DEPARTMENT OF THE INTERIOR

U.S. GEOLOGICAL SURVEY

Stratigraphic and geotechnical data from a regional drilling investigation in the San Bernardino valley, California

by

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This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards and stratigraphic nomenclature. Any use of trade names is for descriptive purposes only and does not imply endorsement by the USGS.

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INTRODUCTION

This report presents stratigraphic and geotechnical data obtained during an exploratory drilling investigation performed in support of a regional liquefaction evaluation that the U.S. Geological Survey is conducting in the San Bernardino valley and vicinity. Drilling operations were completed during August and September 1983 at 27 sites within Quaternary alluvial materials of the San Bernardino valley. Drill sites and the location of the study area are shown on plate 1. At each drill site we described and sampled the sediments encountered and performed geotechnical tests. The logs in Appendix 1 summarize our findings. In future studies, the information reported here will be combined with results from additional geotechnical investigations, geologic-mapping studies, and a hydrologic investigation (Carson and Matti, 1986) to evaluate liquefaction susceptibility in the San Bernardino valley and vicinity. To facilitate easy comparison between this study and the forthcoming liquefaction evaluation, plate 1 incorporates the same study area as that of the liquefaction report.

PROCEDURES

A truck-mounted Mobile B-50 drilling rig was used to complete two exploratory borings at all 27 sites. The first of each pair of borings was drilled with solid-stem auger to a depth of approximately 60 ft, enabling us to quickly log and sample the subsurface stratigraphy at the site. This initial boring also permitted us to identify the stratigraphic intervals appropriate for evaluation with the Standard Penetration Test (SPT). After the first boring, the drill rig was moved laterally from 5 to 15 ft and a second boring was drilled using hollow-stem augers. In this boring, SPTs were conducted in the stratigraphic intervals previously identified.

Solid-stem augering

During solid-stem-augering operations, 5-foot lengths of solid-stem auger (6-inch O.D.) were rotated and advanced into the surface in a fashion similar to turning a screw into wood. The augers were hydraulically driven into the ground at a rate corresponding to the pitch of the auger flights so that disturbance of sediment and upward translation of penetrated strata were minimized. Then the augers were extracted straight up from the hole without rotation, thereby retaining the penetrated sediment on the auger flights. The sediment-laden augers were logged, sampled, cleaned, and returned to the hole with additional 5-foot lengths of auger. This procedure was repeated each time the drill string advanced 10 ft deeper into the subsurface; thus, total subsurface depths of about 60 ft were drilled, logged, and sampled using 10-ft drill string increments.

An important goal of this drilling program was to obtain geotechnical data that could be used to evaluate liquefaction susceptibility in the San Bernardino valley area. In particular, we sought SPT data for sand and silty-sand layers. Therefore, during solid-stem augering, depth intervals composed of sand and silty sand were identified and targeted for SPTs.

Hollow-stem augering and Standard Penetration Tests

Hollow-stem augering and SPT procedures generally followed methods discussed by Youd and Bennett (1983) and recommendations by the American Society of Testing and Materials (ASTM) D 1586-67 (ASTM, 1982 p. 292-294). Hollow-stem auger (2 1/2-inch I.D. and 6 1/4-inch O.D.) containing a pilot bit was advanced into the ground to the first SPT depth at a rate of about 5 ft/min, with the auger turning at about 60 rpm. As the auger neared the testing depth, the rate of advance was reduced to about 2 ft/min to minimize sediment disturbance. Water was added to the hollow auger to maintain the water level in the augers near or above the ground-water level in order to reduce or eliminate the possibility of disturbance of sediment due to heaving. The auger was lifted 4 to 6 inches and suspended with a holding device at the surface in order to prevent the weight of the auger from adding pressure to the sediment at the bottom of the boring. The pilot bit was removed slowly to avoid drawing sediment into the boring. A clean split-spoon sampler containing a liner and meeting the specifications of ASTM D 1586-67 (ASTM, 1982, p. 292-294) was then lowered to the bottom of the hole with AW rod.

Once the rod and sampler were positioned properly, the SPT was conducted. The rod was marked with reference lines at 6, 12, and 18 inches, corresponding to the three 6-inch intervals to be penetrated by the split-spoon sampler during the SPT. A Mobile Safe-T-Driver hoist incorporating a hydraulically-driven winch-and-cable system repetitively lifted a 140-lb drive weight of a Mobile In-Hole safety hammer 30 inches and then released it to drive the split-spoon sampler through the total 18 inches of SPT penetration. The split-spoon sampler was driven the first 6 inches for seating, and the total number of hammer blows required to drive the sampler through the remaining 12-inch interval from 6 to 18 inches was recorded as the penetration resistance (N).

After the test, the auger was advanced to the next testing depth with the split-spoon sampler acting as a pilot bit. As before, water was added to the auger and the auger was raised slightly. The split-spoon sampler was slowly removed from the auger, a second split-spoon sampler was returned to the bottom of the boring, and the SPT and drilling procedures were repeated. In this way, SPTs were conducted in the hole wherever needed.

