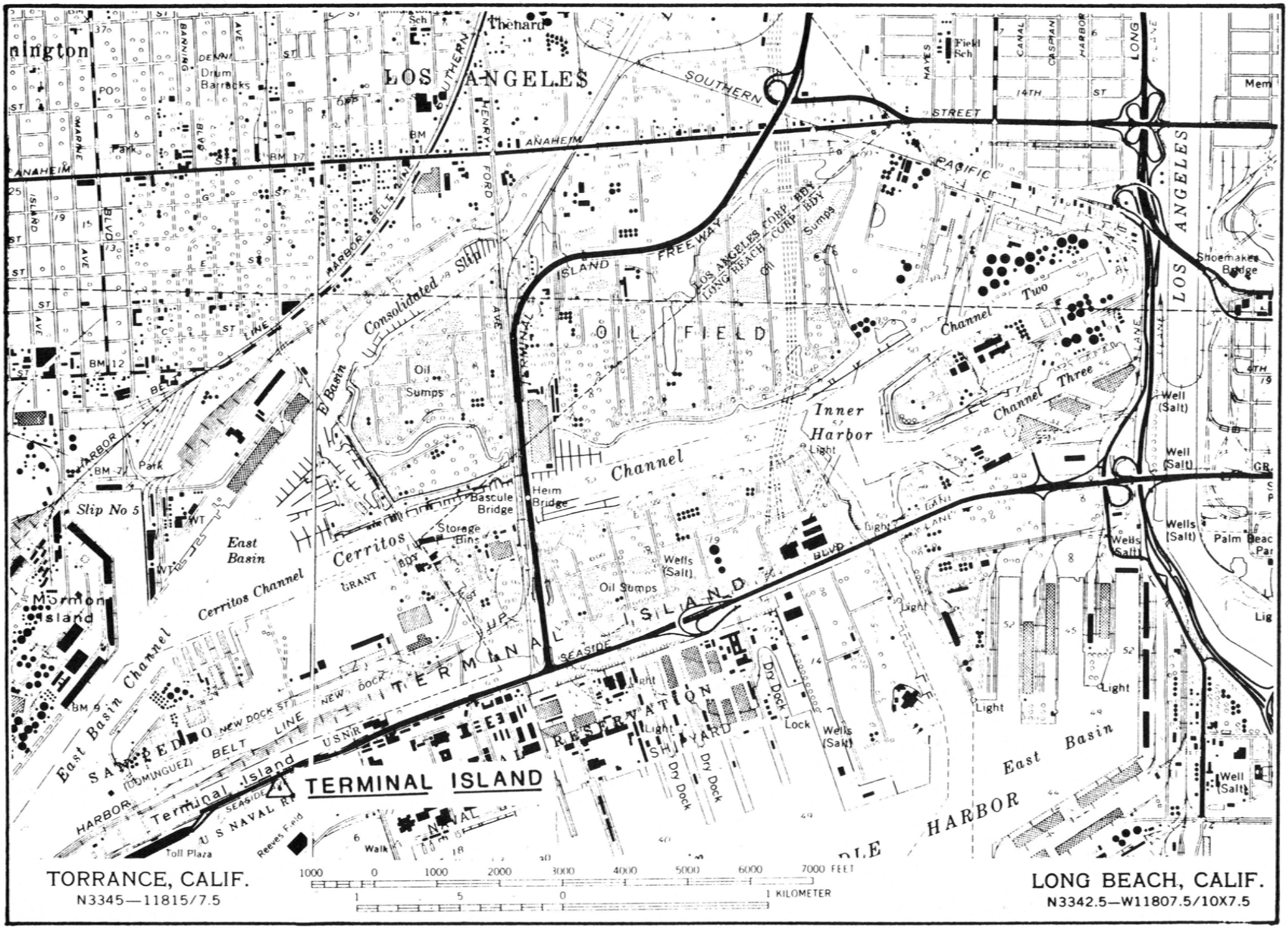

LONG BEACH
LOS ANGELES
1ST LUTHERAN
MAGNOLIA
Park
City College
Whittier Sch
Theo Roosevelt Sch
Polytechnic High Sch
Signal Hill Hosp
Recreation Center
Washington Jr HS
Seaside Mem Hospital
Douglas Mac Park
Lincoln Sch
St Marys Hosp
Drake Park
Shoemaker Bridge
Boyd High Sch
St Anthony High Sch
Edison Sch
Stevenson Sch
Franklin Jr HS
St Anthony Sch
City Hall
Lincoln Park
Santa Cruz Park
Victory Park
Palm Beach Park
Municipal Auditorium
Navy Landing
Lights
Grissom Island
Queen Mary
Basin Six
Southeast Basin
East Basin
Two
Three
Channel
Wells (Salt)
Light
HIGHWAY
OCEAN BLVD
GRANT BDY
ALAMITOS BDY
ATLANTIC AVE
PACIFIC AVE
LONG BEACH
PINE
CHESTNUT
CEDAR
DAISY
MAGNOLIA
ORANGE AVE
FLORIDA
14TH ST
7TH ST
4TH ST
1ST ST
11TH ST
17TH ST
UNDER CONSTRUCTION
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 5 0 1 KILOMETER
LONG BEACH, CALIF.
N3342.5—W11807.5/10X7.5

Figure 4.


TERMINAL ISLAND
LOS ANGELES
OIL FIELD
Consolidated Slip
East Basin
Cerritos Channel
Inner Harbor
Channel
Channel Two
Channel Three
Slip No 5
Mormon Island
Terminal Island
SEASIDE
ANAHEIM
PACIFIC
HARBOR
Oil Sumps
Bascule Bridge
Heim Bridge
Storage Bins
Dry Dock
Lock
Wells (Salt)
Shoemakers Bridge
Drum Barracks
Reeves Field
Toll Plaza
TORRANCE, CALIF.
N3345—11815/7.5
LONG BEACH, CALIF.
N3342.5—W11807.5/10X7.5
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1 0 1 KILOMETER

Figure 5.

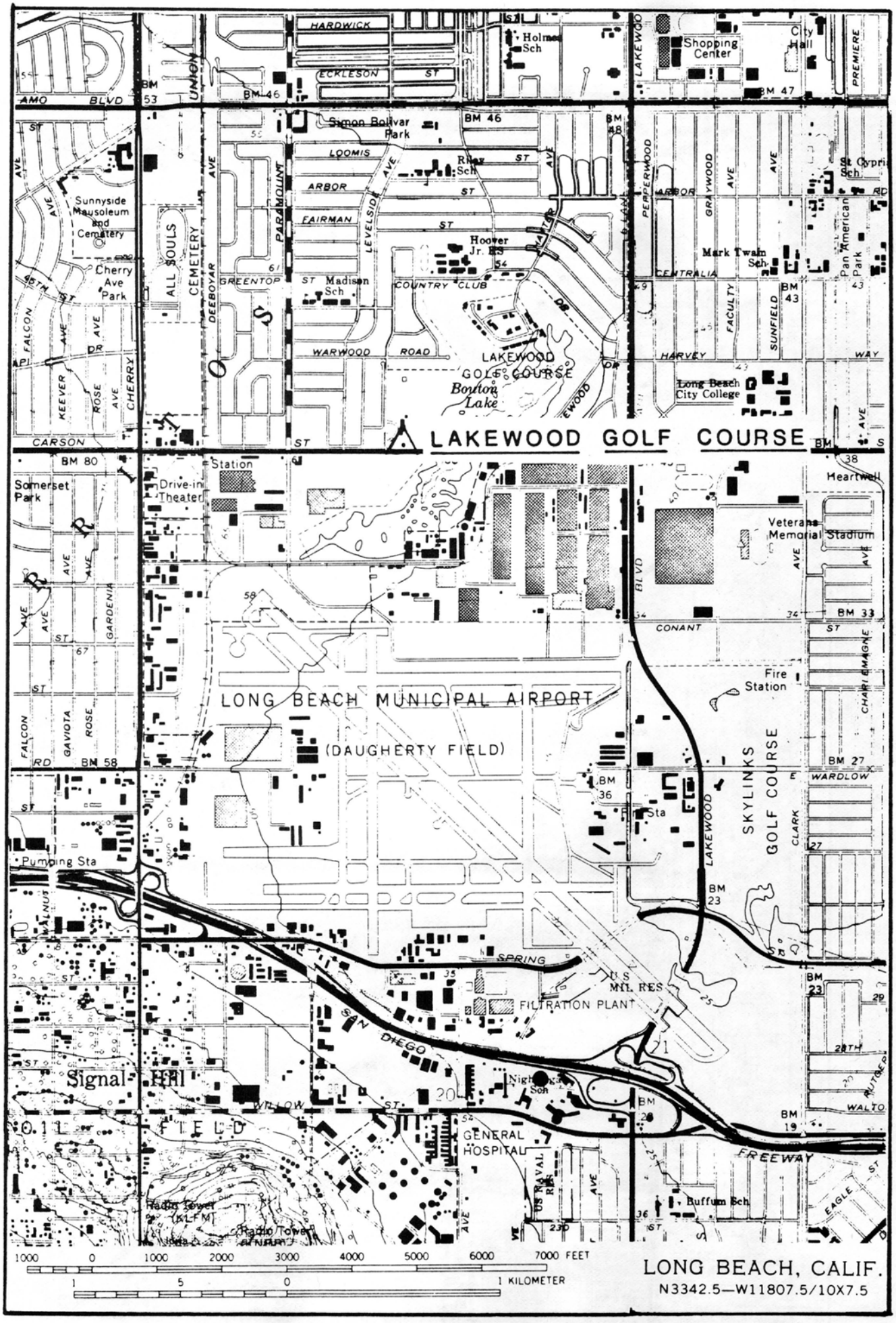
HARDWICK
ECKLESON ST
Holmes Sch
Shopping Center
City Hall
AMO BLVD
UNION
LAKEWOOD
PREMIERE
BM 53
BM 46
BM 47
Simon Bolivar Park
LOOMIS
ARBOR
FAIRMAN
PARAMOUNT
LEVELSIDE
Sunnyside Mausoleum and Cemetery
ALL SOULS CEMETERY
DEEBOYAR
Cherry Ave Park
GREENTOP
Madison Sch
Hoover Jr. HS
COUNTRY CLUB
WARWOOD ROAD
LAKEWOOD GOLF COURSE
Boulton Lake
PEPPERWOOD
GRAYWOOD
Mark Twain Sch.
CENTRALIA
Pan American Park
FACULTY
SUNFIELD
HARVEY WAY
Long Beach City College
CARSON
FALCON
KEEVER
ROSE
CHERRY
BM 80
Somerset Park
Drive-in Theater
Station
Heartwell
Veterans Memorial Stadium
BLVD
CONANT
BM 33
GARDENIA
LONG BEACH MUNICIPAL AIRPORT
(DAUGHERTY FIELD)
Fire Station
CHARLEMAGNE
SKYLINKS GOLF COURSE
BM 58
BM 27
WARDLOW
BM 36
Sta
CLARK
Pumping Sta
BM 23
SPRING
U S MIL RES
FILTRATION PLANT
SAN DIEGO
Signal Hill
OIL FIELD
Nightingale Sch
WILLOW ST.
GENERAL HOSPITAL
WALTON
FREEWAY
US NAVAL RES
Buffum Sch
EAGLE
Radio Tower (KLFM)
Radio Tower (KUSN)
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 5 0 1 KILOMETER
LONG BEACH, CALIF.
N3342.5—W11807.5/10X7.5

Figure 6.

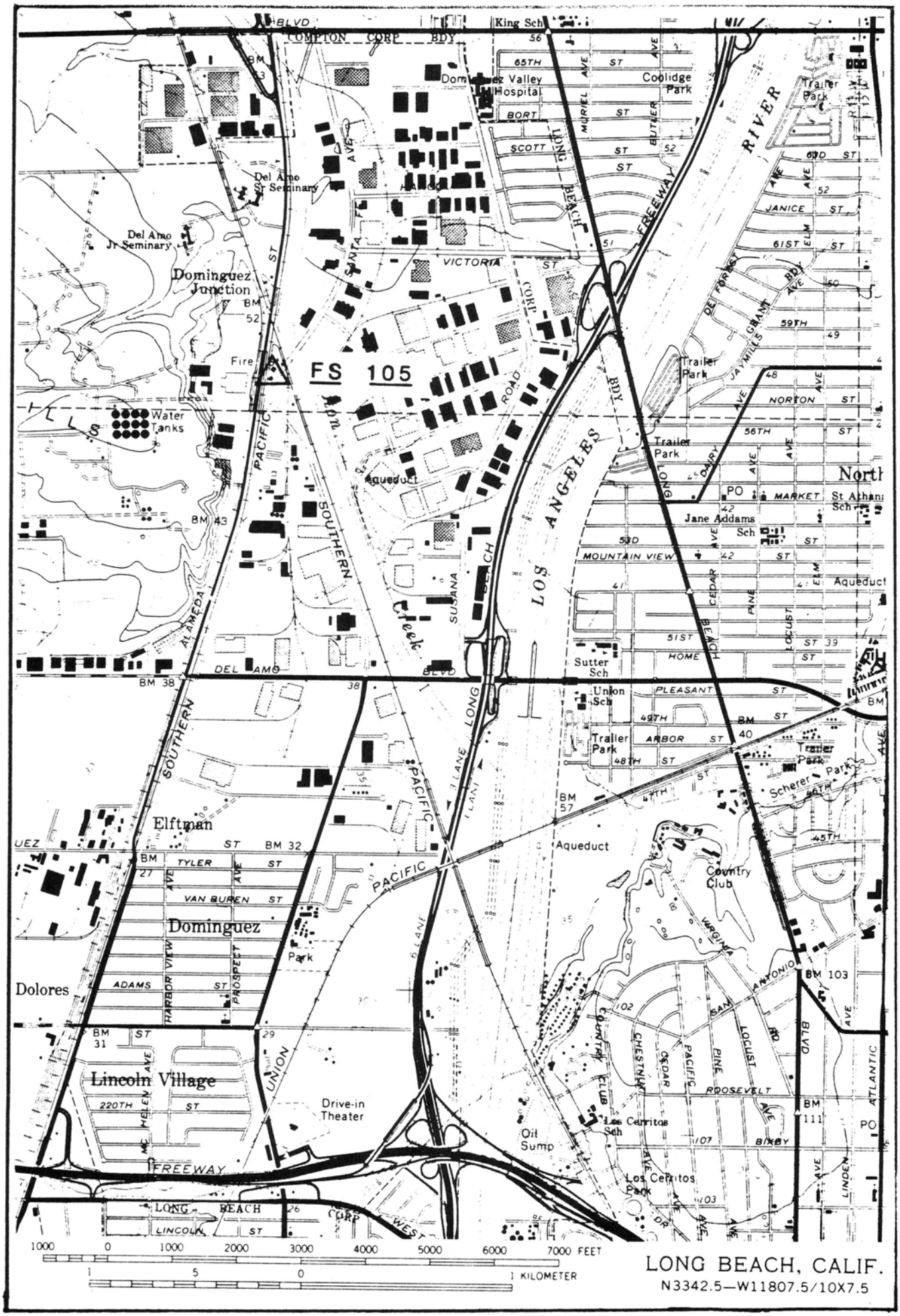
FS 105
Dominguez Junction
Del Amo Jr Seminary
Water Tanks
Fire
Elftman
Dominguez Park
Lincoln Village
Dolores
Drive-in Theater
Oil Sump
Los Cerritos Park
Los Cerritos Sch
Country Club
Aqueduct
Trailer Park
Jane Addams Sch
Union Sch
Sutter Sch
Coolidge Park
Scherer Park
Dominguez Valley Hospital
King Sch
Del Amo
COMPTON CORP BDY
VICTORIA ST
DEL AMO BLVD
TYLER ST
VAN BUREN ST
ADAMS ST
220TH ST
LINCOLN ST
LONG BEACH FREEWAY
LOS ANGELES RIVER FREEWAY
PACIFIC SOUTHERN
ALAMEDA
SUSANA Creek
LONG BEACH BLVD
PACIFIC PLANT
UNION PACIFIC
SANTA FE
DAIRY AVE
CEDAR AVE
PINE AVE
LOCUST AVE
ATLANTIC BLVD
LINDEN AVE
MARKET ST
MOUNTAIN VIEW
HOME ST
PLEASANT ST
ARBOR ST
ROOSEVELT AVE
BIXBY
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
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Figure 7.

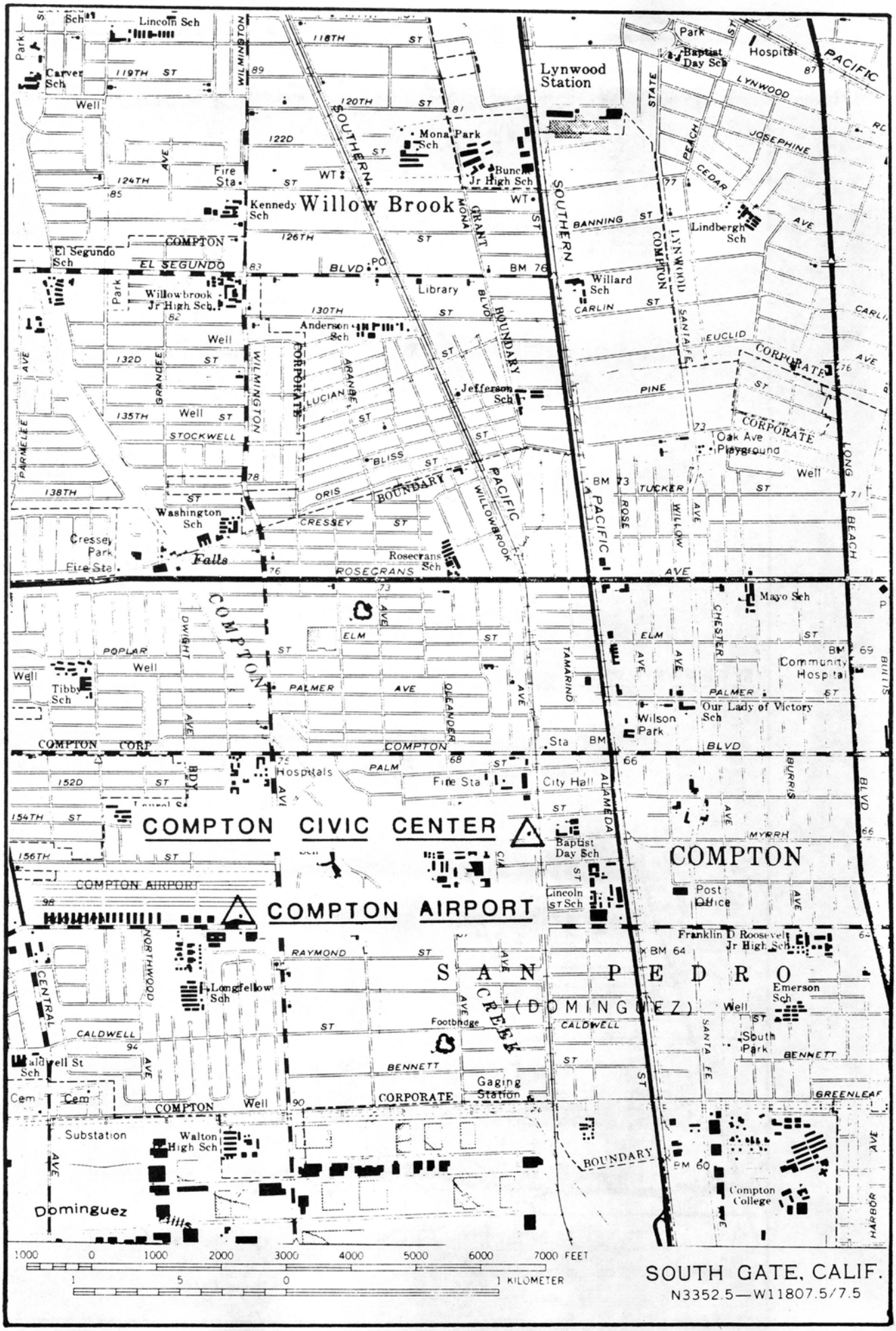

Lincoln Sch
Carver Sch
Well
119TH ST
118TH ST
120TH ST
122D ST
124TH ST
126TH ST
130TH ST
132D ST
135TH ST
138TH ST
WILMINGTON AVE
SOUTHERN AVE
Fire Sta
WT
Mona Park Sch
Bunche Jr High Sch
Kennedy Sch
Willow Brook
COMPTON
EL SEGUNDO BLVD
El Segundo Sch
PO
BM 76
Willowbrook Jr High Sch
Library
Anderson Sch
Well
GRANDEE AVE
CORPORATE
ARANBE
LUCIANE
PARMELEE AVE
STOCKWELL ST
BLISS ST
ORIS ST
CRESSEY ST
Washington Sch
Cressey Park
Fire Sta
Falls
ROSECRANS AVE
Rosecrans Sch
BOUNDARY
PACIFIC
WILLOWBROOK
MONA GRANT BLVD
HOUNDARY
Jefferson Sch
Lynwood Station
STATE
PEACH
CEDAR
LYNWOOD
JOSEPHINE
Baptist Day Sch
Hospital
PACIFIC
BANNING ST
Lindbergh Sch
COMPTON LYNWOOD SANTA FE
Willard Sch
CARLIN ST
EUCLID
PINE ST
CORPORATE
Oak Ave Playground
Well
TUCKER ST
ROSE AVE
WILLOW AVE
LONG BEACH
BM 73
Mayo Sch
ELM ST
POPLAR ST
Well
Tibby Sch
PALMER AVE
DWIGHT AVE
QUEANDER AVE
TAMARIND AVE
CHESTER AVE
Community Hospital
Our Lady of Victory Sch
Wilson Park
COMPTON CORP
COMPTON
Sta
BM
BLVD
Hospitals
PALM
Fire Sta
City Hall
ALAMEDA
BURRIS BLVD
MYRRH
COMPTON CIVIC CENTER
COMPTON AIRPORT
Baptist Day Sch
COMPTON
Post Office
Lincoln St Sch
Franklin D Roosevelt Jr High Sch
BM 64
RAYMOND ST
NORTHWOOD
CENTRAL
Longfellow Sch
SAN PEDRO (DOMINGUEZ) CREEK
Footbridge
CALDWELL ST
Caldwell St Sch
Cem
Cem
BENNETT ST
Gaging Station
CORPORATE
COMPTON
Well
Emerson Sch
Well
South Park
SANTA FE
GREENLEAF
Substation
Walton High Sch
Dominguez Hills
BOUNDARY
BM 60
Compton College
HARBOR
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 5 0 1 KILOMETER
SOUTH GATE, CALIF.
N3352.5—W11807.5/7.5

Figure 8.

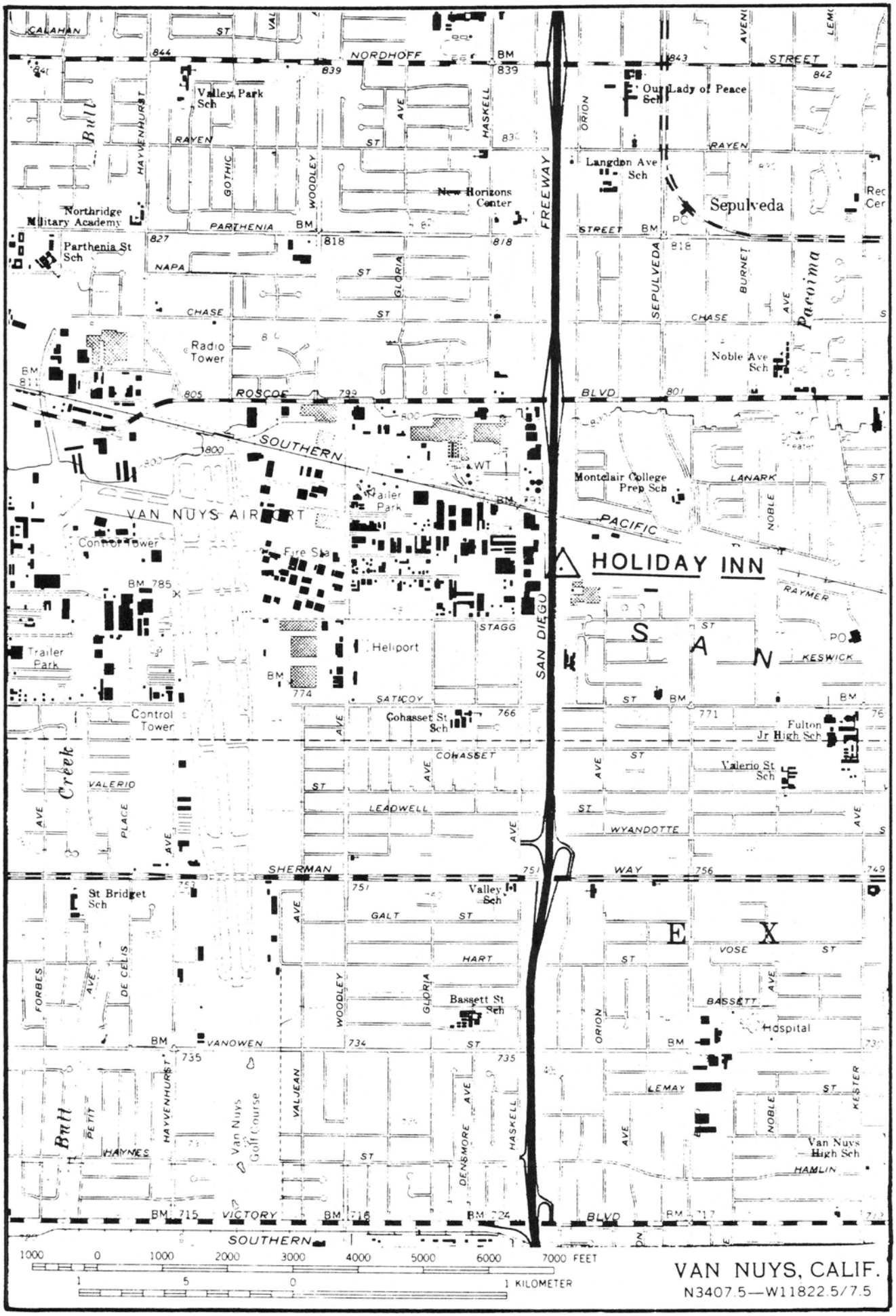

NORDHOFF
STREET
RAVEN
PARTHENIA
NAPA
CHASE
ROSCOE
BLVD
SOUTHERN
PACIFIC
SHERMAN
WAY
VICTORY
SATICOY
STAGG
LEADWELL
COHASSET
VANOWEN
HART
GALT
VOSE
BASSETT
LEMAY
HAMLIN
KESWICK
RAYMER
WYANDOTTE
LANARK
Valley Park Sch
Our Lady of Peace Sch
Langdon Ave Sch
New Horizons Center
Northridge Military Academy
Parthenia St Sch
Radio Tower
Noble Ave Sch
Montclair College Prep Sch
VAN NUYS AIRPORT
Control Tower
Fire Sta
Trailer Park
Heliport
HOLIDAY INN
Cohasset St Sch
Fulton Jr High Sch
Valerio St Sch
St Bridget Sch
Valley Sch
Bassett St Sch
Hospital
Van Nuys Golf Course
Van Nuys High Sch
Sepulveda
Parima
Bull Creek
Hayvenhurst
Gothic
Woodley
Haskell
Orion
Gloria
Sepulveda
Burnet
Noble
Forbes
De Celis
Petit
Valjean
Densmore
Kester
Valerio Place
SAN DIEGO FREEWAY
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 5 0 1 KILOMETER
VAN NUYS, CALIF.
N3407.5—W11822.5/7.5

Figure 9.

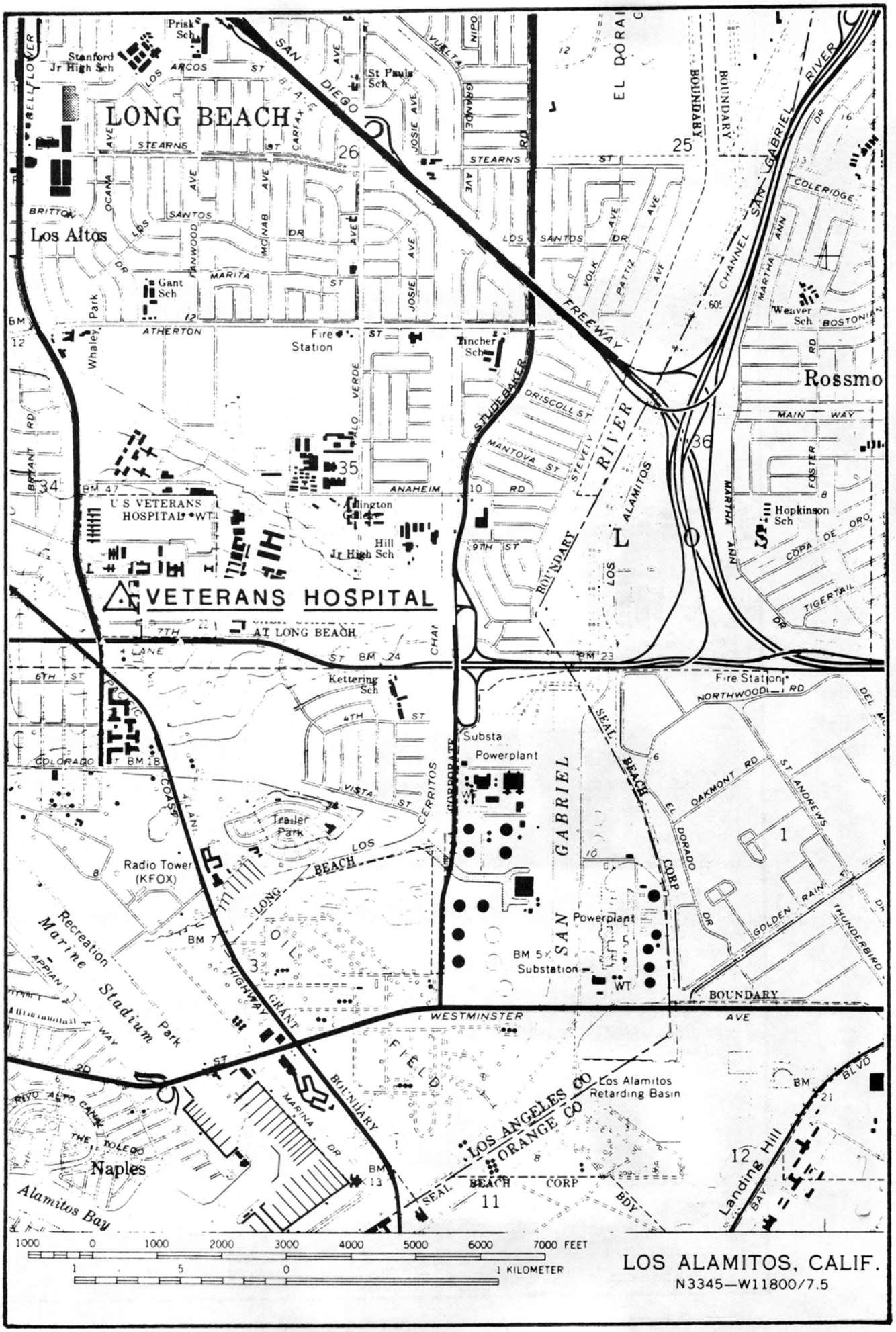

LONG BEACH
Los Altos
VETERANS HOSPITAL
AT LONG BEACH
U S VETERANS HOSPITAL
Stanford Jr High Sch
Prisk Sch
St Pauls Sch
Gant Sch
Fire Station
Whaley
Tincher Sch
Hill Jr High Sch
Kettering Sch
Trailer Park
Radio Tower (KFOX)
Recreation Park
Marine Stadium
Naples
Alamitos Bay
Rivo Alto Canal
Substa
Powerplant
Fire Station
Weaver Sch
Hopkinson Sch
Rossmo
Los Alamitos Retarding Basin
Landing Hill
SAN DIEGO FREEWAY
SAN GABRIEL RIVER
LOS ALAMITOS
SEAL BEACH
LOS ANGELES CO
ORANGE CO
LONG BEACH OIL FIELD
STEARNS ST
ATHERTON
ANAHEIM RD
7TH ST
4TH ST
VISTA ST
WESTMINSTER AVE
BOUNDARY
MARINA DR
COLORADO ST
DRISCOLL ST
MANTOVA ST
97TH ST
MAIN WAY
NORTHWOOD RD
OAKMONT RD
ST ANDREWS
EL DORADO
GOLDEN RAIN
THUNDERBIRD
COPA DE ORO
TIGERTAIL
BOSTONIA
COLERIDGE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 5 0 1 KILOMETER
LOS ALAMITOS, CALIF.
N3345—W11800/7.5

Figure 10.

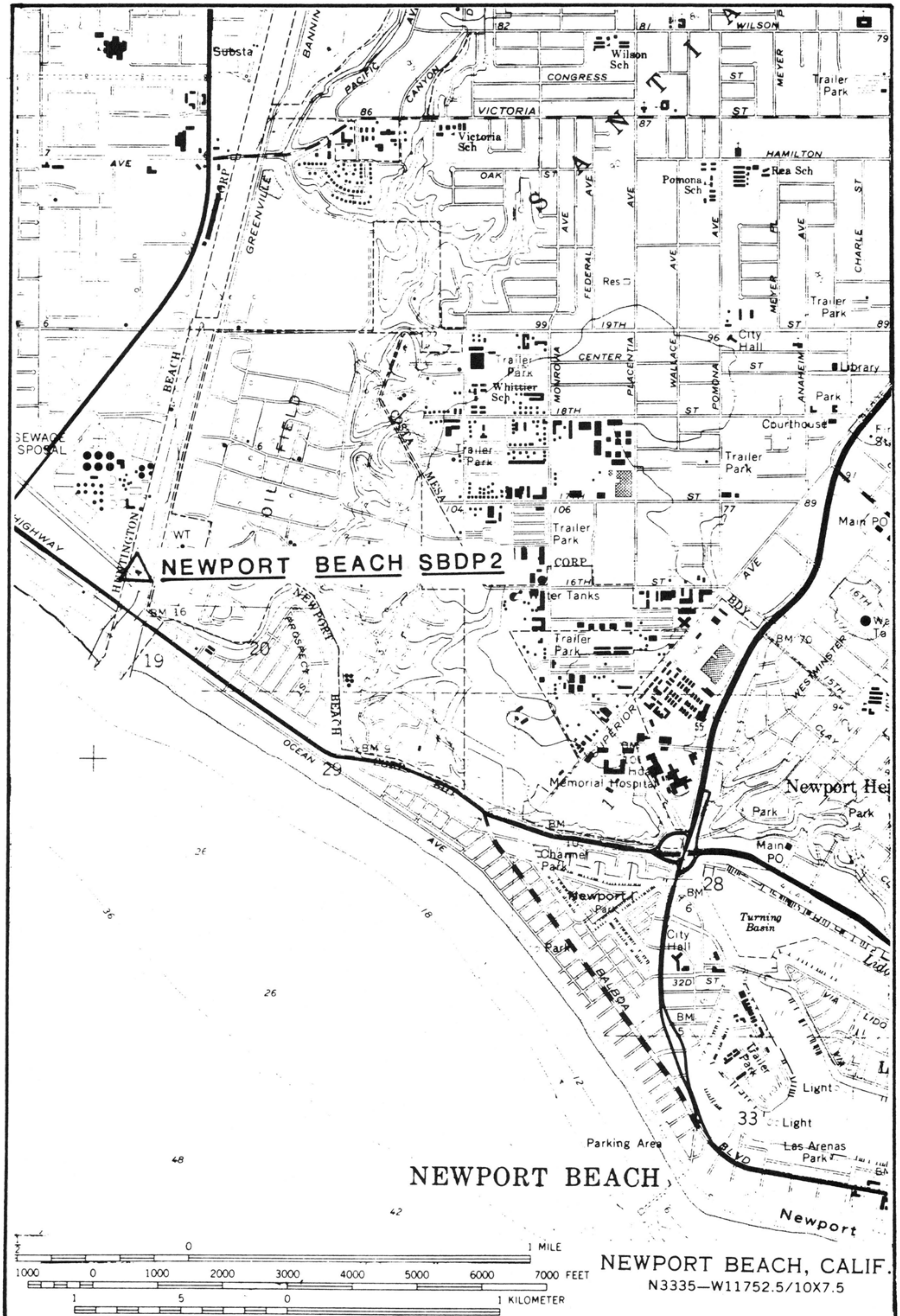

NEWPORT BEACH SBDP2
NEWPORT BEACH
NEWPORT BEACH, CALIF.
N3335—W11752.5/10X7.5
1 MILE
7000 FEET
1 KILOMETER

Figure 11.

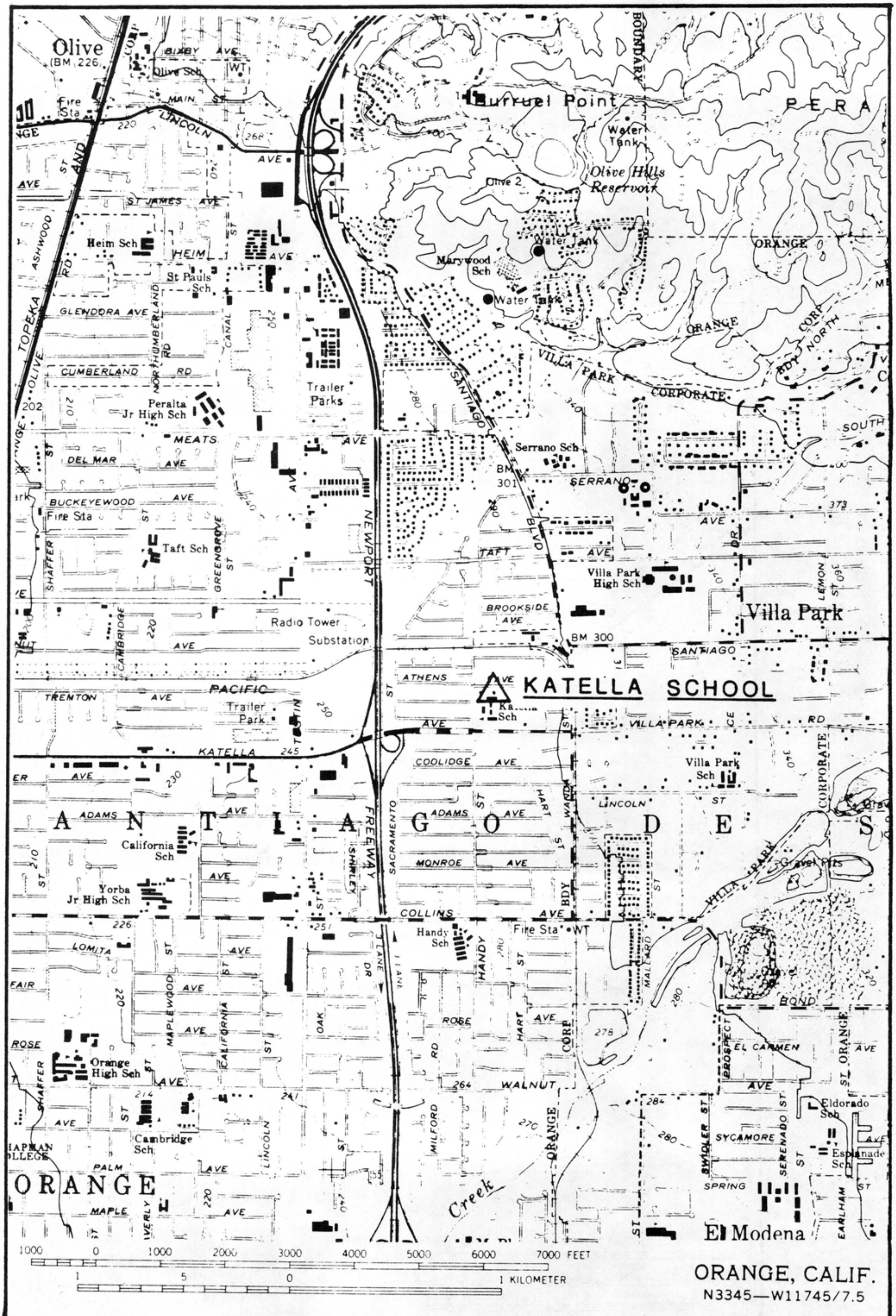

Olive
(BM 226)
BIXBY AVE
Olive Sch
MAIN ST
LINCOLN AVE
Fire Sta
Burruel Point
PERA
Water Tank
Olive Hills Reservoir
Olive 2
ST JAMES AVE
Heim Sch
HEIM AVE
St Pauls Sch
Marywood Sch
Water Tank
ORANGE
TOPEKA AND
ASHWOOD
OLIVE
GLENDORA AVE
NORTHUMBERLAND RD
CANAL
CUMBERLAND RD
Trailer Parks
VILLA PARK
CORPORATE
SANTIAGO BLVD
Peralta Jr High Sch
MEATS AVE
DEL MAR AVE
Serrano Sch
BM 301
SERRANO AVE
BUCKEYEWOOD AVE
Fire Sta
Taft Sch
GREENGROVE ST
NEWPORT
SHAFFER
TAFT AVE
Villa Park High Sch
BROOKSIDE AVE
Villa Park
Radio Tower
Substation
CAMBRIDGE
BM 300
SANTIAGO
ATHENS
PACIFIC
TRENTON AVE
Trailer Park
TUSTIN
KATELLA SCHOOL
Katella Sch
VILLA PARK RD
KATELLA
COOLIDGE AVE
Villa Park Sch
LINCOLN ST
ADAMS AVE
S A N T I A G O D E S
California Sch
FREEWAY
SHIRLEY
SACRAMENTO
MONROE AVE
HART ST
WANDA BDY
Yorba Jr High Sch
Gravel Pits
COLLINS AVE
Handy Sch
Fire Sta
HANDY
LOMITA AVE
MAPLEWOOD
CALIFORNIA
OAK DR
MALLARD
BOND
FAIR
ROSE AVE
PROSPECT
EL CARMEN
ORANGE ST
Orange High Sch
WALNUT
Eldorado Sch
CAMBRIDGE ST
Cambridge Sch
LINCOLN
MILFORD
ORANGE
SWIDLER ST
SYCAMORE
SERENADO ST
Esplanade Sch
CHAPMAN COLLEGE
PALM AVE
ORANGE
Creek
SPRING
MAPLE AVE
EARLHAM
El Modena
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 .5 0 1 KILOMETER
ORANGE, CALIF.
N3345—W11745/7.5

Figure 12.

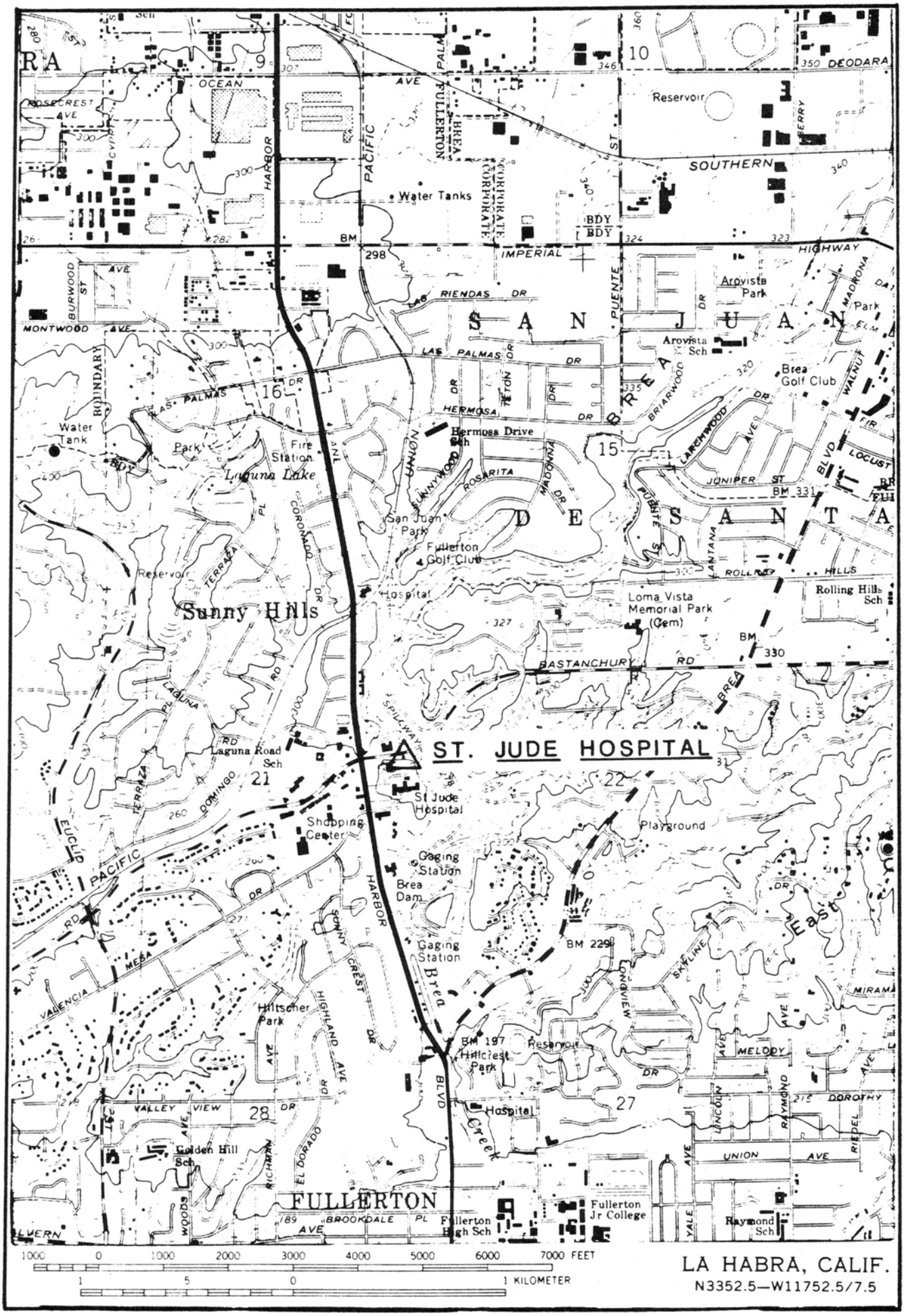

ST. JUDE HOSPITAL
SAN JUAN DE SANTA BREA
Sunny Hills
FULLERTON
Reservoir
Water Tanks
Water Tank
Park
Fire Station
Laguna Lake
San Juan Park
Fullerton Golf Club
Hospital
Hermosa Drive Sch
Arovista Park
Arovista Sch
Brea Golf Club
Loma Vista Memorial Park (Cem)
Rolling Hills Sch
Laguna Road Sch
St Jude Hospital
Shopping Center
Playground
Gaging Station
Brea Dam
Hiltscher Park
Golden Hill Sch
Fullerton Jr College
Fullerton High Sch
Raymond Sch
OCEAN VIEW AVE
PACIFIC COAST HIGHWAY
SOUTHERN PACIFIC
ATCHISON TOPEKA & SANTA FE
IMPERIAL HIGHWAY
BASTANCHURY RD
BREA BLVD
HARBOR BLVD
EUCLID AVE
PACIFIC AVE
LAS PALMAS DR
HERMOSA DR
LAS RIENDAS DR
MONTWOOD AVE
VALLEY VIEW AVE
BROOKDALE PL
UNION AVE
MELODY DR
DOROTHY DR
MIRAMA DR
SKYLINE DR
BM 298
BM 330
BM 331
BM 229
BM 197
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 5 0 1 KILOMETER
LA HABRA, CALIF.
N3352.5—W11752.5/7.5

Figure 13.

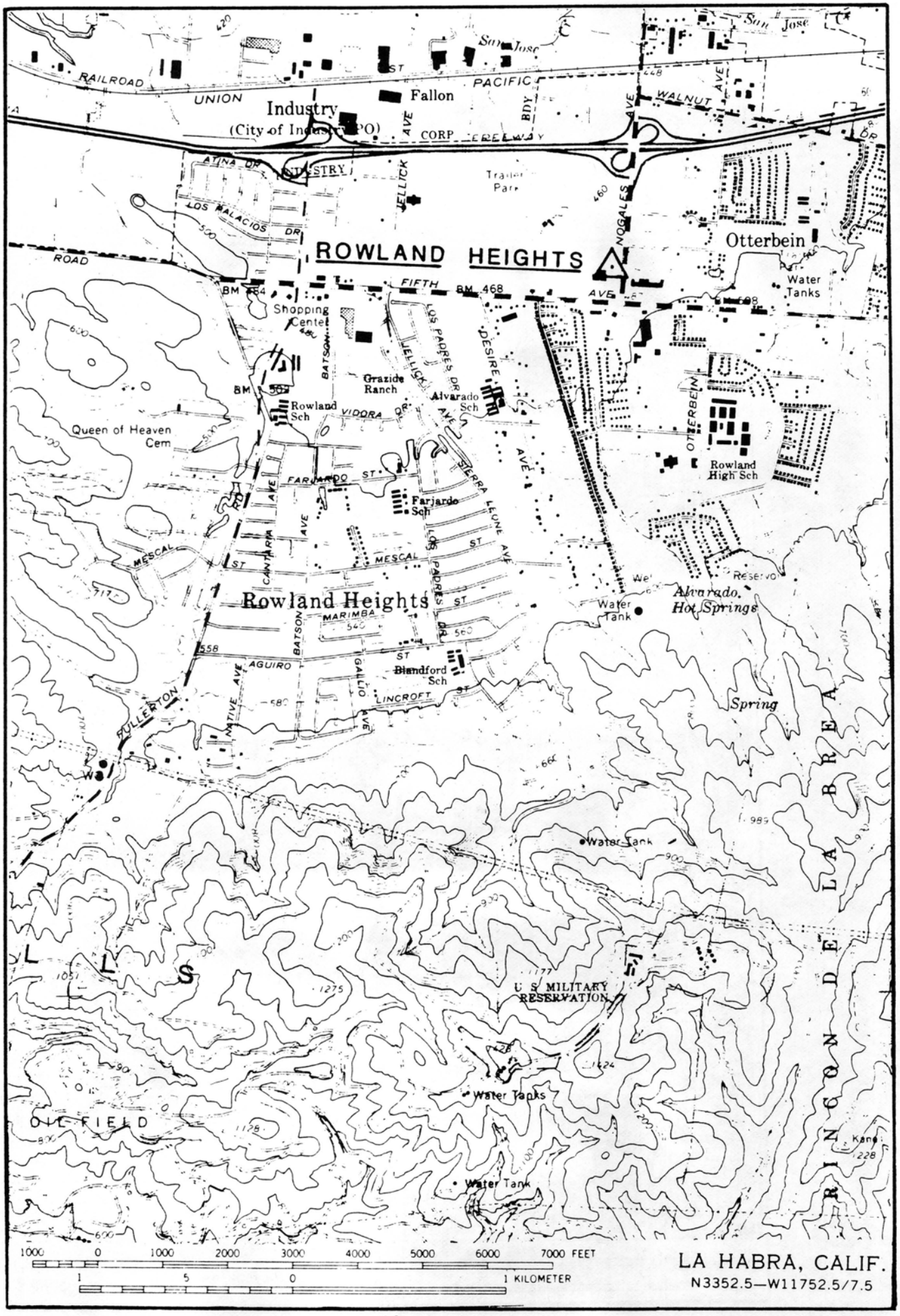

ROWLAND HEIGHTS
Rowland Heights
Industry
(City of Industry PO)
Fallon
Otterbein
Water Tanks
Shopping Center
Grazide Ranch
Alvarado Sch
Rowland Sch
Queen of Heaven Cem
Rowland High Sch
Farjardo Sch
Blandford Sch
Alvarado Hot Springs
Water Tank
Spring
U S MILITARY RESERVATION
OIL FIELD
Water Tanks
Water Tank
Water Tank
FIFTH
MESCAL
MARIMBA
AGUIRO
LINCROFT
VIDORA DR
FARJARDO ST
LOS PADRES DR
SIERRA LEONE AVE
DESIRE AVE
JELLICK AVE
BATSON
NOGALES
WALNUT AVE
ATHENS DR
LOS MALACIOS DR
CANTARA AVE
NATIVE AVE
GALLIO AVE
FULLERTON
RAILROAD
UNION PACIFIC
CORP FREEWAY
San Jose
LA HABRA, CALIF.
N3352.5—W11752.5/7.5
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 5 0 1 KILOMETER

Figure 14.

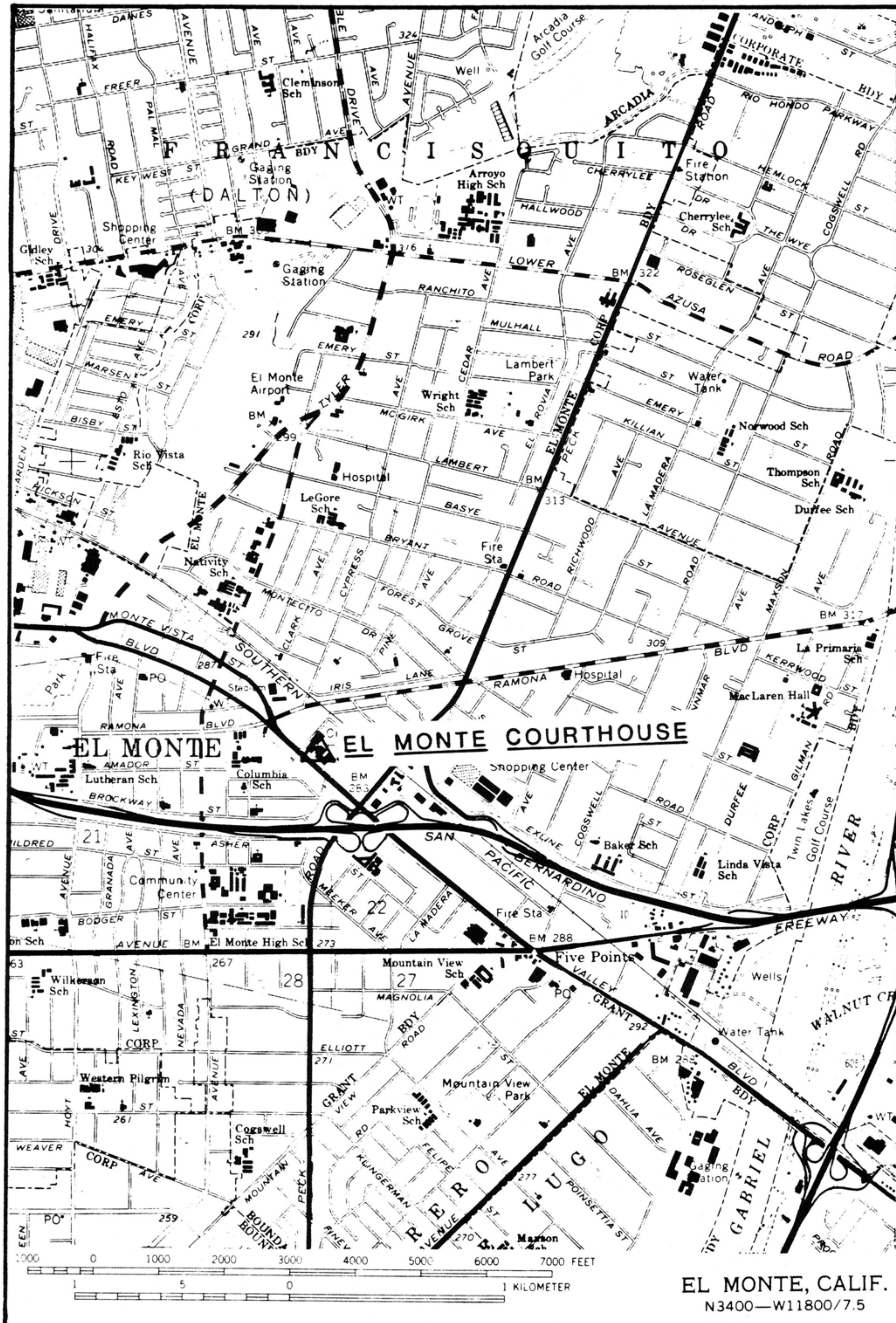

EL MONTE COURTHOUSE
EL MONTE
FRANCISQUITO
(DALTON)
El Monte Airport
Arroyo High Sch
Cleminson Sch
Wright Sch
LeGore Sch
Nativity Sch
Rio Vista Sch
Norwood Sch
Thompson Sch
Durfee Sch
La Primaria Sch
MacLaren Hall
Lambert Park
Hospital
Shopping Center
Lutheran Sch
Columbia Sch
Community Center
El Monte High Sch
Five Points
Mountain View Sch
Mountain View Park
Parkview Sch
Cogswell Sch
Western Pilgrim
Wilkerson Sch
Baker Sch
Linda Vista Sch
Twin Lakes Golf Course
Arcadia Golf Course
SAN BERNARDINO FREEWAY
SOUTHERN PACIFIC
RIVER
SAN GABRIEL
WALNUT CR
LOWER AZUSA ROAD
RAMONA BLVD
VALLEY BLVD
GARVEY AVE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 .5 0 1 KILOMETER
EL MONTE, CALIF.
N3400—W11800/7.5

Figure 15.

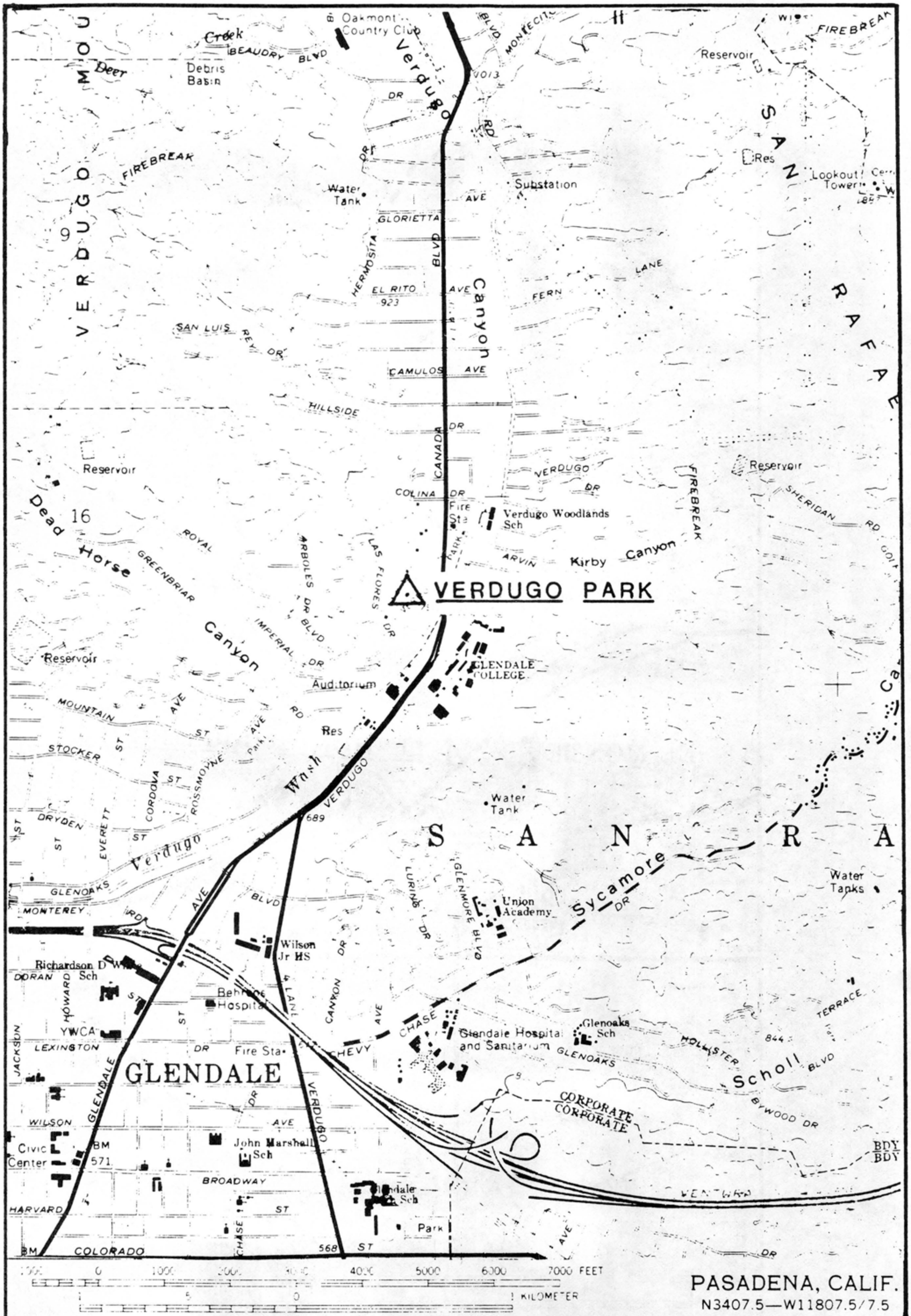

Oakmont Country Club
BEAUDRY BLVD
Debris Basin
Deer Creek
VERDUGO MOU
FIREBREAK
Verdugo
MONTECITO
Reservoir
SAN RAFAE
Res
Lookout Tower
Water Tank
Substation
GLORIETTA
HERMOSITA
EL RITO
923
AVE
BLVD
Canyon
FERN
LANE
SAN LUIS REY DR
CAMULOS AVE
HILLSIDE
CANADA
DR
Reservoir
VERDUGO DR
FIREBREAK
Reservoir
COLINA DR
Fire Sta
Verdugo Woodlands Sch
SHERIDAN RD
16
Dead Horse
ROYAL
GREENBRIAR
ARBOLES DR
LAS FLORES DR
PARK
ARVIN
Kirby Canyon
VERDUGO PARK
IMPERIAL DR
Canyon
Reservoir
GLENDALE COLLEGE
Auditorium
MOUNTAIN
Res
STOCKER
ROSSMOYNE
CORDOVA
Wash
VERDUGO
Water Tank
DRYDEN
EVERETT
689
S A N R A
Verdugo
LURING DR
GLENMORE BLVD
Sycamore DR
Water Tanks
GLENOAKS
MONTEREY
BLVD
Union Academy
Wilson Jr HS
Richardson D White Sch
DORAN
HOWARD
Behrens Hospital
CANYON
YWCA
LEXINGTON
JACKSON
CHEVY CHASE
Glendale Hospital and Sanitarium
Glenoaks Sch
844
HOLLISTER
TERRACE
Scholl BLVD
GLENDALE
Fire Sta
GLENOAKS
CORPORATE
CORPORATE
BYWOOD DR
WILSON
AVE
John Marshall Sch
BDY
BDY
Civic Center
BM 571
BROADWAY
Glendale Sch
VENTURA
HARVARD
CHASE
ST
Park
BM
COLORADO
568
ST
7000 FEET
1 KILOMETER
PASADENA, CALIF.
N3407.5—W11807.5/7.5

Figure 16.

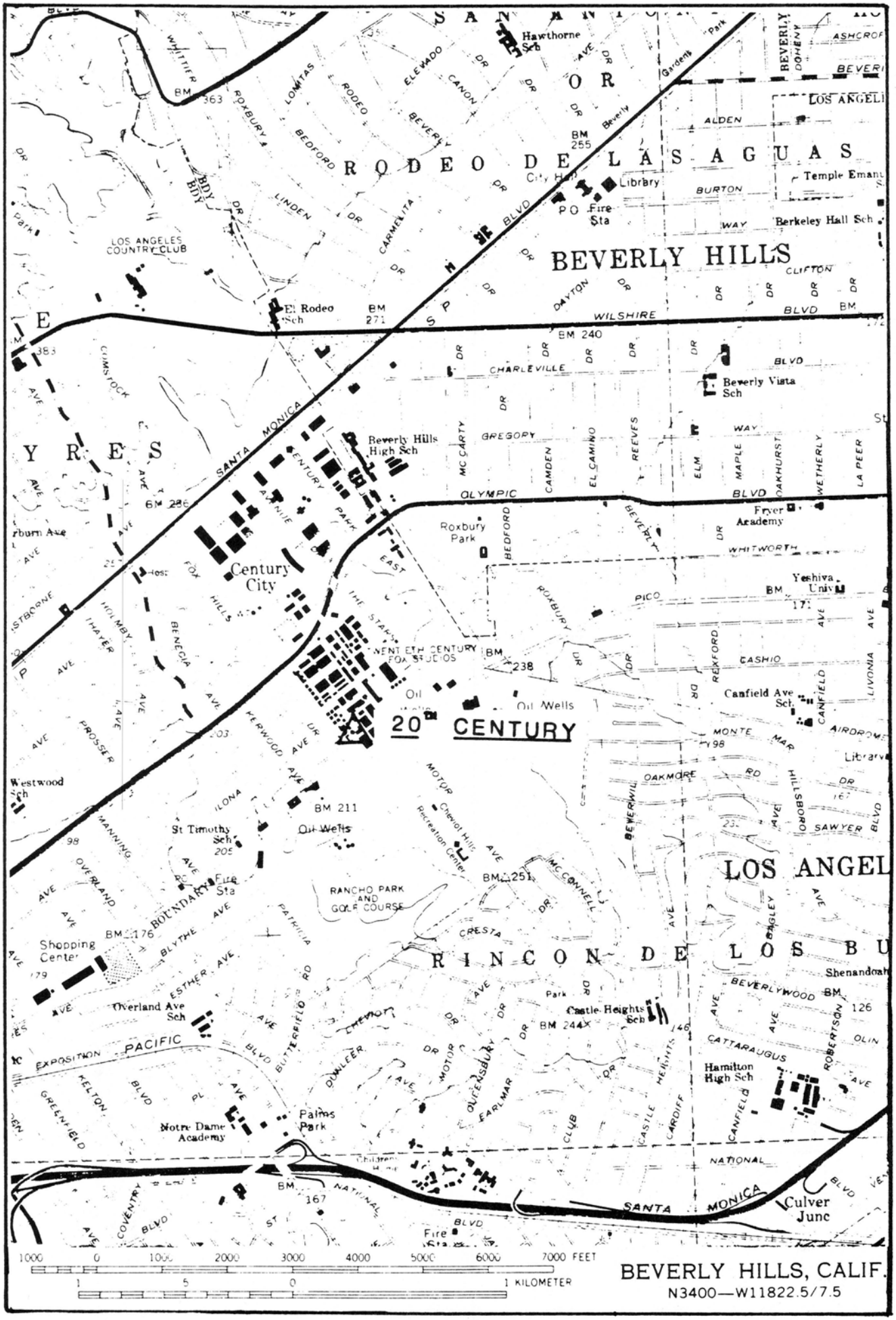

BEVERLY HILLS
RODEO DE LAS AGUAS
20TH CENTURY
RINCON DE LOS
Hawthorne Sch
Beverly Hills High Sch
Century City
Roxbury Park
Beverly Vista Sch
Fryer Academy
Berkeley Hall Sch
Hamilton High Sch
Castle Heights Sch
Overland Ave Sch
Canfield Ave Sch
Yeshiva Univ
St Timothy Sch
Notre Dame Academy
Palms Park
Shopping Center
RANCHO PARK AND GOLF COURSE
LOS ANGELES COUNTRY CLUB
Oil Wells
Culver Junc
BEVERLY HILLS, CALIF.
N3400—W11822.5/7.5
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 5 0 1 KILOMETER

Figure 17.

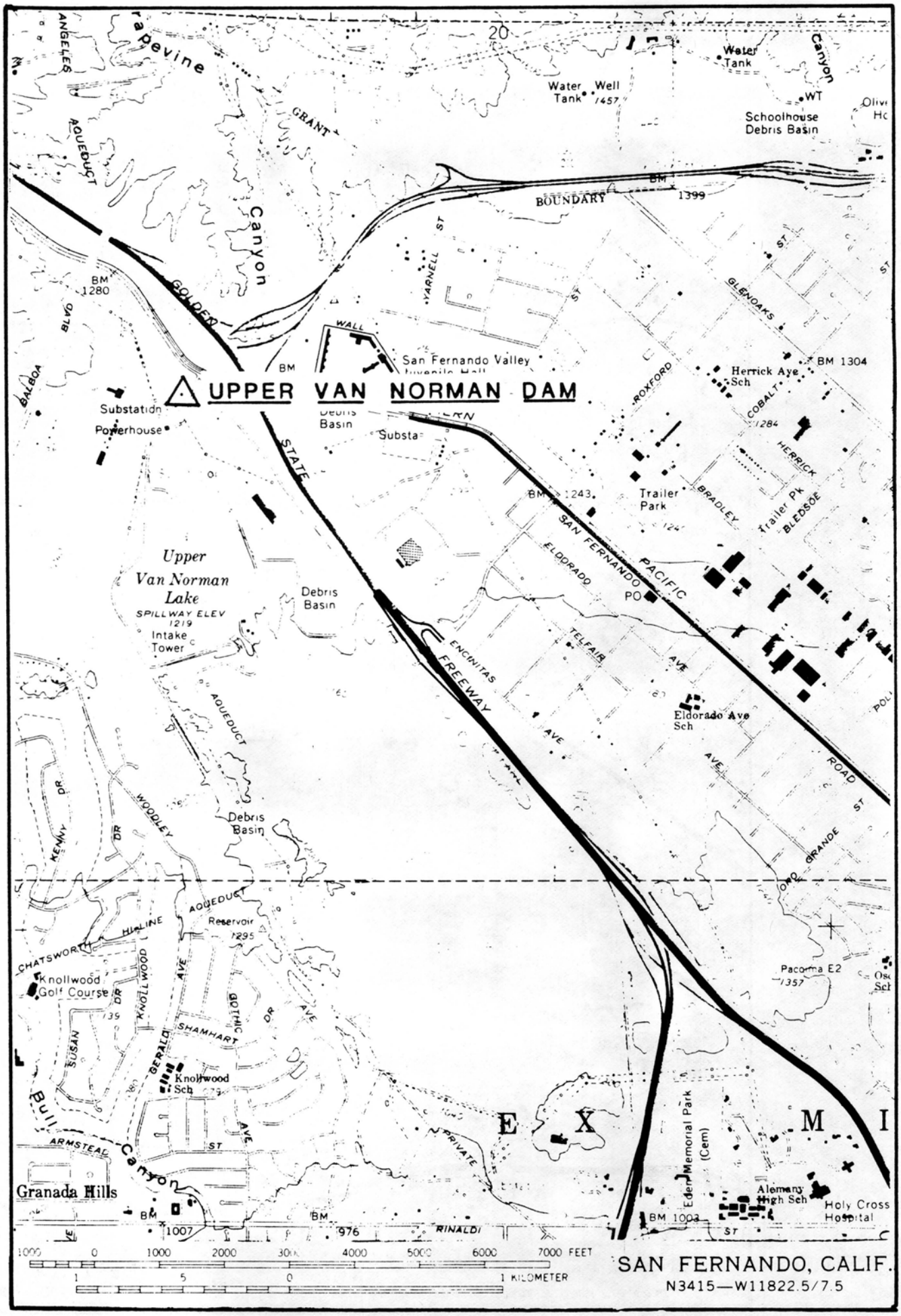

UPPER VAN NORMAN DAM
Upper Van Norman Lake
SPILLWAY ELEV 1219
Intake Tower
Debris Basin
Substation
Powerhouse
San Fernando Valley Juvenile Hall
Trailer Park
Herrick Ave Sch
Eldorado Ave Sch
Knollwood Sch
Knollwood Golf Course
Granada Hills
Alemany High Sch
Holy Cross Hospital
Eden Memorial Park (Cem)
Pacoma E2
Reservoir 1295
Water Tank
Schoolhouse Debris Basin
BOUNDARY
GOLDEN STATE FREEWAY
SAN FERNANDO PACIFIC
ENCINITAS
TELFAIR
GLENOAKS
HERRICK
BRADLEY
ELDORADO
ROXFORD
COBALT
YARNELL
WOODLEY
KENNY
SHAMHART
GERALDI
SUSAN
GOTHIC
ARMSTEAD
RINALDI
OLD GRANDE
AQUEDUCT
Rapevine Canyon
Bull Canyon
BM 1280
BM 1399
BM 1304
BM 1243
BM 1007
BM 976
BM 1003
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 5 0 1 KILOMETER
SAN FERNANDO, CALIF.
N3415—W11822.5/7.5

Figure 18.

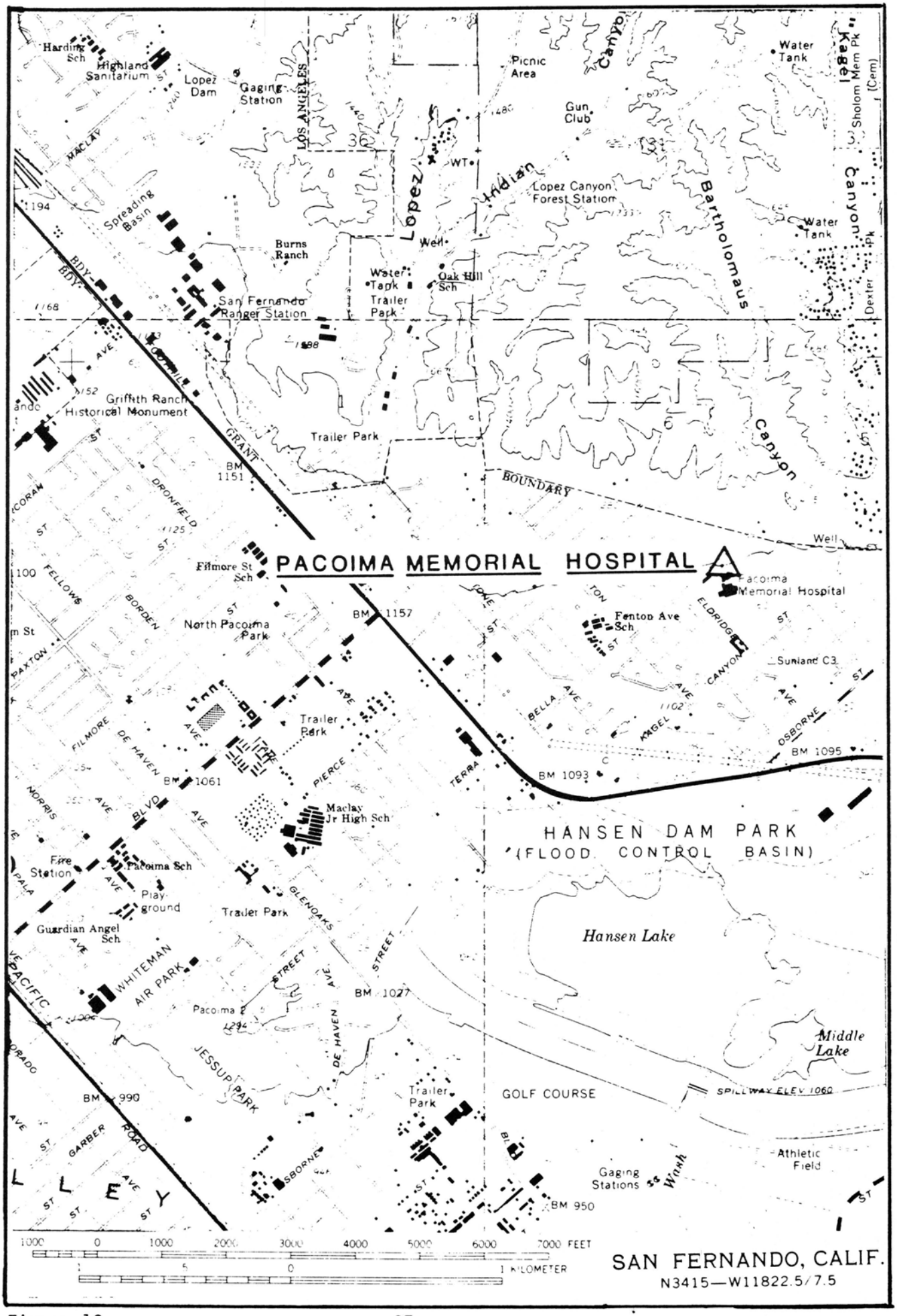

PACOIMA MEMORIAL HOSPITAL
Pacoima Memorial Hospital
HANSEN DAM PARK
(FLOOD CONTROL BASIN)
Hansen Lake
Middle Lake
GOLF COURSE
SPILLWAY ELEV 1060
Harding Sch
Highland Sanitarium
Lopez Dam
Gaging Station
LOS ANGELES
Picnic Area
Gun Club
Water Tank
Kagel Canyon
Sholom Mem Pk (Cem)
Lopez Canyon
Indian Canyon
Bartholomaus Canyon
Lopez Canyon Forest Station
Water Tank
Dexter Pk
MACLAY
Spreading Basin
Burns Ranch
Well
Water Tank
Oak Hill Sch
San Fernando Ranger Station
Trailer Park
BDY
Griffith Ranch Historical Monument
GRANT
BOUNDARY
Trailer Park
BM 1151
DRONFIELD
Well
Filmore St Sch
North Pacoima Park
BM 1157
Fenton Ave Sch
Sunland C3
Trailer Park
BM 1061
Maclay Jr High Sch
BM 1095
BM 1093
Fire Station
Pacoima Sch
Play ground
Trailer Park
Guardian Angel Sch
WHITEMAN AIR PARK
BM 1027
Pacoima C
JESSUP PARK
BM 990
Trailer Park
GARBER ROAD
Gaging Stations
Athletic Field
BM 950
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 0 1 KILOMETER
SAN FERNANDO, CALIF.
N3415—W11822.5/7.5

Figure 19.

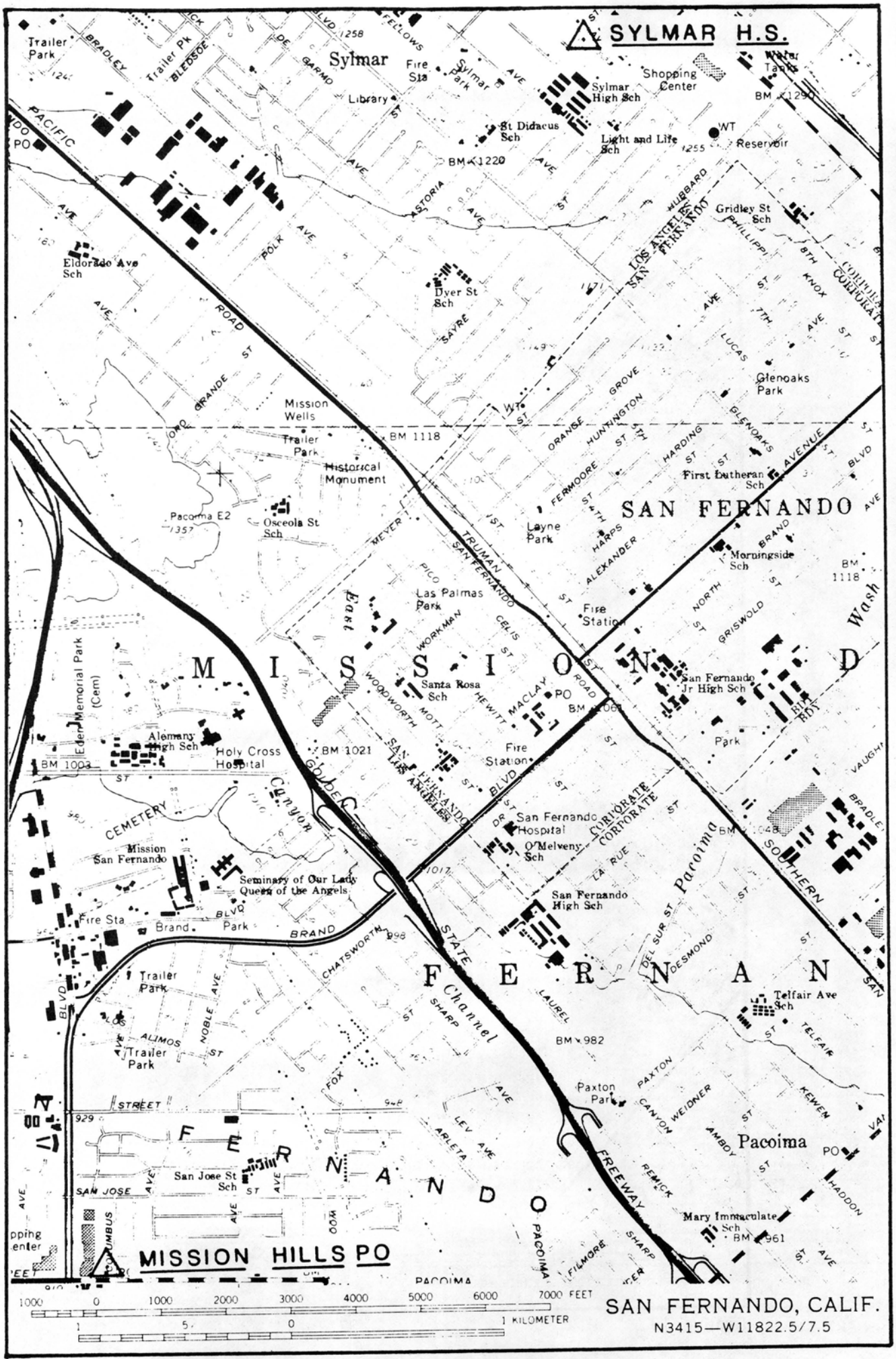

SYLMAR H.S.
Sylmar
Fire Sta
Library
Sylmar High Sch
Shopping Center
St Didacus Sch
Light and Life Sch
Reservoir
BM 1220
Gridley St Sch
Eldorado Ave Sch
Dyer St Sch
Glenoaks Park
Mission Wells
Trailer Park
BM 1118
Historical Monument
Pacoima E2
Osceola St Sch
First Lutheran Sch
SAN FERNANDO
Layne Park
Morningside Sch
Las Palmas Park
Fire Station
MISSION
Santa Rosa Sch
San Fernando Jr High Sch
Eden Memorial Park (Cem)
Alemany High Sch
Holy Cross Hospital
BM 1003
BM 1021
Golden Canyon
CEMETERY
Mission San Fernando
Seminary of Our Lady Queen of the Angels
San Fernando Hospital
O'Melveny Sch
San Fernando High Sch
Fire Sta
Brand Park
BRAND
CHATSWORTH
Trailer Park
STATE
F Channel
Pacoima Wash
SOUTHERN
Telfair Ave Sch
BM 982
Paxton Park
Pacoima
Mary Immaculate Sch
BM 961
FREEWAY
STREET
San Jose St Sch
SAN JOSE
MISSION HILLS PO
PACOIMA
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 5 0 1 KILOMETER
SAN FERNANDO, CALIF.
N3415—W11822.5/7.5

Figure 20.

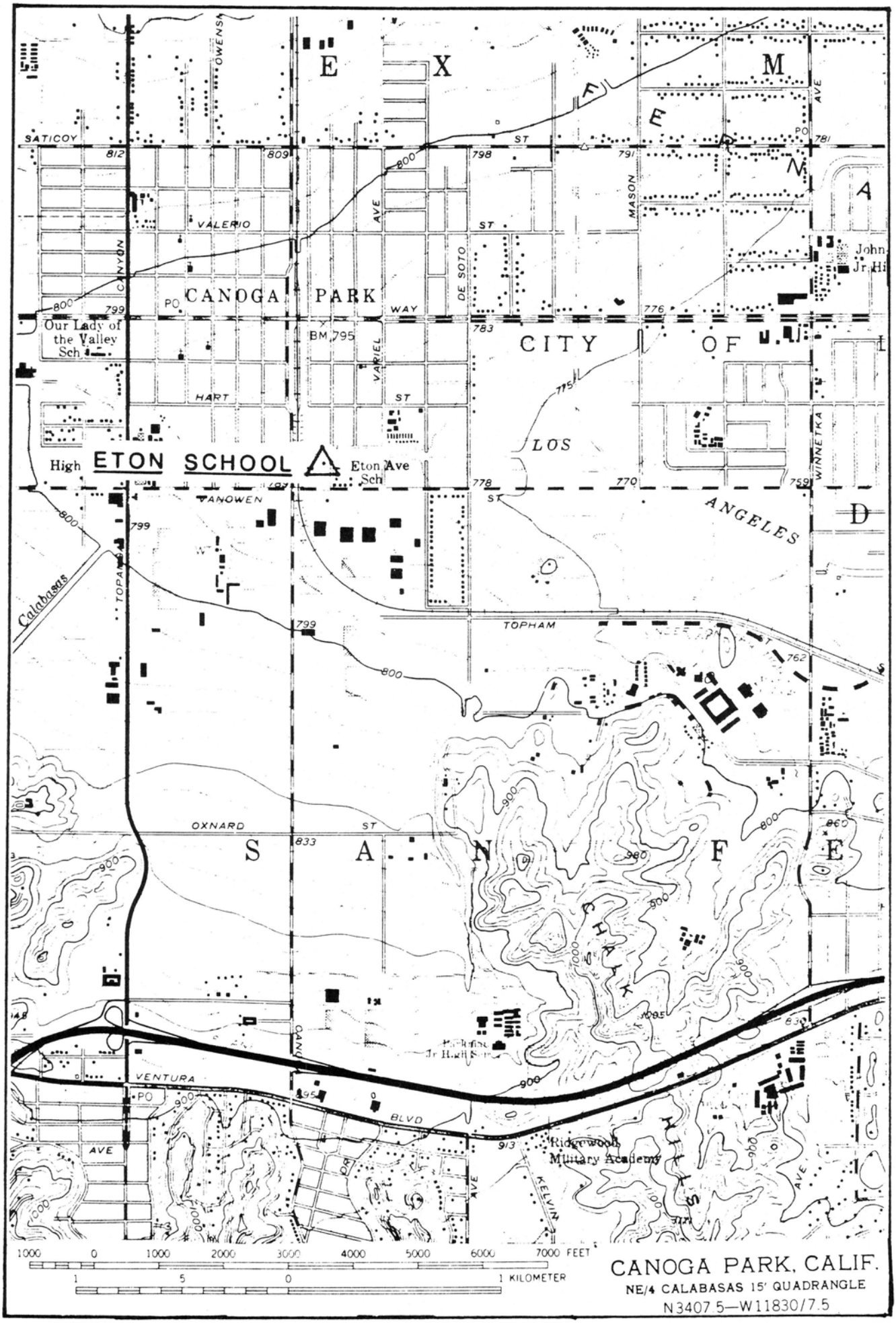

E X
M
SATICOY
812
809
798
791
781
ST
VALERIO
ST
CANYON
OWENS
AVE
MASON
DE SOTO
CANOGA PARK
PO
WAY
799
800
776
783
Our Lady of the Valley Sch
BM 795
VARIEL
CITY OF
HART
ST
775
LOS
WINNETKA
High
ETON SCHOOL
Eton Ave Sch
778
770
759
ST
VANOWEN
ANGELES
799
800
Calabasas
TOPAN
TOPHAM
762
OXNARD
ST
833
S A N F E
900
800
860
980
CHALK
7000
1095
VENTURA
PO
BLVD
913
Ridgewood Military Academy
AVE
KELVIN
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 5 0 1 KILOMETER
CANOGA PARK, CALIF.
NE/4 CALABASAS 15' QUADRANGLE
N3407.5—W11830/7.5

Figure 21.

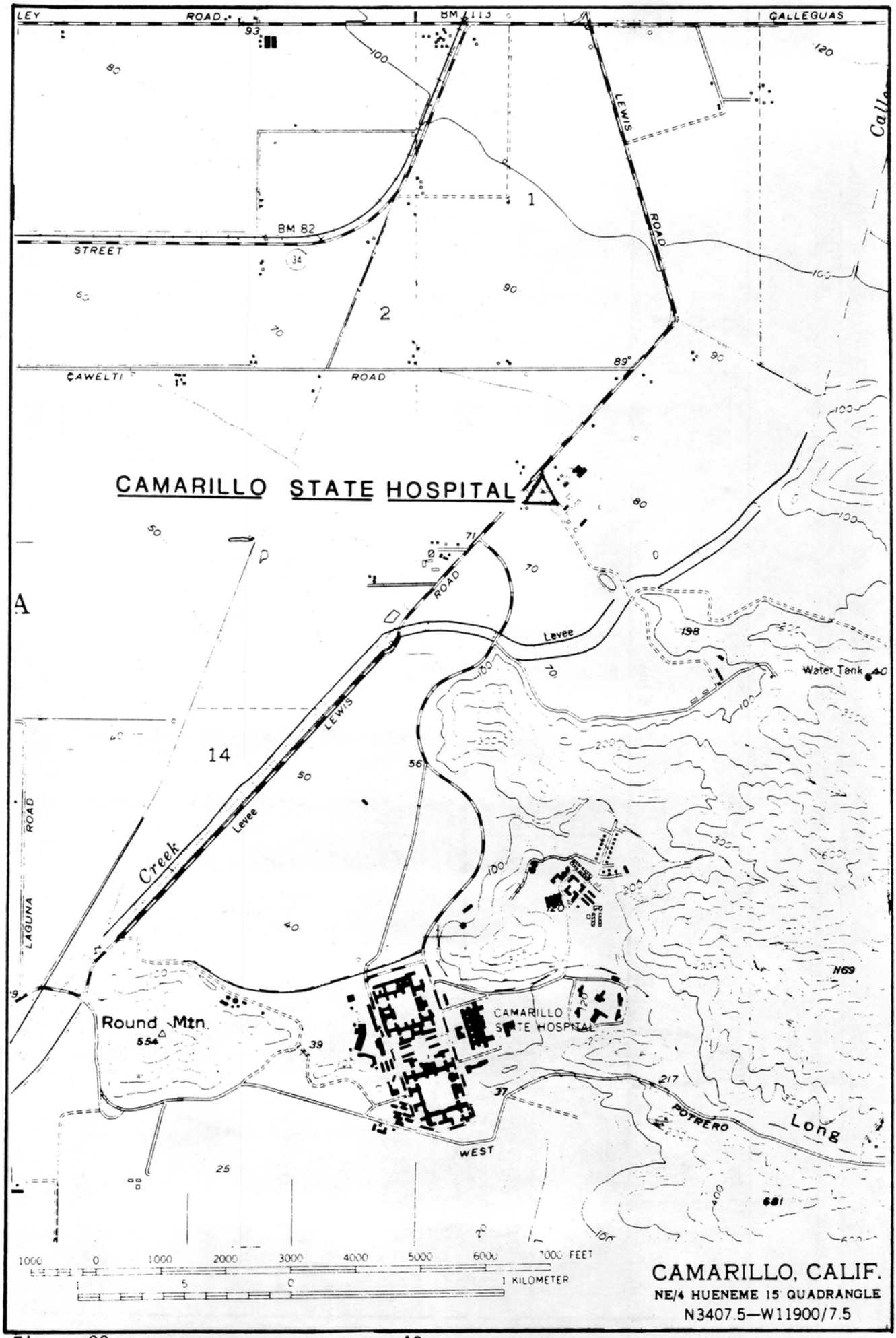

CAMARILLO STATE HOSPITAL
LEY ROAD
BM 113
CALLEGUAS
LEWIS ROAD
BM 82
STREET
CAWELTI ROAD
ROAD
Levee
Water Tank
LEWIS
Creek
Levee
LAGUNA ROAD
Round Mtn.
554
CAMARILLO STATE HOSPITAL
WEST
POTRERO
Long
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 5 0 1 KILOMETER
CAMARILLO, CALIF.
NE/4 HUENEME 15' QUADRANGLE
N3407.5—W11900/7.5

Figure 22.

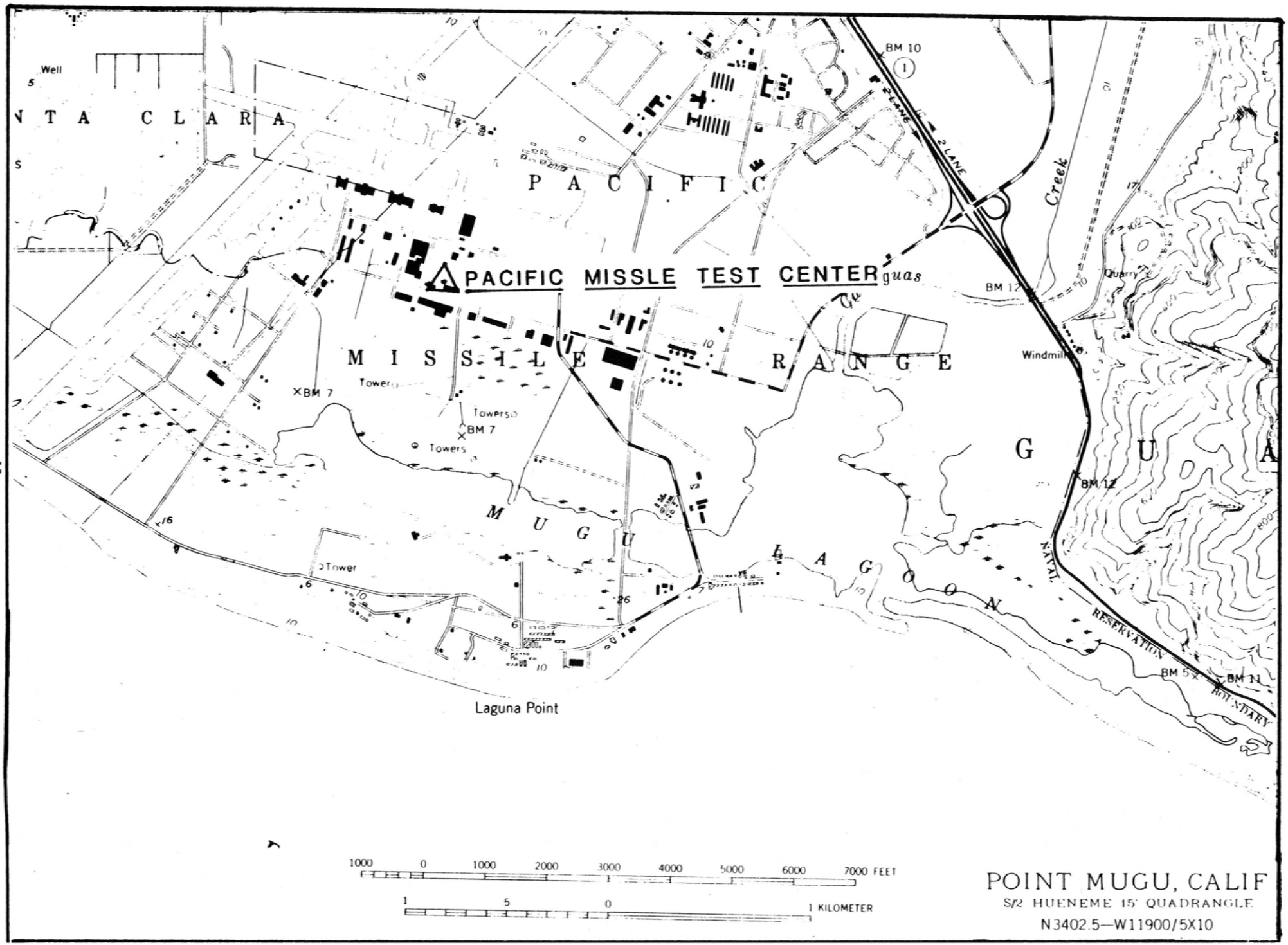

PACIFIC MISSLE TEST CENTER
MISSILE RANGE
PACIFIC
MUGU LAGOON
GUA
Laguna Point
BM 10
BM 12
BM 7
BM 5
BM 1
Windmill
Quarry
Tower
Towers
Creek
2 LANE
NAVAL RESERVATION BOUNDARY
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 5 0 1 KILOMETER
POINT MUGU, CALIF
S/2 HUENEME 15' QUADRANGLE
N3402.5—W11900/5X10

Figure 23.

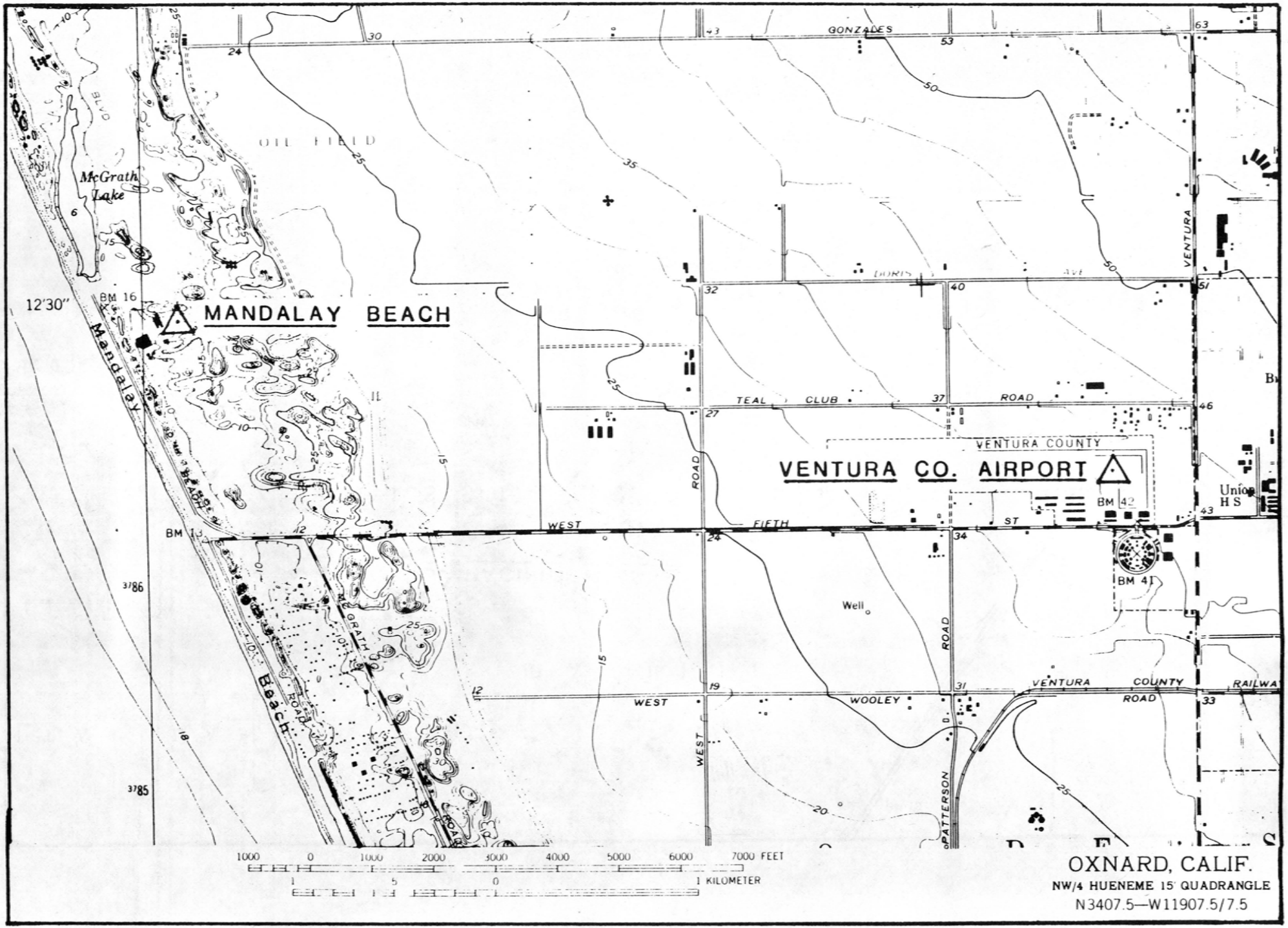

MANDALAY BEACH
VENTURA CO. AIRPORT
VENTURA COUNTY
McGrath Lake
OIL FIELD
GONZALES
TEAL CLUB ROAD
WEST FIFTH ST
WOOLEY ROAD
VENTURA COUNTY RAILWA
PATTERSON ROAD
Mandalay Beach
McGRATH ROAD
BM 16
BM 13
BM 42
BM 41
Well
Union H S
12'30"
3786
3785
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 5 0 1 KILOMETER
OXNARD, CALIF.
NW/4 HUENEME 15' QUADRANGLE
N3407.5—W11907.5/7.5

Figure 24.

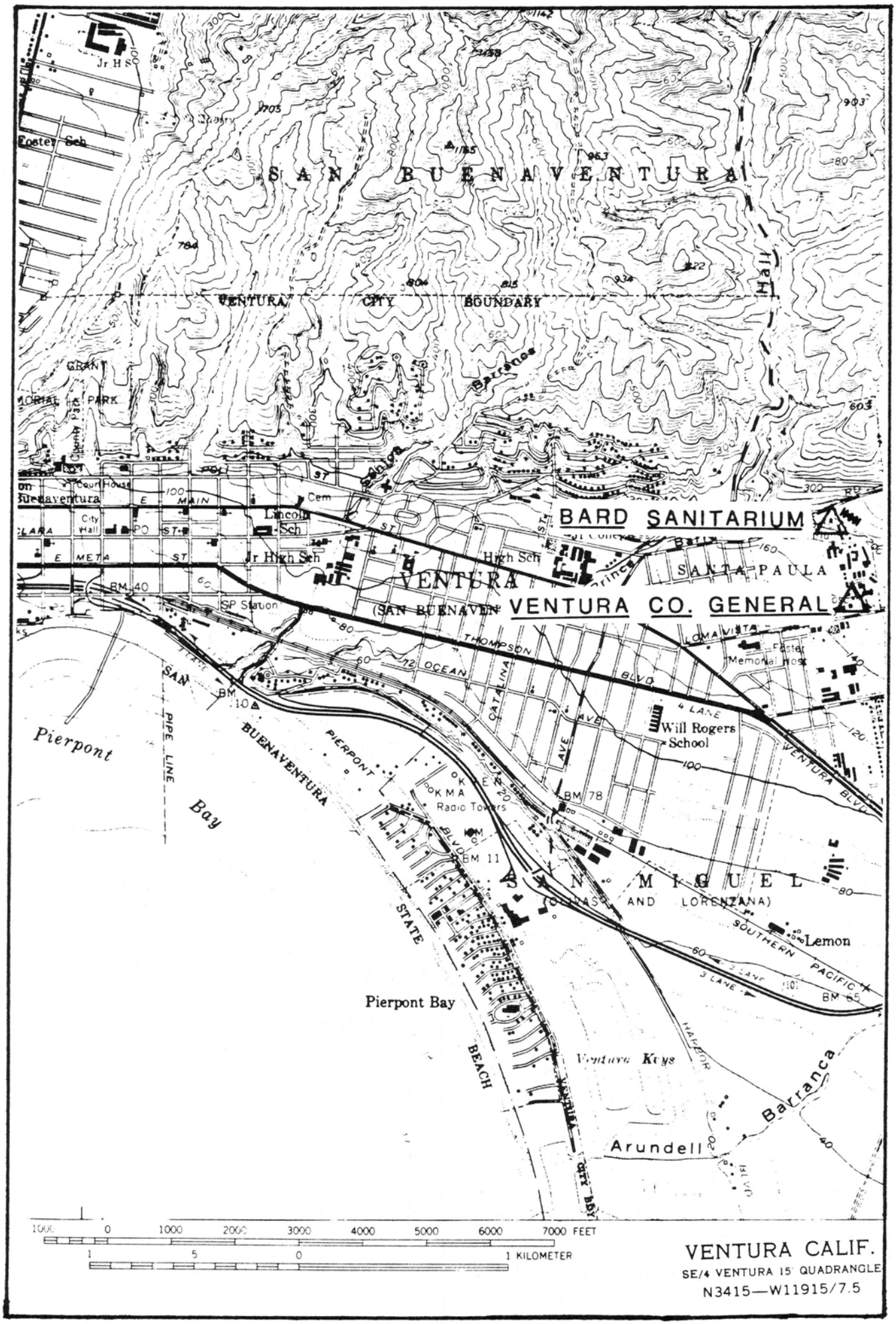

SAN BUENAVENTURA
VENTURA CITY BOUNDARY
BARD SANITARIUM
VENTURA CO. GENERAL
SANTA PAULA
VENTURA
(SAN BUENAVEN
Foster Sch
Jr H S
Court House
City Hall
P.O.
Lincoln Sch
Jr High Sch
High Sch
Cem
E MAIN ST
E MENTA ST
SP Station
BM 40
BM 10
BM 11
BM 78
THOMPSON BLVD
OCEAN AVE
CATALINA AVE
LOMA VISTA
Foster Memorial Host
Will Rogers School
VENTURA BLVD
4 LANE
PIERPONT BLVD
BUENAVENTURA
SAN BUENAVENTURA STATE BEACH
PIPE LINE
Pierpont
Bay
Pierpont Bay
KMA Radio Towers
SAN MIGUEL
AND LORENZANA)
SOUTHERN PACIFIC
Lemon
3 LANE
BM 65
Ventura Keys
HARBOR
Barranca
Arundell
CITY BAY
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 5 0 1 KILOMETER
VENTURA CALIF.
SE/4 VENTURA 15' QUADRANGLE
N3415—W11915/7.5

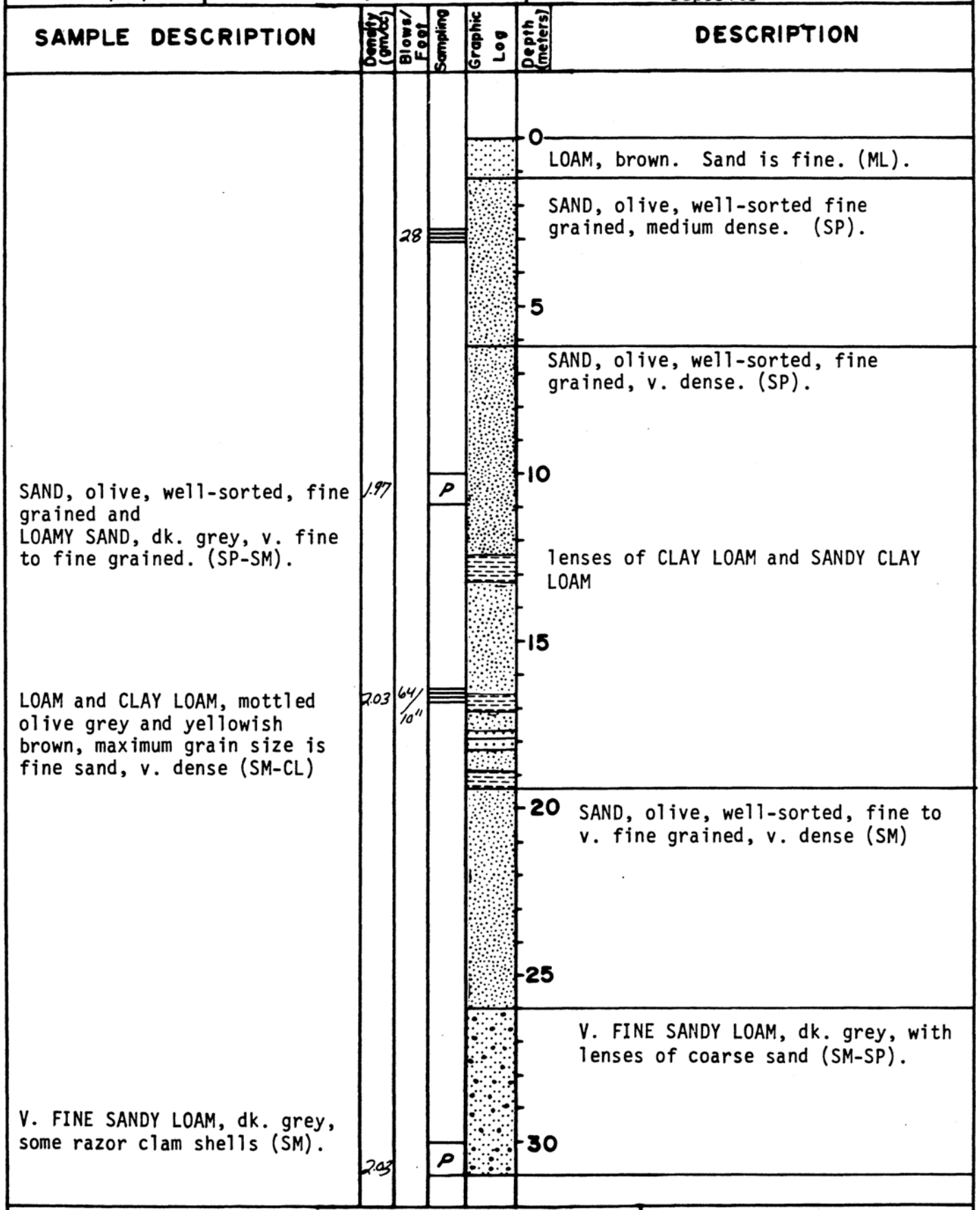
Figure 25.

ALTITUDE: 24'	LOCATION: Lat. 33°46'13" Long. 118°11'48" QUADRANGLE: LONG BEACH, CA	HOLE No. 1 SITE: MAGNOLIA GEOLOGIC MAP UNIT: Qpu Upper Pleistocene Terrace Deposits
DATE: 3/20/78 - 3/22/78		

SAMPLE DESCRIPTION	Density (gm/cc)	Blows/ Foot	Sampling	Graphic Log	Depth (meters)	DESCRIPTION
					0	
						SANDY CLAY LOAM, brown
SANDY LOAM, dk. brown, medium plasticity, moist, dense. (SC).	1.95	40				SANDY LOAM, dk. brown, medium plasticity, moist, dense. (SC)
					5	
						SANDY CLAY, mottled pale brown and brown. Contains lenses of fine SAND. (CL-SC).
SAND, mottled lt. olive brown and greyish brown, well-sorted, coarse grained. (SP).	2.03		P		10	SAND, greyish brown with common mottles of lt. olive brown, well-sorted, medium to coarse grained. Contains lenses of SANDY CLAY. (SP-CL).
					15	
V. FINE SANDY LOAM, olive brown v. low clay content. (ML)	2.08		P		20	V. FINE SANDY LOAM and SILT LOAM, olive brown. (ML).
						SAND, olive brown, well-sorted medium to coarse grained. (SP).
					25	
						SAND, dk. greenish grey, well-sorted, fine grained. Some SILT LOAM lenses. (SP).
SAND, dk. greenish grey, well-sorted fine grained, moist (SP)	2.06		P		30	

COMMENTS: Figure 26.	LOGGED BY:

ALTITUDE: 34'	LOCATION: Lat. 33°46'42" Long. 118°11'04" QUADRANGLE: LONG BEACH, CA	HOLE No. 2 SITE: 1st LUTHERAN CHURCH GEOLOGIC MAP UNIT: Qpu Upper Pleistocene Terrace Deposits
DATE: 3/15/78 - 3/17/78		



COMMENTS: SAND is denser (slower drilling) below 6.1 m.

LOGGED BY:

Figure 27.

ALTITUDE: 2'	LOCATION: Lat. 33°45'11" Long. 118°15'10" QUADRANGLE: TORRANCE, CA	HOLE No. 3 SITE: TERMINAL ISLAND GEOLOGIC MAP UNIT: Qal Holocene alluvium
DATE: 3/23/78		

SAMPLE DESCRIPTION	Density (gm/cc)	Blows/Foot	Sampling	Graphic Log	Depth (meters)	DESCRIPTION
					0	SAND, brown, fine-grained grading to: SAND, olive grey, well-sorted fine to medium grained, (SP) dense.
SAND, olive grey, well-sorted fine to medium grained (SP) dense.	1.79	49			5	grading to: SAND, v. dk. greenish grey, well-sorted, fine to medium grained. Contains shell fragments (SP).
SAND, v. dk. greenish grey, well-sorted fine to medium grained. Contains oyster and pecten shells. (SP)	1.85	P			10	
					15	
					20	
						SILT LOAM, dk. grey. (ML)
					25	
						SAND, dk. grey, well-sorted, fine to medium grained.
					30	

COMMENTS:

Figure 28.

LOGGED BY:

ALTITUDE: 55'	LOCATION: Lat. 33°49'58" Long. 118°09'13" QUADRANGLE: LONG BEACH, CA	HOLE No. 4 SITE: LAKEWOOD GOLF COURSE GEOLOGIC MAP UNIT: Qpu Upper Pleistocene Terrace Deposits
DATE: 5/3/78		

SAMPLE DESCRIPTION	Density (gm/cc)	Blows/Foot	Sampling	Graphic Log	Depth (meters)	DESCRIPTION
					0	SILTY CLAY LOAM, brown to dk. olive brown, low plasticity. V. stiff with lenses of FINE SAND (CL-ML).
SILTY CLAY LOAM, dk. olive brown, low plasticity, v. stiff, moist. (CL).	1.91	20				
					5	SILT LOAM, mottled greyish brown and strong brown, with lenses of FINE SAND (ML).
						SAND, dk. yellowish brown, well-sorted, mostly fine to medium grained, v. dense, moist. (SP-SM).
LOAMY SAND, dk. yellowish brown, v. fine to coarse grained, v. dense moist (SM).	2.06	77			10	grading to: GRAVELLY COARSE SAND.
						SILT LOAM, mottled dk. greyish brown and strong brown, non-plastic, moist. (ML).
SILT LOAM, dk. greyish brown, non-plastic moist. (ML)	2.04	43			15	
						SAND, grading to GRAVEL
						SANDY CLAY, mottled grey and olive
					20	
						SAND, grey, well-sorted, fine to medium grained, v. dense, moist (SP).
					25	with lenses of silty clay
SAND, grey, well-sorted, fine to medium grained, v. dense, moist. (SP).		72			30	

COMMENTS:
Figure 29.

LOGGED BY:

ALTITUDE: 50'	LOCATION: Lat. 33°51'34" Long. 118°12'57" QUADRANGLE: LONG BEACH, CA	HOLE No. 5 SITE: F.S. 105 GEOLOGIC MAP UNIT: Qal Holocene alluvium
DATE: 5/1/78		

SAMPLE DESCRIPTION	Density (gm/cc)	Blows/Foot	Sampling	Graphic Log	Depth (meters)	DESCRIPTION
					0	SILT LOAM, black to olive, micaceous, v. stiff, with lenses of silty clay (ML-CL)
V. FINE SANDY LOAM, olive, low plasticity, moist, medium dense (SM).		17				V. FINE SANDY LOAM, olive, low plasticity, moist, medium dense (ML).
					5	SILT LOAM and SILTY CLAY, olive with mottles of yellowish brown (ML-CL).
SILTY CLAY LOAM, mottled dk. greyish brown and dk. yellowish brown, medium plasticity, moist v. stiff (CL).	1.90	16			10	SILTY CLAY, dk. greyish brown with mottles of yellowish brown, medium plasticity, moist, v. stiff (CL).
SAND, grey, well-sorted, medium to coarse grained, wet, v. dense (SP).		68			15	SAND, grey, well-sorted, medium to coarse grained, dense to v. dense.
					20	
SAND, grey, well-sorted, medium to coarse grained, wet, v. dense (SP).	2.03	39				grading to: GRAVELLY SAND, v. coarse grained (SW).
					25	
						SILT LOAM, dk. greenish grey, non-plastic, horizontally laminated (ML).
SILT LOAM, dk. greenish grey, moist, non-plastic, horizontally laminated.	1.97		P		30	

COMMENTS:	LOGGED BY:
Figure 30.	

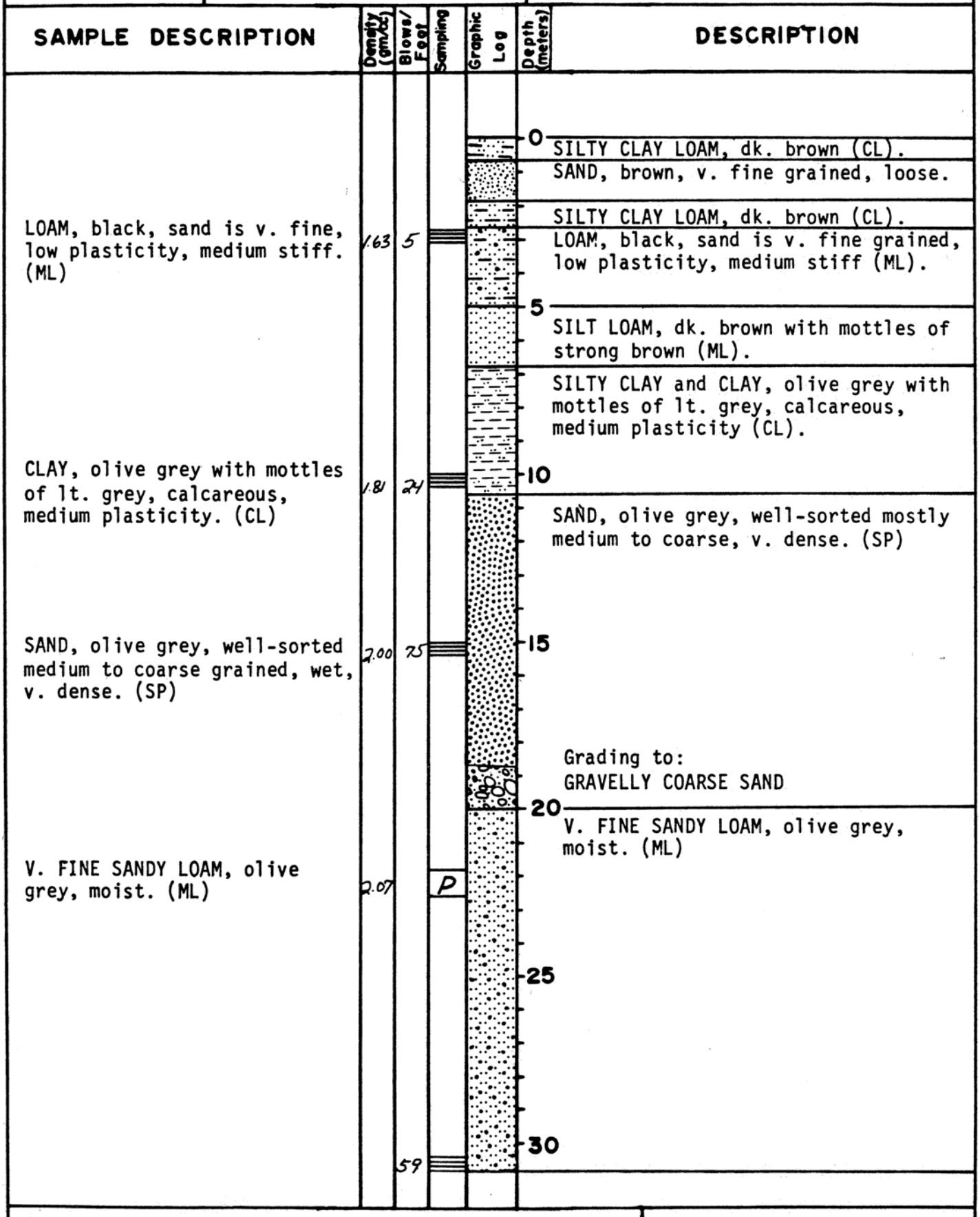
ALTITUDE: 85'	**LOCATION:** Lat. 33°53'20" Long. 118°14'16"	**HOLE No.** 6
DATE: 3/24/78	**QUADRANGLE:** SOUTH GATE, CA	**SITE:** COMPTON AIRPORT
		GEOLOGIC MAP UNIT: Qpu Upper Pleistocene Terrace Deposits

SAMPLE DESCRIPTION	Density (gm/cc)	Blows/Foot	Sampling	Graphic Log	Depth (meters)	DESCRIPTION
SILTY CLAY, olive brown and pale yellow with white calcareous stringers, medium plasticity, moist, (CL).	1.90	23			0	Asphalt over GRAVEL fill
						SILTY CLAY, dk. greyish brown grading to olive brown and pale yellow, calcareous, medium plasticity, moist, hard (CL).
					5	
					10	olive brown with mottles of grey and strong brown.
						SILT LOAM, olive brown with common mottles of strong brown (ML-CL).
					15	
					20	
					25	
						SAND, medium to v. coarse grained.
					30	

COMMENTS:
Figure 31.

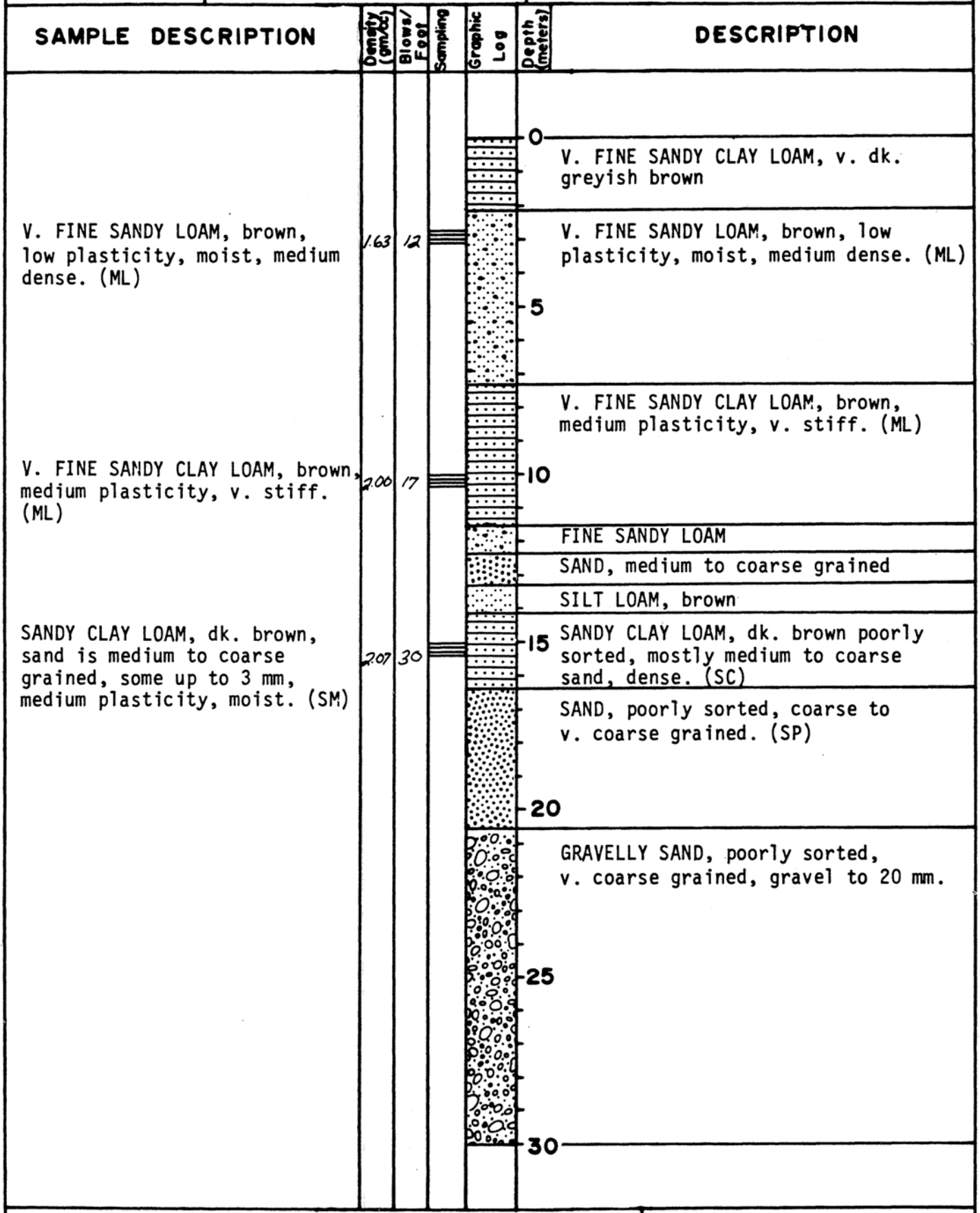
LOGGED BY:

ALTITUDE: 67'	LOCATION: Lat. 33°53'34" Long. 118°13'25" QUADRANGLE: SOUTH GATE, CA	HOLE No. 7 SITE: COMPTON CIVIC CENTER GEOLOGIC MAP UNIT: Qal Holocene alluvium
DATE: 5/2/78		



COMMENTS: Figure 32.	LOGGED BY:

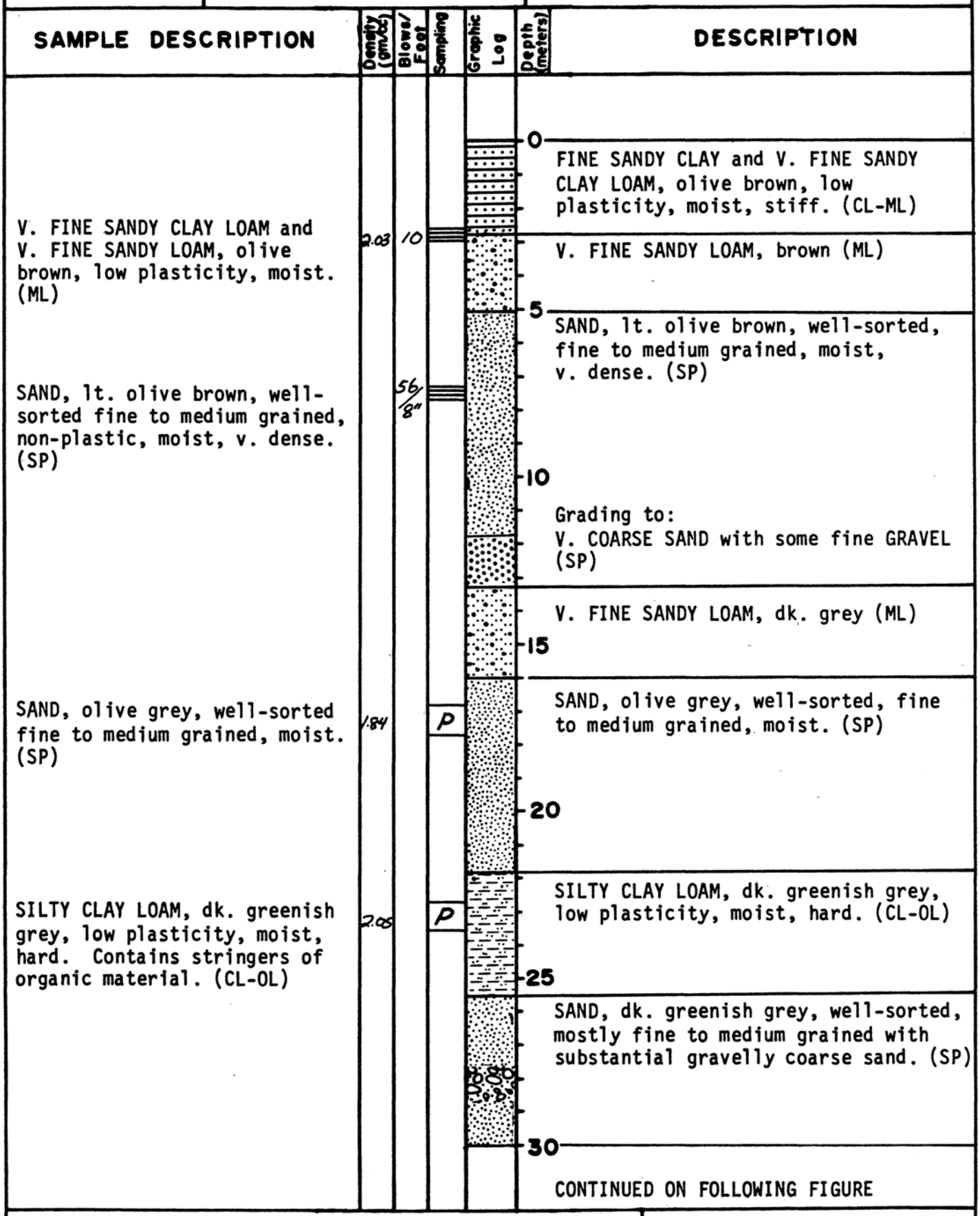
ALTITUDE: 785' **DATE:** 5/4/78	**LOCATION:** **Lat.** 34°12'51" **Long.** 118°28'18" **QUADRANGLE:** VAN NUYS, CA	**HOLE No.** 8 **SITE:** HOLIDAY INN **GEOLOGIC MAP UNIT:** Qal Holocene alluvium



COMMENTS:
Figure 33.

LOGGED BY:

ALTITUDE: 77'	LOCATION: Lat. 33°46'37" Long. 118°07'07" QUADRANGLE: LOS ALAMITOS, CA	HOLE No. 9 SITE: VETERANS HOSPITAL GEOLOGIC MAP UNIT: Qpl San Pedro Formation
DATE: 3/13/78		



COMMENTS:	LOGGED BY:
Figure 34.	

ALTITUDE:	LOCATION: Lat. Long. QUADRANGLE:	HOLE No. SITE: VETERANS HOSPITAL GEOLOGIC MAP UNIT:
DATE:		

SAMPLE DESCRIPTION	Density (gm/cc)	Blows/ Foot	Sampling	Graphic Log	Depth (meters)	DESCRIPTION
					30	
SAND, dk. greenish grey, well-sorted, fine to medium grained, moist. (SP)	1.83		P		35	
					40	
					45	SILTY CLAY, v. dk. greenish grey, medium plasticity. Contains lenses of SAND. (CL-SP)
SILTY CLAY, v. dk. greenish grey, medium plasticity. Contains lenses of SAND, olive, inclined at 45° to axis of core. (CL-SP)	1.96		P		50	

COMMENTS:
Figure 34 continued.

LOGGED BY:

ALTITUDE: 1'	LOCATION: Lat. 33°37'59" Long. 118°57'24" QUADRANGLE: NEWPORT BEACH, CA	HOLE No. 10 SITE: NEWPORT BEACH SDP 2 GEOLOGIC MAP UNIT: Qal Holocene alluvium
DATE: 8/16/78		

SAMPLE DESCRIPTION	Density (gm/cc)	Blows/Foot	Sampling	Graphic Log	Depth (meters)	DESCRIPTION
					0	FILL. Silty sand with some gravel and pipe fragments.
						SILT LOAM and SILTY CLAY LOAM, black, organic, micaceous, medium to high plasticity, soft. (OH)
SILT LOAM and SILTY CLAY LOAM, black, high organic content, medium to high plasticity, soft. (OH)	1.78	4	P		5	
SAND, dk. grey, well-sorted, medium to coarse grained, medium dense wet (SP).	1.58	16	P			SAND, dk. grey, well-sorted medium to coarse grained, medium dense to v. dense. (SP)
					10	
SAND, dk. grey, well-sorted, grades from v. coarse to fine grained, v. dense. (SP)		62				SAND, v. dk. greenish grey, v. fine to fine grained, well-sorted, and FINE SANDY LOAM, v. dk. grey, v. dense (SP-SM)
					15	
SAND, v. dk. greenish grey, well-sorted, v. fine to fine grained, dense (SP)	1.84	42				
					20	SILT LOAM, v. dk. grey, micaceous, slight plasticity, firm, moist. (ML)
SILT LOAM, v. dk. grey, micaceous, slight plasticity, firm, moist. (ML)	1.91		P			
		60			25	FINE SANDY LOAM, v. dk. grey (SM)
FINE SANDY LOAM, v. dk. grey, with common lenses (burrows?) of grey medium SAND, v. dense. (SM-SP)						SAND, grey, well-sorted, medium to coarse grained, v. dense (SP)
SAND, grey, well-sorted, coarse grained, wet, v. dense (SP)		86			30	
						CONTINUED ON FOLLOWING FIGURE

COMMENTS:
Figure 35.

LOGGED BY:

ALTITUDE:	LOCATION: Lat. Long. QUADRANGLE:	HOLE No. 10 SITE: NEWPORT BEACH SDP 2 GEOLOGIC MAP UNIT:
DATE:		

SAMPLE DESCRIPTION	Density (gm/cc)	Blows/Foot	Sampling	Graphic Log	Depth (meters)	DESCRIPTION
					30	
						SAND, olive grey, well-sorted, v. coarse grained, contains up to 40% gravel. Some lenses in silty sand. (SP)
					35	
					40	
					45	
SAND, olive grey, well-sorted, v. coarse grained, contains 30-40% gravel, v. dense (SP).		160/6"			50	

COMMENTS:	LOGGED BY:
Figure 35 continued.	

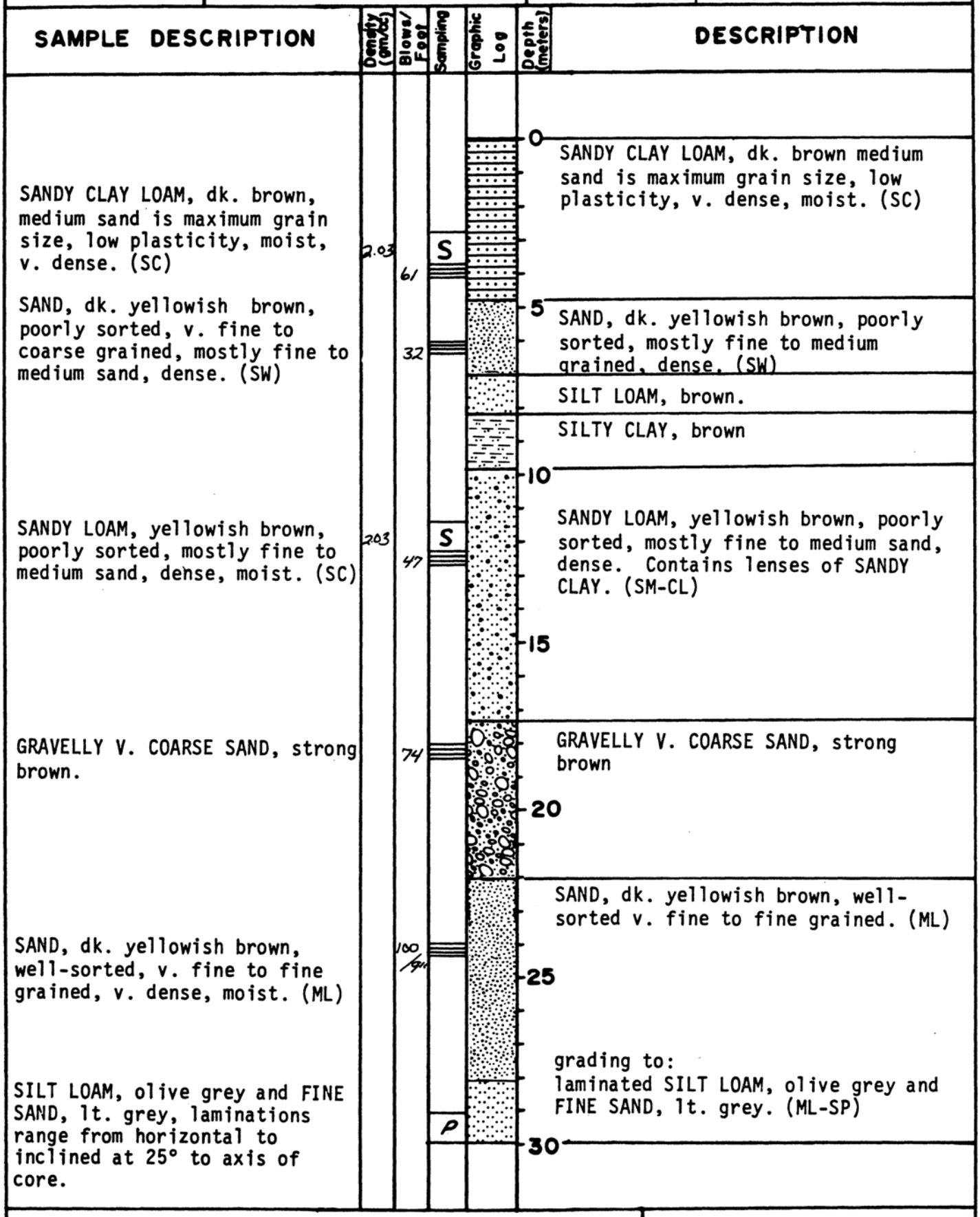
ALTITUDE: 285'	LOCATION: Lat. 33°49'30" Long. 117°49'30" QUADRANGLE: ORANGE, CA	HOLE No. 11 SITE: KATELLA SCHOOL GEOLOGIC MAP UNIT: Qal Holocene alluvium
DATE: 8/15/78		

SAMPLE DESCRIPTION	Density (gm/cc)	Blows/Foot	Sampling	Graphic Log	Depth (meters)	DESCRIPTION
					0	SANDY CLAY LOAM, yellowish brown, with lenses of gravelly sand (SC-SW)
GRAVELLY SAND, dk. brown, v. poorly sorted, contains 20-40% gravel, v. dense. (SN)	2.16	76			5	GRAVELLY SAND, dk. brown, v. poorly sorted, contains 30-40% gravel, v. dense (SW).
					10	COBBLE GRAVEL with occasional boulders to 60 cm.
					15	
					20	
					25	
					30	

COMMENTS:
Figure 36.

LOGGED BY:

ALTITUDE: 280'	LOCATION: Lat. 33°53'47" Long. 117°55'32" QUADRANGLE: LA HABRA	HOLE No. 12 SITE: ST. JUDE'S HOSPITAL GEOLOGIC MAP UNIT: Qpu Upper Pleistocene Terrace Deposits
DATE: 8/14/78		



COMMENTS: Figure 37.	LOGGED BY:

ALTITUDE: 475'	**LOCATION:** Lat. 33°59'20" Long. 117°53'21"	**HOLE No.** 13
DATE: 8/10/78	**QUADRANGLE:** LA HABRA	**SITE:** ROWLAND HEIGHTS
		GEOLOGIC MAP UNIT: Qal Holocene alluvium

SAMPLE DESCRIPTION	Density (gm/cc)	Blows/ Foot	Sampling	Graphic Log	Depth (meters)	DESCRIPTION
					0	CLAY LOAM and FINE SANDY CLAY LOAM, dk. yellowish brown to brown, low to medium plasticity, moist, hard. (CL-SL)
FINE SANDY CLAY LOAM, dk. yellowish brown, low plasticity moist, loose. (SC)	2.10	8			5	
CLAY LOAM and FINE SANDY CLAY LOAM, yellowish brown to brown, low to medium plasticity, moist hard. (SC-CL)	1.97	35	P		10	V. COARSE SAND
CLAY LOAM, brown, medium plasticity, moist, hard. (CL)	2.11	33				grading to dk. greenish grey
					15	
SANDY GRAVEL, olive grey, to 1" maximum size.	1.95	55			20	SAND, olive grey, medium to v. coarse grained with gravel lenses. (SP)
no recovery		68			25	SILTY CLAY LOAM, dk. grey to black, hard, with lenses of sand, well-sorted, v. fine to fine grained. Beds are inclined at 45° to axis of core. (CL-ML)
SILTY CLAY LOAM with laminations of v. fine sand, dk. grey medium plasticity, moist, hard. Laminations inclined at 45° to axis of core.	2.10	102			30	

COMMENTS:
Figure 38.

LOGGED BY:

ALTITUDE: 278'

DATE: 8/9/78

LOCATION:
Lat. 34° 4' 16"
Long. 118° 01' 46"
QUADRANGLE: EL MONTE, CA.

HOLE No. 14
SITE: EL MONTE COURTHOUSE
GEOLOGIC MAP UNIT: Qal Holocene alluvium

SAMPLE DESCRIPTION	Density (gm/cc)	Blows/Foot	Sampling	Graphic Log	Depth (meters)	DESCRIPTION
					0	
						FILL; SILTY CLAY
SILT LOAM grading to SAND, dk. olive, well-sorted, v. fine to fine grained, medium dense (ML)	1.70	12	P			SILT LOAM and SAND, dk. olive, well-sorted, v. fine to fine grained, medium dense (ML).
SAND, olive grey, well-sorted, v. fine to fine grained (ML).					5	
SAND, olive grey, well-sorted, coarse to v. coarse grained, dense (SP).	1.74	32	P			SAND, olive grey, well-sorted medium to v. coarse grained, some gravel to 50 mm, dense to v. dense (SP).
					10	
SAND, olive grey, well-sorted, medium to coarse grained, v. dense (SP).		69				
					15	
						SAND, dk. brown, poorly-sorted, gravelly, v. dense (SW).
SAND, dk. brown, poorly-sorted, gravelly, v. dense (SW).	2.10	76				
						grading to:
					20	GRAVEL, to greater than 60cm maximum size (GW).
					25	
					30	

COMMENTS: SAND is much denser (drilling slower) below 15m.

LOGGED BY:

Figure 39.

ALTITUDE: 795'	**LOCATION:** Lat. 34° 10' 13" Long. 118° 13' 49"	**HOLE No.** 15
DATE: 5/10/78	**QUADRANGLE:** PASADENA, CA.	**SITE:** VERDUGO PARK
		GEOLOGIC MAP UNIT: Qal Holocene alluvium

SAMPLE DESCRIPTION	Density (gm/cc)	Blows/Foot	Sampling	Graphic Log	Depth (meters)	DESCRIPTION
					0	
						COARSE SANDY CLAY LOAM
						CLAY, dk. brown
SANDY CLAY LOAM, dk. brown, poorly sorted, mostly medium to coarse sand, some angular gravel to 20 mm, low plasticity, loose (SC).	2.15	6				COARSE SANDY CLAY LOAM dk brown, poorly sorted, loose
						SANDY GRAVEL with lenses of silty clay and fine sandy loam.
					5	
						GRANODIORITE GRUS, grey to white mottled strong brown, deeply to moderately weathered.
GRAND DIORITE GRUS, grey to white with mottles of strong brown, moderately weathered, v. closely fractured.	2.30	60/6"			10	
						GRANODIORITE, dk. grey, close to moderate fracture, fresh.
					15	
					20	
					25	
					30	

COMMENTS:
Figure 40.

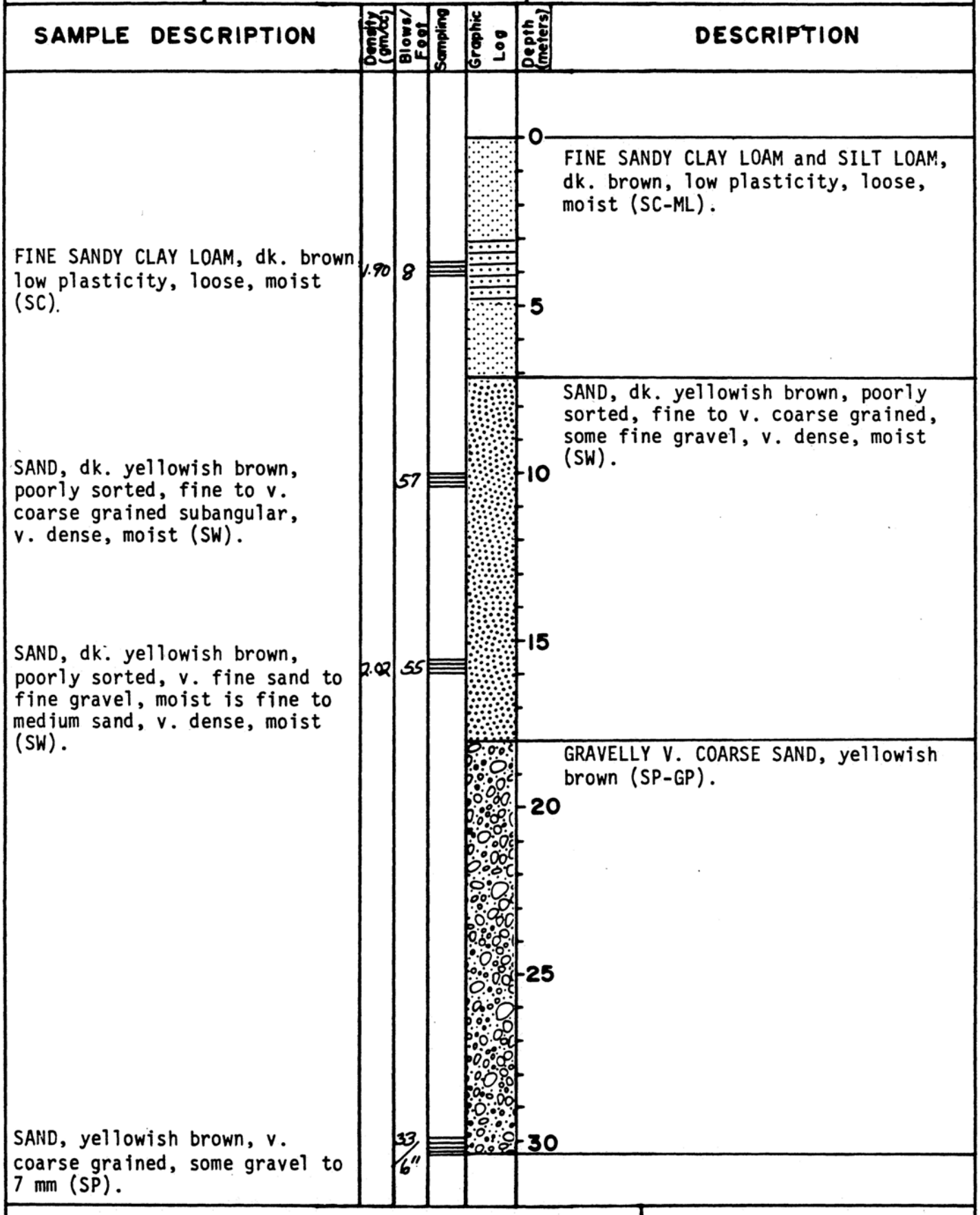
LOGGED BY:

ALTITUDE: 250'	LOCATION: Lat. 34°03'01" Long. 118°24'45" QUADRANGLE: BEVERLY HILLS, CA	HOLE No. 16 SITE: 20th CENTURY GEOLOGIC Qpu MAP UNIT: Upper Pleistocene Terrace Deposits
DATE: 8/8/78		

SAMPLE DESCRIPTION	Density (gm/cc)	Blows/ Foot	Sampling	Graphic Log	Depth (meters)	DESCRIPTION
					0	CLAY LOAM, greyish brown mottled yellowish brown grading to dk. reddish brown, medium plasticity, medium stiff, moist (CL).
CLAY LOAM, dk. reddish brown, fine sand is maximum grain size, medium plasticity, medium stiff, moist (CL).	2.02	5				
SAND, yellowish brown, well-sorted v. fine to fine grained, v. dense, moist (ML).	1.91	60	P		5	SAND, yellowish brown, well-sorted, v. fine to fine grained, v. dense. Contains lenses of sandy clay (ML-CL).
					10	
SAND, yellowish brown, well-sorted, coarse grained, v. dense. Contains layer of gravel (SP-GP).		95				SAND, yellowish brown, well-sorted, coarse-grained with gravel layers grading to: SANDY FINE PEBBLE GRAVEL (GP)
					15	
SAND, yellowish brown, well-sorted, fine to medium grained (SP).		90				SAND, yellowish brown, well-sorted fine to medium grained (SP).
					20	medium to coarse grained with some gravel
						v. fine to fine grained
						fine to medium grained with some gravel
SAND, strong brown and yellowish brown well-sorted, v. fine to fine grained (ML).	1.80		P		25	SAND, strong brown with lt. grey mottles, well-sorted, v. fine to fine grained. Contains lenses of SILT LOAM (ML).
SILT LOAM, olive with mottles of grey and strong brown, low plasticity, v. dense, moist (ML).	2.07	68				SILT LOAM
					30	

COMMENTS:	LOGGED BY:
Figure 41.	

ALTITUDE: 1255'	LOCATION: Lat. 34°18'50" Long. 118°29'28" QUADRANGLE: SAN FERNANDO, CA	HOLE No. 17 SITE: UPPER VAN NORMAN DAM GEOLOGIC MAP UNIT: Qal Holocene alluvium
DATE: 5/8/78		



COMMENTS: Figure 42.	LOGGED BY:

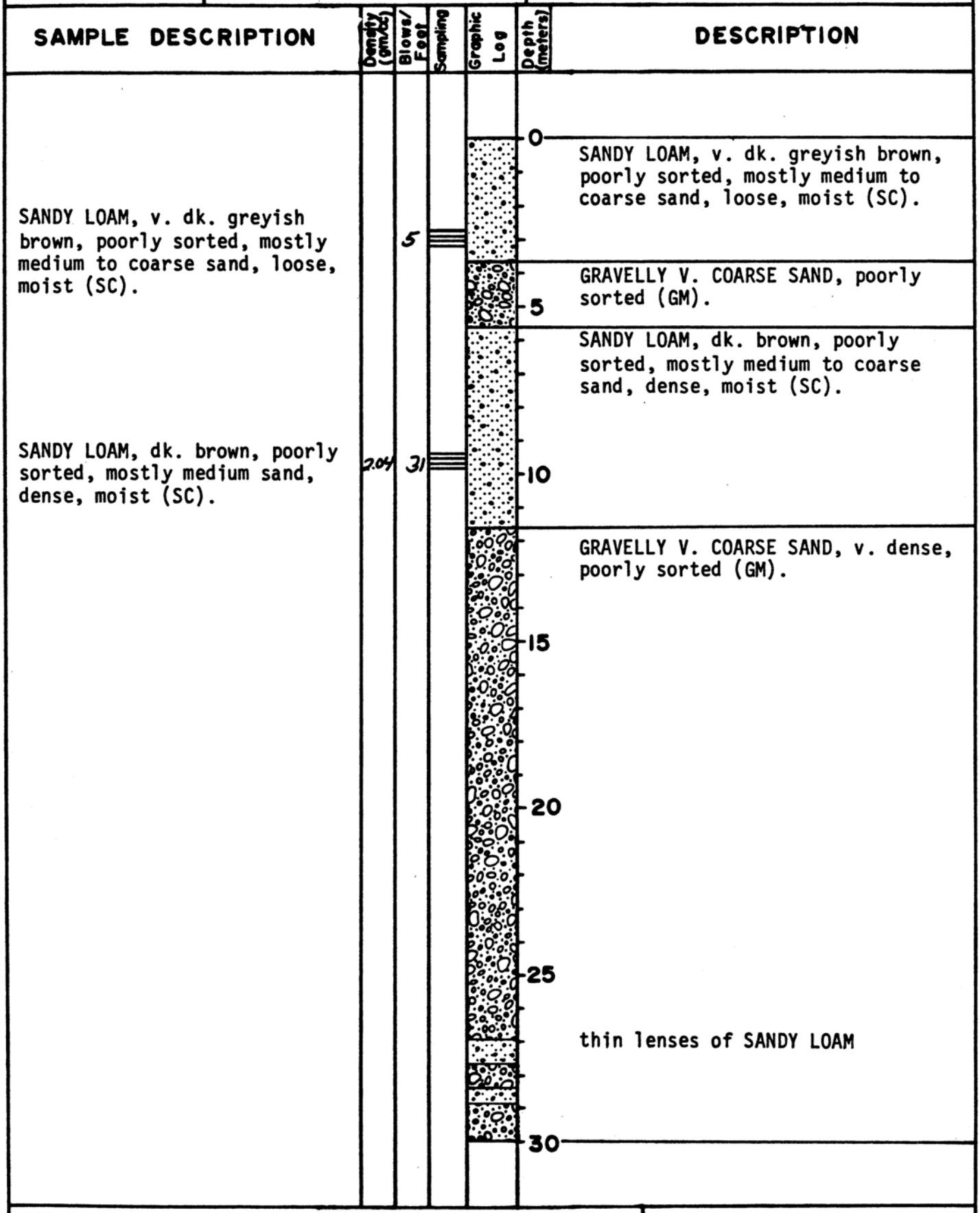
ALTITUDE: 1200'	LOCATION: Lat. 34°16'58" Long. 118°22'59" QUADRANGLE:	HOLE No. 18 SITE: PACOIMA MEMORIAL HOSP. GEOLOGIC MAP UNIT: Qal Holocene alluvium
DATE: 5/5/78		

SAMPLE DESCRIPTION	Density (gm/cc)	Blows/Foot	Sampling	Graphic Log	Depth (meters)	DESCRIPTION
					0	SANDY CLAY, dk. greyish brown, poorly sorted, sand is mostly fine to medium, some gravel to 20 mm, low plasticity, medium stiff (CL-SC).
SANDY CLAY, dk. greyish brown, poorly sorted, sand is mostly fine to medium, some up to v. coarse, low plasticity, medium stiff (CL-SC).	1.90	6			5	
					10	SANDY CLAY LOAM, yellowish brown to brown, poorly sorted, sand is medium grained, some v. coarse sand and fine gravel, low plasticity, medium dense to dense (SC).
SANDY CLAY LOAM, brown, poorly sorted, sand is mostly medium, low plasticity, medium dense (SC).	2.03	10				
SANDY CLAY LOAM, yellowish brown, poorly sorted, sand is mostly fine, low plasticity, dense (SC).	2.04	30			15	
					20	SANDY LOAM and COARSE SANDY CLAY LOAM, brown, poorly sorted, mostly fine to coarse sand, v. dense (SM-SC).
SANDY LOAM, brown, poorly sorted, mostly fine to medium sand, low plasticity, v. dense (SM).	2.04	63				
					25	SAND, poorly sorted, mostly medium to v. coarse grained, some fine gravel (SW).
LOAMY SAND, v. dk. greenish grey, well-sorted, v. fine to fine grained micaceous (ML).		70/4"			30	SAND, v. dk. greenish grey, well-sorted, v. fine to fine grained (ML)

COMMENTS:
Figure 43.

LOGGED BY:

ALTITUDE: 1280'	LOCATION: Lat. 34°18'35" Long. 118°26'21" QUADRANGLE: SAN FERNANDO, CA	HOLE No. 19 SITE: SYLMAR H.S. GEOLOGIC MAP UNIT: Qal Holocene alluvium
DATE: 5/9/78		



COMMENTS: Figure 44.	LOGGED BY:

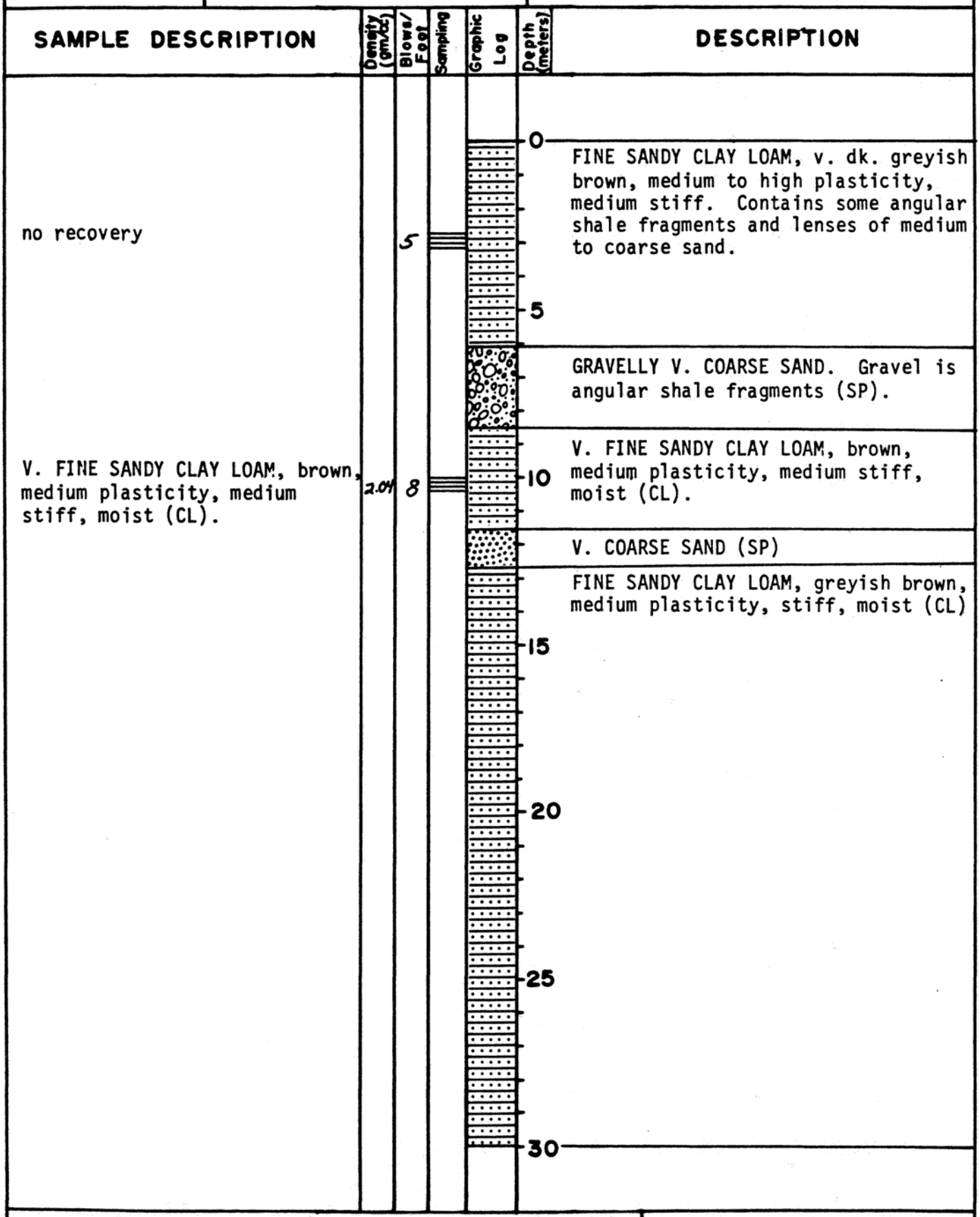
ALTITUDE: 913'	LOCATION: Lat. 34°15'28" Long. 118°27'51" QUADRANGLE: SAN FERNANDO, CA	HOLE No. 20 SITE: MISSION HILLS P.O. GEOLOGIC MAP UNIT: Qal Holocene alluvium
DATE: 8/7/78		

SAMPLE DESCRIPTION	Density (gm/cc)	Blows/Foot	Sampling	Graphic Log	Depth (meters)	DESCRIPTION
					0	LOAM, dk. brown, moist is < v. fine sand, substantial is fine (ML).
SANDY LOAM, dk. brown, poorly sorted, most is < medium sand, some up to 3 mm, medium dense (SM).	1.93	13	S		5	SANDY LOAM dk. brown, poorly sorted, most is < medium sand, substantial is coarse, some gravel to 20 mm, medium to very dense. Appears to be derived from granitic material (SM).
SANDY LOAM, dk. brown, poorly sorted, most is < medium sand, substantial is coarse sand. Appears to be derived from granitic material, v. dense (SM).	1.98	50			10	
SANDY LOAM, dk. brown, poorly sorted, most is < medium sand, substantial is coarse, some gravel to 20 mm, v. dense (SM).	2.03	65/8"	S		15	SANDY GRAVEL, granitic (GP).
SAND, black, poorly sorted, most is medium to coarse grained, some gravel to 10 mm, angular to subangular v. dense (SP).		100/10"			20	SAND, v. dk. greyish brown to black, poorly sorted, mostly medium to coarse grained, some gravel to 30 mm, angular to subangular, v. dense (SP).
SAND, v. dk. greyish brown, v. poorly sorted, most is fine grained, some gravel to 25 mm, v. dense (SP).		100/6"			25	
SAND, v. dk. greyish brown, poorly sorted, most is coarse grained, some gravel to 30 mm, subangular, v. dense (SP).		100/8"			30	

COMMENTS:
Figure 45.

LOGGED BY:

ALTITUDE: 787'	LOCATION: Lat. 34°11'39" Long. 118°35'42" QUADRANGLE: CANOGA PARK, CA	HOLE No. 21 SITE: ETON SCHOOL GEOLOGIC MAP UNIT: Qal Holocene alluvium
DATE: 5/11/78		



COMMENTS:	LOGGED BY:
Figure 46.	

ALTITUDE: 77'	LOCATION: Lat. 34°11'06" Long. 119°02'08" QUADRANGLE: CAMARILLO, CA	HOLE No. 22 SITE: CAMARILLO STATE HOSP.
DATE: 8/2/78		GEOLOGIC MAP UNIT: Qd Holocene deltaic deposits

SAMPLE DESCRIPTION	Density (gm/cc)	Blows/Foot	Sampling	Graphic Log	Depth (meters)	DESCRIPTION
					0	SAND, yellowish brown, mostly fine to coarse grained, some gravel to 8 mm, medium dense, moist (SW).
SAND, yellowish brown, mostly fine to coarse grained, some gravel to 8 mm, medium dense, moist (SW).		15			5	SANDY LOAM, yellowish brown to brown, mostly v. fine to fine sand, dense, moist. Contains lenses of SILTY CLAY and SILT LOAM (ML-CL).
V. FINE SANDY LOAM, brown, low plasticity, dense, moist (ML).	2.01	43			10	
SANDY LOAM, yellowish brown, mostly v. fine to fine sand, low plasticity, dense, moist (ML).	1.96	33			15	
					20	SILTY CLAY and V. FINE SAND LOAM, black, low to medium plasticity, wet, hard. Contains lenses of well-sorted medium to coarse SAND (ML-CL, SP).
LOAM, black, sand is v. fine grained, low plasticity, moist (ML).	1.99	25			25	
SILTY CLAY, black, medium plasticity, wet, hard (CL).	2.03	32			30	

COMMENTS:
Figure 47.

LOGGED BY:

ALTITUDE: 2'	LOCATION: Lat. 34°06'47" Long. 119°06'47" QUADRANGLE: PT. MUGU, CA	HOLE No. 23 SITE: PACIFIC MISSILE TEST CENTER GEOLOGIC Qd MAP UNIT: Holocene deltaic deposits
DATE: 8/2/78		

SAMPLE DESCRIPTION	Density (gm/cc)	Blows/Foot	Sampling	Graphic Log	Depth (meters)	DESCRIPTION
					0	SAND, fine to medium grained, loose.
						SILTY CLAY LOAM, dk. brown, low plasticity (ML).
SAND, dk. greyish brown, well-sorted, medium grained, medium dense, moist (SP).	1.87	27	S		5	SAND, dk. greyish brown, well-sorted, mostly fine to medium grained grading to: FINE PEBBLE GRAVEL, dk. greenish grey
SAND, dk. greyish brown, well-sorted, v. fine to fine grained, dense, moist (ML).	1.91	36			10	SAND, dk. greyish brown, well-sorted, mostly fine to medium grained, dense, moist (SP-ML).
SAND, v. dk. grey, well-sorted, v. fine to fine grained, v. dense, moist (ML).	1.92	69			15	SAND, v. dk. grey, well-sorted, v. fine to fine grained, dense to v. dense with lenses of SILT LOAM (ML).
SAND, v. dk. grey, well-sorted, v. fine grained, dense, moist (ML).	1.78	41			20	
					25	
						SAND, dk. greyish brown, well-sorted, medium grained, v. dense, wet (SP).
SAND, dk. greyish brown, well-sorted, medium grained, v. dense, wet (SP).		79			30	

COMMENTS:	LOGGED BY:
Figure 48.	

ALTITUDE: 36'	LOCATION: Lat. 34°12'01" Long. 119°11'54" QUADRANGLE: OXNARD, CA	HOLE No. 24 SITE: VENTURA CO. AIRPORT GEOLOGIC MAP UNIT: Qd Holocene deltaic deposits
DATE: 8/3/78		

SAMPLE DESCRIPTION	Density (gm/cc)	Blows/Foot	Sampling	Graphic Log	Depth (meters)	DESCRIPTION
					0	LOAM and FINE SANDY CLAY LOAM, black to dk. greyish brown, calcareous, low plasticity, stiff (ML).
FINE SANDY CLAY LOAM, dk. greyish brown with common large mottles of yellowish brown and small mottles of white, calcareous, stiff, moist (ML).	1.96		S			
		18				SAND, fine grading to v. coarse grained
SILTY CLAY, v. dk. grey, low plasticity, wet, stiff (CL).	1.88	9			5	LOAM, and SILTY CLAY, yellowish brown to v. dk. grey, low plasticity, wet, stiff (ML-CL).
					10	SAND, dk. greyish brown, well-sorted, mostly coarse to v. coarse grained, v. dense (SP).
SAND, dk. greyish brown, well-sorted, coarse to v. coarse grained, v. dense (SP).		60				
					15	Interbedded: SILTY CLAY LOAM and CLAY LOAM, v. dk. grey to dk. olive grey, low plasticity (CL)
						and LOAMY FINE SAND, olive grey to dk. olive grey (ML).
					20	
SILTY CLAY LOAM, v. dk. grey, low plasticity, interbedded with LOAMY FINE SAND, dk. olive grey, well-sorted (ML-CL).	1.96	33				
					25	
						SAND, well-sorted coarse to v. coarse grained (SP).
CLAY LOAM, dk. olive grey, low plasticity, interbedded with LOAMY FINE SAND, olive grey, well-sorted (ML-CL).	2.00	52			30	Interbedded CLAY LOAM and LOAMY FINE SAND (ML-CL).

COMMENTS:	LOGGED BY:
Figure 49.	

ALTITUDE: 10'	LOCATION: Lat. 34°12'14" Long. 119°14'55"	HOLE No. 25
DATE: 8/3/78	QUADRANGLE: OXNARD, CA	SITE: MANDALAY BEACH
		GEOLOGIC MAP UNIT: Qbs Holocene dune deposits

SAMPLE DESCRIPTION	Density (gm/cc)	Blows/Foot	Sampling	Graphic Log	Depth (meters)	DESCRIPTION
					0	
SAND, dk. greyish brown, well-sorted, fine to medium grained, loose to medium dense (SP).		19				SAND, dk. greyish brown, well-sorted, fine to medium grained, loose to medium dense (SP).
					5	GRAVELLY SAND with lenses of SAND, dk. greyish brown, dense (SP).
SAND, dk. greyish brown, well-sorted medium to coarse grained, dense (SP).	1.86	44			10	
						SILTY CLAY LOAM and V. FINE SANDY CLAY LOAM, dk. greyish brown to dk. grey and SILT LOAM, olive grey, low plasticity, wet (ML).
SILTY CLAY LOAM and V. FINE SANDY CLAY LOAM, dk. greyish brown, low plasticity, wet (ML).	1.98	50	P		15	
					20	
SILTY CLAY LOAM, dk. grey and SILT LOAM, olive grey, low plasticity, wet (ML).	2.00	48	P			
					25	SAND, dk. greyish brown, well-sorted, mostly coarse to v. coarse grained, v. dense. Contains lenses of GRAVELLY SAND (SP).
SAND, dk. greyish brown, well-sorted, coarse to v. coarse grained, v. dense (SP).	2.02	61			30	

COMMENTS:
Figure 50.

LOGGED BY:

ALTITUDE: 160'	LOCATION: Lat. 34°16'40" Long. 119°15'07" QUADRANGLE: VENTURA, CA	HOLE No. 26 SITE: VENTURA CO. GENERAL HOSP. GEOLOGIC MAP UNIT: Qfy Holocene alluvial fan deposits
DATE: 8/4/78		

SAMPLE DESCRIPTION	Density (gm/cc)	Blows/Foot	Sampling	Graphic Log	Depth (meters)	DESCRIPTION
					0	FILL, boulders to 30 cm
V. FINE SANDY LOAM, dk. brown, generally well-sorted but contains occasional gravel to 10 mm, low plasticity, loose (ML).	1.85	5	S		5	V. FINE SANDY LOAM, dk. brown, occasional gravel to 10 mm, low plasticity, loose, moist (ML).
V. FINE SANDY CLAY LOAM, dk. brown, low plasticity (ML).	1.76	8				
FINE SANDY CLAY LOAM, yellowish brown, some v. coarse sand, medium plasticity (ML).		13			10	FINE SANDY CLAY LOAM, yellowish brown, some v. coarse sand, medium plasticity, moist (ML).
					15	
V. FINE SANDY LOAM, yellowish brown, low plasticity, wet (ML) SANDY LOAM, yellowish brown, mostly fine to medium grained sand, slight plasticity (ML-SM).	1.88	10	S		20	SANDY LOAM, yellowish brown, mostly fine to medium sand, slight plasticity, wet (ML-SM).
SILTY CLAY LOAM, brown, low plasticity, stiff (CL).		13			25	SILTY CLAY LOAM, olive brown to brown, low plasticity, stiff, wet. Contains interbeds of FINE SANDY LOAM AND SILT LOAM (CL-ML).
SILTY CLAY LOAM and SILT LOAM, olive brown, slight to medium plasticity (CL-ML).	1.87		S		30	

COMMENTS:	LOGGED BY:
Figure 51.	

ALTITUDE: 220'	**LOCATION:**	**HOLE No.** 27
	Lat. 34°16'51"	**SITE:** BARD SANITARIUM
DATE: 8/5/78	**Long.** 119°15'12"	**GEOLOGIC** Qfo Upper Pleistocene
	QUADRANGLE: VENTURA, CA	**MAP UNIT:** Alluvial Fan Deposits

SAMPLE DESCRIPTION	Density (gm/cc)	Blows/Foot	Sampling	Graphic Log	Depth (meters)	DESCRIPTION
					0	V. FINE SANDY CLAY LOAM, v. dk. greyish brown (ML).
GRAVELLY SANDY LOAM, dk. yellowish brown, v. poorly sorted, sand is mostly fine to medium grained, gravel to 50 mm, medium dense (SP).	1.84	28	S			GRAVELLY SANDY LOAM, dk. yellowish brown, v. poorly sorted, sand is mostly fine to medium (SP).
SANDY LOAM, yellowish brown, slight plasticity, medium dense (SM).	1.89	17			5	SANDY LOAM, yellowish brown slightly plastic, mostly fine to medium sand, medium to v. dense, wet (SM).
FINE SANDY LOAM, yellowish brown, slight plasticity, v. dense, wet (SM).	1.90	55	S		10	
					15	FINE SANDY LOAM, dk. brown.
SILTY CLAY LOAM, brown, low plasticity, v. stiff, wet (CL).	1.89	28				SILTY CLAY LOAM and SILT LOAM, brown, low plasticity, v. stiff, wet (CL-ML).
					20	
FINE SANDY LOAM, yellowish brown, low plasticity, v. dense (SM).	1.93	60				FINE SANDY LOAM, yellowish brown, low plasticity, v. dense (SM).
					25	with lenses of GRAVELLY SAND.
FINE SANDY LOAM, yellowish brown, low plasticity, v. dense (SM).	1.93	84			30	

COMMENTS:
Figure 52.

LOGGED BY:

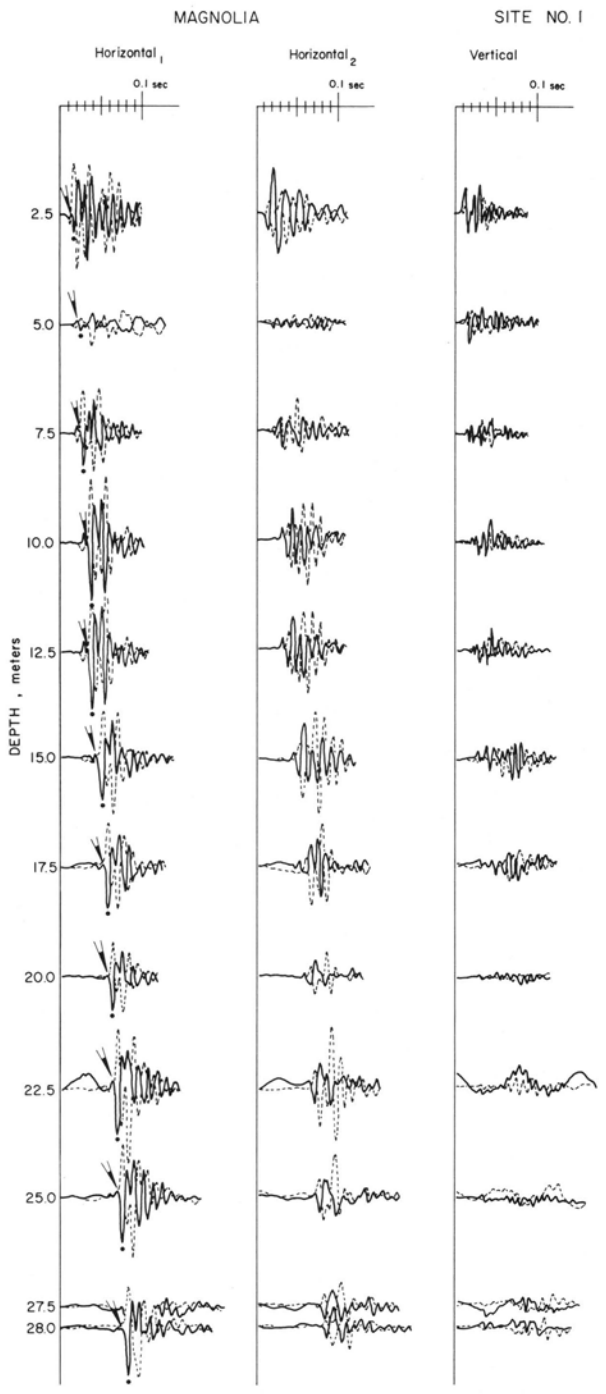


Figure 53.

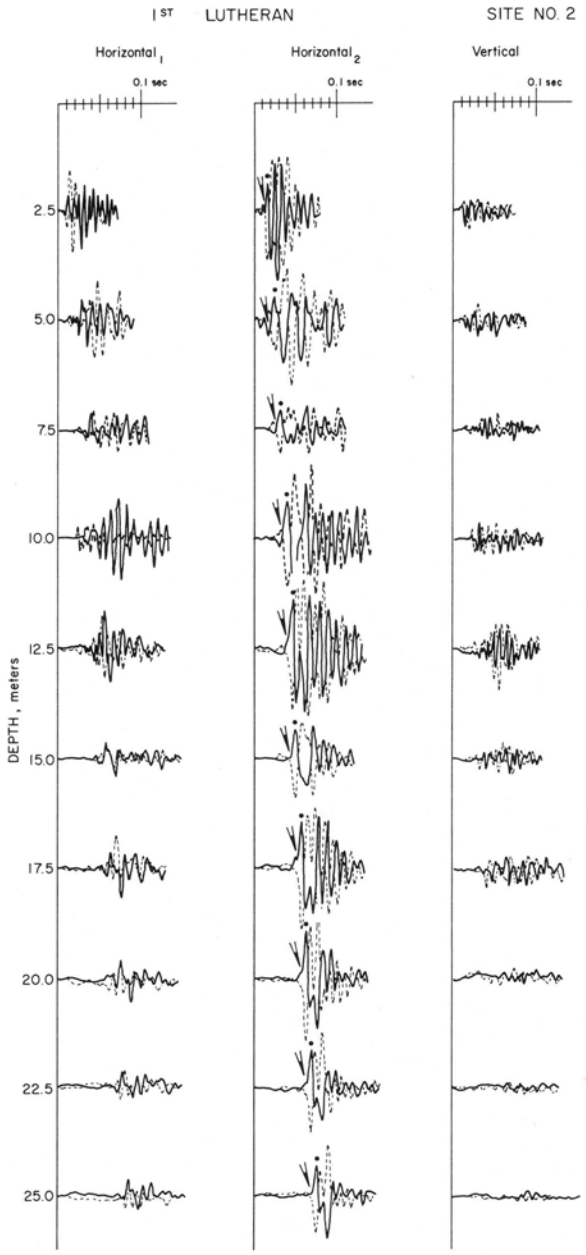


Figure 54.

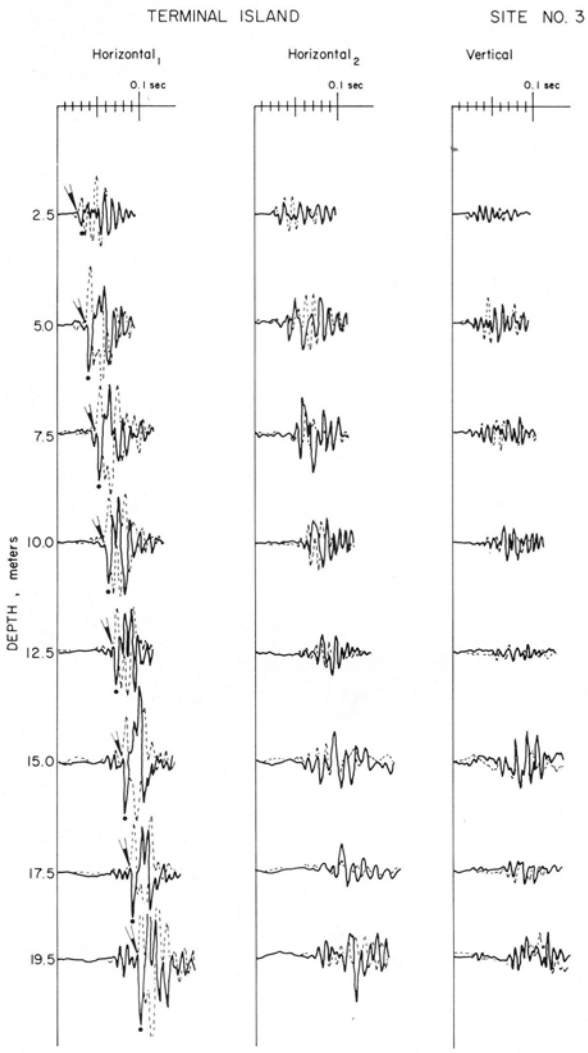


Figure 55.

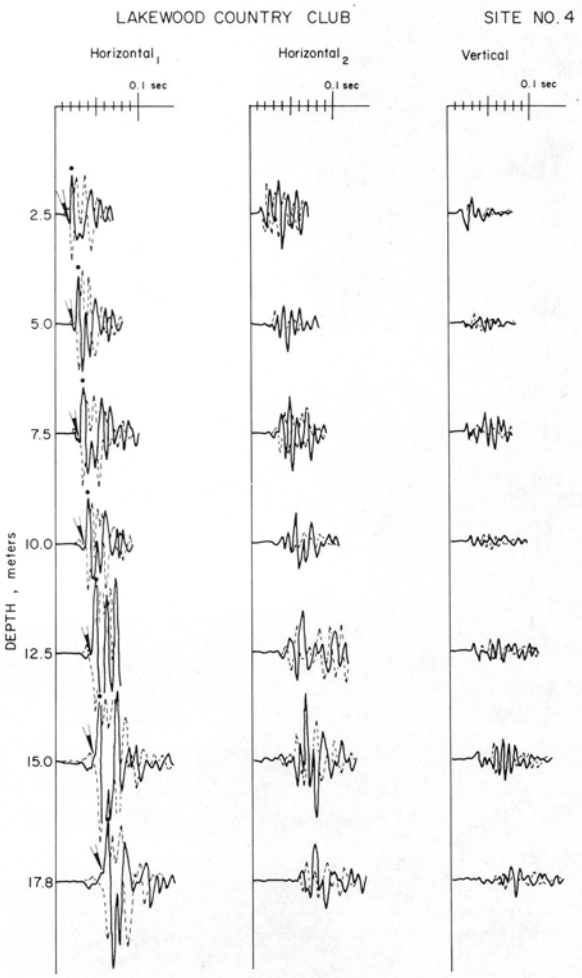


Figure 56.

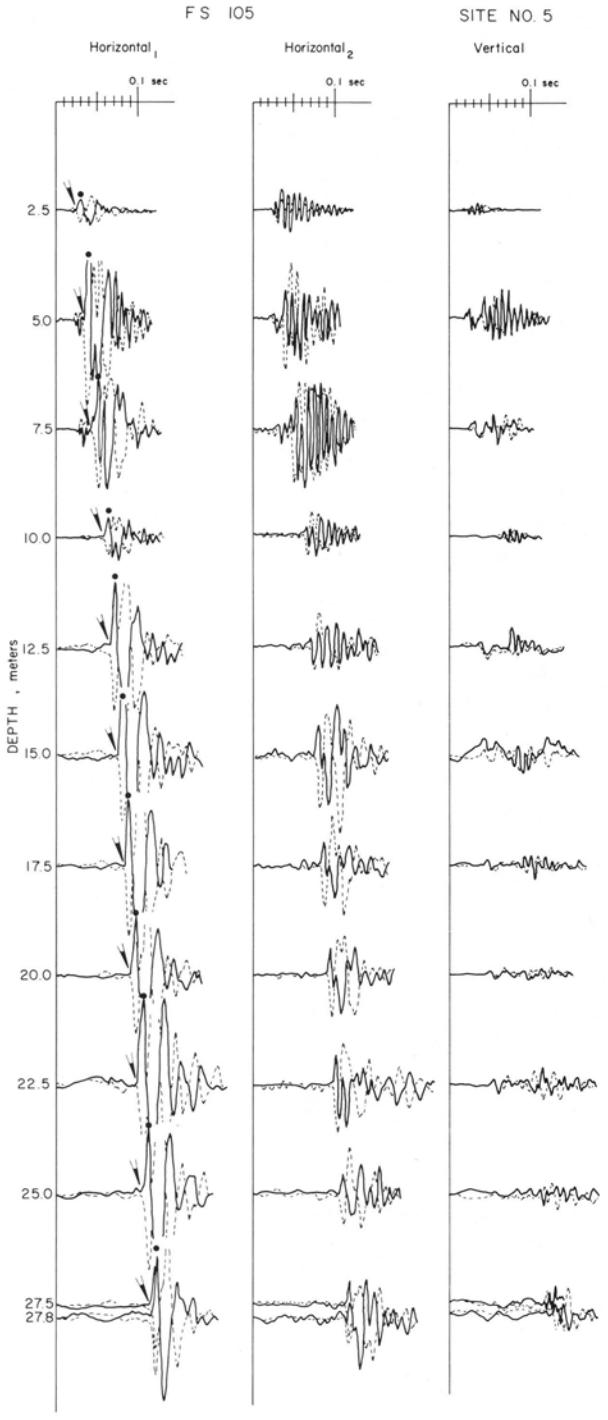


Figure 57.

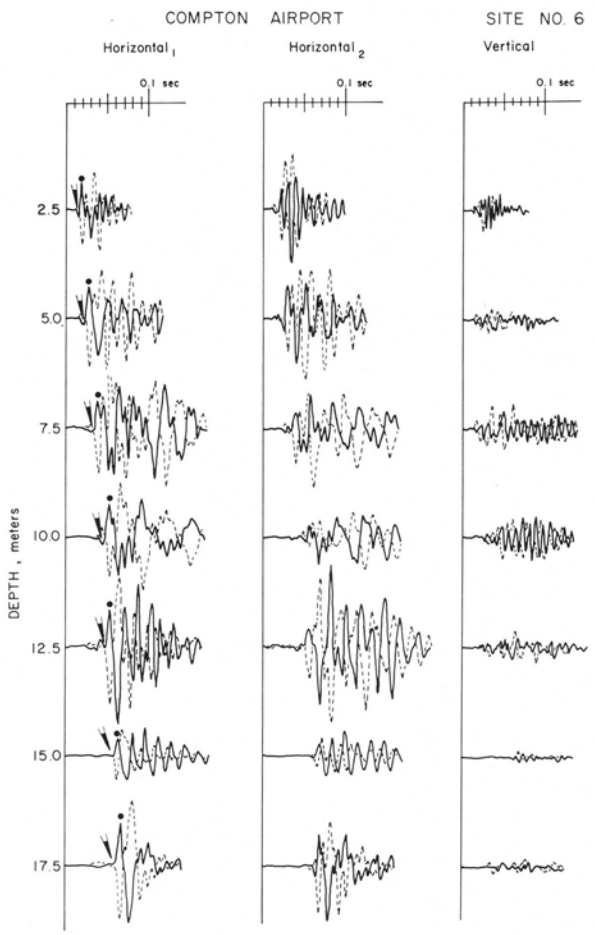


Figure 58.

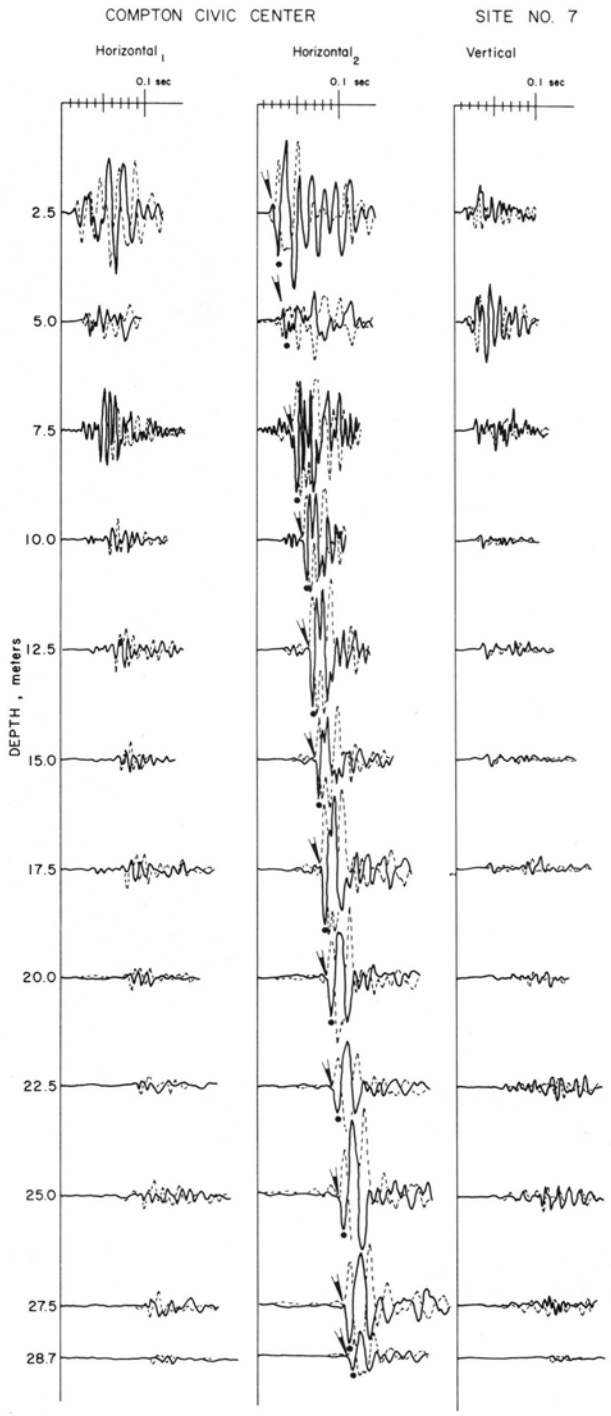


Figure 59.

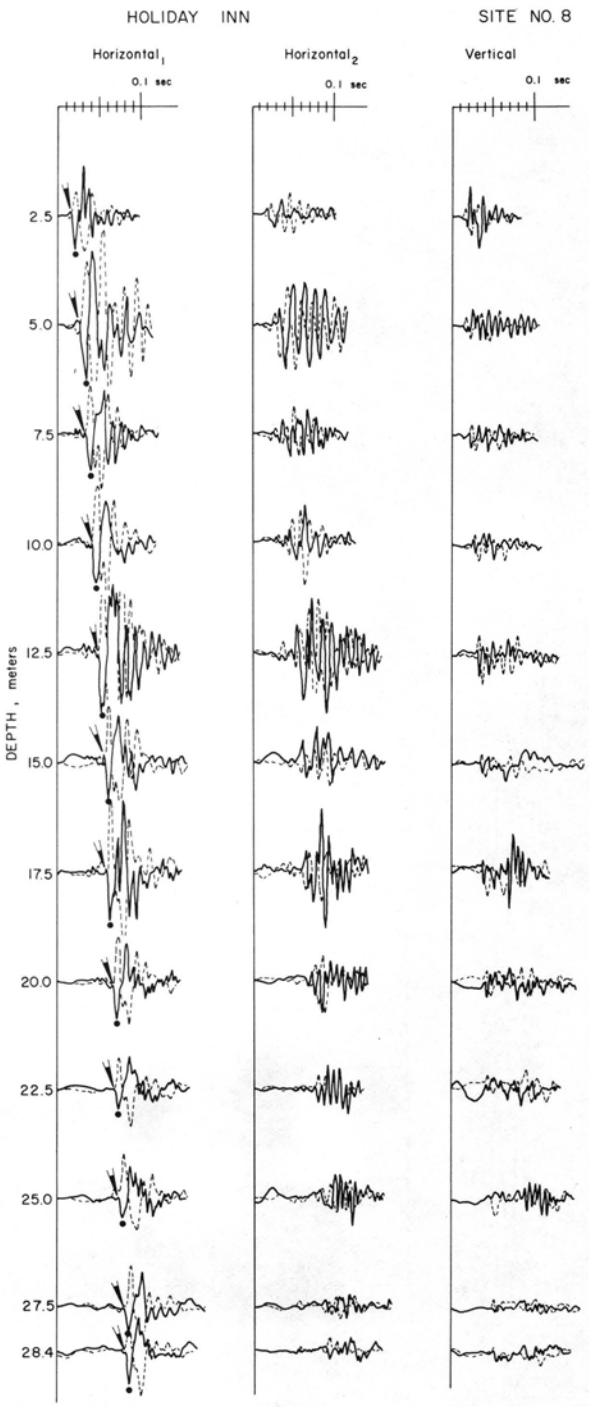


Figure 60.

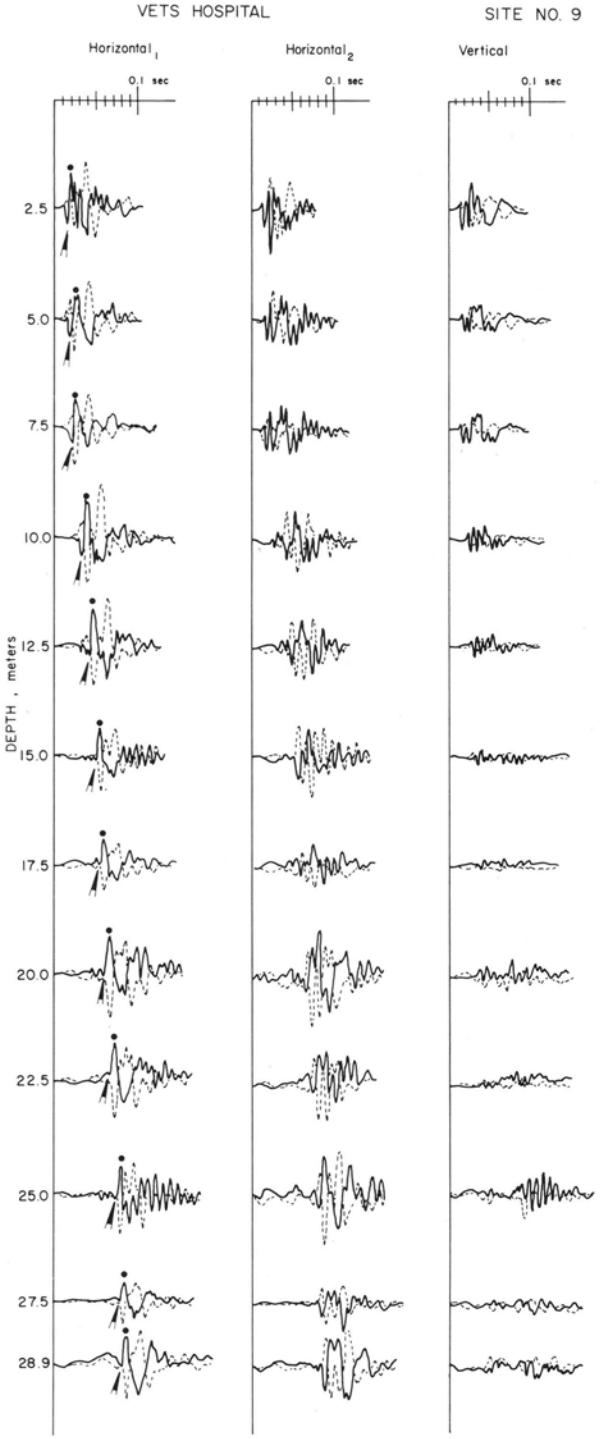


Figure 61.

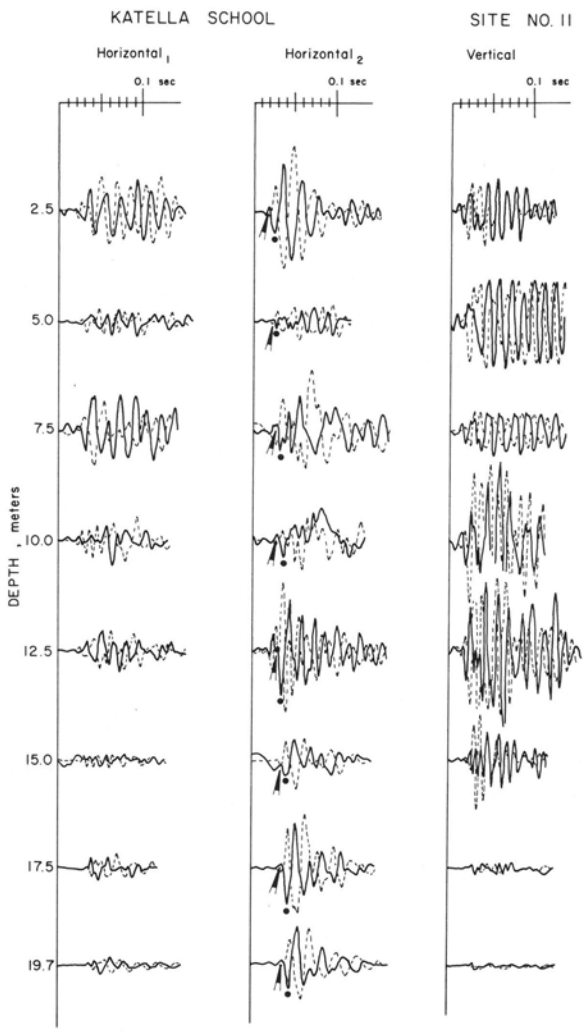


Figure 62.

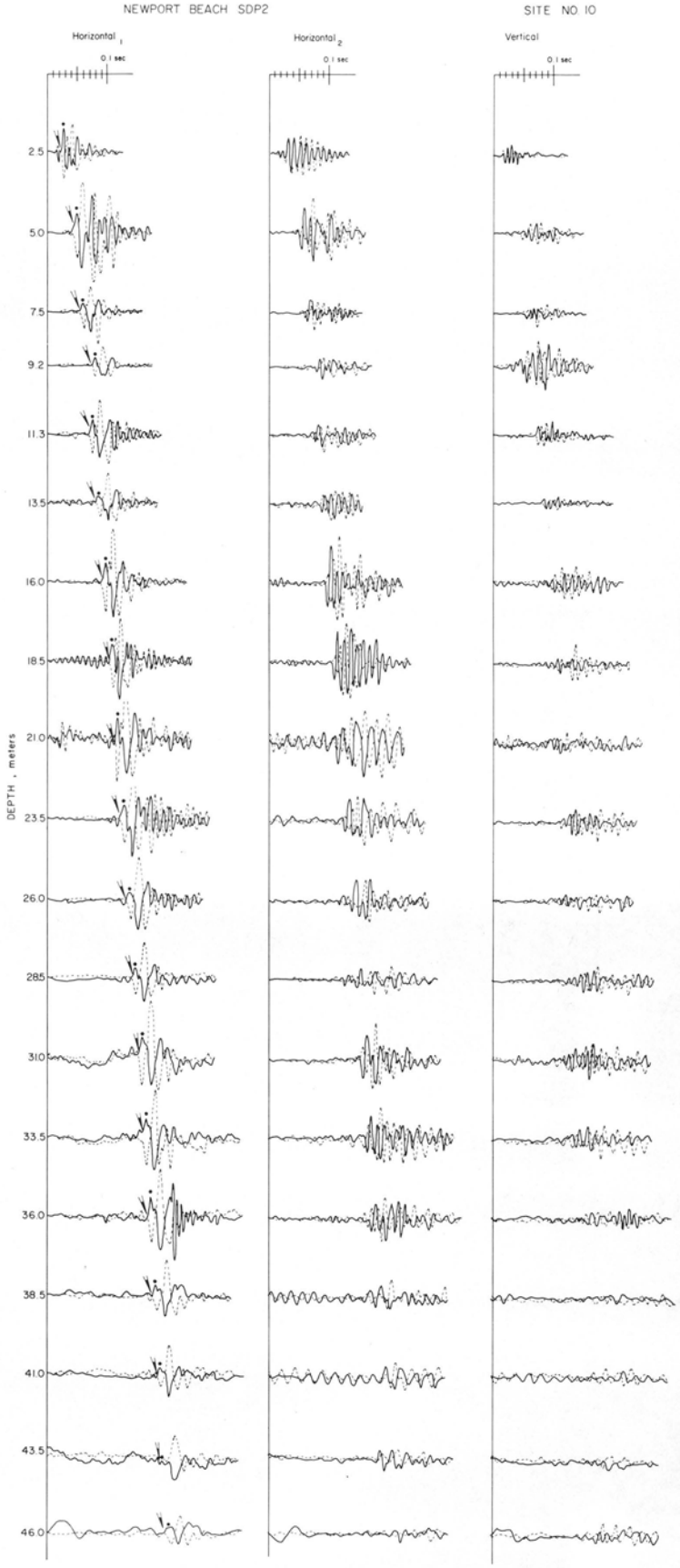

NEWPORT BEACH SDP2
SITE NO. 10
Horizontal 1
Horizontal 2
Vertical
0.1 sec
DEPTH, meters
2.5
5.0
7.5
9.2
11.3
13.5
16.0
18.5
21.0
23.5
26.0
28.5
31.0
33.5
36.0
38.5
41.0
43.5
46.0

Figure 63.

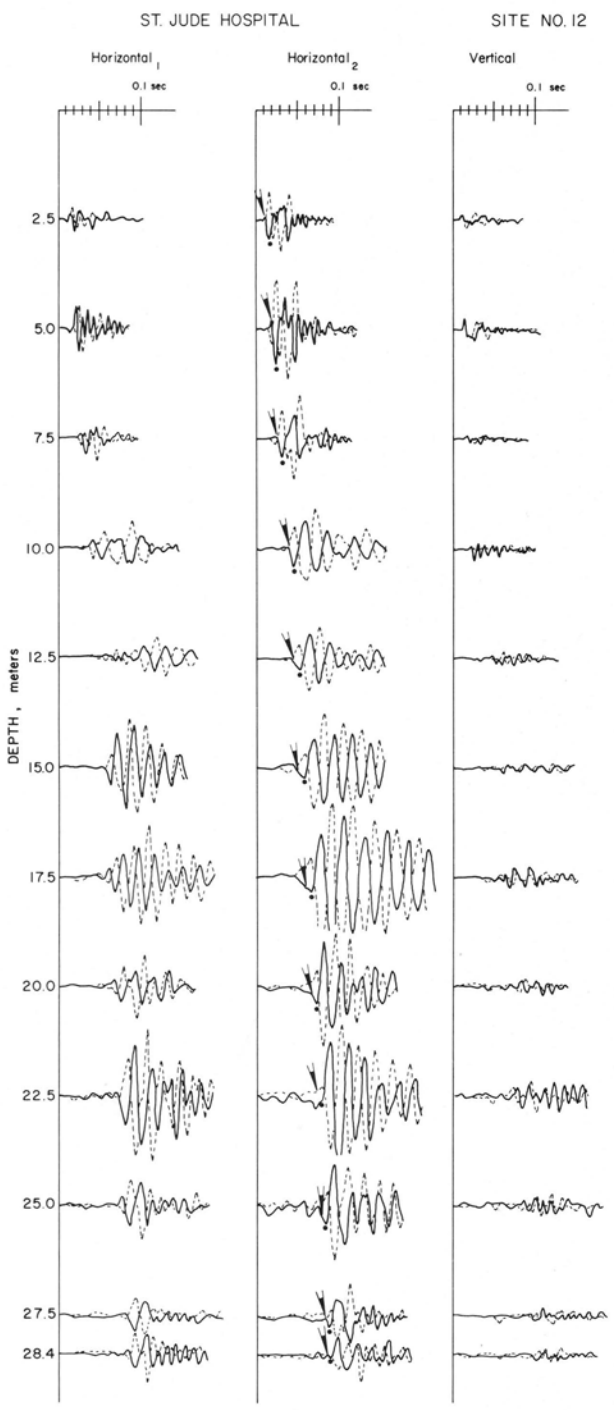


Figure 64

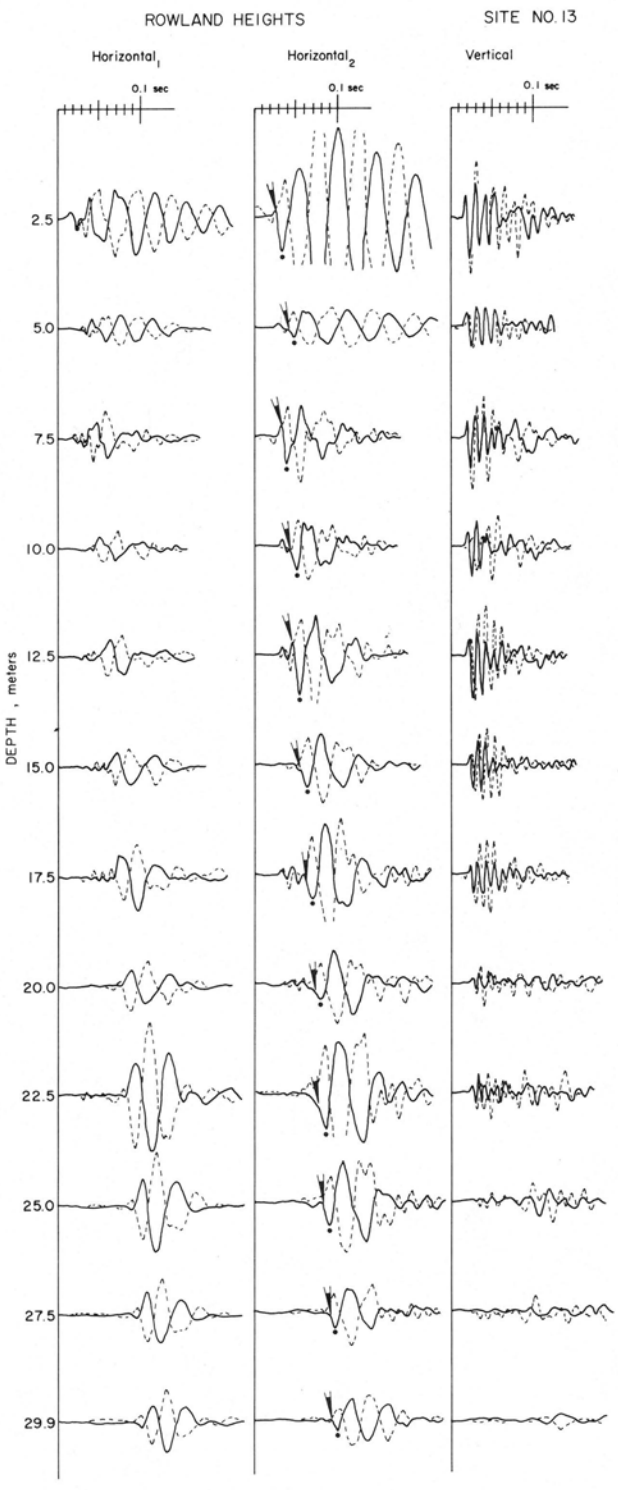


Figure 65

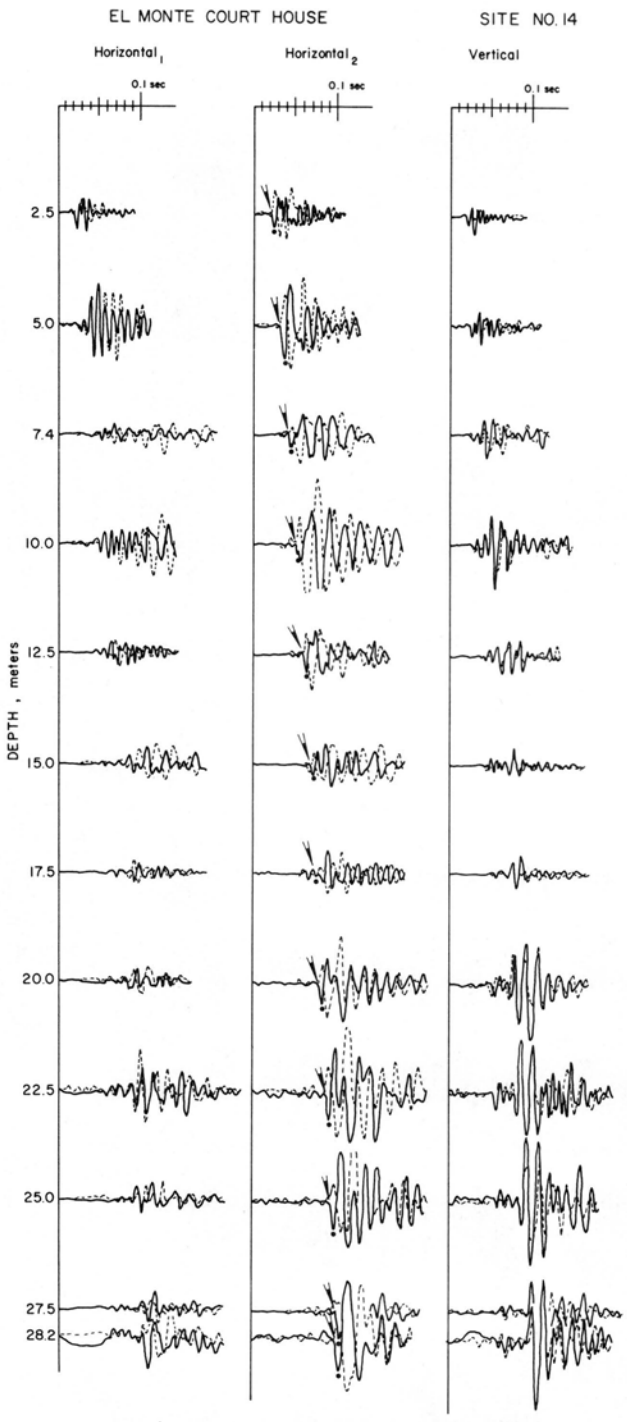


Figure 66

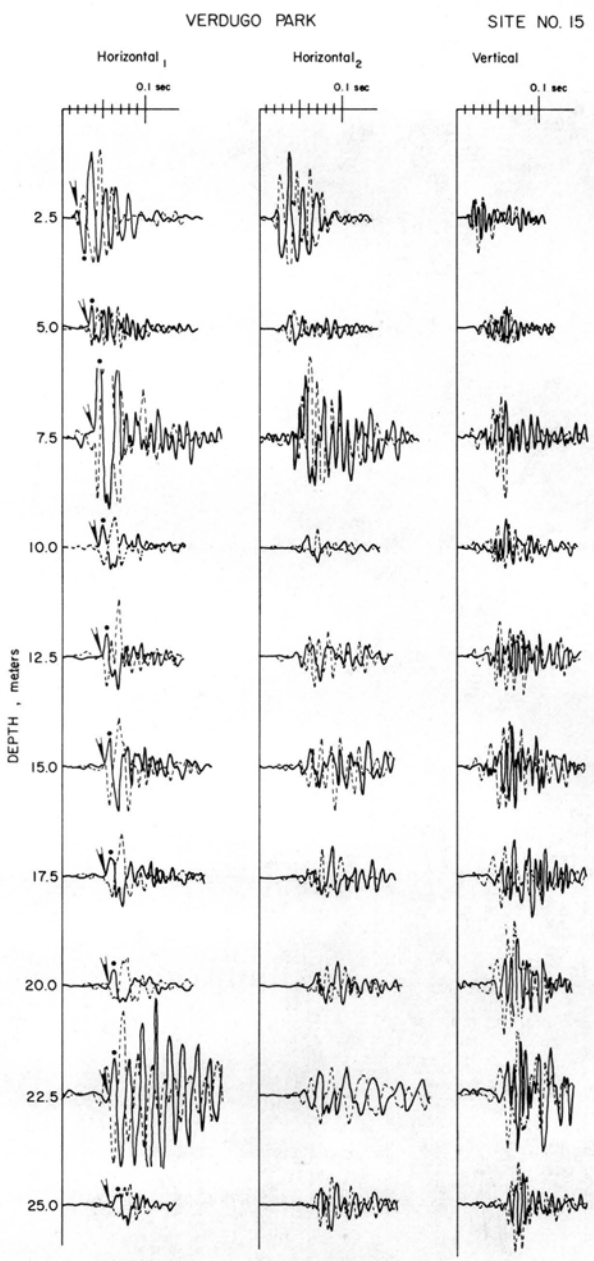


Figure 67

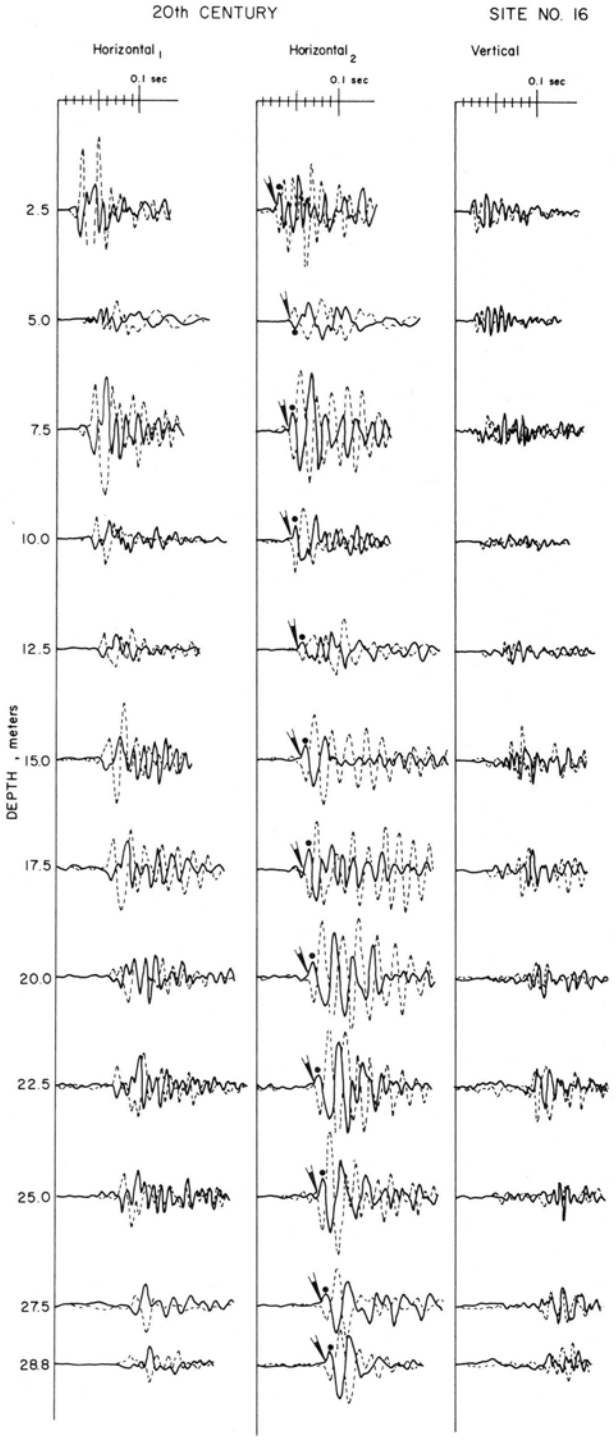


Figure 68.

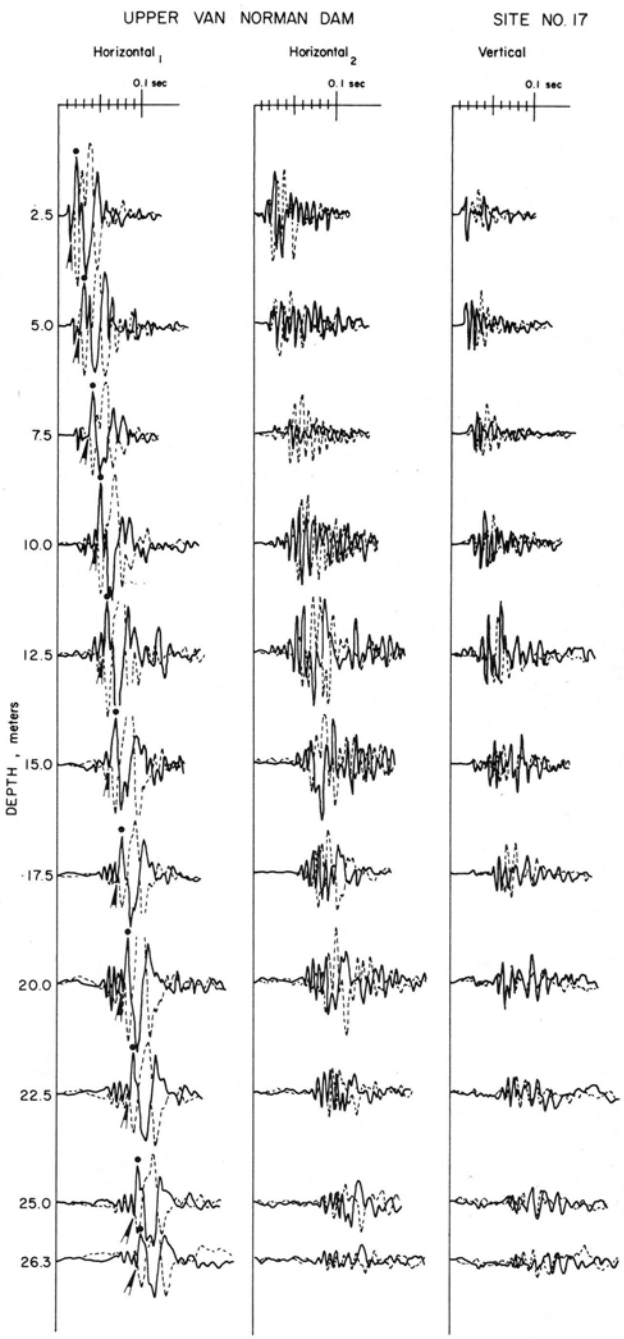


Figure 69.

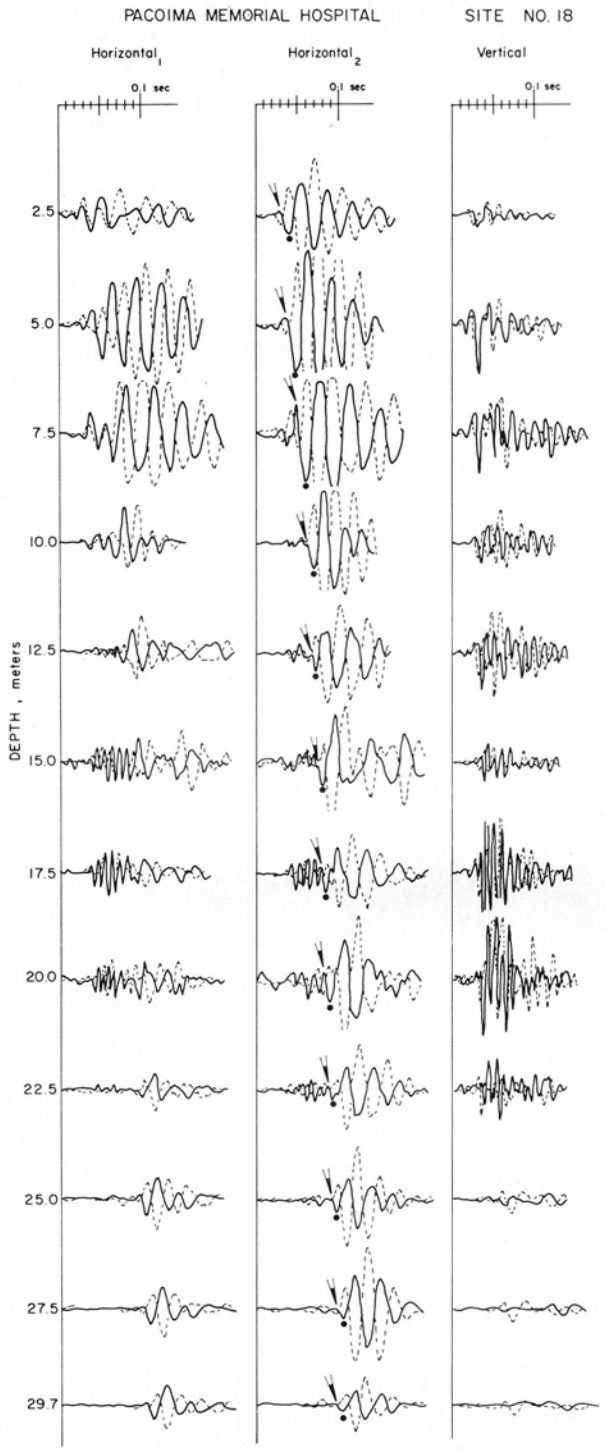


Figure 70.

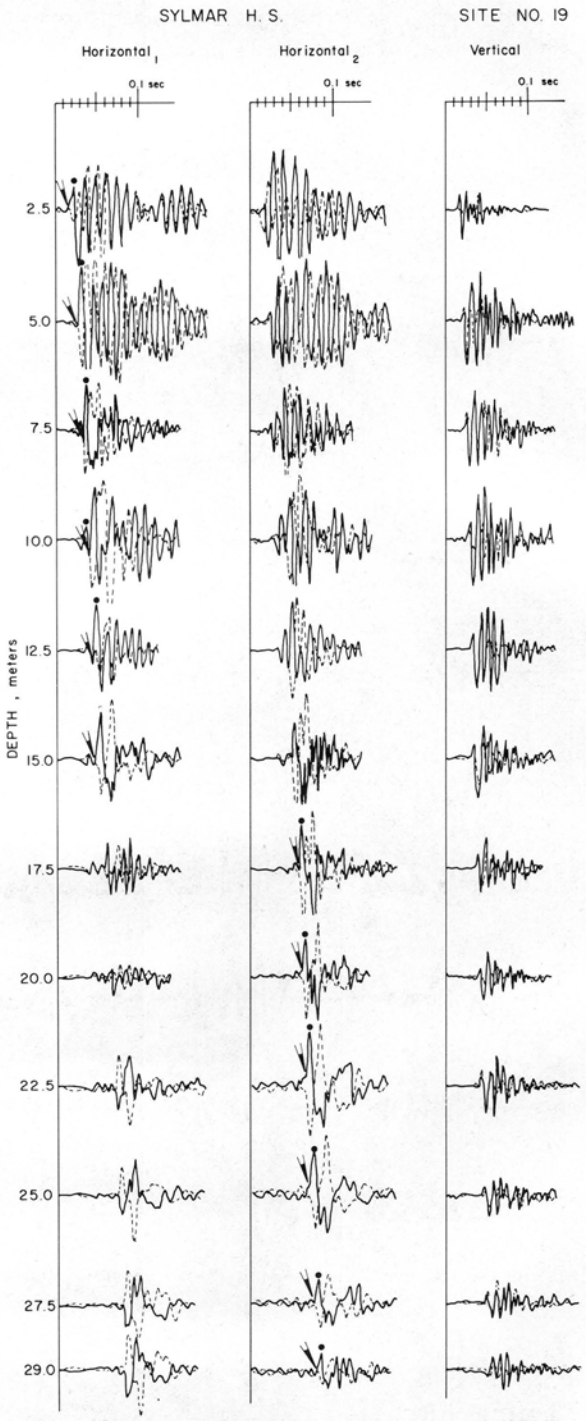


Figure 71.

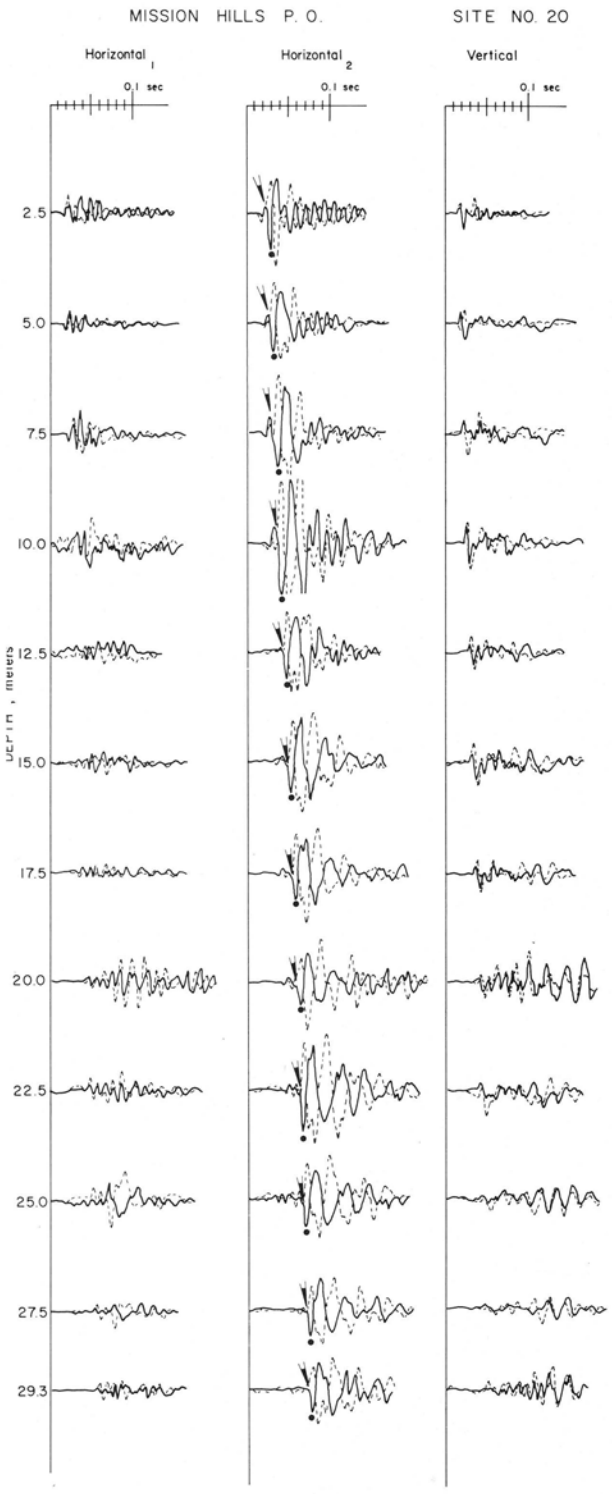


Figure 72.

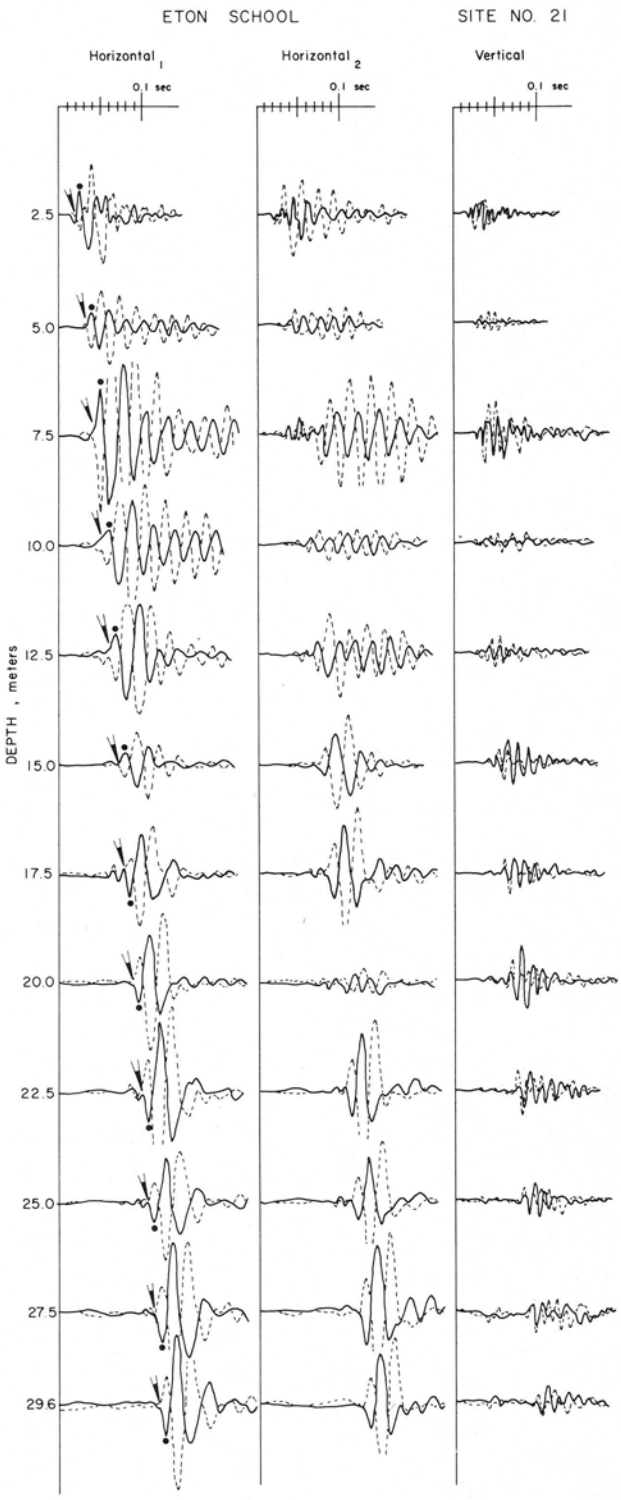


Figure 73.

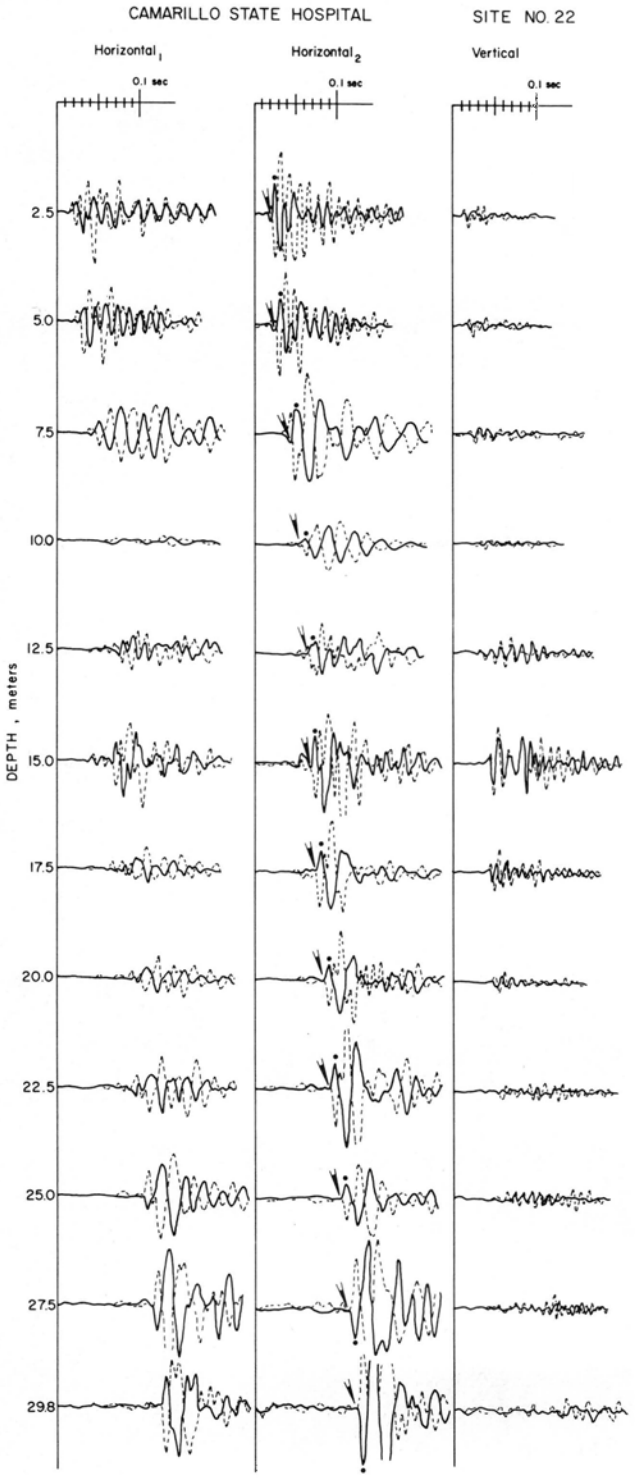


Figure 74.

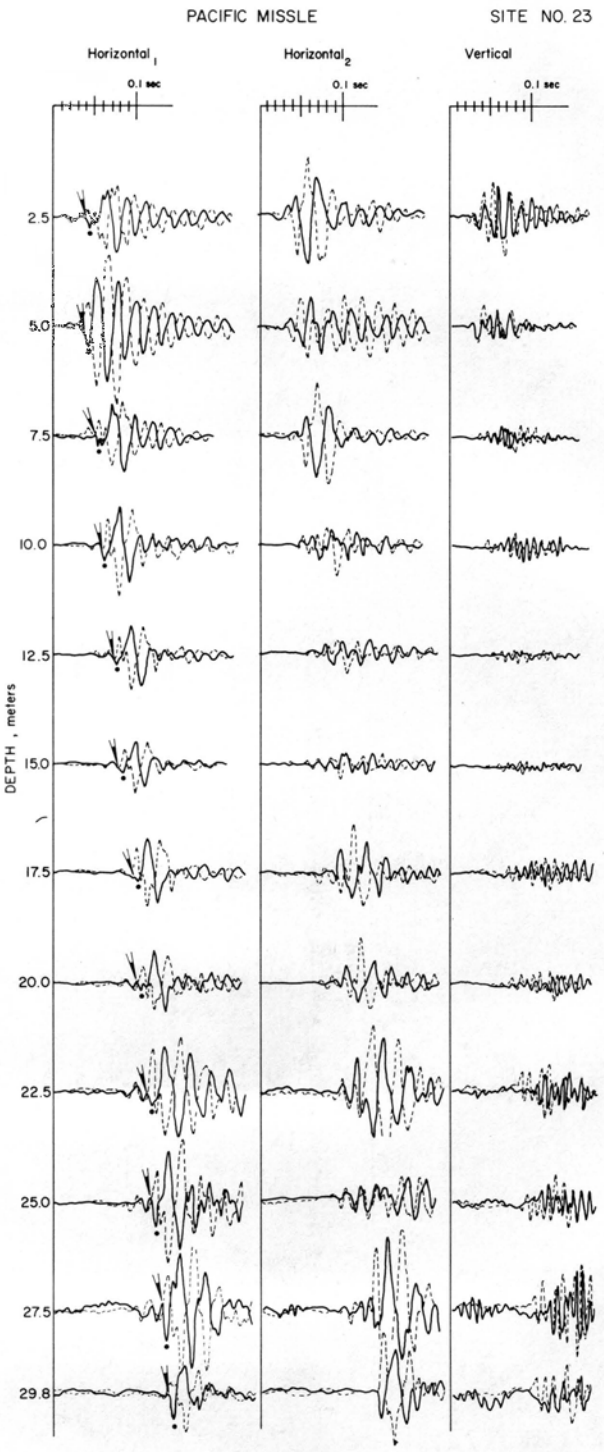


Figure 75.

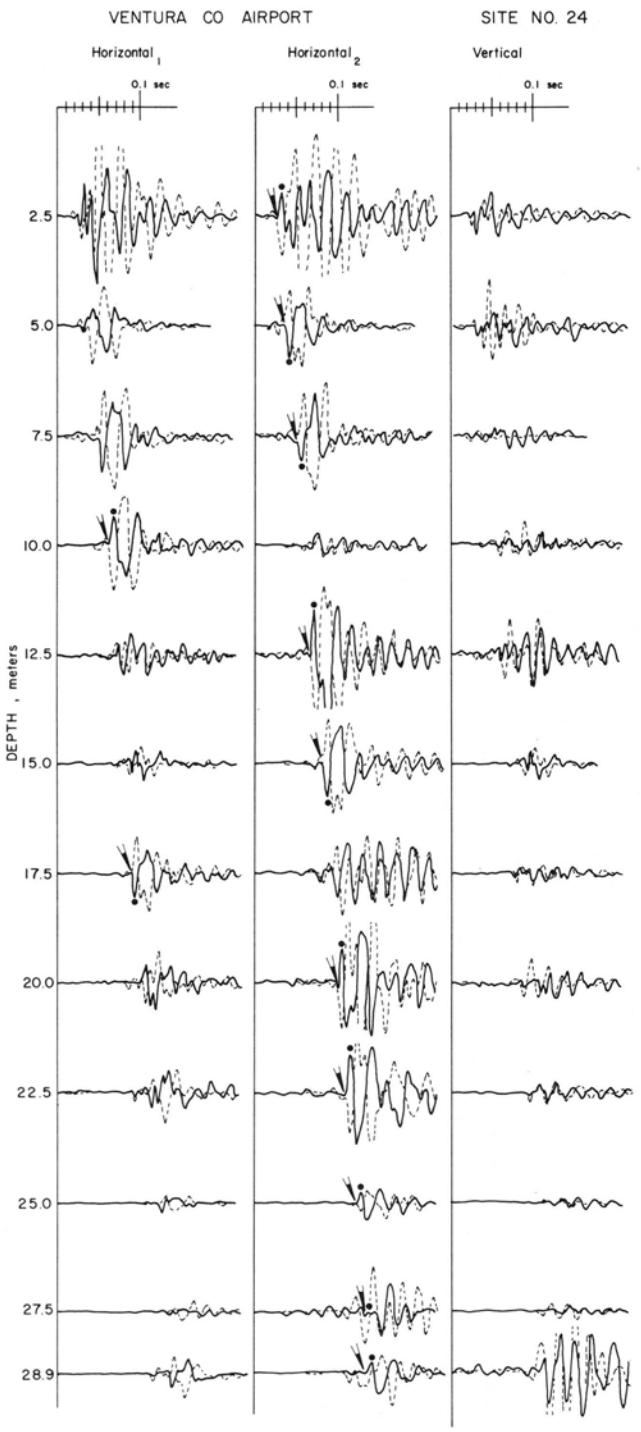


Figure 76.

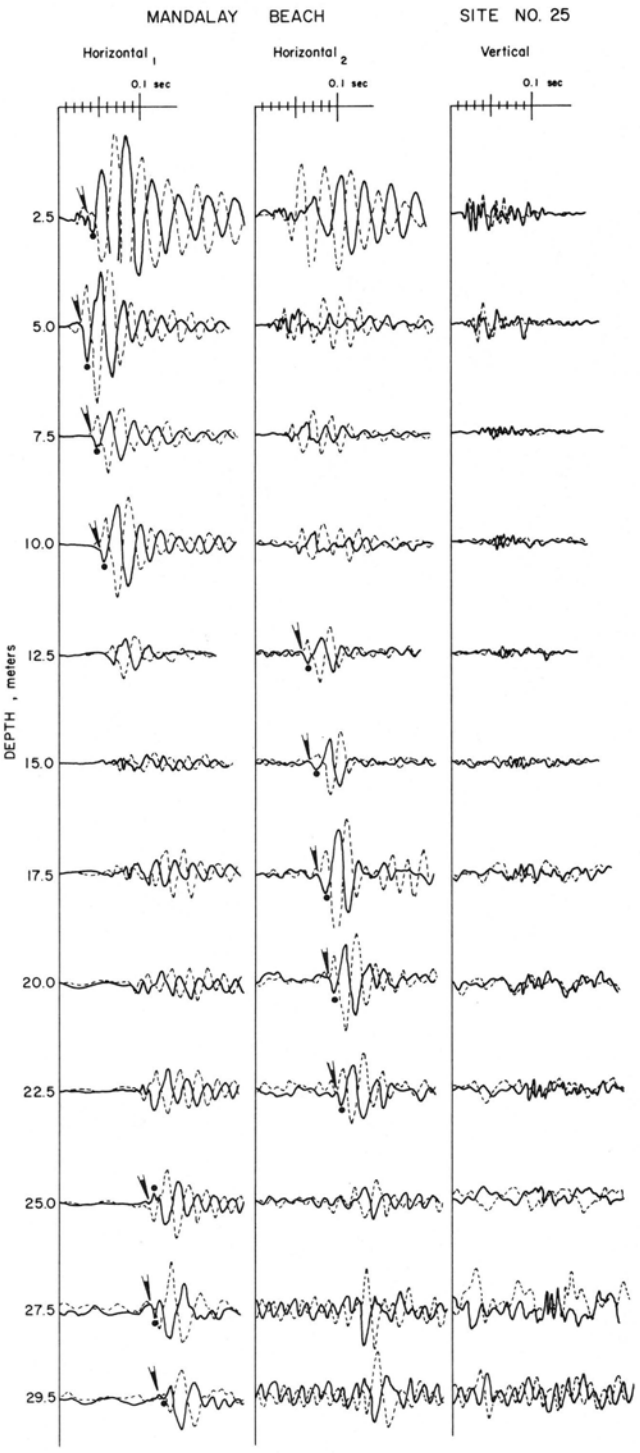


Figure 77.

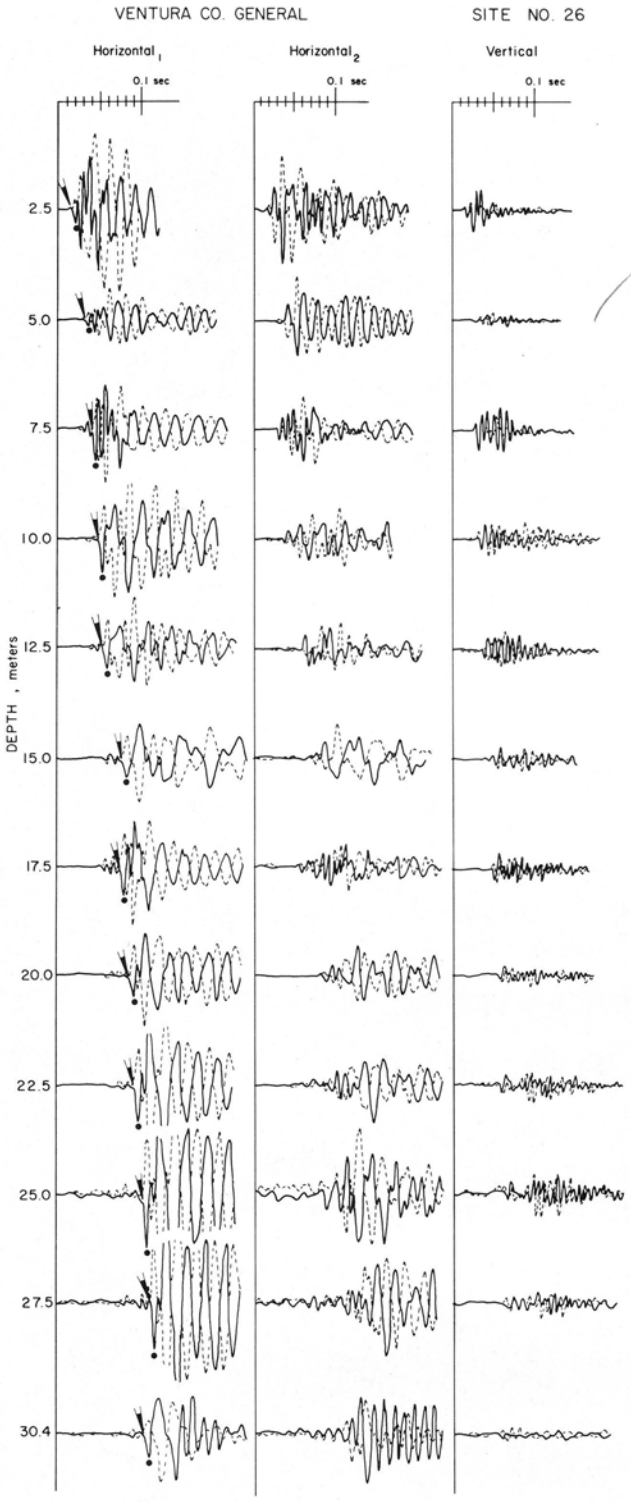


Figure 78

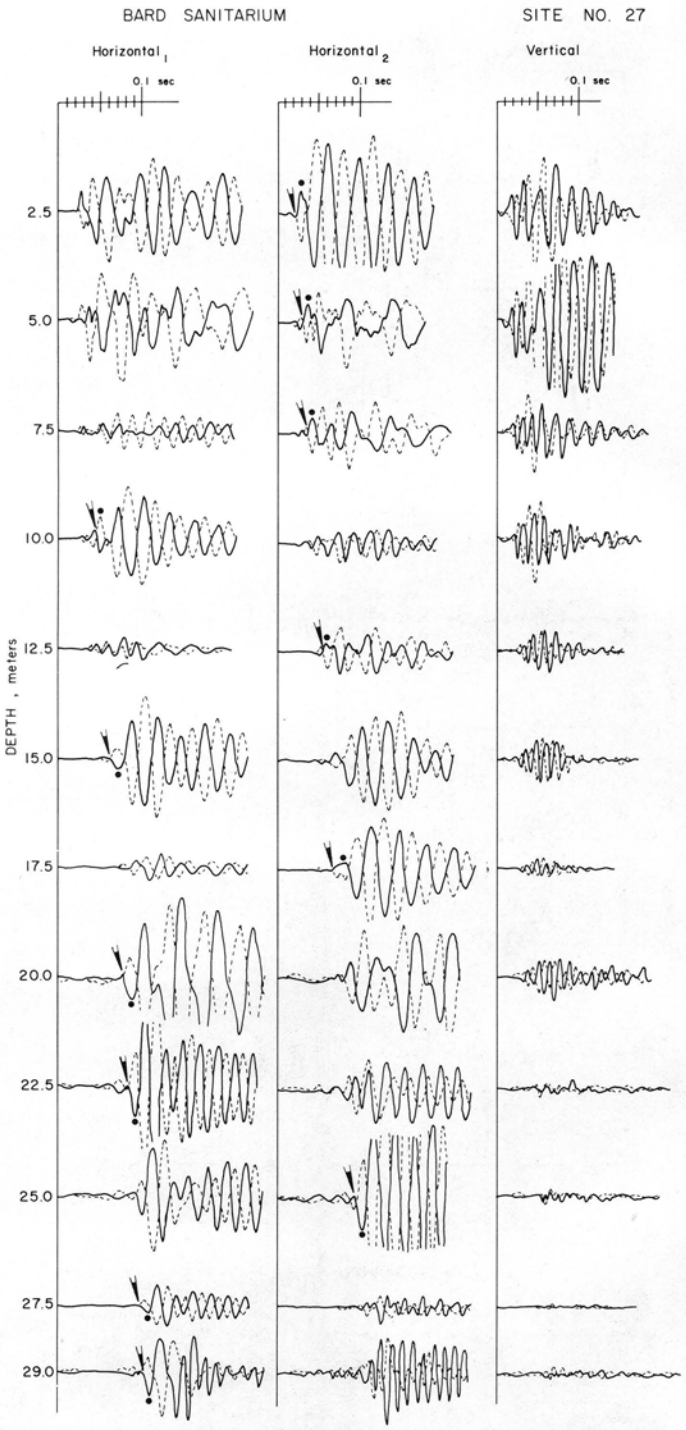


Figure 79

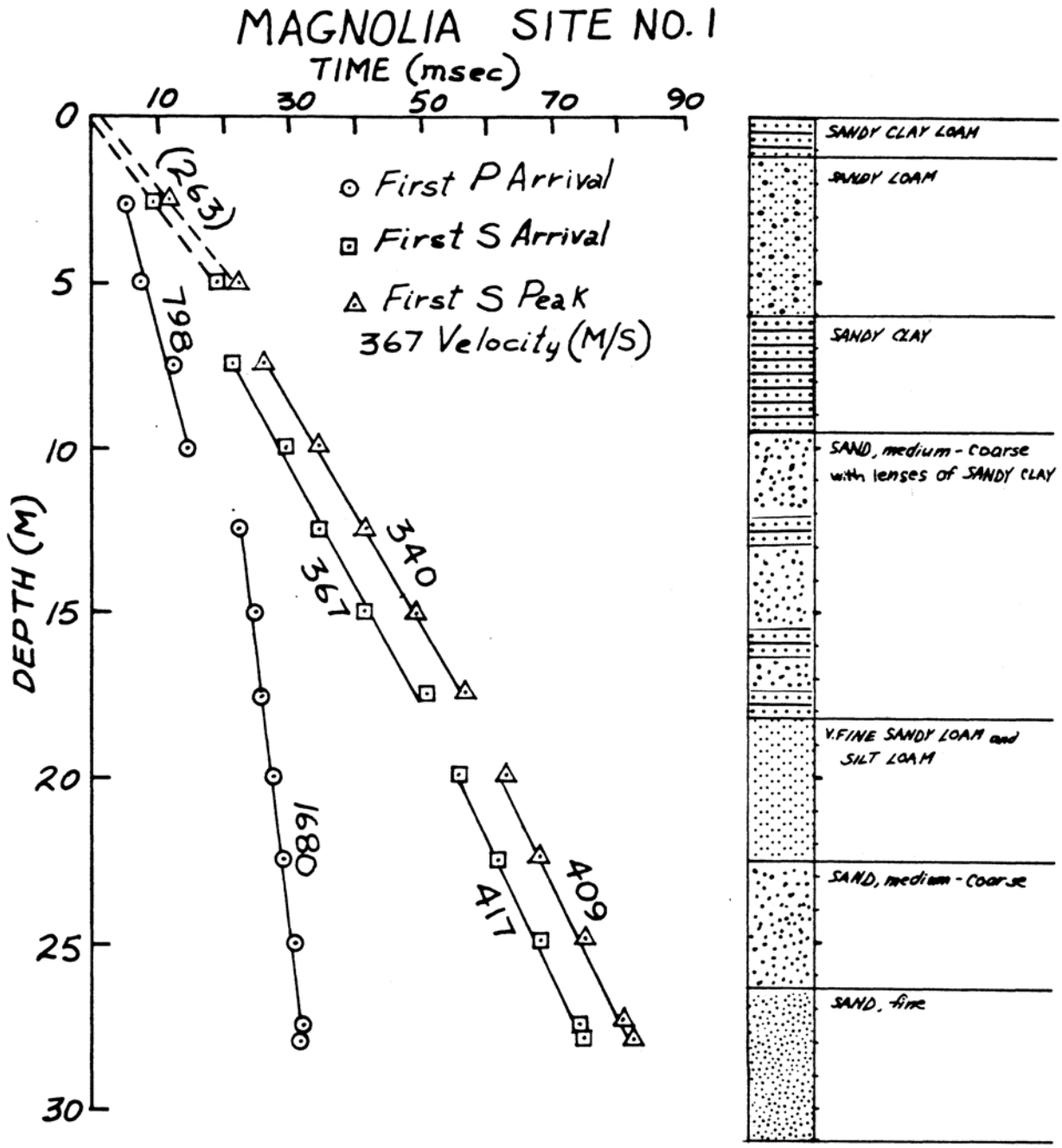

MAGNOLIA SITE NO. 1
TIME (msec)
0
10
30
50
70
90
DEPTH (M)
0
5
10
15
20
25
30
First P Arrival
First S Arrival
First S Peak
367 Velocity (M/S)
(263)
798
340
367
1680
409
417
SANDY CLAY LOAM
SANDY LOAM
SANDY CLAY
SAND, medium - coarse with lenses of SANDY CLAY
V. FINE SANDY LOAM and SILT LOAM
SAND, medium - coarse
SAND, fine

Figure 80.

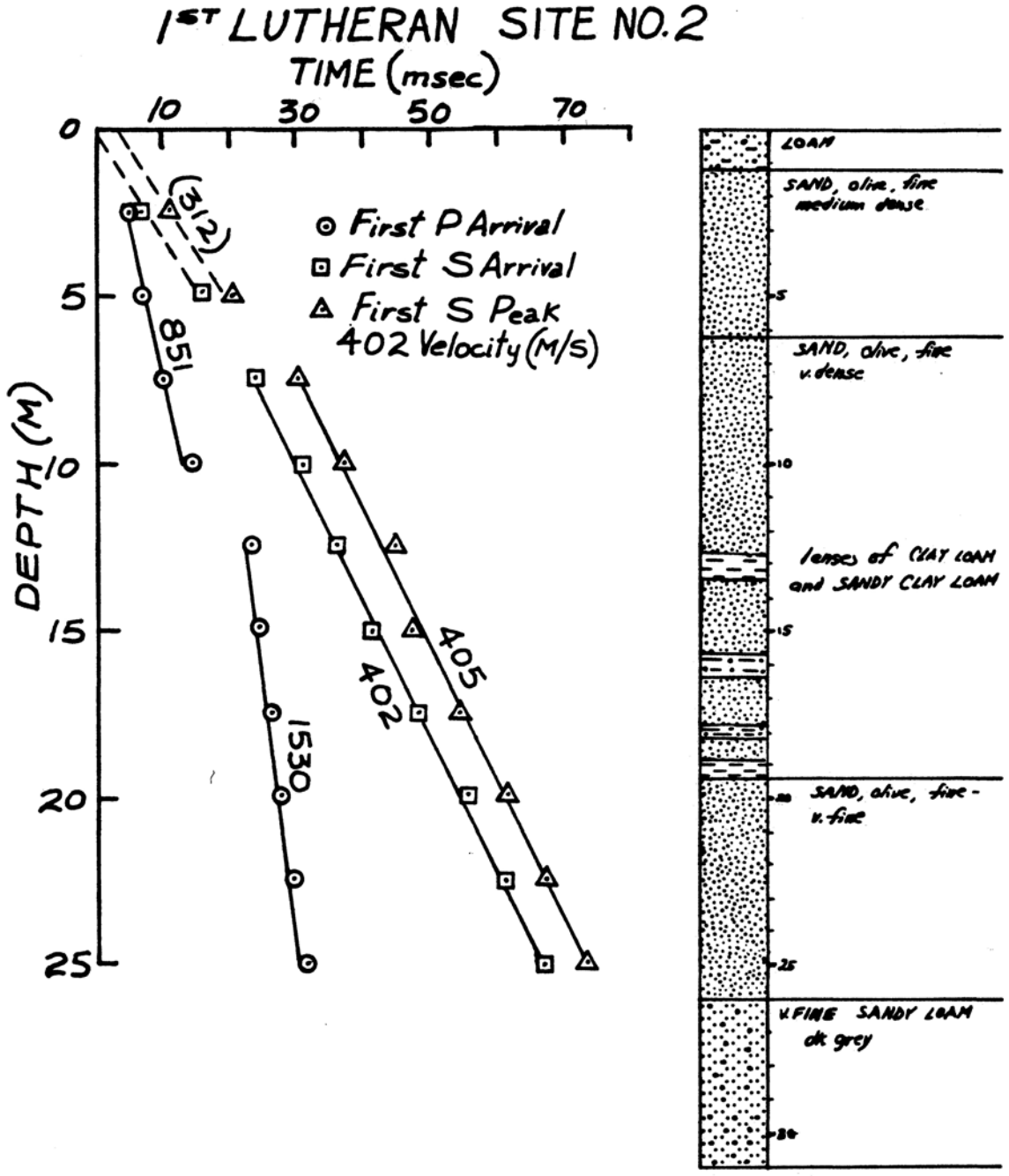

1ST LUTHERAN SITE NO.2
TIME (msec)
10
30
50
70
0
5
10
15
20
25
DEPTH (M)
(312)
851
1530
402
405
First P Arrival
First S Arrival
First S Peak
402 Velocity (M/s)
LOAM
SAND, olive, fine medium dense
SAND, olive, fine v. dense
lenses of CLAY LOAM and SANDY CLAY LOAM
SAND, olive, fine - v. fine
V. FINE SANDY LOAM dk grey

Figure 81.

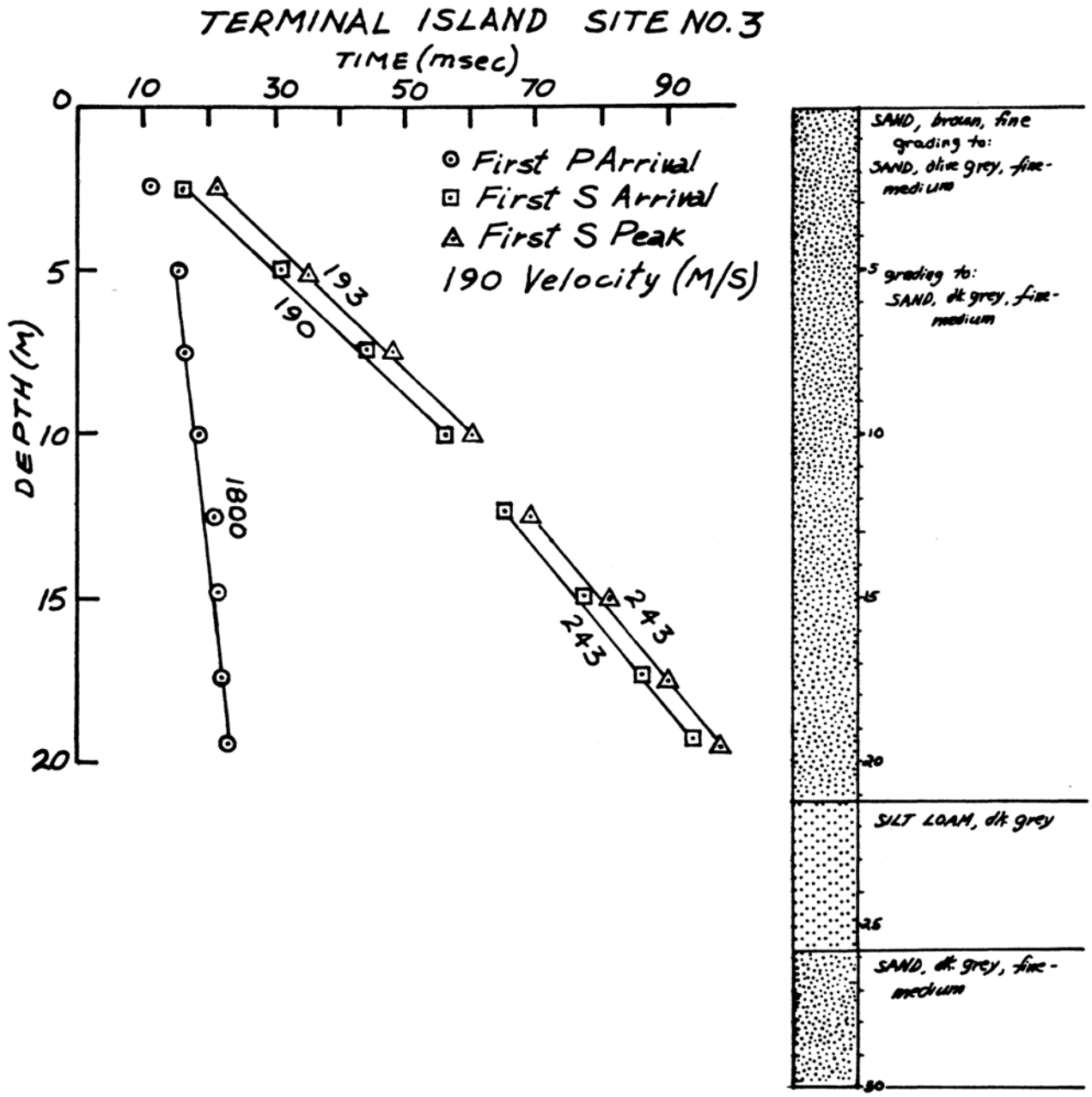

TERMINAL ISLAND SITE NO.3
TIME (msec)
10
30
50
70
90
0
5
10
15
20
DEPTH (M)
First P Arrival
First S Arrival
First S Peak
190 Velocity (M/S)
193
190
1800
243
243
SAND, brown, fine grading to: SAND, olive grey, fine-medium
5 grading to: SAND, dk grey, fine-medium
10
15
20
SILT LOAM, dk grey
25
SAND, dk grey, fine-medium
30

Figure 82.

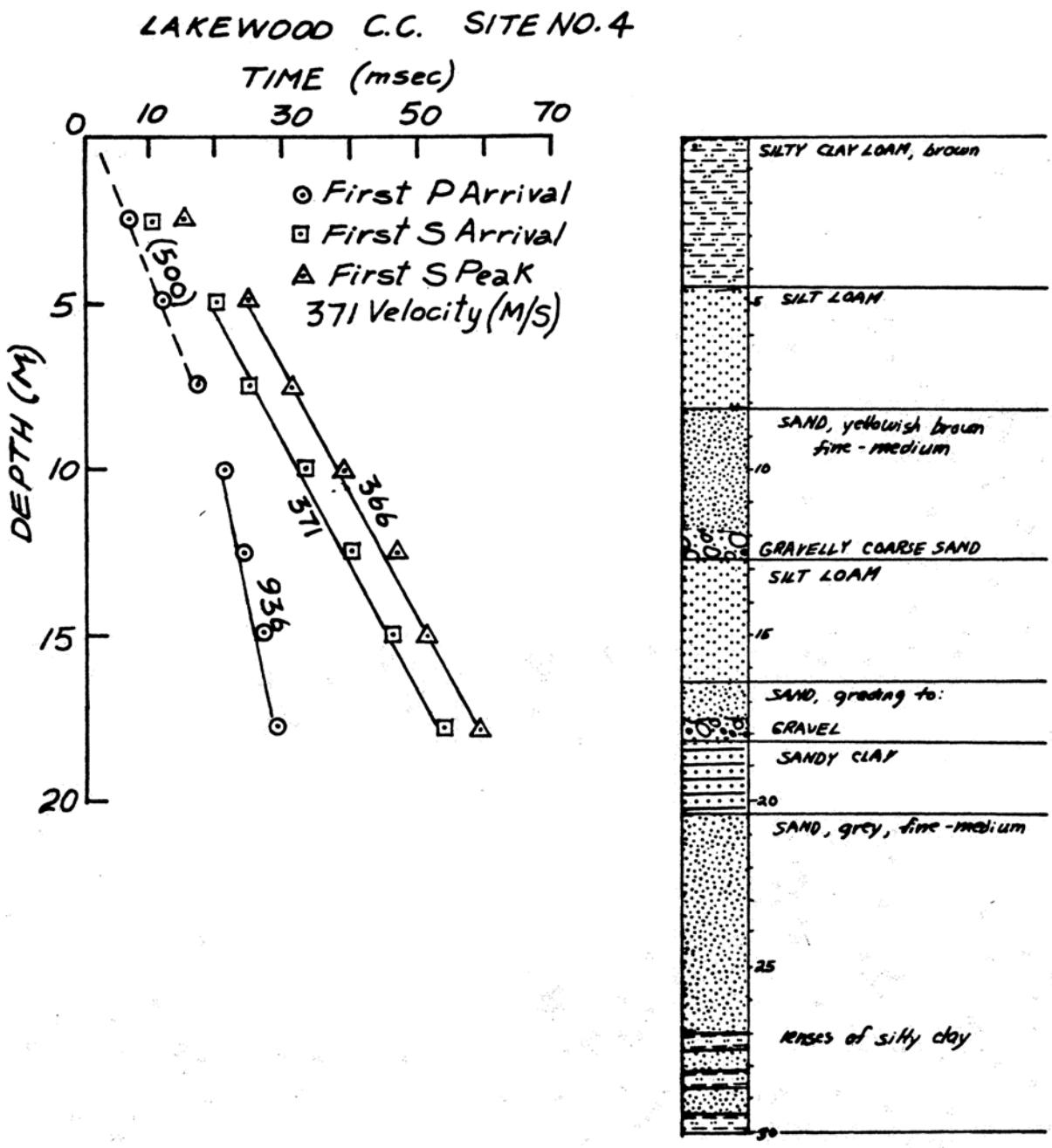

LAKEWOOD C.C. SITE NO. 4
TIME (msec)
0
10
30
50
70
First P Arrival
First S Arrival
First S Peak
371 Velocity (M/S)
(500)
371
366
936
DEPTH (M)
5
10
15
20
SILTY CLAY LOAM, brown
5
SILT LOAM
SAND, yellowish brown
fine - medium
10
GRAVELLY COARSE SAND
SILT LOAM
15
SAND, grading to:
GRAVEL
SANDY CLAY
20
SAND, grey, fine - medium
25
lenses of silty clay
30

Figure 83.

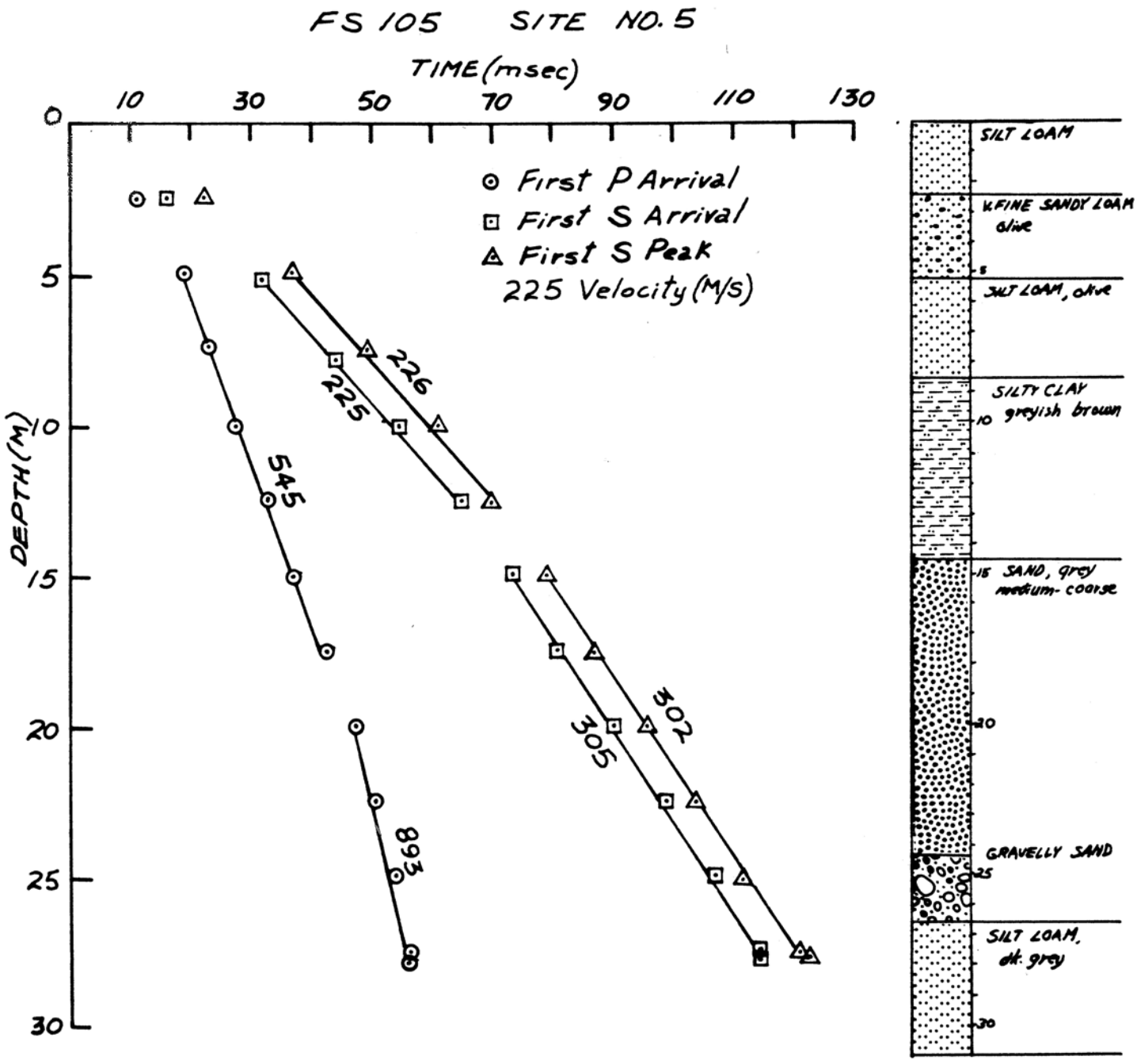

FS 105 SITE NO. 5
TIME (msec)
10
30
50
70
90
110
130
0
5
10
15
20
25
30
DEPTH (M)
First P Arrival
First S Arrival
First S Peak
225 Velocity (M/S)
226
225
545
893
302
305
SILT LOAM
V. FINE SANDY LOAM olive
5
SILT LOAM, olive
SILTY CLAY greyish brown
10
15 SAND, grey medium-coarse
20
GRAVELLY SAND
25
SILT LOAM, dk. grey
30

Figure 84.

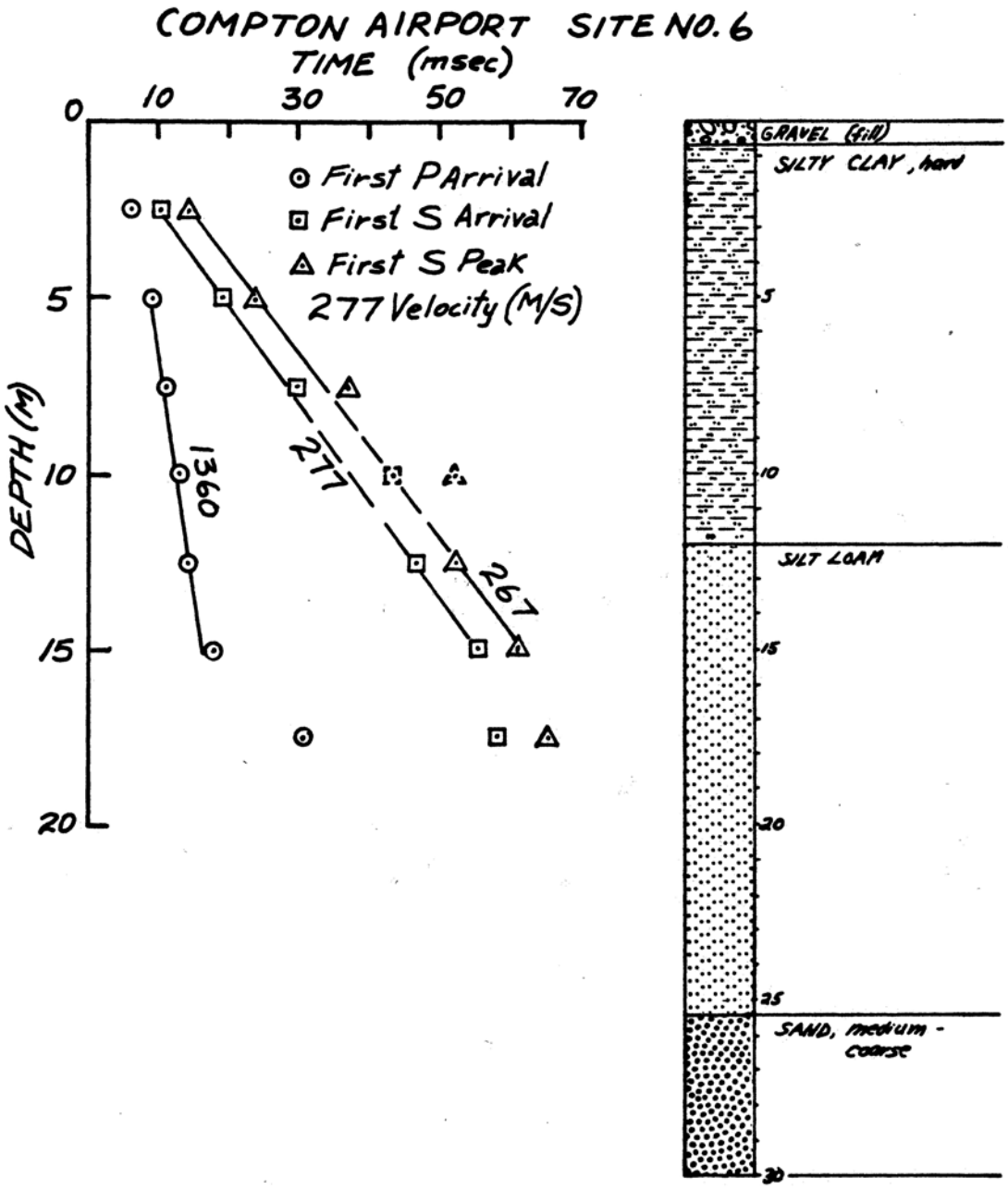

COMPTON AIRPORT SITE NO. 6
TIME (msec)
0
10
30
50
70
First P Arrival
First S Arrival
First S Peak
277 Velocity (M/S)
DEPTH (M)
5
10
15
20
1360
277
267
GRAVEL (fill)
SILTY CLAY, hard
SILT LOAM
SAND, medium - coarse
5
10
15
20
25
30

Figure 85.

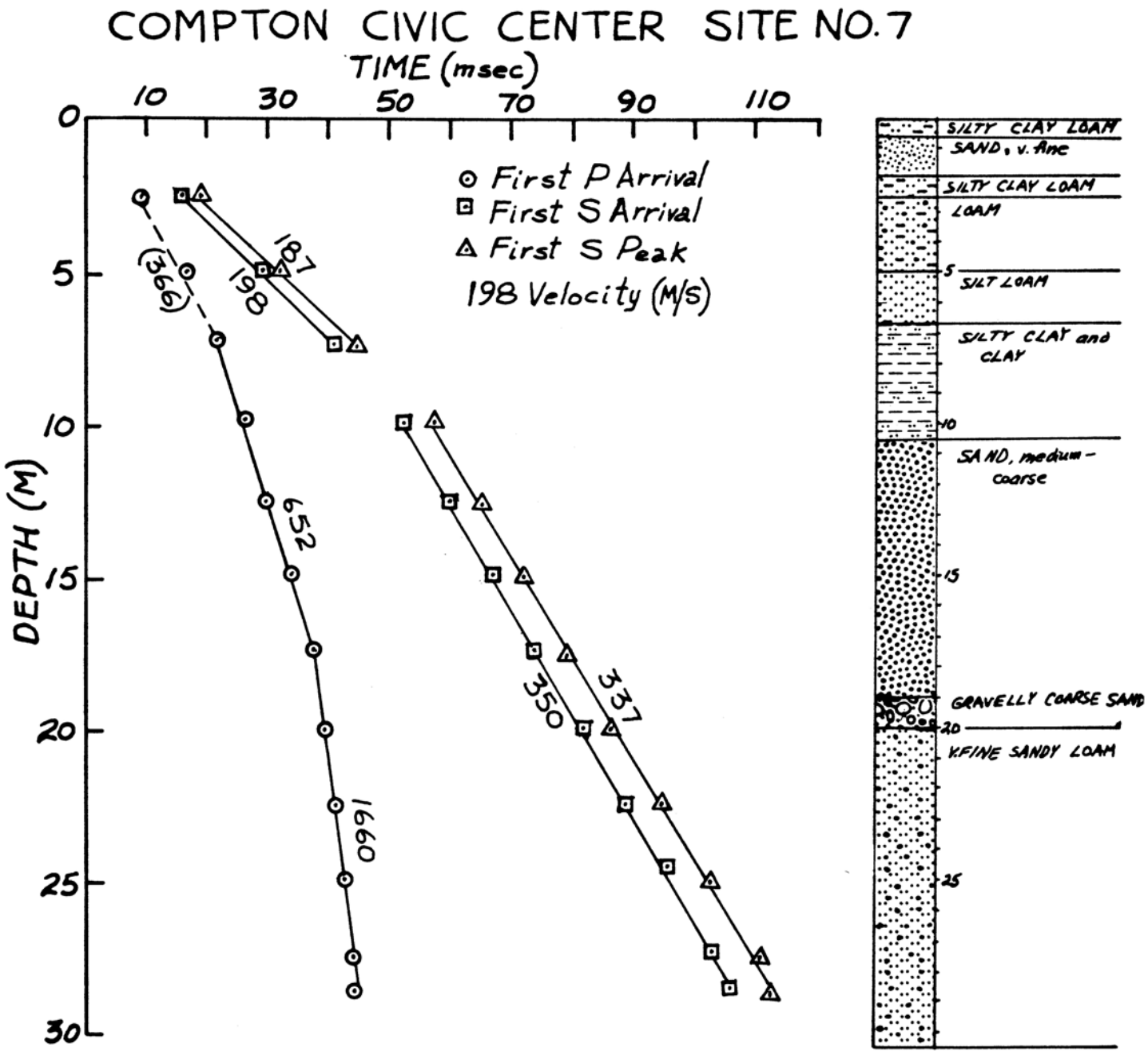

COMPTON CIVIC CENTER SITE NO. 7
TIME (msec)
10
30
50
70
90
110
0
5
10
15
20
25
30
DEPTH (M)
First P Arrival
First S Arrival
First S Peak
198 Velocity (M/S)
(366)
187
198
652
1660
337
350
SILTY CLAY LOAM
SAND, v. fine
SILTY CLAY LOAM
LOAM
SILT LOAM
SILTY CLAY and CLAY
SAND, medium - coarse
GRAVELLY COARSE SAND
V.FINE SANDY LOAM

Figure 86.

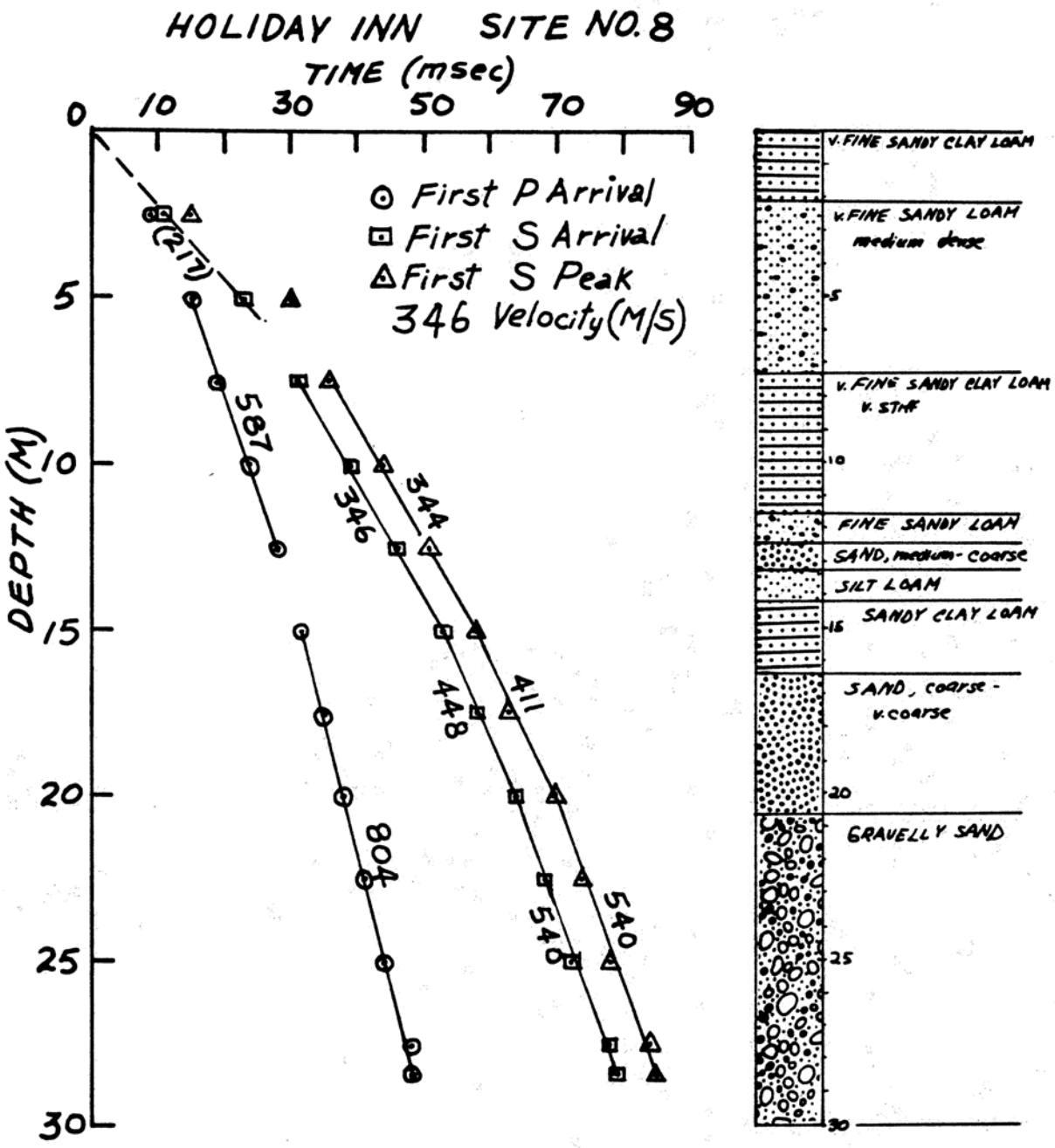

HOLIDAY INN SITE NO. 8
TIME (msec)
0
10
30
50
70
90
First P Arrival
First S Arrival
First S Peak
346 Velocity (M/S)
DEPTH (M)
5
10
15
20
25
30
(217)
587
346
344
448
411
804
546
540
V. FINE SANDY CLAY LOAM
V. FINE SANDY LOAM
medium dense
V. FINE SANDY CLAY LOAM
V. STIFF
FINE SANDY LOAM
SAND, medium - coarse
SILT LOAM
SANDY CLAY LOAM
SAND, coarse - v. coarse
GRAVELLY SAND

Figure 87.

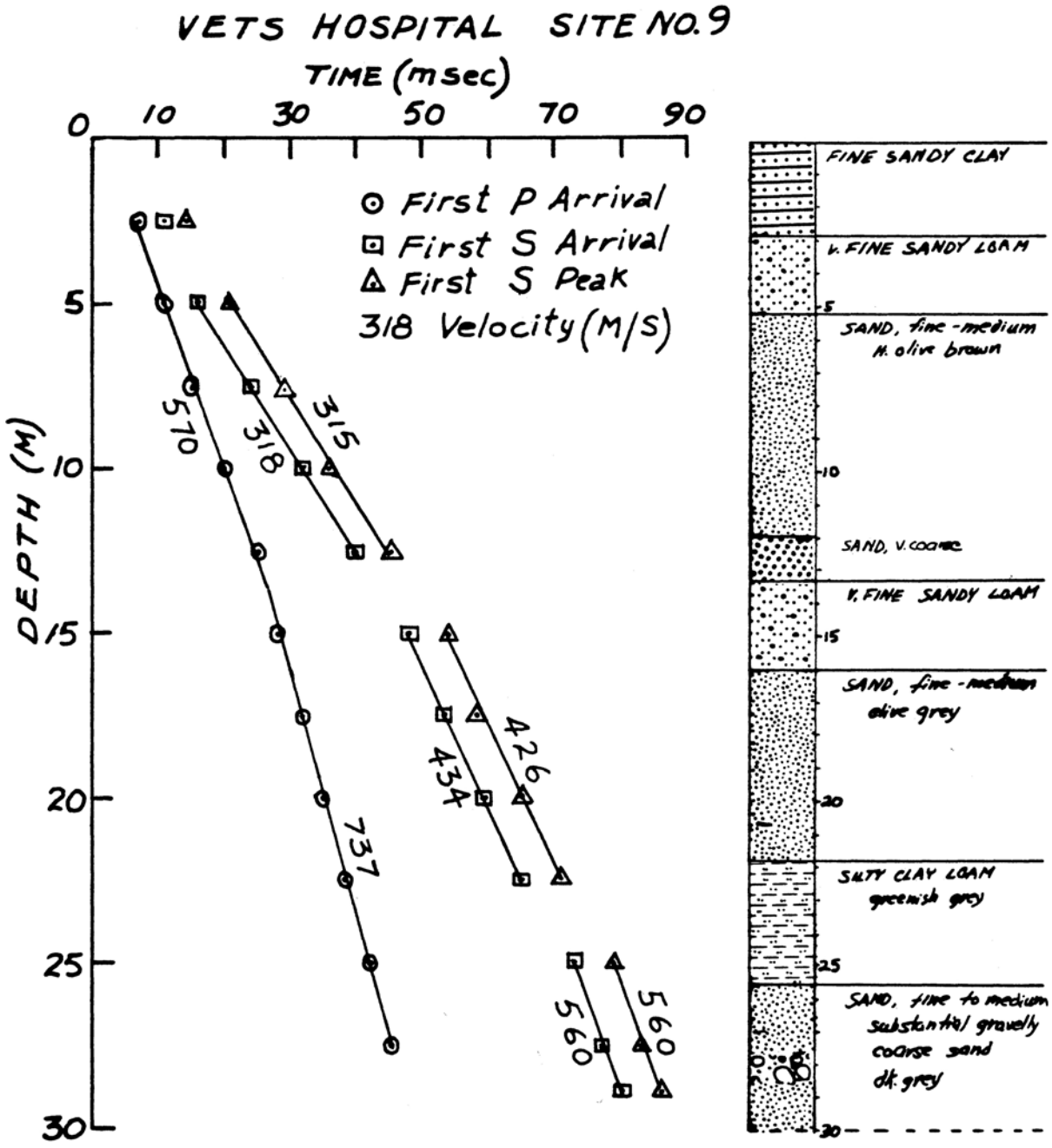

VETS HOSPITAL SITE NO. 9
TIME (msec)
0
10
30
50
70
90
First P Arrival
First S Arrival
First S Peak
318 Velocity (M/S)
DEPTH (M)
5
10
15
20
25
30
570
318
315
434
426
737
560
560
FINE SANDY CLAY
V. FINE SANDY LOAM
SAND, fine - medium
M. olive brown
SAND, V. coarse
V. FINE SANDY LOAM
SAND, fine - medium
olive grey
SILTY CLAY LOAM
greenish grey
SAND, fine to medium
substantial gravelly
coarse sand
dk. grey

Figure 88.

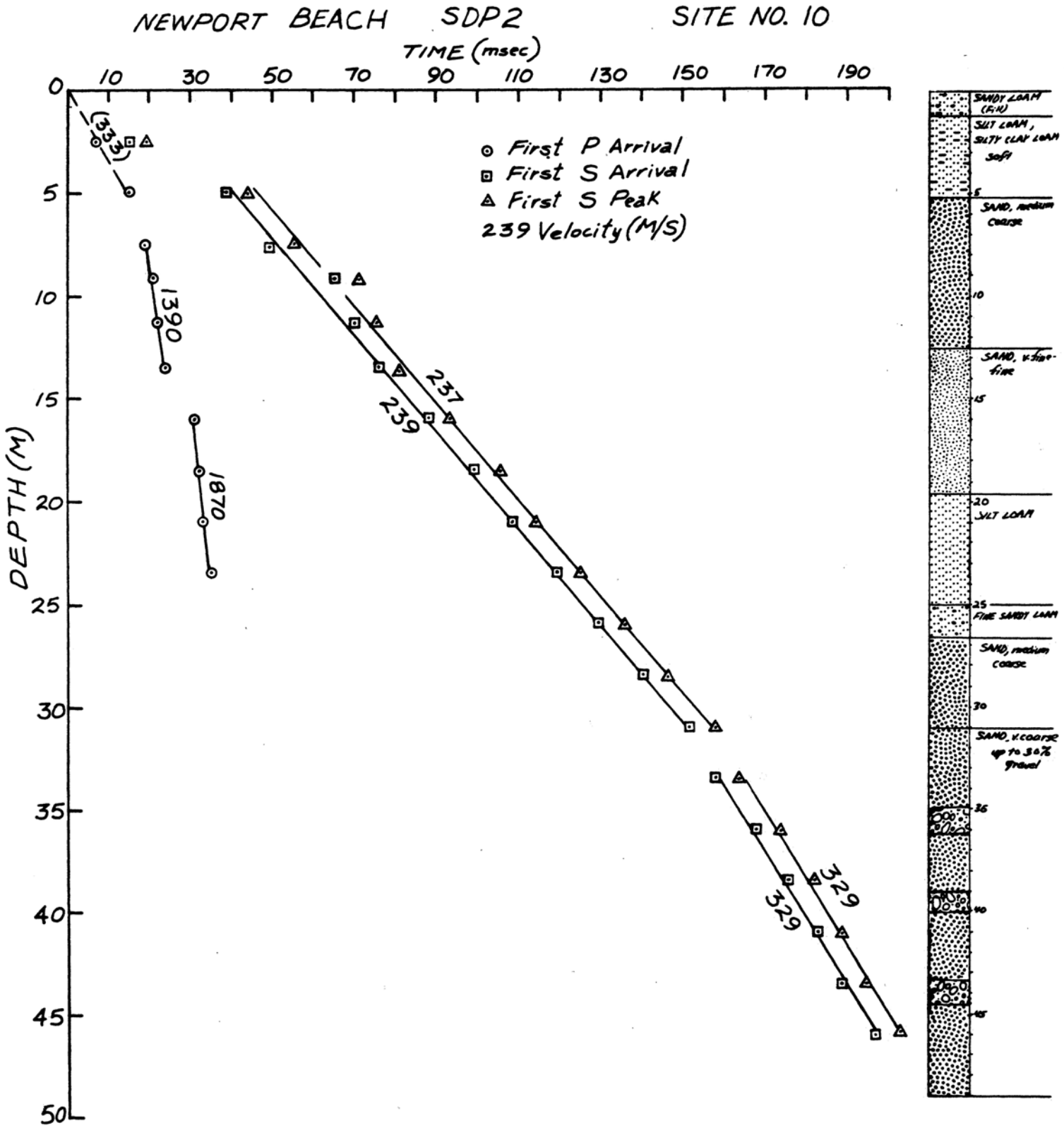

NEWPORT BEACH SDP2 SITE NO. 10
TIME (msec)
0
10
30
50
70
90
110
130
150
170
190
First P Arrival
First S Arrival
First S Peak
239 Velocity (M/S)
(333)
1390
1870
237
239
329
329
DEPTH (M)
0
5
10
15
20
25
30
35
40
45
50
SANDY LOAM (F-M)
SILT LOAM, SILTY CLAY LOAM soft
SAND, medium coarse
SAND, v. fine-fine
SILT LOAM
FINE SANDY LOAM
SAND, medium coarse
SAND, v. coarse up to 30% gravel

Figure 89.

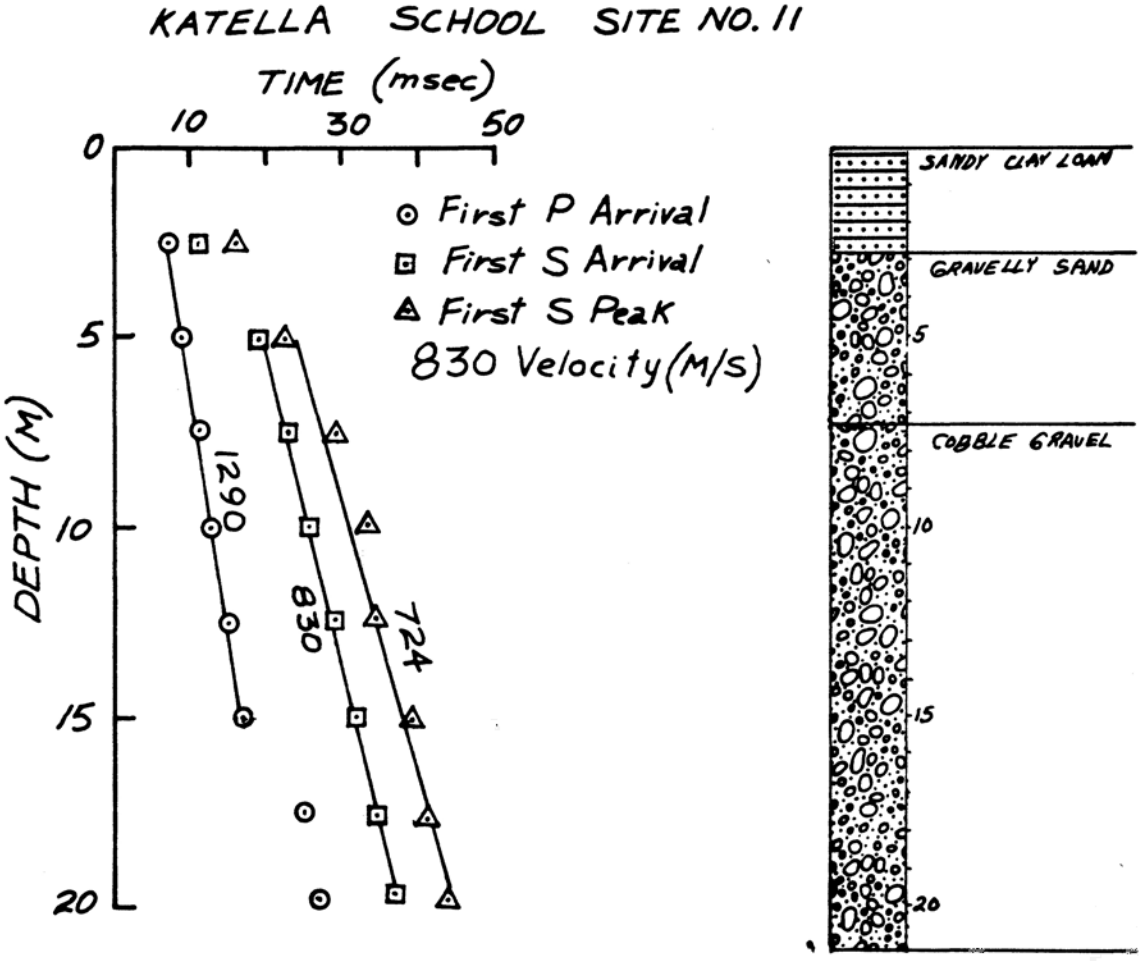

KATELLA SCHOOL SITE NO. 11
TIME (msec)
10
30
50
0
5
10
15
20
DEPTH (M)
First P Arrival
First S Arrival
First S Peak
830 Velocity (M/S)
1290
830
724
SANDY CLAY LOAM
GRAVELLY SAND
COBBLE GRAVEL
5
10
15
20

Figure 90.

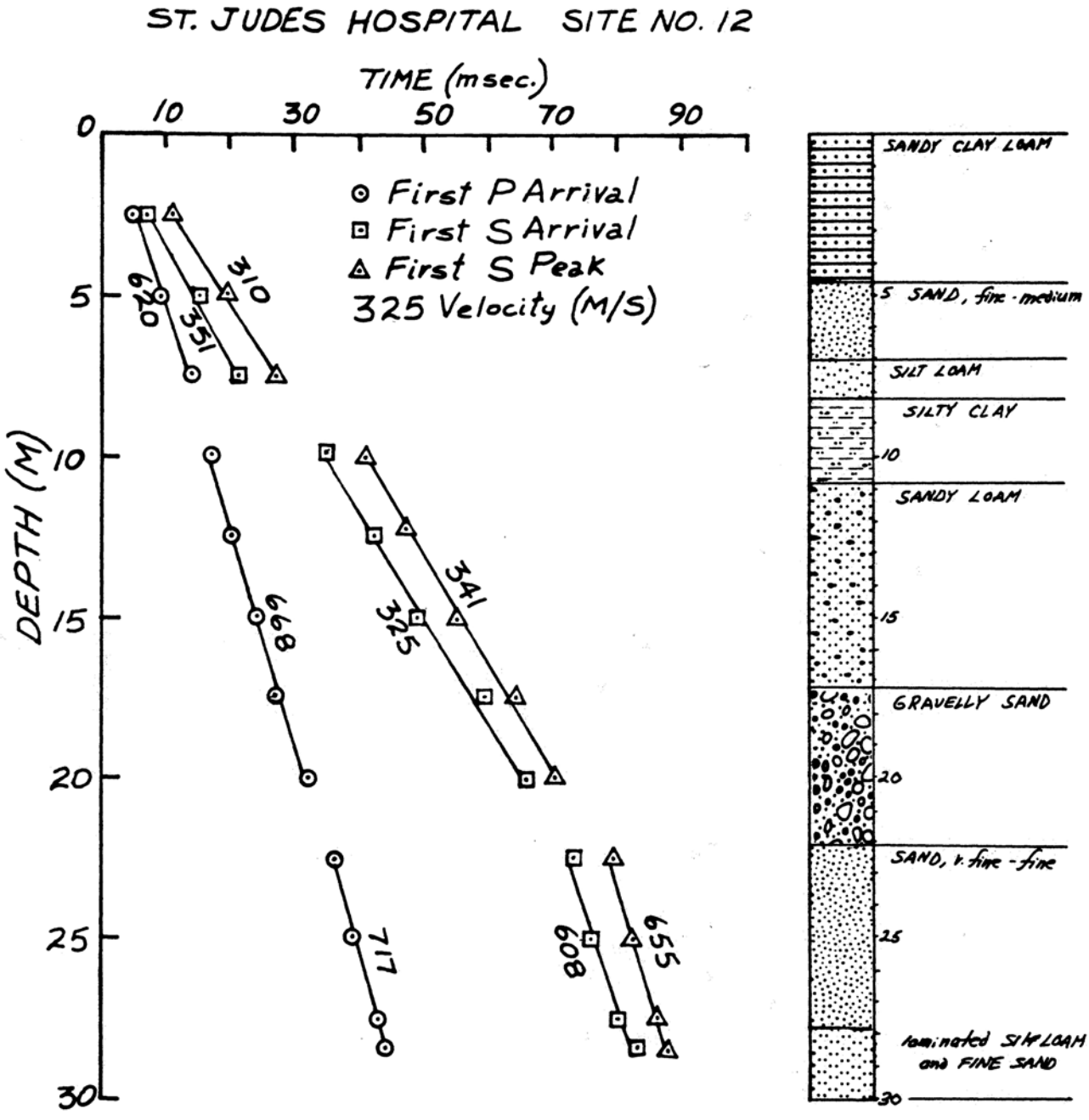

ST. JUDES HOSPITAL SITE NO. 12
TIME (msec.)
0
10
30
50
70
90
First P Arrival
First S Arrival
First S Peak
325 Velocity (M/S)
DEPTH (M)
5
10
15
20
25
30
310
620
351
668
341
325
717
608
655
SANDY CLAY LOAM
5 SAND, fine - medium
SILT LOAM
SILTY CLAY
10
SANDY LOAM
15
GRAVELLY SAND
20
SAND, v. fine - fine
25
laminated SILT LOAM and FINE SAND
30

Figure 91.

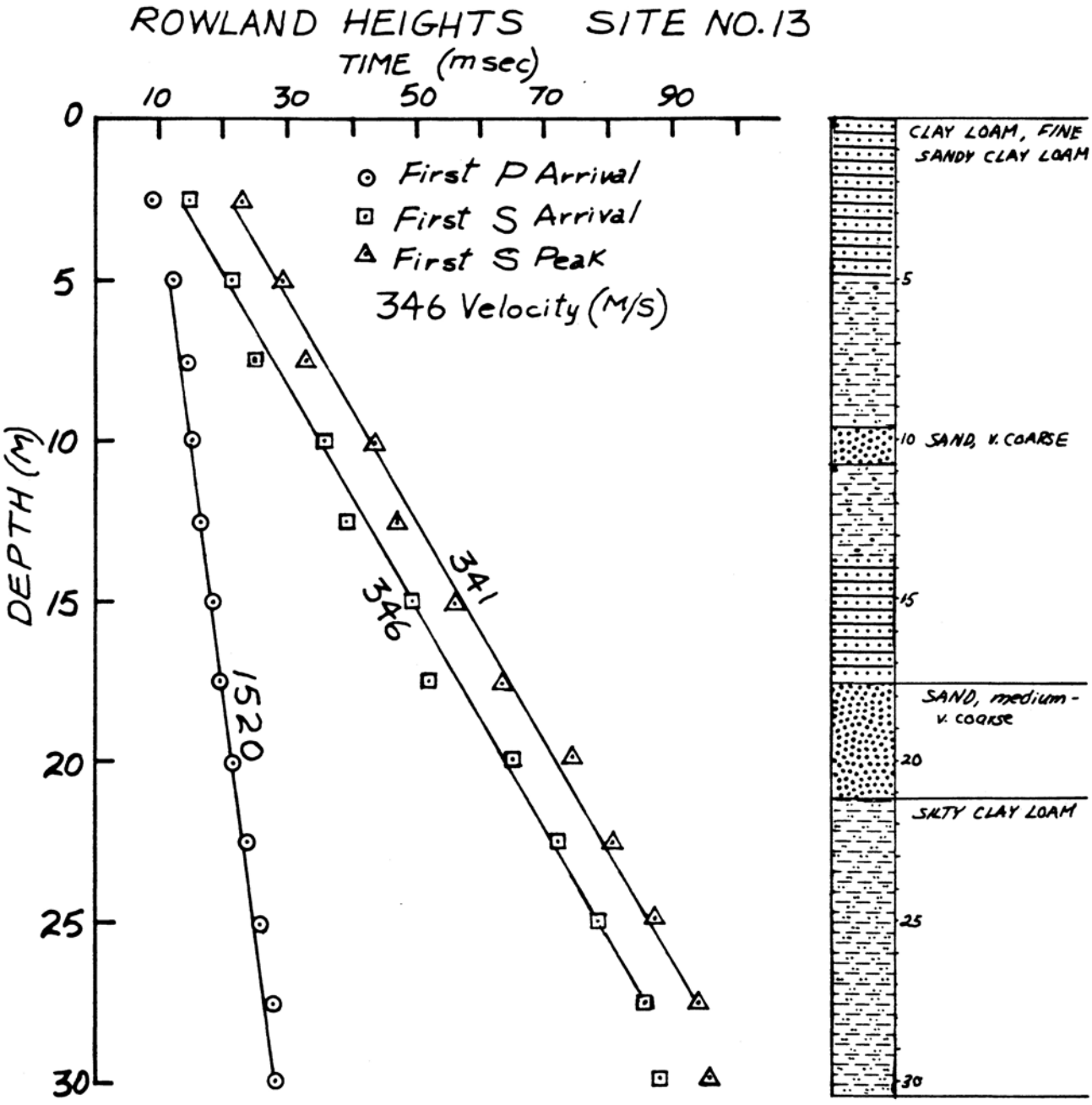

ROWLAND HEIGHTS SITE NO.13
TIME (msec)
10
30
50
70
90
0
5
10
15
20
25
30
DEPTH (M)
First P Arrival
First S Arrival
First S Peak
346 Velocity (M/S)
1520
346
341
CLAY LOAM, FINE SANDY CLAY LOAM
SAND, V. COARSE
SAND, medium - V. COARSE
SILTY CLAY LOAM

Figure 92.

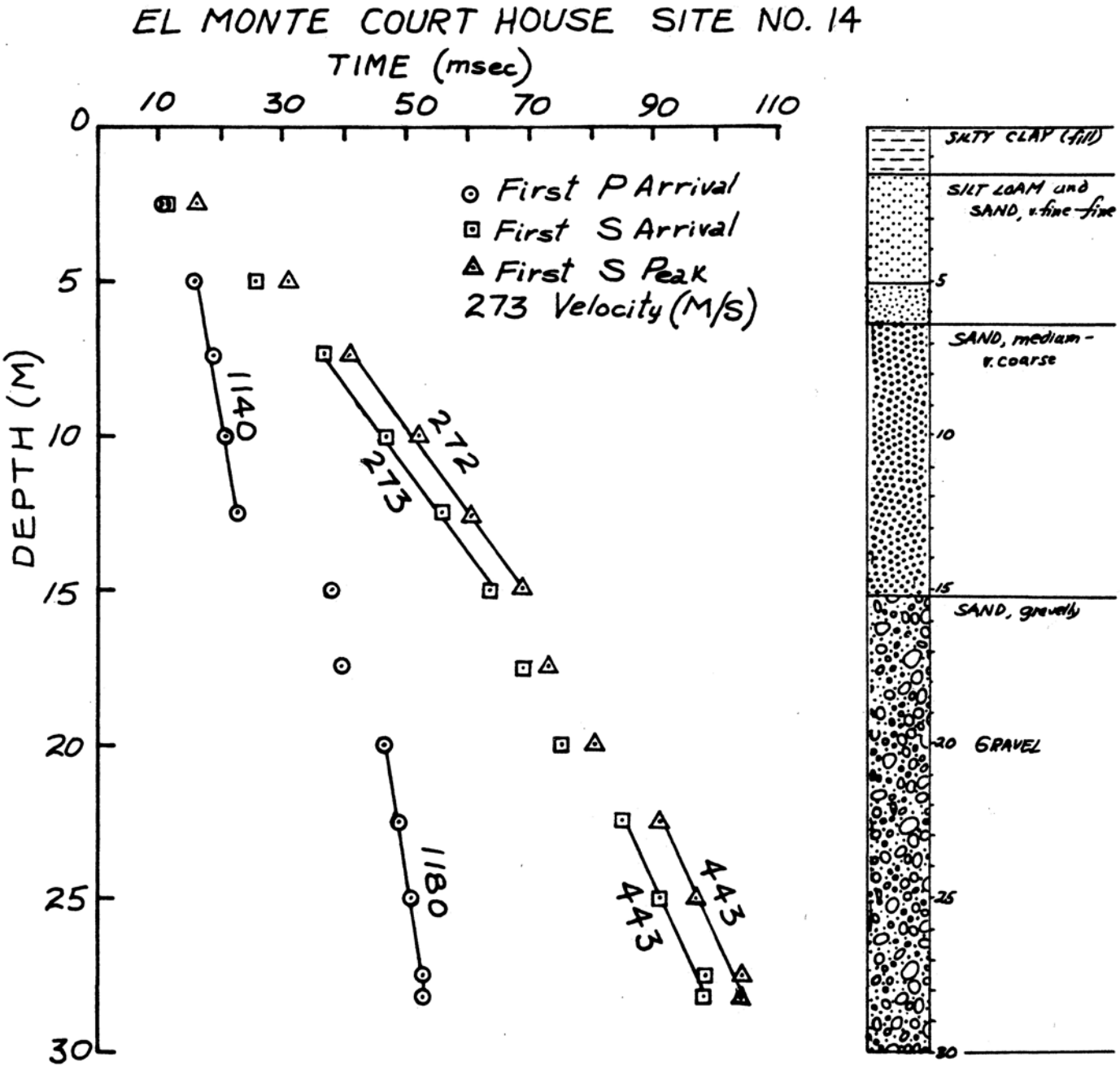

EL MONTE COURT HOUSE SITE NO. 14
TIME (msec)
10
30
50
70
90
110
0
5
10
15
20
25
30
DEPTH (M)
First P Arrival
First S Arrival
First S Peak
273 Velocity (M/S)
1140
272
273
1180
443
443
SILTY CLAY (fill)
SILT LOAM and SAND, v. fine - fine
SAND, medium - v. coarse
SAND, gravelly
GRAVEL

Figure 93.

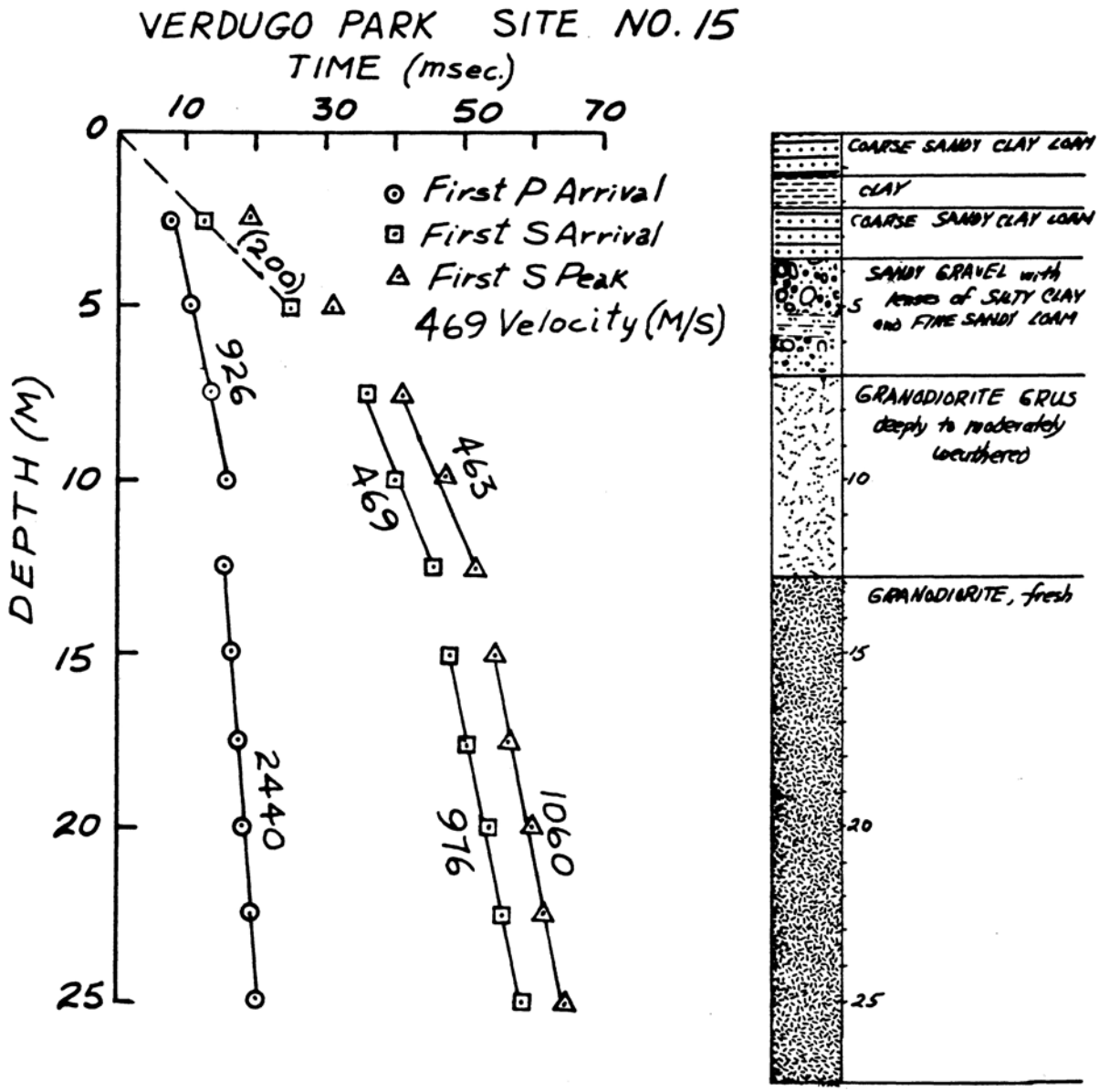

VERDUGO PARK SITE NO. 15
TIME (msec.)
10
30
50
70
0
5
10
15
20
25
DEPTH (M)
First P Arrival
First S Arrival
First S Peak
469 Velocity (M/S)
(200)
926
469
463
2440
976
1060
COARSE SANDY CLAY LOAM
CLAY
COARSE SANDY CLAY LOAM
SANDY GRAVEL with lenses of SILTY CLAY and FINE SANDY LOAM
5
GRANODIORITE GRUS deeply to moderately weathered
10
GRANODIORITE, fresh
15
20
25

Figure 94.

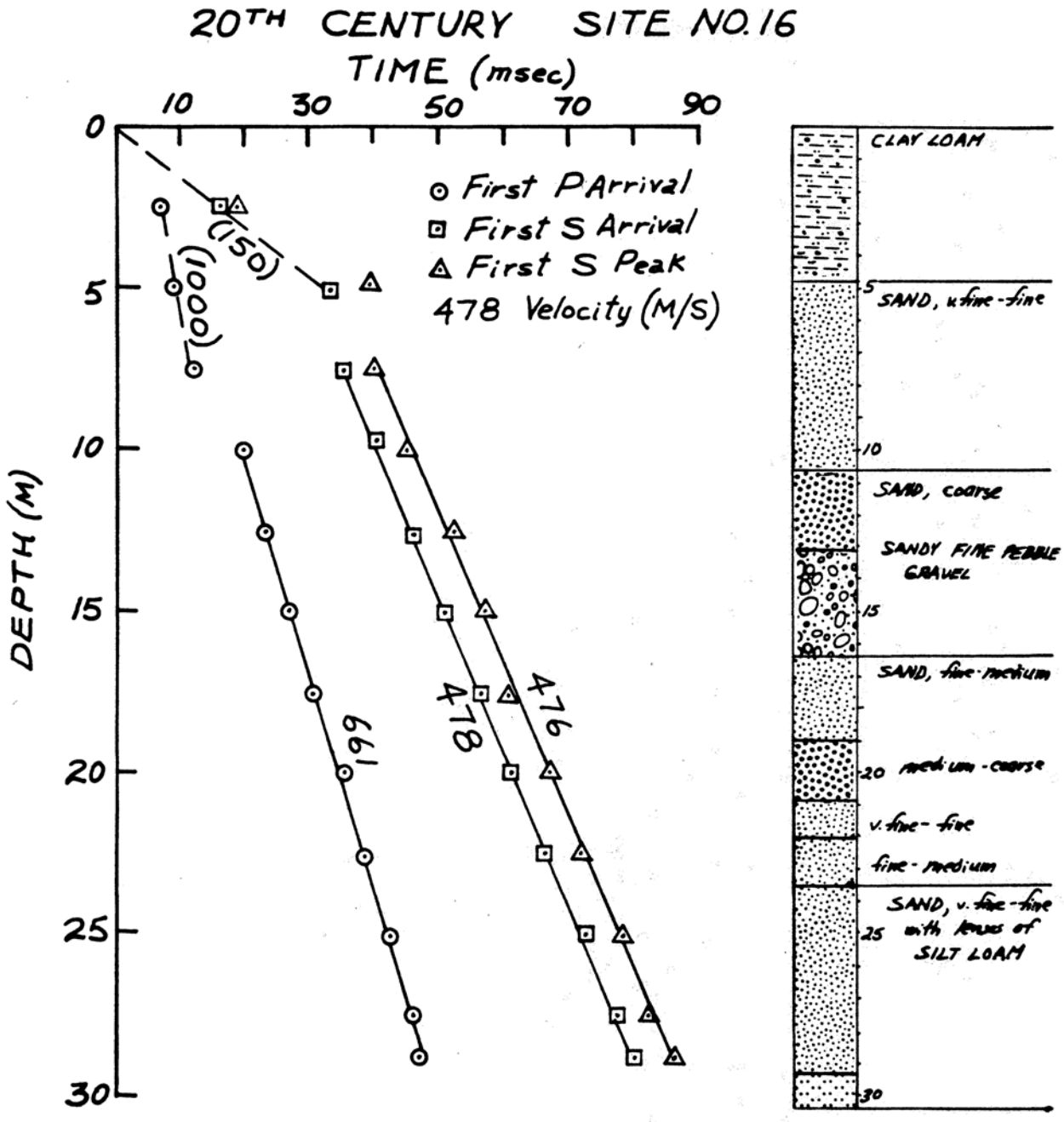

20TH CENTURY SITE NO. 16
TIME (msec)
10
30
50
70
90
0
5
10
15
20
25
30
DEPTH (M)
First P Arrival
First S Arrival
First S Peak
478 Velocity (M/S)
(150)
(100)
669
478
476
CLAY LOAM
SAND, v.fine-fine
SAND, coarse
SANDY FINE PEBBLE GRAVEL
SAND, fine-medium
medium-coarse
v.fine-fine
fine-medium
SAND, v.fine-fine with lenses of SILT LOAM

Figure 95.

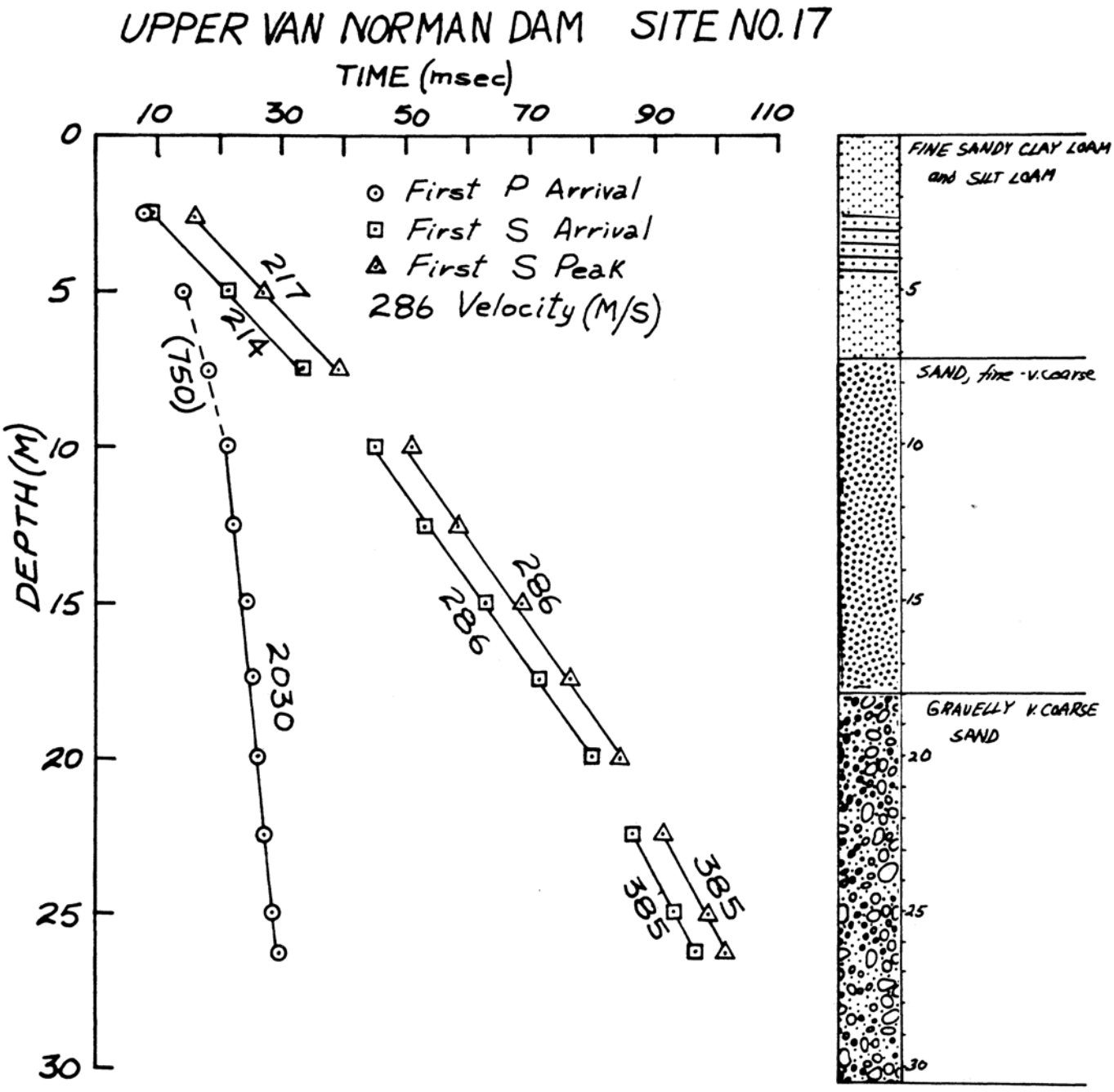

UPPER VAN NORMAN DAM SITE NO. 17
TIME (msec)
10
30
50
70
90
110
0
5
10
15
20
25
30
DEPTH (M)
First P Arrival
First S Arrival
First S Peak
286 Velocity (M/S)
217
214
(750)
2030
286
286
385
385
FINE SANDY CLAY LOAM and SILT LOAM
SAND, fine - V. coarse
GRAVELLY V. COARSE SAND

Figure 96.

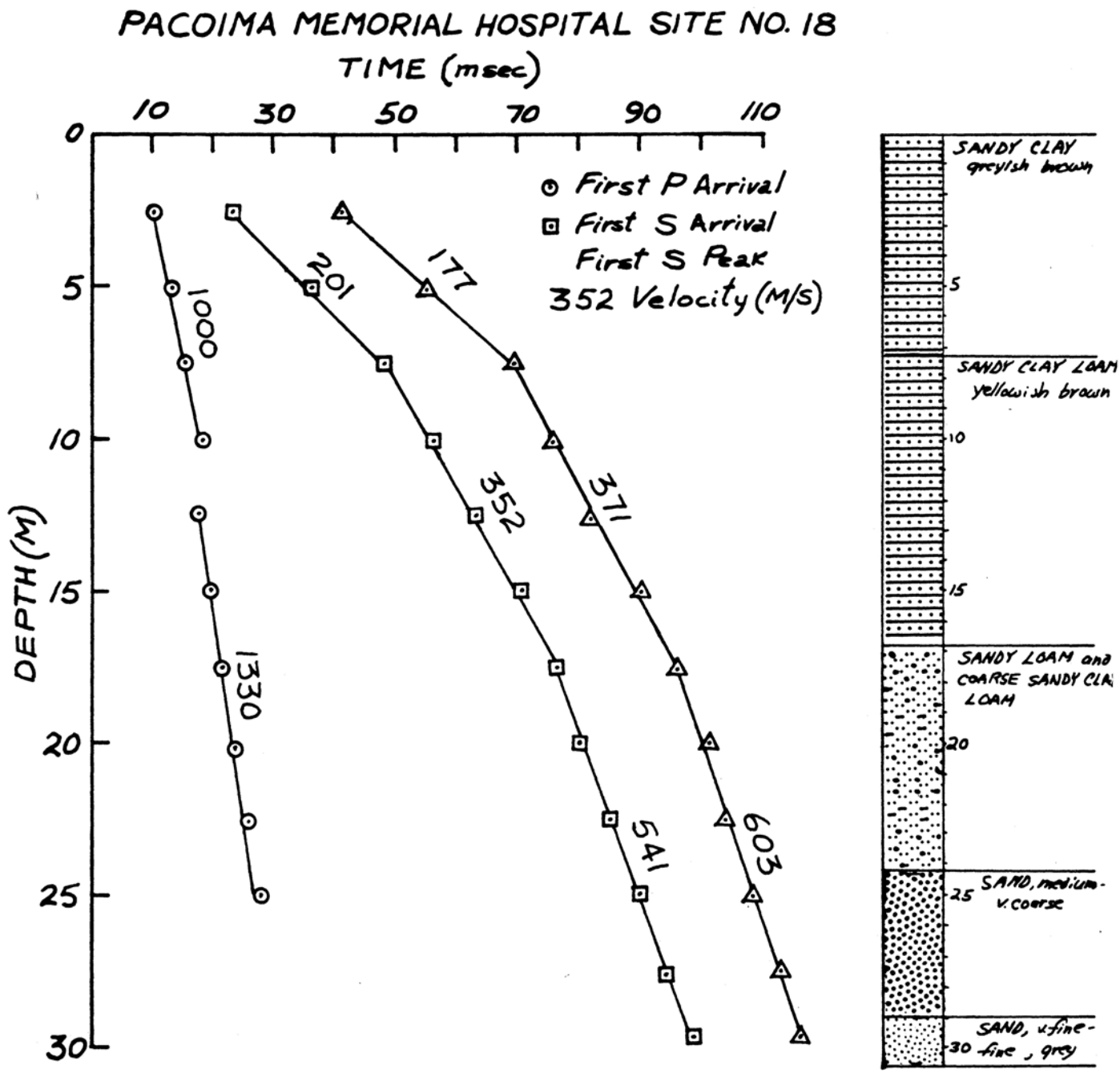

PACOIMA MEMORIAL HOSPITAL SITE NO. 18
TIME (msec)
10
30
50
70
90
110
0
5
10
15
20
25
30
DEPTH (M)
First P Arrival
First S Arrival
First S Peak
352 Velocity (M/S)
1000
201
177
371
352
330
541
603
SANDY CLAY
greyish brown
SANDY CLAY LOAM
yellowish brown
SANDY LOAM and
COARSE SANDY CLA
LOAM
SAND, medium-
V. coarse
SAND, v.fine-
fine, grey

Figure 97.

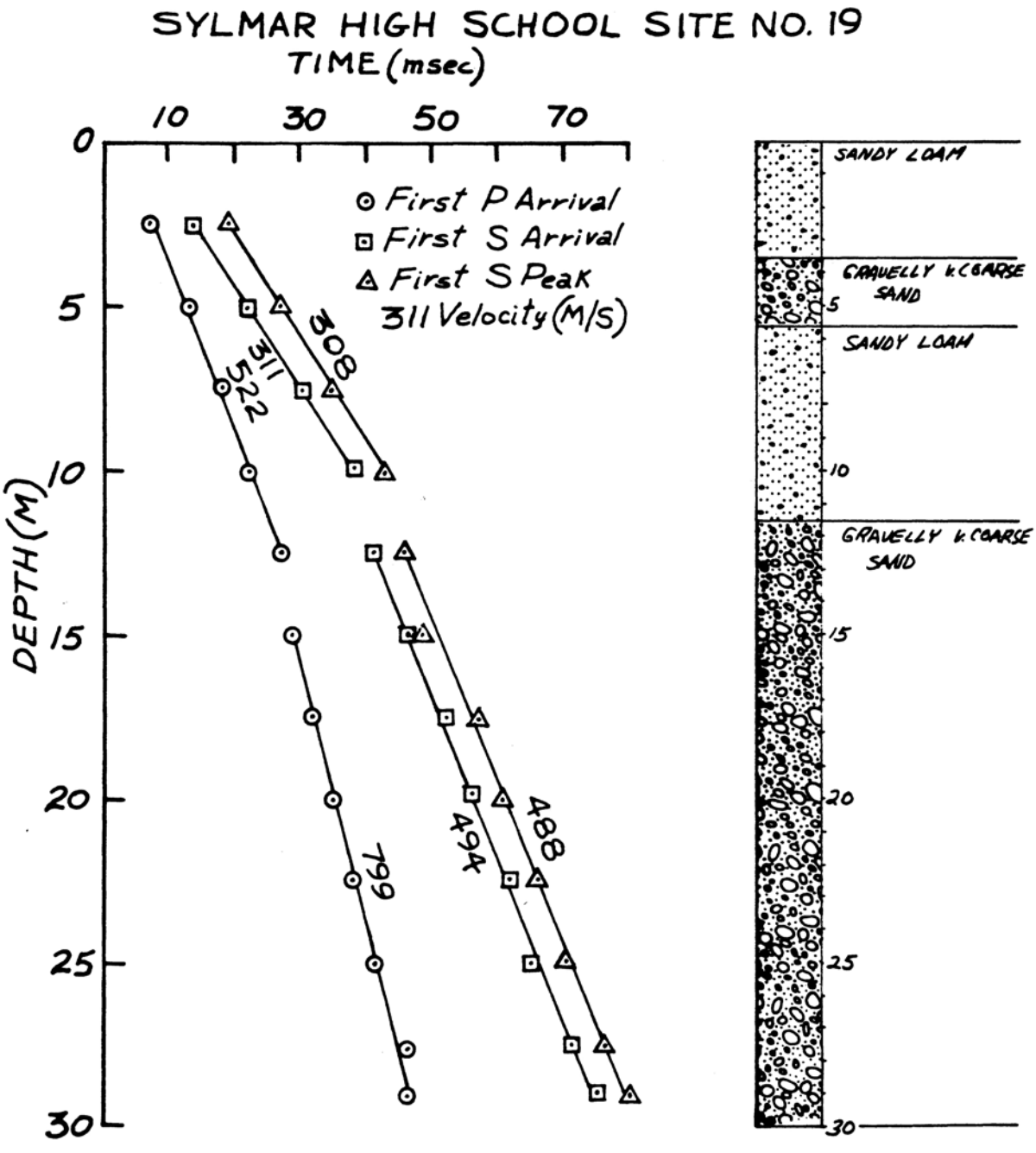

SYLMAR HIGH SCHOOL SITE NO. 19
TIME (msec)
10
30
50
70
0
5
10
15
20
25
30
DEPTH (M)
First P Arrival
First S Arrival
First S Peak
311 Velocity (M/S)
308
311
522
799
488
494
SANDY LOAM
GRAVELLY & COARSE SAND
SANDY LOAM
GRAVELLY & COARSE SAND
5
10
15
20
25
30

Figure 98.

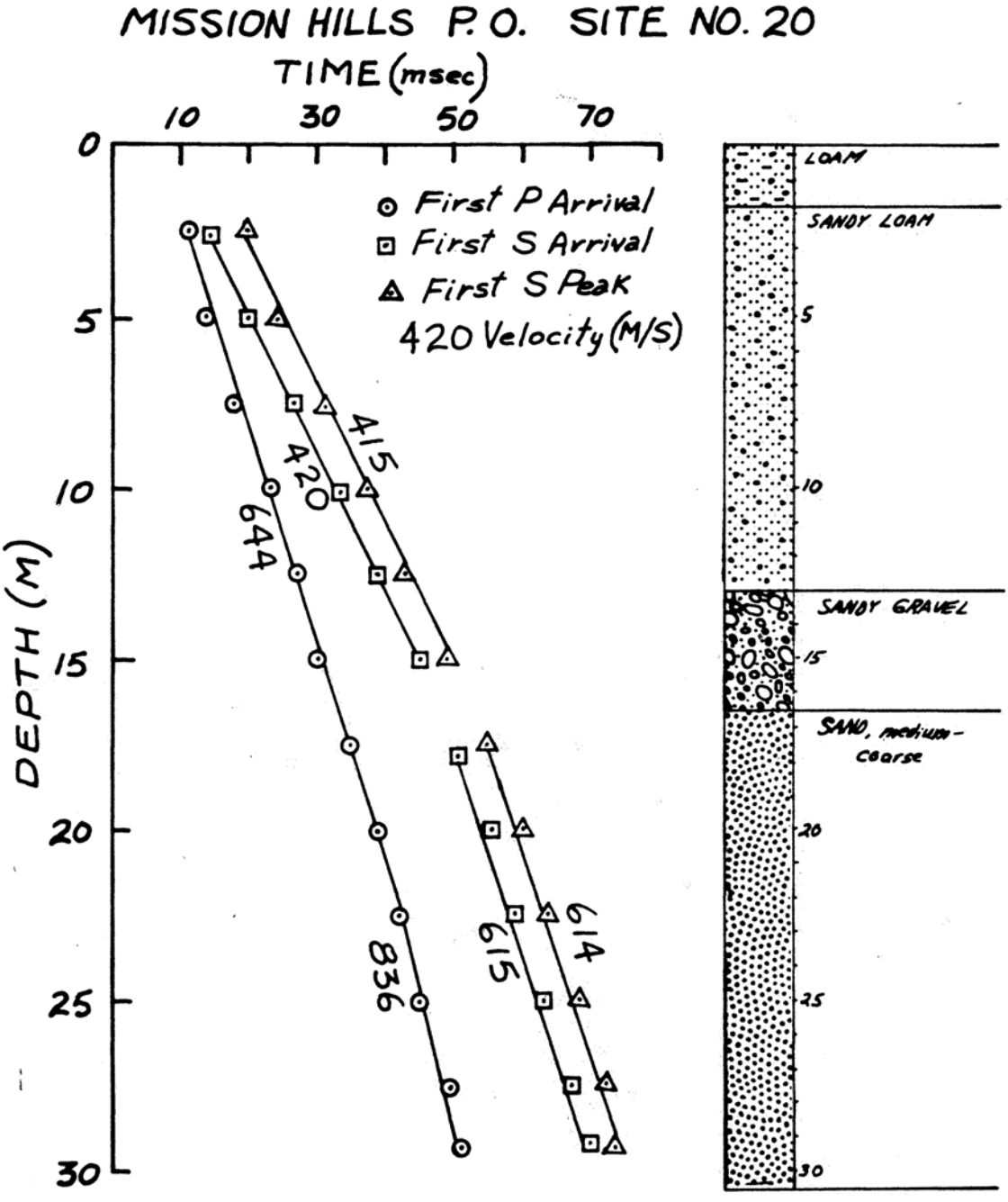

MISSION HILLS P.O. SITE NO. 20
TIME (msec)
10
30
50
70
0
5
10
15
20
25
30
DEPTH (M)
First P Arrival
First S Arrival
First S Peak
420 Velocity (M/S)
415
420
644
836
614
615
LOAM
SANDY LOAM
SANDY GRAVEL
SAND, medium-coarse

Figure 99.

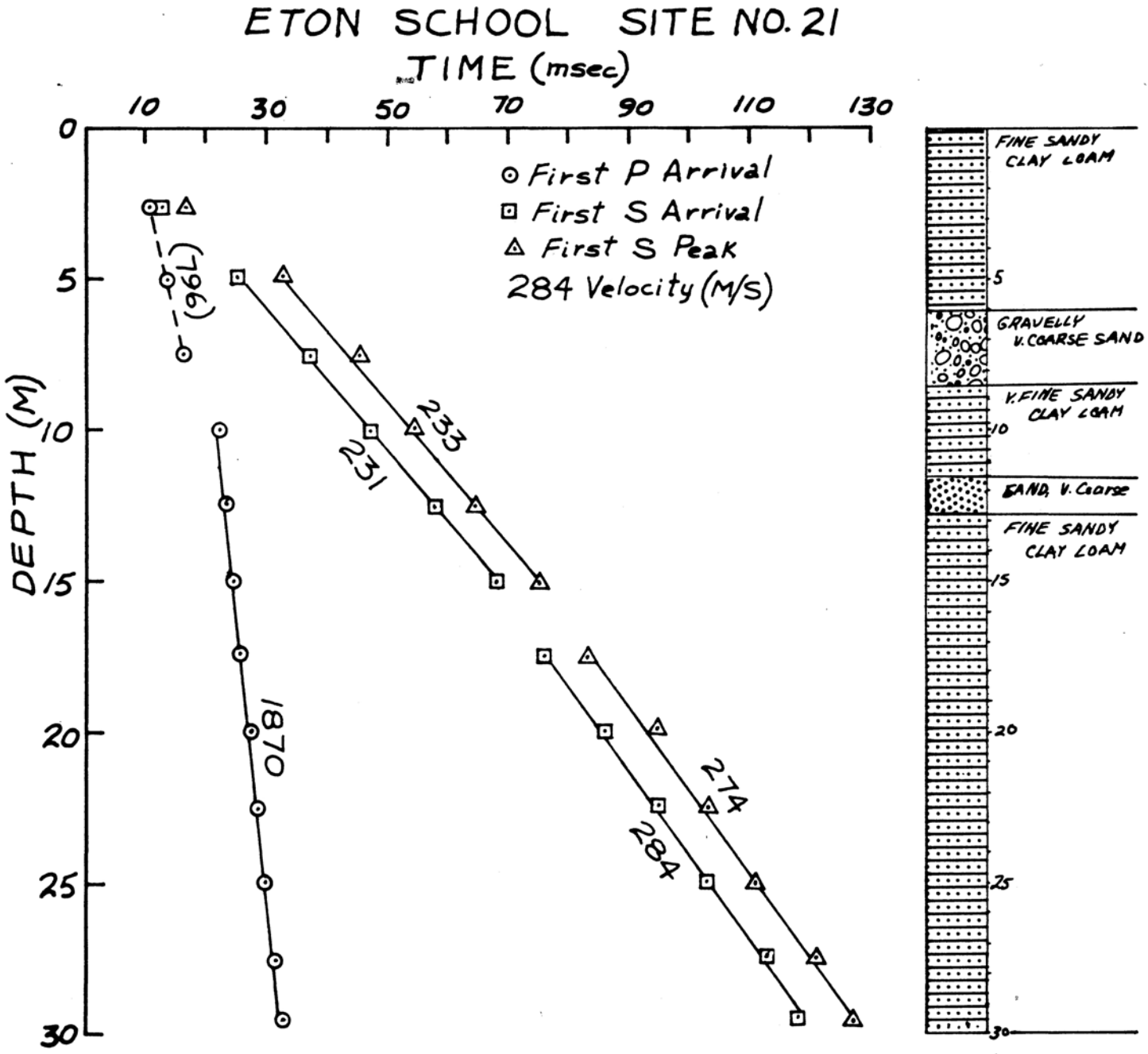

ETON SCHOOL SITE NO. 21
TIME (msec)
10
30
50
70
90
110
130
0
5
10
15
20
25
30
DEPTH (M)
First P Arrival
First S Arrival
First S Peak
284 Velocity (M/S)
(96L)
233
231
1870
274
284
FINE SANDY CLAY LOAM
GRAVELLY V. COARSE SAND
V. FINE SANDY CLAY LOAM
SAND, V. Coarse
FINE SANDY CLAY LOAM

Figure 100.

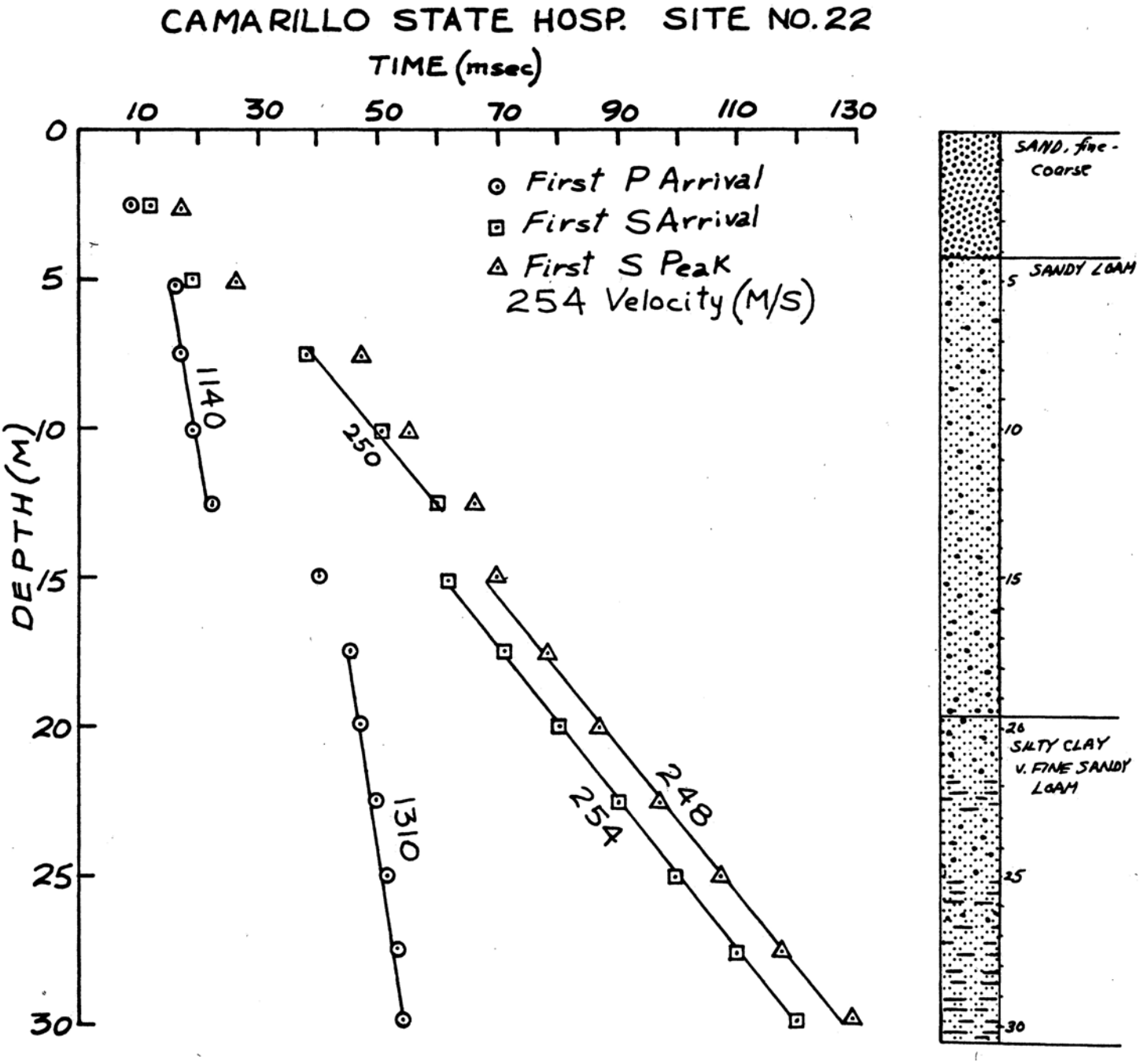

CAMARILLO STATE HOSP. SITE NO. 22
TIME (msec)
10
30
50
70
90
110
130
0
5
10
15
20
25
30
DEPTH (M)
First P Arrival
First S Arrival
First S Peak
254 Velocity (M/S)
1140
250
1310
248
254
SAND, fine - Coarse
SANDY LOAM
5
10
15
20
SILTY CLAY
V. FINE SANDY LOAM
25
30

Figure 101.

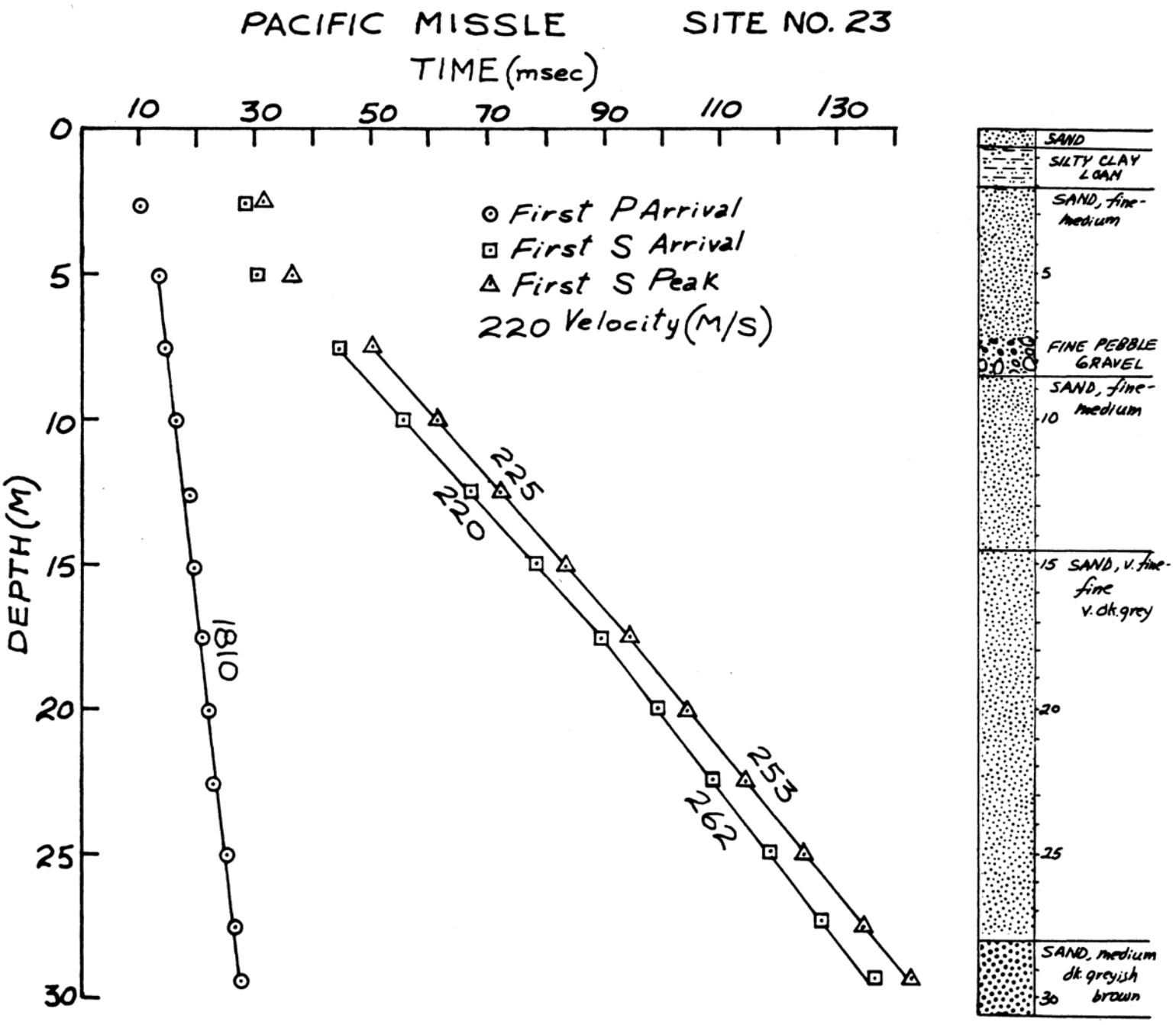

PACIFIC MISSLE
SITE NO. 23
TIME (msec)
10
30
50
70
90
110
130
0
5
10
15
20
25
30
DEPTH (M)
First P Arrival
First S Arrival
First S Peak
220 Velocity (M/S)
1810
220
225
253
262
SAND
SILTY CLAY LOAM
SAND, fine-medium
FINE PEBBLE GRAVEL
SAND, fine-medium
SAND, v. fine-fine v. dk. grey
SAND, medium dk. greyish brown

Figure 102.

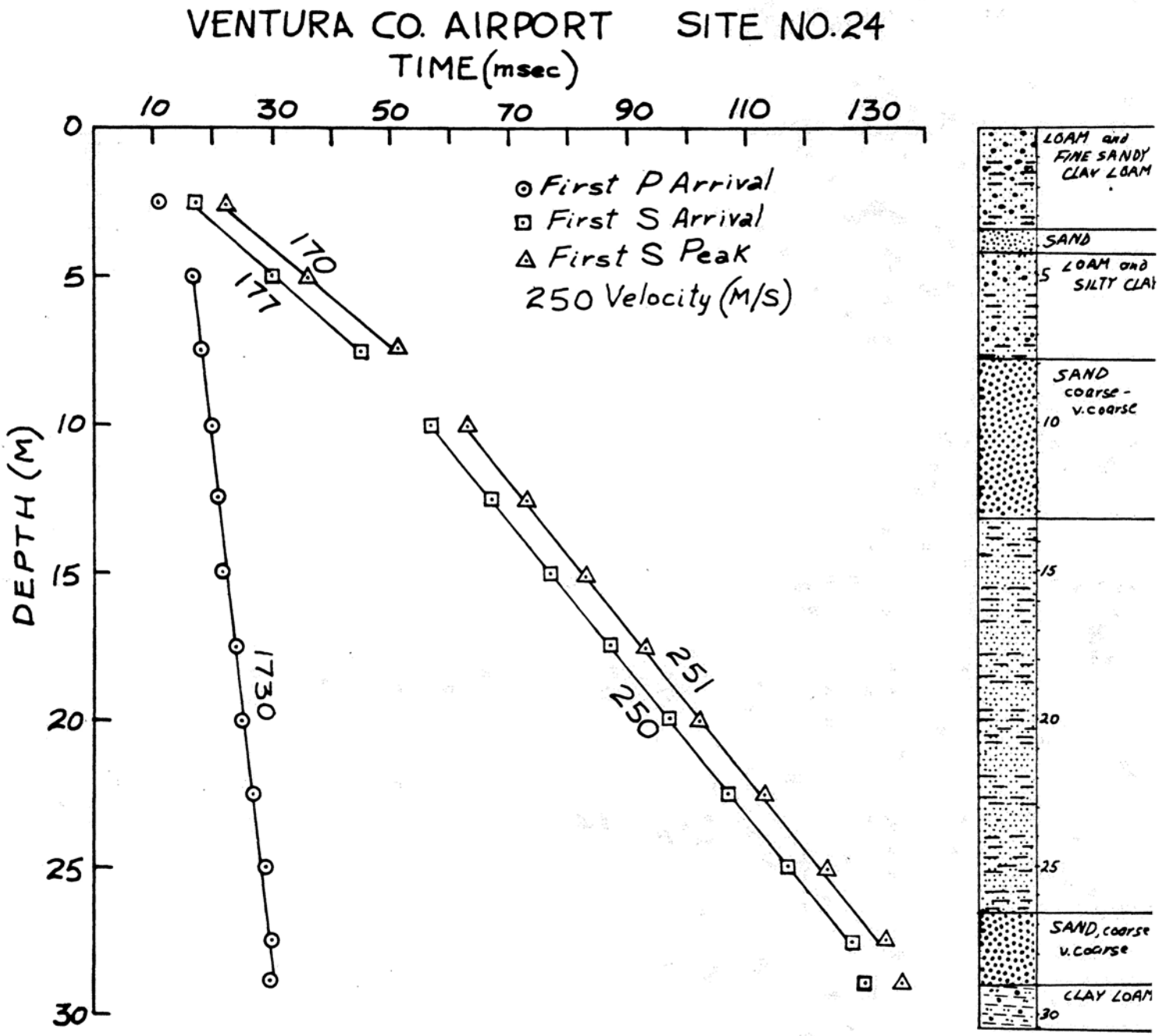

VENTURA CO. AIRPORT SITE NO.24
TIME(msec)
10
30
50
70
90
110
130
0
5
10
15
20
25
30
DEPTH (M)
First P Arrival
First S Arrival
First S Peak
250 Velocity (M/S)
170
171
1730
251
250
LOAM and FINE SANDY CLAY LOAM
SAND
LOAM and SILTY CLAY
SAND coarse - v.coarse
SAND, coarse v.coarse
CLAY LOAM

Figure 103.

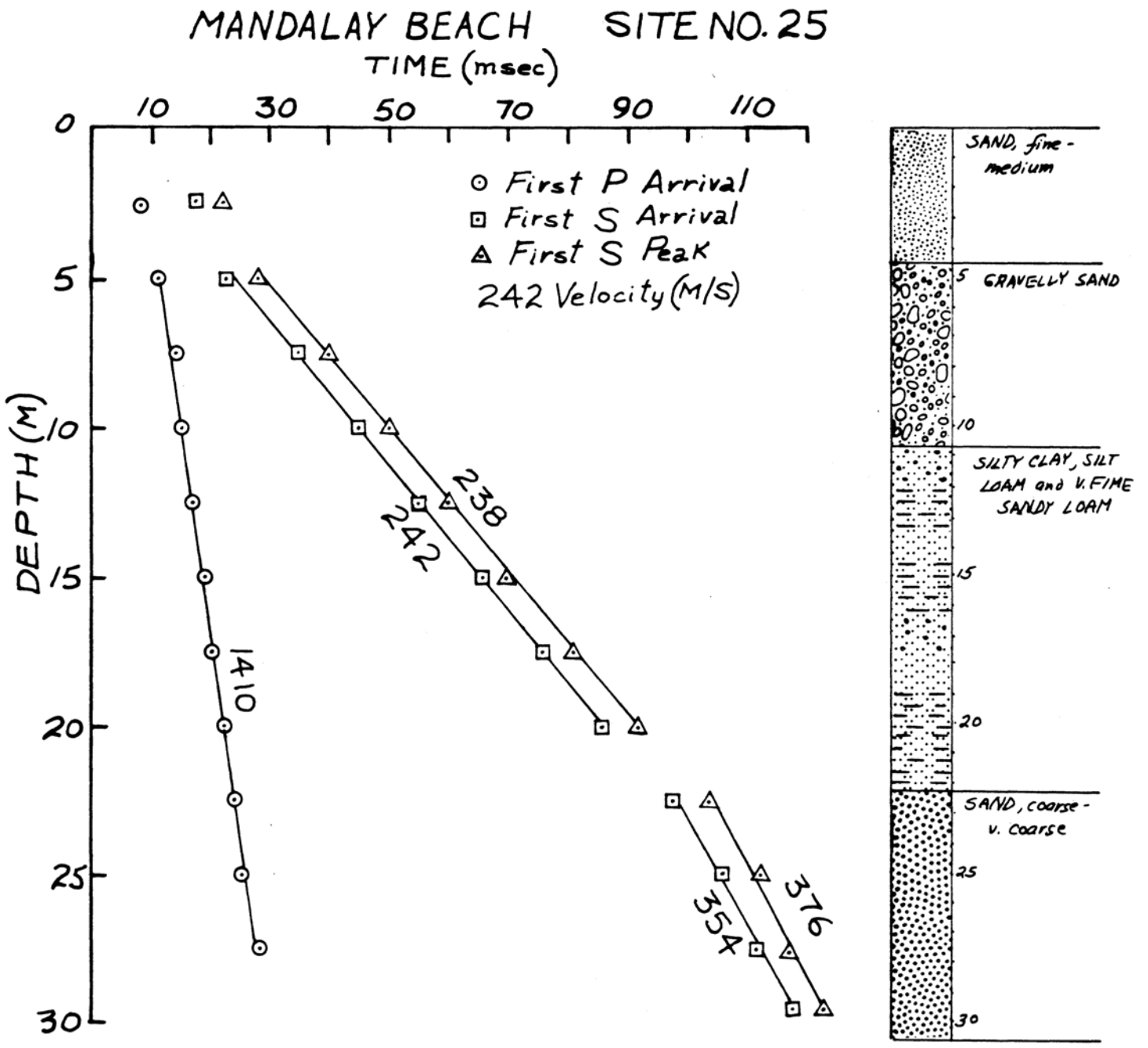

MANDALAY BEACH SITE NO. 25
TIME (msec)
10
30
50
70
90
110
0
5
10
15
20
25
30
DEPTH (M)
First P Arrival
First S Arrival
First S Peak
242 Velocity (M/S)
238
242
1410
376
354
SAND, fine - medium
GRAVELLY SAND
SILTY CLAY, SILT LOAM and V. FINE SANDY LOAM
SAND, coarse - v. coarse

Figure 104.

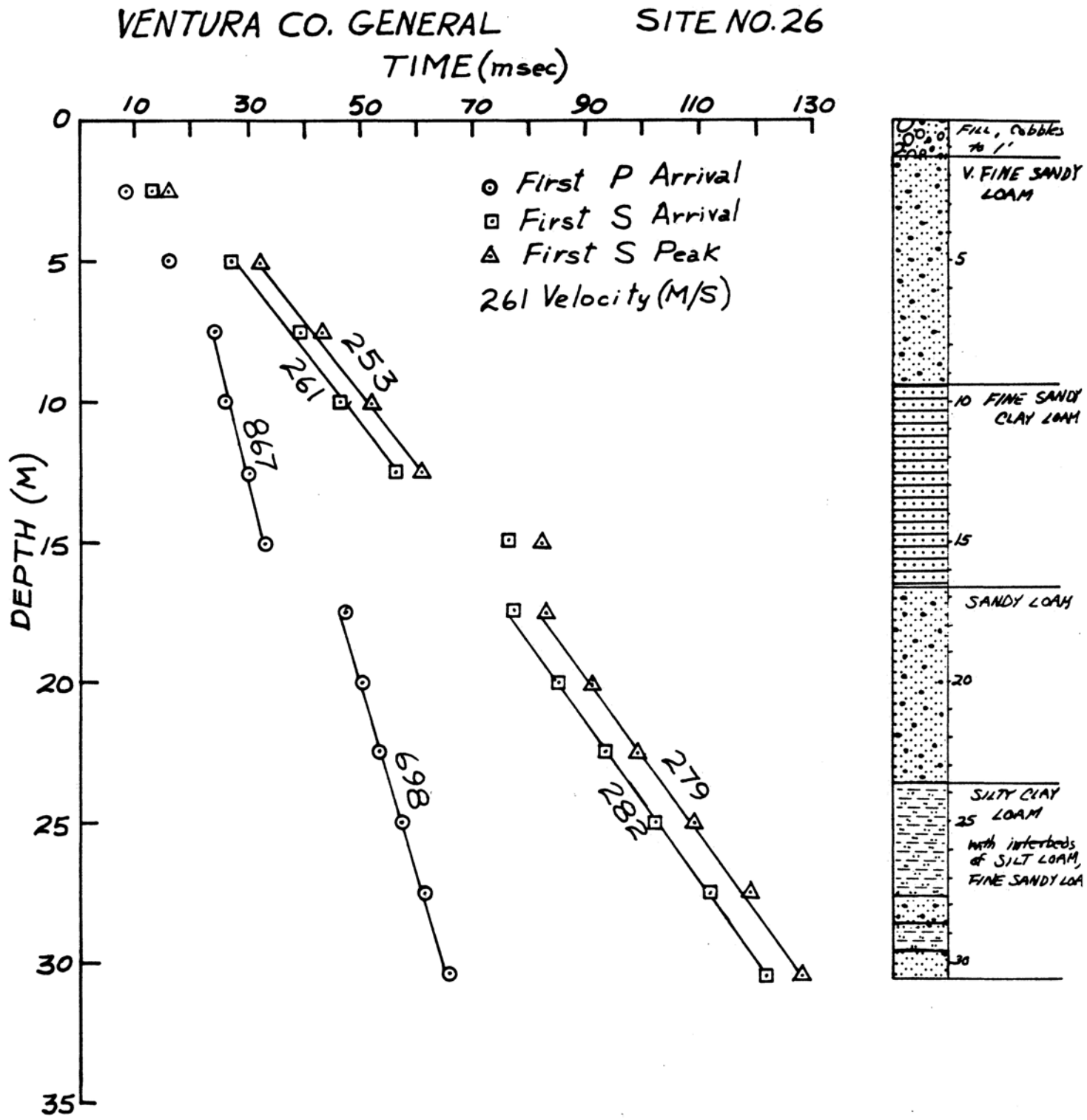

VENTURA CO. GENERAL
SITE NO. 26
TIME (msec)
10
30
50
70
90
110
130
0
5
10
15
20
25
30
35
DEPTH (M)
First P Arrival
First S Arrival
First S Peak
261 Velocity (M/S)
253
261
867
698
279
282
FILL, Cobbles to 1'
V. FINE SANDY LOAM
5
10
FINE SANDY CLAY LOAM
15
SANDY LOAM
20
SILTY CLAY LOAM
25
with interbeds of SILT LOAM, FINE SANDY LOA
30

Figure 105.

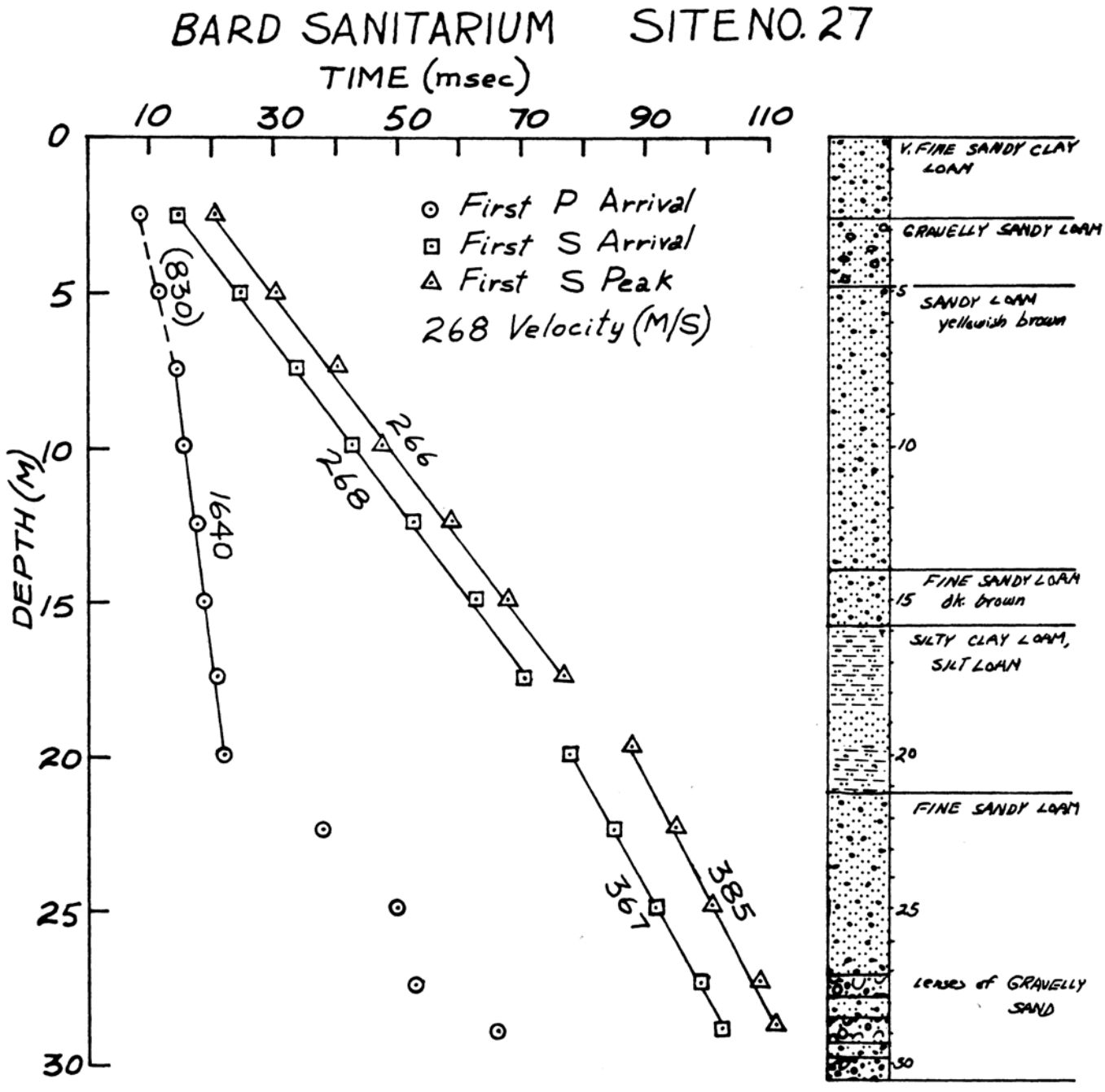

BARD SANITARIUM SITE NO. 27
TIME (msec)
10
30
50
70
90
110
0
5
10
15
20
25
30
DEPTH (M)
First P Arrival
First S Arrival
First S Peak
268 Velocity (M/S)
(830)
1640
268
266
367
385
V. FINE SANDY CLAY LOAM
GRAVELLY SANDY LOAM
SANDY LOAM yellowish brown
FINE SANDY LOAM dk. brown
SILTY CLAY LOAM, SILT LOAM
FINE SANDY LOAM
Lenses of GRAVELLY SAND

Figure 106.

TABLE 1

TRAVEL-TIMES AND AVERAGE VELOCITIES

SITE NO. 1 MAGNOLIA DATE LOGGED 7-31-78
PLANK DIST= 2.0 PLATE DIST= 2.0 AVE ORIGIN CORR= 0.002

DEPTH (M)	ORIGIN CORR (S)	FIRST S ARRIVAL (S)	CORR S TIME (S)	AVE VEL S WAVE (M/S)
2.5	0.002	0.011	0.009	291
5.0	0.002	0.020	0.019	269
7.5	0.002	0.022	0.021	352
10.0	0.002	0.030	0.029	339
12.5	0.002	0.034	0.034	372
15.0	0.002	0.041	0.041	369
17.5	0.002	0.050	0.050	352
20.0	0.002	0.055	0.055	365
22.5	0.002	0.061	0.061	370
25.0	0.002	0.067	0.067	374
27.5	0.002	0.073	0.073	377
28.0	0.002	0.074	0.074	379

DEPTH (M)	FIRST S PEAK (S)	CORR S PEAK (S)	P TIME (S)	CORR P TIME (S)	AVE VEL P WAVE (M/S)
2.5	0.015	0.012	0.006	0.005	533
5.0	0.024	0.022	0.008	0.007	673
7.5	0.027	0.026	0.012	0.012	646
10.0	0.035	0.034	0.014	0.014	728
12.5	0.042	0.041	0.022	0.022	575
15.0	0.049	0.049	0.024	0.024	630
17.5	0.056	0.056	0.025	0.025	704
20.0	0.062	0.062	0.027	0.027	744
22.5	0.067	0.067	0.028	0.028	806
25.0	0.074	0.074	0.030	0.030	835
27.5	0.080	0.080	0.031	0.031	889
28.0	0.081	0.081	0.031	0.031	905

TABLE 2

TRAVEL-TIMES AND AVERAGE VELOCITIES

SITE NO. 2 1ST LUTHERAN DATE LOGGED 8-1-78
BLANK DIST= 2.0 PLATE DIST= 2.0 AVE ORIGIN CORR= 0.002

DEPTH (M)	ORIGIN CORR (S)	FIRST S ARRIVAL (S)	CORR S TIME (S)	AVE VEL S WAVE (M/S)
2.5	0.003	0.010	0.007	333
5.0	0.002	0.018	0.016	305
7.5	0.002	0.025	0.024	315
10.0	0.002	0.032	0.031	322
12.5	0.002	0.037	0.036	345
15.0	0.003	0.042	0.041	363
17.5	0.002	0.049	0.048	362
20.0	0.003	0.056	0.055	361
22.5	0.003	0.062	0.061	366
25.0	0.002	0.068	0.067	371

DEPTH (M)	FIRST S PEAK (S)	CORR S PEAK (S)	P TIME (S)	CORR P TIME (S)	AVE VEL P WAVE (M/S)
2.5	0.014	0.011	0.006	0.005	533
5.0	0.022	0.020	0.008	0.007	673
7.5	0.031	0.030	0.010	0.010	776
10.0	0.038	0.037	0.014	0.014	726
12.5	0.045	0.044	0.023	0.023	550
15.0	0.048	0.047	0.024	0.024	630
17.5	0.055	0.054	0.026	0.026	677
20.0	0.062	0.061	0.027	0.027	744
22.5	0.068	0.067	0.029	0.029	778
25.0	0.074	0.073	0.031	0.031	809

TABLE 3

TRAVEL-TIMES AND AVERAGE VELOCITIES

SITE NO. 3 TERMINAL ISLAND DATE LOGGED 8-1-78
PLANK DIST= 2.0 PLATE DIST= 2.0 AVE ORIGIN CORR= 0.002

DEPTH (M)	ORIGIN CORR (S)	FIRST S ARRIVAL (S)	CORR S TIME (S)	AVE VEL S WAVE (M/S)
2.5	0.002	0.021	0.016	153
5.0	0.002	0.034	0.031	158
7.5	0.003	0.046	0.044	169
10.0	0.003	0.057	0.056	179
12.5	0.002	0.066	0.065	192
15.0	0.002	0.078	0.077	194
17.5	0.002	0.087	0.086	202
19.5	0.001	0.095	0.094	206

DEPTH (M)	FIRST S PEAK (S)	CORR S PEAK (S)	P TIME (S)	CORR P TIME (S)	AVE VEL P WAVE (M/S)
2.5	0.027	0.021	0.014	0.011	228
5.0	0.038	0.035	0.016	0.015	336
7.5	0.050	0.048	0.017	0.016	456
10.0	0.061	0.060	0.018	0.018	566
12.5	0.070	0.069	0.020	0.020	632
15.0	0.082	0.081	0.021	0.021	720
17.5	0.091	0.090	0.022	0.022	800
19.5	0.099	0.098	0.023	0.023	852

TABLE 4

TRAVEL-TIMES AND AVERAGE VELOCITIES

SITE NO. 4 LAKEWOOD CC DATE LOGGED 8-2-78
PLANK DIST= 2.0 PLATE DIST= 2.0 AVE ORIGIN CORR= 0.003

DEPTH (M)	ORIGIN CORR (S)	FIRST S ARRIVAL (S)	CORR S TIME (S)	AVE VEL S WAVE (M/S)
2.5	0.003	0.012	0.010	260
5.0	0.003	0.021	0.020	252
7.5	0.002	0.026	0.025	295
10.0	0.002	0.033	0.033	306
12.5	0.003	0.040	0.040	314
15.0	0.003	0.046	0.046	326
17.8	0.003	0.054	0.054	329

DEPTH (M)	FIRST S PEAK (S)	CORR S PEAK (S)	P TIME (S)	CORR P TIME (S)	AVE VEL P WAVE (M/S)
2.5	0.019	0.015	0.009	0.007	355
5.0	0.027	0.025	0.013	0.012	414
7.5	0.032	0.031	0.018	0.017	431
10.0	0.039	0.039	0.021	0.021	485
12.5	0.047	0.047	0.024	0.024	527
15.0	0.052	0.052	0.027	0.027	560
17.8	0.060	0.060	0.029	0.029	617

TABLE 5

TRAVEL-TIMES AND AVERAGE VELOCITIES

SITE NO. 5 FS 105 DATE LOGGED 8-2-78
PLANK DIST= 2.0 PLATE DIST= 2.0 AVE ORIGIN CORR= 0.002

DEPTH (M)	ORIGIN CORR (S)	FIRST S ARRIVAL (S)	CORR S TIME (S)	AVE VEL S WAVE (M/S)
2.5	0.002	0.021	0.016	152
5.0	0.002	0.033	0.031	163
7.5	0.002	0.045	0.043	172
10.0	0.002	0.055	0.054	185
12.5	0.002	0.065	0.064	194
15.0	0.002	0.074	0.073	204
17.5	0.002	0.081	0.080	217
20.0	0.002	0.090	0.090	223
22.5	0.002	0.098	0.098	230
25.0	0.002	0.106	0.106	236
27.5	0.002	0.114	0.114	241
27.8	0.002	0.115	0.115	242

DEPTH (M)	FIRST S PEAK (S)	CORR S PEAK (S)	P TIME (S)	CORR P TIME (S)	AVE VEL P WAVE (M/S)
2.5	0.028	0.022	0.014	0.011	228
5.0	0.040	0.037	0.020	0.019	269
7.5	0.051	0.049	0.024	0.023	323
10.0	0.062	0.061	0.028	0.027	364
12.5	0.071	0.070	0.032	0.032	395
15.0	0.080	0.079	0.037	0.037	408
17.5	0.088	0.087	0.042	0.042	419
20.0	0.096	0.096	0.047	0.047	427
22.5	0.104	0.104	0.050	0.050	451
25.0	0.112	0.112	0.053	0.053	473
27.5	0.121	0.121	0.055	0.055	501
27.8	0.122	0.122	0.056	0.056	497

TABLE 6

TRAVEL-TIMES AND AVERAGE VELOCITIES

SITE NO. 6 COMPTON AIRPORT DATE LOGGED 8-3-78
PLANK DIST= 2.0 PLATE DIST= 2.0 AVE ORIGIN CORR= 0.002

DEPTH (M)	ORIGIN CORR (S)	FIRST S ARRIVAL (S)	CORR S TIME (S)	AVE VEL S WAVE (M/S)
2.5	0.003	0.013	0.010	254
5.0	0.003	0.021	0.019	261
7.5	0.003	0.030	0.029	262
10.0	0.002	0.044	0.043	234
12.5	0.002	0.047	0.046	271
15.0	0.002	0.056	0.055	272
17.5	0.002	0.059	0.058	300

DEPTH (M)	FIRST S PEAK (S)	CORR S PEAK (S)	P TIME (S)	CORR P TIME (S)	AVE VEL P WAVE (M/S)
2.5	0.018	0.014	0.008	0.006	400
5.0	0.026	0.024	0.010	0.009	538
7.5	0.039	0.037	0.011	0.011	705
10.0	0.053	0.052	0.013	0.013	784
12.5	0.053	0.052	0.014	0.014	904
15.0	0.062	0.061	0.017	0.017	890
17.5	0.066	0.065	0.030	0.030	587

TABLE 7

TRAVEL-TIMES AND AVERAGE VELOCITIES

SITE NO. 7 COMPTON CIVIC CENTER DATE LOGGED 8-3-78
BLANK DIST= 2.0 PLATE DIST= 2.0 AVE ORIGIN CORR= 0.002

DEPTH (M)	ORIGIN CORR (S)	FIRST S ARRIVAL (S)	CORR S TIME (S)	AVE VEL S WAVE (M/S)
2.5	0.002	0.021	0.016	153
5.0	0.002	0.031	0.029	174
7.5	0.002	0.043	0.041	180
10.0	0.002	0.053	0.052	192
12.5	0.002	0.061	0.060	207
15.0	0.002	0.068	0.067	222
17.5	0.002	0.075	0.074	235
20.0	0.002	0.082	0.082	245
22.5	0.002	0.089	0.089	254
25.0	0.002	0.096	0.096	261
27.5	0.003	0.103	0.103	267
28.7	0.002	0.106	0.106	271

DEPTH (M)	FIRST S PEAK (S)	CORR S PEAK (S)	P TIME (S)	CORR P TIME (S)	AVE VEL P WAVE (M/S)
2.5	0.024	0.019	0.011	0.009	291
5.0	0.034	0.031	0.018	0.017	299
7.5	0.047	0.045	0.023	0.022	337
10.0	0.058	0.057	0.027	0.026	377
12.5	0.066	0.065	0.030	0.030	421
15.0	0.073	0.072	0.034	0.034	445
17.5	0.080	0.079	0.038	0.038	463
20.0	0.087	0.086	0.040	0.040	502
22.5	0.095	0.095	0.041	0.041	550
25.0	0.103	0.103	0.042	0.042	597
27.5	0.110	0.110	0.044	0.044	626
28.7	0.112	0.112	0.045	0.045	639

TABLE 8

TRAVEL-TIMES AND AVERAGE VELOCITIES

SITE NO. 8 HOLIDAY INN DATE LOGGED 8-4-78
PLANK DIST= 2.0 PLATE DIST= 2.0 AVE ORIGIN CORR= 0.003

DEPTH (M)	ORIGIN CORR (S)	FIRST S ARRIVAL (S)	CORR S TIME (S)	AVE VEL S WAVE (M/S)
2.5	0.003	0.014	0.011	235
5.0	0.003	0.025	0.023	219
7.5	0.004	0.033	0.031	238
10.0	0.003	0.040	0.039	257
12.5	0.003	0.047	0.046	271
15.0	0.003	0.054	0.053	282
17.5	0.004	0.059	0.058	300
20.0	0.004	0.065	0.064	311
22.5	0.004	0.069	0.068	329
25.0	0.003	0.073	0.072	345
27.5	0.003	0.079	0.078	350
28.4	0.004	0.080	0.079	357

DEPTH (M)	FIRST S PEAK (S)	CORR S PEAK (S)	P TIME (S)	CORR P TIME (S)	AVE VEL P WAVE (M/S)
2.5	0.020	0.015	0.011	0.009	291
5.0	0.033	0.030	0.016	0.015	336
7.5	0.036	0.036	0.020	0.019	388
10.0	0.045	0.044	0.024	0.024	424
12.5	0.052	0.051	0.028	0.028	452
15.0	0.059	0.058	0.032	0.032	472
17.5	0.064	0.063	0.035	0.035	503
20.0	0.071	0.070	0.038	0.038	528
22.5	0.075	0.074	0.041	0.041	550
25.0	0.079	0.078	0.044	0.044	569
27.5	0.085	0.084	0.048	0.048	574
28.4	0.086	0.085	0.048	0.048	593

TABLE 9

TRAVEL-TIMES AND AVERAGE VELOCITIES

SITE NO. 9 VETS HOSPITAL DATE LOGGED 9-19-78
PLANK DIST= 2.0 PLATE DIST= 2.0 AVE ORIGIN CORR= 0.003

DEPTH (M)	ORIGIN CORR (S)	FIRST S ARRIVAL (S)	CORR S TIME (S)	AVE VEL S WAVE (M/S)
2.5	0.003	0.014	0.011	225
5.0	0.003	0.017	0.016	313
7.5	0.003	0.025	0.024	306
10.0	0.003	0.032	0.032	317
12.5	0.003	0.040	0.040	315
15.0	0.003	0.048	0.048	314
17.5	0.003	0.053	0.053	331
20.0	0.003	0.059	0.059	339
22.5	0.003	0.065	0.065	346
25.0	0.002	0.073	0.073	342
27.5	0.003	0.077	0.077	357
28.9	0.002	0.080	0.080	361

DEPTH (M)	FIRST S PEAK (S)	CORR S PEAK (S)	P TIME (S)	CORR P TIME (S)	AVE VEL P WAVE (M/S)
2.5	0.018	0.014	0.009	0.007	355
5.0	0.022	0.021	0.012	0.011	448
7.5	0.030	0.029	0.016	0.015	485
10.0	0.037	0.036	0.020	0.020	509
12.5	0.045	0.045	0.025	0.025	506
15.0	0.054	0.054	0.028	0.028	540
17.5	0.058	0.058	0.032	0.032	550
20.0	0.065	0.065	0.035	0.035	574
22.5	0.071	0.071	0.038	0.038	594
25.0	0.079	0.079	0.042	0.042	597
27.5	0.083	0.083	0.045	0.045	612
28.9	0.086	0.086			

TABLE 10

TRAVEL-TIMES AND AVERAGE VELOCITIES

SITE NO. 10 NEWPORT BEACH SBDP 2 DATE LOGGED 9-20-78
PLANK DIST= 2.0 PLATE DIST= 2.0 AVE ORIGIN CORR= 0.004

DEPTH (M)	ORIGIN CORR (S)	FIRST S ARRIVAL (S)	CORR S TIME (S)	AVE VEL S WAVE (M/S)
2.5	0.003	0.019	0.015	166
5.0	0.003	0.042	0.039	127
7.5	0.004	0.052	0.050	148
9.2	0.004	0.066	0.065	142
11.3	0.004	0.071	0.070	161
13.5	0.004	0.077	0.076	176
16.0	0.004	0.088	0.088	182
18.5	0.004	0.099	0.099	187
21.0	0.004	0.108	0.108	194
23.5	0.004	0.119	0.119	197
26.0	0.004	0.129	0.129	201
28.5	0.004	0.140	0.140	203
31.0	0.004	0.151	0.151	205
33.5	0.004	0.157	0.157	213
36.0	0.004	0.167	0.167	215
38.5	0.003	0.175	0.175	220
41.0	0.004	0.182	0.182	225
43.5	0.003	0.188	0.188	231
46.0	0.004	0.196	0.196	234

DEPTH (M)	FIRST S PEAK (S)	CORR S PEAK (S)	P TIME (S)	CORR P TIME (S)	AVE VEL P WAVE (M/S)
2.5	0.024	0.019	0.009	0.007	355
5.0	0.047	0.044	0.016	0.015	336
7.5	0.057	0.055	0.020	0.019	386
9.2	0.072	0.071	0.021	0.021	448
11.3	0.076	0.075	0.022	0.022	521
13.5	0.082	0.081	0.024	0.024	568
16.0	0.094	0.093	0.031	0.031	520
18.5	0.105	0.105	0.032	0.032	581
21.0	0.114	0.114	0.033	0.033	639
23.5	0.125	0.125	0.035	0.035	673
26.0	0.135	0.135			
28.5	0.146	0.146			
31.0	0.157	0.157			
33.5	0.163	0.163			
36.0	0.173	0.173			
38.5	0.181	0.181			
41.0	0.188	0.188			
43.5	0.194	0.194			
46.0	0.202	0.202			

TABLE 11

TRAVEL-TIMES AND AVERAGE VELOCITIES

SITE NO. 11 RAIELLA SCHOOL DATE LOGGED 9-21-78
PLANK DIST= 2.0 PLATE DIST= 2.0 AVE ORIGIN CORR= 0.004

DEPTH (M)	ORIGIN CORR (S)	FIRST S ARRIVAL (S)	CORR S TIME (S)	AVE VEL S WAVE (M/S)
2.5	0.004	0.014	0.011	228
5.0	0.004	0.020	0.019	269
7.5	0.004	0.024	0.023	323
10.0	0.004	0.027	0.026	377
12.5	0.003	0.029	0.029	436
15.0	0.005	0.032	0.032	472
17.5	0.005	0.035	0.035	503
19.7	0.003	0.037	0.037	535

DEPTH (M)	FIRST S PEAK (S)	CORR S PEAK (S)	P TIME (S)	CORR P TIME (S)	AVE VEL P WAVE (M/S)
2.5	0.021	0.016	0.009	0.007	355
5.0	0.024	0.022	0.010	0.009	538
7.5	0.030	0.029	0.011	0.011	705
10.0	0.034	0.033	0.013	0.013	784
12.5	0.034	0.034	0.015	0.015	843
15.0	0.039	0.039	0.017	0.017	890
17.5	0.042	0.042	0.025	0.025	704
19.7	0.044	0.044	0.027	0.027	733

TABLE 12

TRAVEL-TIMES AND AVERAGE VELOCITIES

SITE NO. 12 ST. JUDES HOSPITAL DATE LOGGED 9-21-78
PLANK DIST= 2.0 PLATE DIST= 2.0 AVE ORIGIN CORR= 0.003

DEPTH (M)	ORIGIN CORR (S)	FIRST S ARRIVAL (S)	CORR S TIME (S)	AVE VEL S WAVE (M/S)
2.5	0.003	0.009	0.007	359
5.0	0.003	0.016	0.015	338
7.5	0.003	0.022	0.021	354
10.0	0.003	0.036	0.035	283
12.5	0.003	0.043	0.042	294
15.0	0.003	0.050	0.049	303
17.5	0.003	0.059	0.059	298
20.0	0.003	0.066	0.066	304
22.5	0.004	0.073	0.073	309
25.0	0.003	0.076	0.076	330
27.5	0.003	0.080	0.080	345
28.4	0.003	0.083	0.083	343

DEPTH (M)	FIRST S PEAK (S)	CORR S PEAK (S)	P TIME (S)	CORR P TIME (S)	AVE VEL P WAVE (M/S)
2.5	0.014	0.011	0.007	0.005	457
5.0	0.021	0.019	0.010	0.009	538
7.5	0.028	0.027	0.014	0.014	554
10.0	0.042	0.041	0.017	0.017	599
12.5	0.049	0.048	0.020	0.020	632
15.0	0.056	0.055	0.024	0.024	630
17.5	0.065	0.064	0.027	0.027	652
20.0	0.070	0.070	0.032	0.032	628
22.5	0.079	0.079	0.036	0.036	627
25.0	0.082	0.082	0.039	0.039	643
27.5	0.086	0.086	0.043	0.043	641
28.4	0.088	0.088	0.044	0.044	647

TABLE 13

TRAVEL-TIMES AND AVERAGE VELOCITIES

SITE NO. 13 HOWLAND HEIGHTS DATE LOGGED 9-22-78
PLANK DIST= 2.0 PLATE DIST= 2.0 AVE ORIGIN CORR= 0.006

DEPTH (M)	ORIGIN CORR (S)	FIRST S ARRIVAL (S)	CORR S TIME (S)	AVE VEL S WAVE (M/S)
2.5	0.006	0.019	0.015	169
5.0	0.006	0.023	0.021	234
7.5	0.006	0.026	0.025	299
10.0	0.007	0.037	0.036	276
12.5	0.006	0.040	0.039	317
15.0	0.006	0.050	0.049	303
17.5	0.006	0.053	0.053	332
20.0	0.006	0.065	0.065	309
22.5	0.006	0.072	0.072	314
25.0	0.006	0.079	0.079	317
27.5	0.006	0.086	0.086	320
29.9	0.006	0.088	0.088	340

DEPTH (M)	FIRST S PEAK (S)	CORR S PEAK (S)	P TIME (S)	CORR P TIME (S)	AVE VEL P WAVE (M/S)
2.5	0.029	0.023	0.012	0.009	266
5.0	0.031	0.029	0.013	0.012	414
7.5	0.034	0.033	0.014	0.014	554
10.0	0.045	0.044	0.015	0.015	679
12.5	0.046	0.047	0.016	0.016	791
15.0	0.056	0.057	0.018	0.018	840
17.5	0.064	0.064	0.019	0.019	927
20.0	0.074	0.074	0.021	0.021	957
22.5	0.081	0.081	0.023	0.023	982
25.0	0.087	0.087	0.025	0.025	1000
27.5	0.094	0.094	0.027	0.027	1020
29.9	0.096	0.096	0.028	0.028	1070

TABLE 14

TRAVEL-TIMES AND AVERAGE VELOCITIES

SITE NO. 14 EL MONTE COURT HOUSE DATE LOGGED 9-22-78
PLANK DIST= 2.0 PLATE DIST= 2.0 AVE ORIGIN CORR= 0.003

DEPTH (M)	ORIGIN CORR (S)	FIRST S ARRIVAL (S)	CORR S TIME (S)	AVE VEL S WAVE (M/S)
2.5	0.003	0.016	0.012	202
5.0	0.003	0.028	0.026	193
7.4	0.003	0.038	0.037	202
10.0	0.004	0.048	0.047	213
12.5	0.003	0.057	0.056	222
15.0	0.003	0.065	0.064	233
17.5	0.004	0.070	0.069	252
20.0	0.003	0.076	0.075	265
22.5	0.003	0.086	0.085	263
25.0	0.003	0.091	0.091	276
27.5	0.003	0.098	0.098	281
28.2	0.003	0.098	0.098	288

DEPTH (M)	FIRST S PEAK (S)	CORR S PEAK (S)	P TIME (S)	CORR P TIME (S)	AVE VEL P WAVE (M/S)
2.5	0.021	0.016	0.014	0.011	228
5.0	0.034	0.031	0.017	0.016	316
7.4	0.043	0.041	0.020	0.019	383
10.0	0.053	0.052	0.021	0.021	485
12.5	0.062	0.061	0.023	0.023	550
15.0	0.070	0.069	0.038	0.038	398
17.5	0.074	0.073	0.040	0.040	440
20.0	0.082	0.081	0.047	0.047	427
22.5	0.092	0.091	0.049	0.049	460
25.0	0.097	0.097	0.051	0.051	491
27.5	0.104	0.104	0.053	0.053	520
28.2	0.104	0.104	0.054	0.054	523

TABLE 15

TRAVEL-TIMES AND AVERAGE VELOCITIES

SITE NO. 15 VERDUGO PARK DATE LOGGED 9-27-78
PLANK DIST= 2.0 PLATE DIST= 2.0 AVE ORIGIN CORR= 0.003

DEPTH (M)	ORIGIN CORR (S)	FIRST S ARRIVAL (S)	CORR S TIME (S)	AVE VEL S WAVE (M/S)
2.5	0.003	0.017	0.013	189
5.0	0.003	0.027	0.025	200
7.5	0.003	0.037	0.036	210
10.0	0.003	0.042	0.041	243
12.5	0.003	0.047	0.046	269
15.0	0.003	0.049	0.048	309
17.5	0.003	0.051	0.051	346
20.0	0.004	0.054	0.054	372
22.5	0.003	0.056	0.056	404
25.0	0.003	0.059	0.059	425

DEPTH (M)	FIRST S PEAK (S)	CORR S PEAK (S)	P TIME (S)	CORR P TIME (S)	AVE VEL P WAVE (M/S)
2.5	0.024	0.019	0.010	0.008	320
5.0	0.033	0.031	0.012	0.011	448
7.5	0.043	0.041	0.015	0.014	517
10.0	0.046	0.047	0.016	0.016	637
12.5	0.055	0.052	0.016	0.016	791
15.0	0.056	0.055	0.017	0.017	890
17.5	0.057	0.057	0.018	0.018	978
20.0	0.060	0.060	0.019	0.019	1060
22.5	0.062	0.062	0.020	0.020	1130
25.0	0.065	0.065	0.021	0.021	1190

TABLE 16

TRAVEL-TIMES AND AVERAGE VELOCITIES

SITE NO. 16 20TH CENTURY DATE LOGGED 9-28-78
PLANK DIST= 2.0 PLATE DIST= 2.0 AVE ORIGIN CORR= 0.003

DEPTH (M)	ORIGIN CORR (S)	FIRST S ARRIVAL (S)	CORR S TIME (S)	AVE VEL S WAVE (M/S)
2.5	0.003	0.021	0.016	154
5.0	0.003	0.036	0.033	150
7.5	0.004	0.036	0.035	217
10.0	0.003	0.041	0.040	250
12.5	0.003	0.047	0.046	270
15.0	0.004	0.052	0.051	292
17.5	0.003	0.057	0.056	310
20.0	0.003	0.062	0.061	325
22.5	0.003	0.067	0.066	338
25.0	0.003	0.072	0.072	349
27.5	0.003	0.077	0.077	359
28.8	0.004	0.080	0.080	361

DEPTH (M)	FIRST S PEAK (S)	CORR S PEAK (S)	P TIME (S)	CORR P TIME (S)	AVE VEL P WAVE (M/S)
2.5	0.025	0.019	0.009	0.007	355
5.0	0.042	0.039	0.010	0.009	538
7.5	0.042	0.040	0.012	0.012	646
10.0	0.046	0.045	0.020	0.020	509
12.5	0.053	0.052	0.023	0.023	550
15.0	0.056	0.057	0.027	0.027	560
17.5	0.061	0.060	0.031	0.031	568
20.0	0.068	0.067	0.036	0.036	558
22.5	0.073	0.072	0.039	0.039	579
25.0	0.078	0.078	0.043	0.043	583
27.5	0.082	0.082	0.046	0.046	599
28.8	0.086	0.086	0.047	0.047	614

TABLE 17

TRAVEL-TIMES AND AVERAGE VELOCITIES

SITE NO. 17 UPPER VAN NORMAN DAM DATE LOGGED 9-25-78
PLANK DIST= 2.0 PLATE DIST= 2.0 AVE ORIGIN CORR= 0.003

DEPTH (M)	ORIGIN CORR (S)	FIRST S ARRIVAL (S)	CORR S TIME (S)	AVE VEL S WAVE (M/S)
2.5	0.003	0.013	0.010	248
5.0	0.003	0.023	0.021	235
7.5	0.003	0.034	0.033	228
10.0	0.004	0.046	0.045	222
12.5	0.003	0.054	0.053	234
15.0	0.003	0.064	0.063	236
17.5	0.003	0.072	0.071	244
20.0	0.003	0.080	0.080	251
22.5	0.003	0.086	0.086	262
25.0	0.003	0.093	0.093	269
26.3	0.003	0.096	0.096	275

DEPTH (M)	FIRST S PEAK (S)	CORR S PEAK (S)	P TIME (S)	CORR P TIME (S)	AVE VEL P WAVE (M/S)
2.5	0.020	0.016	0.010	0.008	320
5.0	0.029	0.027	0.015	0.014	359
7.5	0.040	0.039	0.019	0.018	408
10.0	0.051	0.050	0.021	0.021	485
12.5	0.059	0.056	0.022	0.022	575
15.0	0.069	0.068	0.024	0.024	630
17.5	0.077	0.076	0.025	0.025	704
20.0	0.085	0.084	0.026	0.026	773
22.5	0.091	0.091	0.027	0.027	836
25.0	0.096	0.098	0.028	0.028	895
26.3	0.101	0.101	0.029	0.029	909

TABLE 18

TRAVEL-TIMES AND AVERAGE VELOCITIES

SITE NO. 18 PACOIMA MEMORIAL HOSP. DATE LOGGED 9-26-78
PLANK DIST= 2.0 PLATE DIST= 2.0 AVE ORIGIN CORR= 0.005

DEPTH (M)	ORIGIN CORR (S)	FIRST S ARRIVAL (S)	CORR S TIME (S)	AVE VEL S WAVE (M/S)
2.5	0.006	0.030	0.023	107
5.0	0.007	0.039	0.036	139
7.5	0.006	0.050	0.048	156
10.0	0.005	0.057	0.056	179
12.5	0.006	0.064	0.063	198
15.0	0.006	0.071	0.070	214
17.5	0.004	0.077	0.076	229
20.0	0.005	0.081	0.080	249
22.5	0.005	0.086	0.085	263
25.0	0.005	0.091	0.090	276
27.5	0.005	0.095	0.094	291
29.7	0.004	0.099	0.098	301

DEPTH (M)	FIRST S PEAK (S)	CORR S PEAK (S)	P TIME (S)	CORR P TIME (S)	AVE VEL P WAVE (M/S)
2.5	0.053	0.041	0.013	0.010	246
5.0	0.061	0.056	0.014	0.013	384
7.5	0.072	0.069	0.016	0.015	485
10.0	0.076	0.076	0.018	0.018	566
12.5	0.083	0.082	0.018	0.018	703
15.0	0.091	0.090	0.019	0.019	796
17.5	0.097	0.096	0.021	0.021	838
20.0	0.102	0.101	0.023	0.023	873
22.5	0.105	0.104	0.025	0.025	903
25.0	0.105	0.108	0.027	0.027	928
27.5	0.114	0.113	0.055	0.055	501
29.7	0.117	0.116	0.058	0.058	513

TABLE 19

TRAVEL-TIMES AND AVERAGE VELOCITIES

SITE NO. 19 SYLMAR H.S. DATE LOGGED 9-26-78
PLANK DIST= 2.0 PLATE DIST= 2.0 AVE ORIGIN CORR= 0.005

DEPTH (M)	ORIGIN Corr (S)	FIRST S ARRIVAL (S)	CORR S TIME (S)	AVE VEL S WAVE (M/S)
2.5	0.005	0.018	0.014	177
5.0	0.005	0.024	0.022	223
7.5	0.004	0.031	0.030	249
10.0	0.004	0.039	0.038	260
12.5	0.005	0.041	0.041	308
15.0	0.005	0.046	0.046	328
17.5	0.005	0.052	0.052	336
20.0	0.005	0.056	0.056	358
22.5	0.005	0.061	0.061	369
25.0	0.005	0.065	0.065	385
27.5	0.006	0.071	0.071	387
29.0	0.005	0.075	0.075	387

DEPTH (M)	FIRST S PEAK (S)	CORR S PEAK (S)	P TIME (S)	CORR P TIME (S)	AVE VEL P WAVE (M/S)
2.5	0.024	0.019	0.009	0.007	355
5.0	0.029	0.027	0.014	0.013	384
7.5	0.036	0.035	0.019	0.018	408
10.0	0.044	0.043	0.022	0.022	463
12.5	0.046	0.046	0.027	0.027	468
15.0	0.050	0.050	0.029	0.029	521
17.5	0.057	0.057	0.032	0.032	550
20.0	0.061	0.061	0.035	0.035	574
22.5	0.066	0.066	0.038	0.038	594
25.0	0.070	0.070	0.041	0.041	611
27.5	0.076	0.076	0.045	0.045	612
29.0	0.080	0.080	0.046	0.046	631

TABLE 20

TRAVEL-TIMES AND AVERAGE VELOCITIES

SITE NO. 20 MISSION HILLS P.C. DATE LOGGED 9-27-78
PLANK DIST= 2.0 PLATE DIST= 2.0 AVE ORIGIN CORR= 0.005

DEPTH (M)	ORIGIN CORR (S)	FIRST S ARRIVAL (S)	CORR S TIME (S)	AVE VEL S WAVE (M/S)
2.5	0.005	0.018	0.014	177
5.0	0.005	0.021	0.019	256
7.5	0.005	0.027	0.026	287
10.0	0.005	0.033	0.032	309
12.5	0.005	0.038	0.038	333
15.0	0.005	0.044	0.044	343
17.5	0.005	0.049	0.049	359
20.0	0.005	0.054	0.054	372
22.5	0.005	0.058	0.058	389
25.0	0.005	0.062	0.062	404
27.5	0.005	0.066	0.066	417
29.3	0.005	0.068	0.068	431

DEPTH (M)	FIRST S PEAK (S)	CORR S PEAK (S)	P TIME (S)	CORR P TIME (S)	AVE VEL P WAVE (M/S)
2.5	0.024	0.019	0.014	0.011	228
5.0	0.028	0.024	0.015	0.014	359
7.5	0.032	0.031	0.019	0.018	408
10.0	0.038	0.037	0.023	0.023	443
12.5	0.043	0.042	0.027	0.027	468
15.0	0.049	0.049	0.030	0.030	504
17.5	0.054	0.054	0.034	0.034	518
20.0	0.059	0.059	0.038	0.038	528
22.5	0.063	0.063	0.041	0.041	550
25.0	0.067	0.067	0.044	0.044	569
27.5	0.071	0.071	0.047	0.047	586
29.3	0.073	0.073	0.049	0.049	599

TABLE 21

TRAVEL-TIMES AND AVERAGE VELOCITIES

SITE NO. 21 ETON SCHOOL DATE LOGGED 9-28-78
PLANK DIST= 2.0 PLATE DIST= 2.0 AVE ORIGIN CORR= 0.006

DEPTH (M)	ORIGIN CORR (S)	FIRST S ARRIVAL (S)	CORR S TIME (S)	AVE VEL S WAVE (M/S)
2.5	0.006	0.015	0.012	212
5.0	0.005	0.027	0.025	198
7.5	0.006	0.038	0.037	203
10.0	0.006	0.048	0.047	212
12.5	0.005	0.059	0.058	214
15.0	0.006	0.069	0.068	219
17.5	0.007	0.076	0.076	231
20.0	0.006	0.086	0.086	233
22.5	0.006	0.095	0.095	237
25.0	0.006	0.103	0.103	243
27.5	0.006	0.113	0.113	243
29.6	0.006	0.118	0.118	251

DEPTH (M)	FIRST S PEAK (S)	CORR S PEAK (S)	P TIME (S)	CORR P TIME (S)	AVE VEL P WAVE (M/S)
2.5	0.020	0.016	0.013	0.010	246
5.0	0.034	0.032	0.014	0.013	384
7.5	0.046	0.045	0.017	0.016	456
10.0	0.055	0.054	0.022	0.022	463
12.5	0.065	0.064	0.023	0.023	550
15.0	0.076	0.075	0.024	0.024	630
17.5	0.083	0.083	0.025	0.025	704
20.0	0.094	0.094	0.027	0.027	744
22.5	0.103	0.103	0.028	0.028	806
25.0	0.111	0.111	0.029	0.029	864
27.5	0.121	0.121	0.031	0.031	889
29.6	0.127	0.127	0.032	0.032	927

TABLE 22

TRAVEL-TIMES AND AVERAGE VELOCITIES

SITE NO. 22 CAMARILLO STATE HOSP. DATE LOGGED 10-4-78
PLANK DIST= 2.0 PLATE DIST= 2.0 AVE ORIGIN CORR= 0.005

DEPTH (M)	ORIGIN CORR (S)	FIRST S ARRIVAL (S)	CORR S TIME (S)	AVE VEL S WAVE (M/S)
2.5	0.005	0.015	0.012	208
5.0	0.004	0.020	0.019	264
7.5	0.004	0.039	0.038	197
10.0	0.004	0.052	0.051	194
12.5	0.005	0.060	0.060	209
15.0	0.004	0.062	0.062	242
17.5	0.005	0.071	0.071	246
20.0	0.004	0.080	0.080	250
22.5	0.005	0.090	0.090	250
25.0	0.005	0.100	0.100	249
27.5	0.005	0.110	0.110	249
29.8	0.006	0.120	0.120	248

DEPTH (M)	FIRST S PEAK (S)	CORR S PEAK (S)	P TIME (S)	CORR P TIME (S)	AVE VEL P WAVE (M/S)
2.5	0.021	0.017	0.012	0.009	266
5.0	0.026	0.026	0.016	0.015	336
7.5	0.048	0.047	0.018	0.017	431
10.0	0.056	0.055	0.019	0.019	536
12.5	0.067	0.066	0.022	0.022	575
15.0	0.069	0.069	0.040	0.040	378
17.5	0.078	0.078	0.045	0.045	391
20.0	0.087	0.087	0.047	0.047	427
22.5	0.097	0.097	0.049	0.049	460
25.0	0.107	0.107	0.051	0.051	491
27.5	0.117	0.117	0.053	0.053	520
29.8	0.129	0.129	0.054	0.054	553

TABLE 23

TRAVEL-TIMES AND AVERAGE VELOCITIES

SITE NO. 23 PACIFIC MISSLE DATE LOGGED 10-3-78
PLANK DIST= 2.0 PLATE DIST= 2.0 AVE ORIGIN CORR= 0.006

DEPTH (M)	ORIGIN CORR (S)	FIRST S ARRIVAL (S)	CORR S TIME (S)	AVE VEL S WAVE (M/S)
2.5	0.006	0.036	0.028	89
5.0	0.006	0.032	0.030	168
7.5	0.006	0.046	0.044	169
10.0	0.006	0.056	0.055	182
12.5	0.006	0.068	0.067	186
15.0	0.007	0.079	0.078	191
17.5	0.006	0.090	0.089	195
20.0	0.006	0.100	0.099	201
22.5	0.006	0.109	0.108	207
25.0	0.006	0.118	0.118	212
27.5	0.006	0.127	0.127	217
29.4	0.006	0.136	0.136	216

DEPTH (M)	FIRST S PEAK (S)	CORR S PEAK (S)	P TIME (S)	CORR P TIME (S)	AVE VEL P WAVE (M/S)
2.5	0.040	0.031	0.013	0.010	246
5.0	0.039	0.036	0.014	0.013	384
7.5	0.052	0.050	0.015	0.014	517
10.0	0.062	0.061	0.016	0.016	637
12.5	0.073	0.072	0.018	0.018	703
15.0	0.084	0.083	0.019	0.019	796
17.5	0.095	0.094	0.020	0.020	880
20.0	0.105	0.104	0.021	0.021	957
22.5	0.115	0.114	0.022	0.022	1030
25.0	0.124	0.124	0.024	0.024	1040
27.5	0.134	0.134	0.026	0.026	1060
29.4	0.142	0.142	0.027	0.027	1090

TABLE 24

TRAVEL-TIMES AND AVERAGE VELOCITIES

SITE NO. 24 VENTURA CO. AIRPORT DATE LOGGED 10-2-78
PLANK DIST= 2.0 PLATE DIST= 2.0 AVE ORIGIN CORR= 0.005

DEPTH (M)	ORIGIN CORR (S)	FIRST S ARRIVAL (S)	CORR S TIME (S)	AVE VEL S WAVE (M/S)
2.5	0.005	0.022	0.017	145
5.0	0.005	0.032	0.030	168
7.5	0.005	0.047	0.045	165
10.0	0.005	0.058	0.057	175
12.5	0.005	0.068	0.067	186
15.0	0.005	0.078	0.077	194
17.5	0.005	0.088	0.067	200
20.0	0.005	0.097	0.097	207
22.5	0.005	0.107	0.107	211
25.0	0.005	0.117	0.117	214
27.5	0.005	0.128	0.128	215
28.9	0.005	0.130	0.130	222

DEPTH (M)	FIRST S PEAK (S)	CORR S PEAK (S)	P TIME (S)	CORR P TIME (S)	AVE VEL P WAVE (M/S)
2.5	0.028	0.022	0.014	0.011	228
5.0	0.039	0.036	0.018	0.017	299
7.5	0.056	0.051	0.019	0.018	408
10.0	0.064	0.063	0.020	0.020	509
12.5	0.074	0.073	0.021	0.021	602
15.0	0.084	0.083	0.022	0.022	687
17.5	0.094	0.093	0.024	0.024	733
20.0	0.103	0.102	0.025	0.025	803
22.5	0.113	0.113	0.027	0.027	836
25.0	0.123	0.123	0.029	0.029	864
27.5	0.133	0.133	0.030	0.030	919
28.9	0.136	0.136	0.030	0.030	965

TABLE 25

TRAVEL-TIMES AND AVERAGE VELOCITIES

SITE NO. 25 MANDALAY BEACH DATE LOGGED 10-3-78
PLANK DIST= 2.0 PLATE DIST= 2.0 AVE ORIGIN CORR= 0.005

DEPTH (M)	ORIGIN CORR (S)	FIRST S ARRIVAL (S)	CORR S TIME (S)	AVE VEL S WAVE (M/S)
2.5	0.005	0.023	0.018	138
5.0	0.005	0.025	0.023	214
7.5	0.005	0.036	0.035	215
10.0	0.005	0.046	0.045	221
12.5	0.005	0.056	0.055	225
15.0	0.005	0.066	0.066	228
17.5	0.005	0.076	0.076	231
20.0	0.005	0.086	0.086	233
22.5	0.005	0.098	0.098	230
25.0	0.005	0.106	0.106	236
27.5	0.004	0.112	0.112	246
29.5	0.005	0.118	0.118	250

DEPTH (M)	FIRST S PEAK (S)	CORR S PEAK (S)	P TIME (S)	CORR P TIME (S)	AVE VEL P WAVE (M/S)
2.5	0.028	0.022	0.010	0.008	320
5.0	0.030	0.028	0.012	0.011	448
7.5	0.041	0.040	0.014	0.014	554
10.0	0.051	0.050	0.015	0.015	679
12.5	0.061	0.060	0.017	0.017	744
15.0	0.071	0.070	0.019	0.019	796
17.5	0.081	0.081	0.020	0.020	880
20.0	0.092	0.092	0.022	0.022	913
22.5	0.104	0.104	0.024	0.024	941
25.0	0.112	0.112	0.025	0.025	1000
27.5	0.117	0.117	0.028	0.028	984
29.5	0.123	0.123			

TABLE 26

TRAVEL-TIMES AND AVERAGE VELOCITIES

SITE NO. 26 VENTURA CO. GENERAL DATE LOGGED 10-4-78
PLANK DIST= 2.0 PLATE DIST= 2.0 AVE ORIGIN CORR= 0.003

DEPTH (M)	ORIGIN CORR (S)	FIRST S ARRIVAL (S)	CORR S TIME (S)	AVE VEL S WAVE (M/S)
2.5	0.003	0.017	0.013	187
5.0	0.003	0.029	0.027	185
7.5	0.003	0.040	0.039	193
10.0	0.003	0.047	0.046	216
12.5	0.003	0.057	0.056	221
15.0	0.003	0.077	0.076	196
17.5	0.003	0.077	0.077	228
20.0	0.003	0.085	0.085	236
22.5	0.003	0.093	0.093	242
25.0	0.003	0.102	0.102	245
27.5	0.002	0.112	0.112	246
30.4	0.003	0.122	0.122	249

DEPTH (M)	FIRST S PEAK (S)	CORR S PEAK (S)	P TIME (S)	CORR P TIME (S)	AVE VEL P WAVE (M/S)
2.5	0.020	0.016	0.010	0.008	320
5.0	0.034	0.032	0.017	0.016	316
7.5	0.044	0.043	0.025	0.024	310
10.0	0.053	0.052	0.027	0.026	377
12.5	0.062	0.061	0.030	0.030	421
15.0	0.083	0.082	0.033	0.033	458
17.5	0.083	0.083	0.047	0.047	374
20.0	0.091	0.091	0.050	0.050	401
22.5	0.099	0.099	0.053	0.053	426
25.0	0.109	0.109	0.057	0.057	439
27.5	0.119	0.119	0.061	0.061	452
30.4	0.128	0.128	0.065	0.065	468

TABLE 27

TRAVEL-TIMES AND AVERAGE VELOCITIES

SITE NO. 27 BAND SANITARIUM DATE LOGGED 10-5-78
BLANK DIST= 2.0 PLATE DIST= 2.0 AVE ORIGIN CORR= 0.004

DEPTH (M)	ORIGIN CORR (S)	FIRST S ARRIVAL (S)	CORR S TIME (S)	AVE VEL S WAVE (M/S)
2.5	0.004	0.018	0.014	177
5.0	0.004	0.026	0.024	206
7.5	0.004	0.034	0.033	227
10.0	0.004	0.043	0.042	236
12.5	0.004	0.053	0.052	238
15.0	0.004	0.062	0.062	243
17.5	0.004	0.070	0.070	251
20.0	0.004	0.077	0.077	260
22.5	0.004	0.084	0.084	268
25.0	0.004	0.091	0.091	275
27.5	0.004	0.098	0.098	281
29.0	0.003	0.101	0.101	287

DEPTH (M)	FIRST S PEAK (S)	CORR S PEAK (S)	P TIME (S)	CORR P TIME (S)	AVE VEL P WAVE (M/S)
2.5	0.025	0.020	0.010	0.008	320
5.0	0.032	0.030	0.012	0.011	448
7.5	0.040	0.039	0.014	0.014	554
10.0	0.048	0.047	0.015	0.015	679
12.5	0.059	0.058	0.017	0.017	744
15.0	0.068	0.067	0.018	0.018	840
17.5	0.076	0.076	0.020	0.020	880
20.0	0.087	0.087	0.021	0.021	957
22.5	0.094	0.094	0.037	0.037	610
25.0	0.100	0.100	0.049	0.049	511
27.5	0.107	0.107	0.052	0.052	530
29.0	0.110	0.110	0.065	0.065	447

TABLE 28

INTERVAL VELOCITIES AND ELASTIC MODULI

SITE NO. 1 MAGNOLIA

DEPTH INT (M)	NO MEAS	FIRST S ARRIVAL INCPT (S)	VEL (M/S)	UNC INT (M/S)	FIRST S PEAK INCPT (S)	VEL (M/S)	UNC INT (M/S)
7.5-17.5	5	0.001	367	(344, 393)	0.005	340	(334, 347)
20.0-28.0	5	0.007	417	(415, 419)	0.012	409	(397, 421)

DEPTH INT (M)	NO MEAS	FIRST P ARRIVAL INCPT (S)	VEL (M/S)	UNC INT (M/S)
2.5-10.0	4	0.002	798	(736, 872)
12.5-28.0	8	0.015	1680	(1620,1740)

S VEL (M/S)	DEPTH INT (M)	P VEL (M/S)	DEPTH INT (M)	DENSITY DEPTH (M)	DENSITY (G/CC)	SHEAR MOD (BARS)	BULK MOD (BARS)	POISSONS RATIO
367	7.5-17.5	798	2.5-10.0	10.0	2.03	2740	9300	0.366
417	20.0-28.0	1680	12.5-28.0					0.467

TABLE 29

INTERVAL VELOCITIES AND ELASTIC MODULI

SITE NO. 2 1ST LUTHERAN

DEPTH INT (M)	NO MEAS	FIRST S ARRIVAL INCPT (S)	VEL (M/S)	UNC INT (M/S)	FIRST S PEAK INCPT (S)	VEL (M/S)	UNC INT (M/S)
7.5-25.0	8	0.005	402	(395, 409)	0.012	405	(395, 415)

DEPTH INT (M)	NO MEAS	FIRST P ARRIVAL INCPT (S)	VEL (M/S)	UNC INT (M/S)
2.5-10.0	4	0.002	851	(780, 936)
12.5-25.0	6	0.014	1530	(1450,1610)

S VEL (M/S)	DEPTH INT (M)	P VEL (M/S)	DEPTH INT (M)	DENSITY DEPTH (M)	DENSITY (G/CC)	SHEAR MOD (BARS)	BULK MOD (BARS)	POISSONS RATIO
402	7.5-25.0	851	2.5-10.0	10.0	1.97	3190	10000	0.356
402	7.5-25.0	851	2.5-10.0	16.4	2.03	3290	10300	0.356
402	7.5-25.0	1530	12.5-25.0	10.0	1.97	3190	41700	0.463
402	7.5-25.0	1530	12.5-25.0	16.4	2.03	3290	43000	0.463

TABLE 30

INTERVAL VELOCITIES AND ELASTIC MODULI

SITE NO. 3 TERMINAL ISLAND

DEPTH INT (M)	NO MEAS	FIRST S ARRIVAL INCPT (S)	VEL (M/S)	UNC INT (M/S)	FIRST S PEAK INCPT (S)	VEL (M/S)	UNC INT (M/S)
2.5-10.0	4	0.004	190	(182, 199)	0.009	193	(187, 200)
10.0-19.5	5	0.015	243	(237, 249)	0.018	243	(237, 249)

DEPTH INT (M)	NO MEAS	FIRST P ARRIVAL INCPT (S)	VEL (M/S)	UNC INT (M/S)
5.0-19.5	7	0.012	1800	(1720,1870)

S VEL (M/S)	DEPTH INT (M)	P VEL (M/S)	DEPTH INT (M)	DENSITY DEPTH (M)	DENSITY (G/CC)	SHEAR MOD (BARS)	BULK MOD (BARS)	POISSONS RATIO
190	2.5-10.0	1800	5.0-19.5	2.7	1.79	649	56800	0.494
243	10.0-19.5	1800	5.0-19.5					0.491

TABLE 31

INTERVAL VELOCITIES AND ELASTIC MODULI

SITE NO. 4 LAKEWOOD CC

DEPTH INT (M)	NO MEAS	FIRST S ARRIVAL INCPT (S)	VEL (M/S)	UNC INT (M/S)	FIRST S PEAK INCPT (S)	VEL (M/S)	UNC INT (M/S)
5.0-17.8	6	0.006	371	(365, 377)	0.011	366	(357, 376)

DEPTH INT (M)	NO MEAS	FIRST P ARRIVAL INCPT (S)	VEL (M/S)	UNC INT (M/S)
10.0-17.8	4	0.010	936	(863,1020)

S VEL (M/S)	DEPTH INT (M)	P VEL (M/S)	DEPTH INT (M)	DENSITY DEPTH (M)	DENSITY (G/CC)	SHEAR MOD (BARS)	BULK MOD (BARS)	POISSONS RATIO
371	5.0-17.8	936	10.0-17.8	9.1	2.03	2800	14100	0.407
371	5.0-17.8	936	10.0-17.8	15.2	2.04	2820	14100	0.407

TABLE 32

INTERVAL VELOCITIES AND ELASTIC MODULI

SITE NO. 5 PS 105

DEPTH INT (M)	NO MEAS	FIRST S ARRIVAL INCPT (S)	VEL (M/S)	UNC INT (M/S)	FIRST S PEAK INCPT (S)	VEL (M/S)	UNC INT (M/S)
5.0-12.5	4	0.009	225	(216, 234)	0.016	226	(217, 236)
15.0-27.8	7	0.024	306	(303, 309)	0.030	302	(300, 305)

DEPTH INT (M)	NO MEAS	FIRST P ARRIVAL INCPT (S)	VEL (M/S)	UNC INT (M/S)
5.0-17.5	6	0.009	545	(535, 556)
20.0-27.8	5	0.025	893	(852, 938)

S VEL (M/S)	DEPTH INT (M)	P VEL (M/S)	DEPTH INT (M)	DENSITY DEPTH (M)	DENSITY (G/CC)	SHEAR MOD (BARS)	BULK MOD (BARS)	POISSONS RATIO
225	5.0-12.5	545	5.0-17.5	9.1	1.90	962	4370	0.397
306	15.0-27.8	893	20.0-27.8	21.8	2.03	1910	13700	0.433

TABLE 33

INTERVAL VELOCITIES AND ELASTIC MODULI

SITE NO. 6 COMPTON AIRPORT

DEPTH INT (M)	NO MEAS	FIRST S ARRIVAL INCPT (S)	VEL (M/S)	UNC INT (M/S)	FIRST S PEAK INCPT (S)	VEL (M/S)	UNC INT (M/S)
2.5-15.0	5	0.001	277	(275, 279)	0.006	267	(252, 284)

DEPTH INT (M)	NO MEAS	FIRST P ARRIVAL INCPT (S)	VEL (M/S)	UNC INT (M/S)
5.0-15.0	5	0.005	1360	(1250,1500)

S VEL (M/S)	DEPTH INT (M)	P VEL (M/S)	DEPTH INT (M)	DENSITY DEPTH (M)	DENSITY (G/CC)	SHEAR MOD (BARS)	BULK MOD (BARS)	POISSONS RATIO
277	2.5-15.0	1360	5.0-15.0	6.1	1.90	1460	33400	0.478

TABLE 34

INTERVAL VELOCITIES AND ELASTIC MODULI

SITE NO. 7 COMPTON CIVIC CENTER

DEPTH INT (M)	NO MEAS	FIRST S ARRIVAL INCPT (S)	VEL (M/S)	UNC INT (M/S)	FIRST S PEAK INCPT (S)	VEL (M/S)	UNC INT (M/S)
2.5- 7.5	3	0.004	198	(197, 200)	0.005	187	(183, 191)
10.0-28.7	9	0.024	350	(347, 352)	0.028	337	(333, 341)

DEPTH INT (M)	NO MEAS	FIRST P ARRIVAL INCPT (S)	VEL (M/S)	UNC INT (M/S)
2.5- 7.5	3	0.002	366	(330, 412)
7.5-17.5	5	0.011	652	(637, 669)
17.5-28.7	6	0.027	1660	(1570,1780)

S VEL (M/S)	DEPTH INT (M)	P VEL (M/S)	DEPTH INT (M)	DENSITY DEPTH (M)	DENSITY (G/CC)	SHEAR MOD (BARS)	BULK MOD (BARS)	POISSONS RATIO
198	2.5- 7.5	366	2.5- 7.5	2.7	1.63	645	1330	0.292
350	10.0-28.7	652	7.5-17.5	15.2	2.00	2450	5260	0.298
350	10.0-28.7	652	7.5-17.5	21.8	2.07	2540	5440	0.298
350	10.0-28.7	1660	17.5-28.7	15.2	2.00	2450	52100	0.477
350	10.0-28.7	1660	17.5-28.7	21.8	2.07	2540	54000	0.477

TABLE 35

INTERVAL VELOCITIES AND ELASTIC MODULI

SITE NO. 8 HOLIDAY INN

DEPTH INT (M)	NO MEAS	FIRST S ARRIVAL INCPT (S)	VEL (M/S)	UNC INT (M/S)	FIRST S PEAK INCPT (S)	VEL (M/S)	UNC INT (M/S)
7.5-15.0	4	0.010	346	(345, 348)	0.015	344	(342, 346)
15.0-20.0	3	0.020	448	(427, 472)	0.021	411	(376, 453)
20.0-28.4	5	0.027	540	(515, 568)	0.033	540	(515, 567)

DEPTH INT (M)	NO MEAS	FIRST P ARRIVAL INCPT (S)	VEL (M/S)	UNC INT (M/S)
5.0-12.5	4	0.006	587	(579, 595)
15.0-28.4	7	0.013	804	(785, 825)

S VEL (M/S)	DEPTH INT (M)	P VEL (M/S)	DEPTH INT (M)	DENSITY DEPTH (M)	DENSITY (G/CC)	SHEAR MOD (BARS)	BULK MOD (BARS)	POISSONS RATIO
346	7.5-15.0	587	5.0-12.5	9.1	2.00	2410	3680	0.232
448	15.0-20.0	804	15.0-28.4	15.2	2.07	4160	7860	0.275

TABLE 36

INTERVAL VELOCITIES AND ELASTIC MODULI

SITE NO. 9 VETS HOSPITAL

FIRST S ARRIVAL

DEPTH INT (M)	NO MEAS	INCPT (S)	VEL (M/S)	UNC INT (M/S)
5.0-12.5	4	0.000	318	(312, 325)
15.0-22.5	4	0.013	434	(422, 447)
25.0-28.9	3	0.028	560	(520, 608)

FIRST S PEAK

INCPT (S)	VEL (M/S)	UNC INT (M/S)
0.005	315	(308, 321)
0.018	426	(398, 458)
0.034	560	(519, 608)

FIRST P ARRIVAL

DEPTH INT (M)	NO MEAS	INCPT (S)	VEL (M/S)	UNC INT (M/S)
2.5-12.5	5	0.002	570	(0, 584)
12.5-27.5	7	0.008	737	(726, 750)

S VEL (M/S)	DEPTH INT (M)	P VEL (M/S)	DEPTH INT (M)	DENSITY DEPTH (M)	DENSITY (G/CC)	SHEAR MOD (BARS)	BULK MOD (BARS)	POISSONS RATIO
318	5.0-12.5	570	2.5-12.5					0.273
434	15.0-22.5	737	12.5-27.5	16.4	1.84	3470	5390	0.235

TABLE 37

INTERVAL VELOCITIES AND ELASTIC MODULI

SITE NO. 10 NEWPORT BEACH SBDP 2

DEPTH INT (M)	NO MEAS	FIRST S ARRIVAL INCPT (S)	VEL (M/S)	UNC INT (M/S)	FIRST S PEAK INCPT (S)	VEL (M/S)	UNC INT (M/S)
5.0-31.0	12	0.021	239	(235, 244)	0.026	237	(232, 241)
33.5-46.0	6	0.057	329	(316, 342)	0.063	329	(316, 342)

DEPTH INT (M)	NO MEAS	FIRST P ARRIVAL INCPT (S)	VEL (M/S)	UNC INT (M/S)
7.5-13.5	4	0.014	1390	(1290,1520)
16.0-23.5	4	0.022	1870	(1660,2140)

S VEL (M/S)	DEPTH INT (M)	P VEL (M/S)	DEPTH INT (M)	DENSITY DEPTH (M)	DENSITY (G/CC)	SHEAR MOD (BARS)	BULK MOD (BARS)	POISSONS RATIO
239	5.0-31.0	1390	7.5-13.5	6.1	1.58	909	29400	0.485
239	5.0-31.0	1390	7.5-13.5	18.2	1.84	1060	34200	0.485
239	5.0-31.0	1390	7.5-13.5	24.2	1.91	1100	35600	0.485
329	33.5-46.0	1870	16.0-23.5					0.484

TABLE 38

INTERVAL VELOCITIES AND ELASTIC MODULI

SITE NO. 11 KATELLA SCHOOL

DEPTH INT (M)	NO MEAS	FIRST S ARRIVAL INCPT (S)	VEL (M/S)	UNC INT (M/S)	FIRST S PEAK INCPT (S)	VEL (M/S)	UNC INT (M/S)
5.0-19.7	7	0.014	830	(795, 868)	0.017	724	(666, 793)

DEPTH INT (M)	NO MEAS	FIRST P ARRIVAL INCPT (S)	VEL (M/S)	UNC INT (M/S)
2.5-15.0	6	0.005	1290	(1260,1330)

S VEL (M/S)	DEPTH INT (M)	P VEL (M/S)	DEPTH INT (M)	DENSITY DEPTH (M)	(G/CC)	SHEAR MOD (BARS)	BULK MOD (BARS)	POISSONS RATIO
830	5.0-19.7	1290	2.5-15.0					0.146

TABLE 39

INTERVAL VELOCITIES AND ELASTIC MODULI

SITE NO. 12 ST. JUDES HOSPITAL

DEPTH INT (M)	NO MEAS	FIRST S ARRIVAL INCPT (S)	VEL (M/S)	UNC INT (M/S)	FIRST S PEAK INCPT (S)	VEL (M/S)	UNC INT (M/S)
2.5- 7.5	3	0.000	351	(332, 373)	0.003	310	(299, 321)
10.0-20.0	5	0.004	325	(317, 333)	0.012	341	(328, 356)
22.5-28.4	4	0.035	608	(541, 694)	0.044	655	(611, 707)

DEPTH INT (M)	NO MEAS	FIRST P ARRIVAL INCPT (S)	VEL (M/S)	UNC INT (M/S)
2.5- 7.5	3	0.001	620	(601, 639)
10.0-20.0	5	0.001	668	(636, 703)
22.5-28.4	4	0.004	717	(686, 751)

S VEL (M/S)	DEPTH INT (M)	P VEL (M/S)	DEPTH INT (M)	DENSITY DEPTH (M)	DENSITY (G/CC)	SHEAR MOD (BARS)	BULK MOD (BARS)	POISSONS RATIO
351	2.5- 7.5	620	2.5- 7.5	6.1	2.03	2510	4460	0.263
325	10.0-20.0	668	10.0-20.0	12.1	2.03	2150	6200	0.345

TABLE 40

INTERVAL VELOCITIES AND ELASTIC MODULI

SITE NO. 13 ROWLAND HEIGHTS

DEPTH INT (M)	NO MEAS	FIRST S ARRIVAL INCPT (S)	VEL (M/S)	UNC INT (M/S)	FIRST S PEAK INCPT (S)	VEL (M/S)	UNC INT (M/S)
2.5-27.5	11	0.006	346	(337, 355)	0.013	341	(333, 348)

DEPTH INT (M)	NO MEAS	FIRST P ARRIVAL INCPT (S)	VEL (M/S)	UNC INT (M/S)
5.0-29.9	11	0.008	1520	(1470,1560)

S VEL (M/S)	DEPTH INT (M)	P VEL (M/S)	DEPTH INT (M)	DENSITY DEPTH (M)	DENSITY (G/CC)	SHEAR MOD (BARS)	BULK MOD (BARS)	POISSON'S RATIO
346	2.5-27.5	1520	5.0-29.9	3.0	2.10	2520	45000	0.473
346	2.5-27.5	1520	5.0-29.9	6.1	1.97	2360	42200	0.473
346	2.5-27.5	1520	5.0-29.9	11.5	2.11	2530	45200	0.473
346	2.5-27.5	1520	5.0-29.9	18.8	1.95	2340	41800	0.473

TABLE 41

INTERVAL VELOCITIES AND ELASTIC MODULI

SITE NO. 14 EL MONTE COURT HOUSE

FIRST S ARRIVAL

DEPTH INT (M)	NO MEAS	INCPT (S)	VEL (M/S)	UNC INT (M/S)	FIRST S PEAK INCPT (S)	FIRST S PEAK VEL (M/S)	FIRST S PEAK UNC INT. (M/S)
7.4-15.0	4	0.010	273	(265, 282)	0.015	272	(263, 281)
22.5-28.2	4	0.035	443	(408, 484)	0.041	443	(408, 484)

FIRST P ARRIVAL

DEPTH INT (M)	NO MEAS	INCPT (S)	VEL (M/S)	UNC INT (M/S)
5.0-12.5	4	0.012	1140	(990,1350)
20.0-28.2	5	0.030	1180	(1150,1220)

S VEL (M/S)	DEPTH INT (M)	P VEL (M/S)	DEPTH INT (M)	DENSITY DEPTH (M)	DENSITY (G/CC)	SHEAR MOD (BARS)	BULK MOD (BARS)	POISSONS RATIO
273	7.4-15.0	1140	5.0-12.5					0.470
443	22.5-28.2	1180	20.0-28.2					0.418

TABLE 42

INTERVAL VELOCITIES AND ELASTIC MODULI

SITE NO. 15 VERDUGO PARK

DEPTH INT (M)	NO MEAS	FIRST S ARRIVAL INCPT (S)	VEL (M/S)	UNC INT (M/S)	FIRST S PEAK INCPT (S)	VEL (M/S)	UNC INT (M/S)
7.5-12.5	3	0.020	469	(463, 474)	0.025	463	(457, 470)
15.0-25.0	5	0.033	976	(941,1010)	0.041	1060	(979,1140)

DEPTH INT (M)	NO MEAS	FIRST P ARRIVAL INCPT (S)	VEL (M/S)	UNC INT (M/S)
2.5-10.0	4	0.006	926	(814,1070)
12.5-25.0	6	0.011	2440	(2430,2450)

S VEL (M/S)	DEPTH INT (M)	P VEL (M/S)	DEPTH INT (M)	DENSITY DEPTH (M)	DENSITY (G/CC)	SHEAR MOD (BARS)	BULK MOD (BARS)	POISSONS RATIO
469	7.5-12.5	926	2.5-10.0	9.4	2.30	5060	13000	0.327
976	15.0-25.0	2440	12.5-25.0					0.404

TABLE 43

INTERVAL VELOCITIES AND ELASTIC MODULI

SITE NO. 16 20TH CENTURY

DEPTH INT (M)	NO MEAS	FIRST S ARRIVAL INCPT (S)	VEL (M/S)	UNC INT (M/S)	FIRST S PEAK INCPT (S)	VEL (M/S)	UNC INT (M/S)
7.5-28.8	10	0.019	478 (474, 483)		0.025	476 (467, 485)	

DEPTH INT (M)	NO MEAS	FIRST P ARRIVAL INCPT (S)	VEL (M/S)	UNC INT (M/S)
10.0-28.8	9	0.004	661 (645, 679)	

S VEL (M/S)	DEPTH INT (M)	P VEL (M/S)	DEPTH INT (M)	DENSITY DEPTH (M)	DENSITY (G/CC)	SHEAR MOD (BARS)	BULK MOD (BARS)	POISSONS RATIO

TABLE 44

INTERVAL VELOCITIES AND ELASTIC MODULI

SITE NO. 17 UPPER VAN NORMAN DAM

FIRST S ARRIVAL

DEPTH INT (M)	NO MEAS	INCPT (S)	VEL (M/S)	UNC INT (M/S)
2.5-10.0	4	-.002	214	(211, 218)
10.0-20.0	5	0.010	286	(280, 293)
20.0-26.3	4	0.028	385	(376, 395)

FIRST S PEAK

INCPT (S)	VEL (M/S)	UNC INT (M/S)
0.004	217	(216, 218)
0.015	286	(279, 293)
0.032	385	(376, 394)

FIRST P ARRIVAL

DEPTH INT (M)	NO MEAS	INCPT (S)	VEL (M/S)	UNC INT (M/S)
5.0-10.0	3	0.008	750	(630, 926)
10.0-26.3	8	0.016	2030	(1940,2120)

S VEL (M/S)	DEPTH INT (M)	P VEL (M/S)	DEPTH INT (M)	DENSITY DEPTH (M)	DENSITY (G/CC)	SHEAR MOD (BARS)	BULK MOD (BARS)	POISSONS RATIO
214	2.5-10.0	750	5.0-10.0	3.0	1.90	877	9520	0.455
286	10.0-20.0	2030	10.0-26.3	15.2	2.02	1660	80700	0.490
385	20.0-26.3	2030	10.0-26.3					0.481

TABLE 45

INTERVAL VELOCITIES AND ELASTIC MODULI

SITE NO. 18 PACOIMA MEMORIAL HOSP.

DEPTH INT (M)	NO MEAS	FIRST S ARRIVAL INCPT (S)	VEL (M/S)	UNC INT (M/S)	FIRST S PEAK INCPT (S)	VEL (M/S)	UNC INT (M/S)
2.5- 7.5	3	0.011	201	(198, 204)	0.027	177	(169, 186)
7.5-17.5	5	0.027	352	(345, 360)	0.049	371	(360, 383)
17.5-29.7	6	0.044	541	(531, 550)	0.067	603	(585, 622)

DEPTH INT (M)	NO MEAS	FIRST P ARRIVAL INCPT (S)	VEL (M/S)	UNC INT (M/S)
2.5-10.0	4	0.008	1000	(961,1050)
12.5-25.0	6	0.008	1330	(1270,1390)

S VEL (M/S)	DEPTH INT (M)	P VEL (M/S)	DEPTH INT (M)	DENSITY DEPTH (M)	DENSITY (G/CC)	SHEAR MOD (BARS)	BULK MOD (BARS)	POISSONS RATIO
201	2.5- 7.5	1000	2.5-10.0	3.0	1.90	770	18000	0.479
352	7.5-17.5	1330	12.5-25.0	9.1	2.03	2530	32400	0.462
352	7.5-17.5	1330	12.5-25.0	15.1	2.04	2540	32500	0.462
541	17.5-29.7	1327	12.5-25.0	21.8	2.12	6210	29100	0.400

TABLE 46

INTERVAL VELOCITIES AND ELASTIC MODULI

SITE NO. 19 SYLMAR H.S.

DEPTH INT (M)	NO MEAS	FIRST S ARRIVAL INCPT (S)	VEL (M/S)	UNC INT (M/S)	FIRST S PEAK INCPT (S)	VEL (M/S)	UNC INT (M/S)
2.5-10.0	4	0.006	311	(308, 314)	0.011	308	(305, 310)
12.5-29.0	8	0.015	494	(484, 505)	0.020	488	(476, 500)

DEPTH INT (M)	NO MEAS	FIRST P ARRIVAL INCPT (S)	VEL (M/S)	UNC INT (M/S)
2.5-12.5	5	0.003	522	(494, 553)
15.0-29.0	7	0.010	799	(783, 817)

S VEL (M/S)	DEPTH INT (M)	P VEL (M/S)	DEPTH INT (M)	DENSITY DEPTH (M)	DENSITY (G/CC)	SHEAR MOD (BARS)	BULK MOD (BARS)	POISSONS RATIO
311	2.5-10.0	522	2.5-12.5	9.1	2.16	2090	3110	0.225
494	12.5-29.0	799	15.0-29.0					0.190

TABLE 47

INTERVAL VELOCITIES AND ELASTIC MODULI

SITE NO. 20 MISSION HILLS P.O.

FIRST S ARRIVAL

DEPTH INT (M)	NO MEAS	INCPT (S)	VEL (M/S)	UNC INT (M/S)
2.5-15.0	6	0.008	420	(413, 427)
17.5-29.3	6	0.021	615	(595, 637)

FIRST S PEAK

INCPT (S)	VEL (M/S)	UNC INT (M/S)
0.013	415	(408, 423)
0.026	614	(594, 636)

FIRST P ARRIVAL

DEPTH INT (M)	NO MEAS	INCPT (S)	VEL (M/S)	UNC INT (M/S)
2.5-20.0	8	0.007	644	(635, 654)
20.0-29.3	5	0.014	836	(830, 842)

S VEL (M/S)	DEPTH INT (M)	P VEL (M/S)	DEPTH INT (M)	DENSITY DEPTH (M)	DENSITY (G/CC)	SHEAR MOD (BARS)	BULK MOD (BARS)	POISSONS RATIO
420	2.5-15.0	644	2.5-20.0	3.0	1.93	3410	3480	0.130
420	2.5-15.0	644	2.5-20.0	6.1	1.98	3500	3570	0.130
420	2.5-15.0	644	2.5-20.0	12.0	2.03	3590	3660	0.130

TABLE 48

INTERVAL VELOCITIES AND ELASTIC MODULI

SITE NO. 21 ETON SCHOOL

DEPTH INT (M)	NO MEAS	FIRST S ARRIVAL INCPT (S)	VEL (M/S)	UNC INT (M/S)	FIRST S PEAK INCPT (S)	VEL (M/S)	UNC INT (M/S)
5.0-15.0	5	0.004	231	(228, 234)	0.011	233	(226, 239)
17.5-29.6	6	0.015	284	(276, 292)	0.020	274	(267, 282)

DEPTH INT (M)	NO MEAS	FIRST P ARRIVAL INCPT (S)	VEL (M/S)	UNC INT (M/S)
2.5- 7.5	3	0.007	796	(756, 841)
10.0-29.6	9	0.016	1870	(1820,1930)

S VEL (M/S)	DEPTH INT (M)	P VEL (M/S)	DEPTH INT (M)	DENSITY DEPTH (M)	DENSITY (G/CC)	SHEAR MOD (BARS)	BULK MOD (BARS)	POISSONS RATIO
231	5.0-15.0	796	2.5- 7.5	9.1	2.04	1090	11500	0.454
284	17.5-29.6	1870	10.0-29.6					0.488

TABLE 49

INTERVAL VELOCITIES AND ELASTIC MODULI

SITE NO. 22 CAMARILLO STATE HOSP.

DEPTH INT (M)	NO MEAS	FIRST S ARRIVAL INCPT (S)	VEL (M/S)	UNC INT (M/S)	FIRST S PEAK INCPT (S)	VEL (M/S)	UNC INT (M/S)
15.0-29.8	7	0.002	254	(250, 257)	0.007	248	(242, 254)

FIRST P ARRIVAL

DEPTH INT (M)	NO MEAS	INCPT (S)	VEL (M/S)	UNC INT (M/S)
5.0-12.5	4	0.011	1140	(1030,1290)
17.5-29.8	6	0.031	1310	(1260,1360)

S VEL (M/S)	DEPTH INT (M)	P VEL (M/S)	DEPTH INT (M)	DENSITY DEPTH (M)	DENSITY (G/CC)	SHEAR MOD (BARS)	BULK MOD (BARS)	POISSONS RATIO
254	15.0-29.8	1140	5.0-12.5	15.0	1.96	1260	24000	0.474
254	15.0-29.8	1140	5.0-12.5	21.2	1.99	1280	24400	0.474
254	15.0-29.8	1310	17.5-29.8	15.0	1.96	1260	31700	0.480
254	15.0-29.8	1310	17.5-29.8	21.2	1.99	1280	32200	0.480

TABLE 50

INTERVAL VELOCITIES AND ELASTIC MODULI

SITE NO. 23 PACIFIC MISSLE

DEPTH INT (M)	NO MEAS	FIRST S ARRIVAL INCPT (S)	VEL (M/S)	UNC INT (M/S)	FIRST S PEAK INCPT (S)	VEL (M/S)	UNC INT (M/S)
7.5-17.5	5	0.010	220	(217, 223)	0.017	225	(224, 227)
17.5-29.4	6	0.023	262	(258, 267)	0.025	253	(251, 256)

DEPTH INT (M)	NO MEAS	FIRST P ARRIVAL INCPT (S)	VEL (M/S)	UNC INT (M/S)
5.0-29.4	11	0.010	1810	(1760,1860)

S VEL (M/S)	DEPTH INT (M)	P VEL (M/S)	DEPTH INT (M)	DENSITY DEPTH (M)	DENSITY (G/CC)	SHEAR MOD (BARS)	BULK MOD (BARS)	POISSONS RATIO
220	7.5-17.5	1810	5.0-29.4	9.1	1.91	929	61200	0.492
220	7.5-17.5	1810	5.0-29.4	15.1	1.92	934	61600	0.492
262	17.5-29.4	1810	5.0-29.4	21.2	1.98	1370	62900	0.489

TABLE 51

INTERVAL VELOCITIES AND ELASTIC MODULI

SITE NO. 24 VENTURA CO. AIRPORT

FIRST S ARRIVAL

DEPTH INT (M)	NO MEAS	INCPT (S)	VEL (M/S)	UNC INT (M/S)
2.5- 7.5	3	0.003	177	(166, 189)
10.0-27.5	8	0.017	250	(248, 251)

FIRST S PEAK

INCPT (S)	VEL (M/S)	UNC INT (M/S)
0.007	170	(168, 172)
0.023	251	(250, 253)

FIRST P ARRIVAL

DEPTH INT (M)	NO MEAS	INCPT (S)	VEL (M/S)	UNC INT (M/S)
5.0-28.9	11	0.014	1730	(1680,1780)

S VEL (M/S)	DEPTH INT (M)	P VEL (M/S)	DEPTH INT (M)	DENSITY DEPTH (M)	DENSITY (G/CC)	SHEAR MOD (BARS)	BULK MOD (BARS)	POISSONS RATIO
177	2.5- 7.5	1730	5.0-28.9	3.0	1.96	614	57800	0.495
177	2.5- 7.5	1730	5.0-28.9	6.1	1.88	589	55400	0.495
250	10.0-27.5	1729	5.0-28.9	21.2	1.96	1230	57000	0.489

TABLE 52

INTERVAL VELOCITIES AND ELASTIC MODULI

SITE NO. 25 MANDALAY BEACH

DEPTH INT (M)	NO MEAS	FIRST S ARRIVAL INCPT (S)	VEL (M/S)	UNC INT (M/S)	FIRST S PEAK INCPT (S)	VEL (M/S)	UNC INT (M/S)
5.0-20.0	7	0.003	242	(240, 244)	0.008	238	(236, 241)
22.5-29.5	4	0.034	354	(340, 368)	0.044	376	(354, 401)

DEPTH INT (M)	NO MEAS	FIRST P ARRIVAL INCPT (S)	VEL (M/S)	UNC INT (M/S)
5.0-27.5	10	0.008	1410	(1370,1440)

S VEL (M/S)	DEPTH INT (M)	P VEL (M/S)	DEPTH INT (M)	DENSITY DEPTH (M)	DENSITY (G/CC)	SHEAR MOD (BARS)	BULK MOD (BARS)	POISSONS RATIO
242	5.0-20.0	1410	5.0-27.5	9.1	1.86	1090	35400	0.485
242	5.0-20.0	1410	5.0-27.5	15.1	1.98	1160	37700	0.485
354	22.5-29.5	1410	5.0-27.5					0.466

TABLE 53

INTERVAL VELOCITIES AND ELASTIC MODULI

SITE NO. 26 VENTURA CO. GENERAL

DEPTH INT (M)	NO MEAS	FIRST S ARRIVAL INCPT (S)	VEL (M/S)	UNC INT (M/S)	FIRST S PEAK INCPT (S)	VEL (M/S)	UNC INT (M/S)
5.0-12.5	4	0.009	261	(247, 277)	0.012	253	(246, 261)
17.5-30.4	6	0.014	282	(277, 288)	0.019	279	(273, 285)

DEPTH INT (M)	NO MEAS	FIRST P ARRIVAL INCPT (S)	VEL (M/S)	UNC INT (M/S)
7.5-15.0	4	0.015	867	(828, 910)
17.5-30.4	6	0.021	698	(679, 718)

S VEL (M/S)	DEPTH INT (M)	P VEL (M/S)	DEPTH INT (M)	DENSITY DEPTH (M)	DENSITY (G/CC)	SHEAR MOD (BARS)	BULK MOD (BARS)	POISSONS RATIO
261	5.0-12.5	867	7.5-15.0	6.1	1.76	1210	11600	0.450
282	17.5-30.4	698	17.5-30.4	18.2	1.88	1500	7170	0.402
282	17.5-30.4	698	17.5-30.4	30.0	1.87	1490	7130	0.402

TABLE 54

INTERVAL VELOCITIES AND ELASTIC MODULI

SITE NO. 27 BARD SANITARIUM

DEPTH INT (M)	NO MEAS	FIRST S ARRIVAL INCPT (S)	VEL (M/S)	UNC INT (M/S)	FIRST S PEAK INCPT (S)	VEL (M/S)	UNC INT (M/S)
2.5-17.5	7	0.005	268	(265, 271)	0.011	266	(262, 270)
20.0-29.0	5	0.022	367	(358, 376)	0.035	385	(377, 394)

DEPTH INT (M)	NO MEAS	FIRST P ARRIVAL INCPT (S)	VEL (M/S)	UNC INT (M/S)
7.5-20.0	6	0.009	1640	(0,1720)

S VEL (M/S)	DEPTH INT (M)	P VEL (M/S)	DEPTH INT (M)	DENSITY DEPTH (M)	DENSITY (G/CC)	SHEAR MOD (BARS)	BULK MOD (BARS)	POISSONS RATIO
268	2.5-17.5	1640	7.5-20.0	3.0	1.84	1330	47700	0.486
268	2.5-17.5	1640	7.5-20.0	6.1	1.89	1360	49000	0.486
268	2.5-17.5	1640	7.5-20.0	12.1	1.90	1370	49200	0.486
367	20.0-29.0	1639	7.5-20.0	24.2	1.93	2610	48400	0.474

GPO 689-143

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