Sampling

During solid-stem-augering operations, we collected three types of samples: (1) bulk samples which were representative of the stratigraphic unit in which they were collected; (2) pollen samples consisting of clay or silty clay materials likely to contain pollen or spores that could yield information about climate, vegetation, and the age of sediment; and (3) carbon-bearing samples collected for age determination by ^{14}C analysis. Carbon-bearing samples typically consisted of organic-rich clay and silt, although wood and charcoal occurred in some samples. Samples with high organic content were analyzed at the U.S. Geological Survey radiocarbon facility in Menlo Park, Calif. Age determinations from these analyses are listed in the ^{14}C column of the log sheets, and a compilation of radiocarbon dates with descriptions of the analyzed materials is provided in Appendix 2.

During SPTs we collected a fourth type of sample. As the split-spoon sampler was driven into the ground during each SPT, sediment was forced into the sampler. Although sample disturbance and (or) sample loss occurred during SPT procedures, we logged and sampled the full length of the retained material without making corrections for these complications. The log sheets provide mechanical-analysis data for most SPT samples.

Mechanical analysis

Grain-size analyses were performed on SPT samples to provide information necessary for the evaluation of liquefaction susceptibility. This evaluation requires data on the amount of gravel, sand, silt, and clay contained in the interval penetrated by the SPT, as well as the median grain size of the sample.

Following procedures recommended by Lambe (1951, p. 29-42), we used sieve testing to determine the grain-size distribution of the sand and gravel portions of the SPT samples and hydrometer testing to determine the grain-size distribution of the silt and clay portions of the samples. The logs show three pertinent measures of grain size obtained during these analyses: (1) the weight percent of the sample finer than gravel (finer than 2.0 mm); (2) the weight percent of the sample finer than sand (finer than 0.0625 mm): and (3) D_{50}, a measure of the median grain size (Sowers, 1979). In Appendex 3, we show two additional mechanical-analysis parameters that may be pertinent to liquefaction studies: a measure of the fines content (the weight percent of the sample finer than 0.075 mm), and a measure of the clay content (the weight percent of the sample finer than 0.005 mm).

GEOLOGIC SETTING

Plate 1 includes a simplified representation of geologic relations among selected faults and various surficial-geology units. The geology was compiled from published sources and from 1:24,000-scale mapping by the U.S. Geological Survey (J.C. Matti, S.E. Carson, D.M. Morton, and B.F. Cox, unpubl. mapping, 1975-1986; see the geologic-mapping credit on Plate 1).

The San Bernardino valley is an alluvial basin bounded on the west by the San Jacinto fault and the San Gabriel Mountains, on the northeast by the San Bernardino Mountains, and on the south by the San Timoteo Badlands. The upland areas are underlain by various kinds of bedrock, including metamorphic and granitic basement rocks and consolidated sedimentary materials. Lowlands of the San Bernardino valley are underlain by a thick fill of sedimentary deposits, the youngest of which are Quaternary in age. The sediments include gravel, sand, silt, and clay layers that have accumulated in various kinds of depositional environments. Most of the sediment was deposited by rivers and streams flowing from the upland areas, but some clay and silt layers formed in lake and marshland environments.

The Quaternary depositional setting probably was similar to the modern setting, which is dominated by alluvial-fan and alluvial-plain processes. Alluvial fans emanating from canyons at the base of the San Bernardino Mountains coalesce and extend southwestward to predominate in the central portion of the study area. South of the alluvial-fan complex the east-oriented alluvial plain of the Santa Ana River predominates; to the west, the north-oriented alluvial plain of Lytle and Cajon Creeks predominates. Where the alluvial-fan and alluvial-plain regimes come together, their respective sedimentary deposits either interfinger in a complex fashion or truncate each other—as where the flood plain of the Santa Ana River undercuts the toes of alluvial fans building south from the San Bernardino Mountains.

The geologic map distinguishes three Quaternary alluvial units having different ages of deposition. Younger Holocene deposits (Qh_2) include sedimentary material that we interpret to have accumulated within the last 500 to 1,000 years. Older Holocene deposits (Qh_1) include sedimentary material that we interpret to have accumulated between 500 or 1,000 years ago and 10,000 to 15,000 years ago. Pleistocene deposits (Qp) include sedimentary material that we interpret to have accumulated between 10,000 or 15,000 years ago and about 750,000 years ago. These age determinations are preliminary, and are based mainly on the degree of pedogenic-soil development on the upper surfaces of the units. The soil profiles are thin and slightly developed in younger alluvial deposits, but are progressively thicker and better developed in progressively older deposits. The age of an alluvial deposit in relation to another deposit can be determined by comparing the development of their respective soil profiles, and the numeric age of a soil profile can be determined from radiometric analysis of organic carbon or other materials associated with the soil. We have assigned ages to surficial-geologic units in the San Bernardino valley region by comparing their soil profiles with those being studied elsewhere in the region (R.J. Weldon and L.D. McFadden, unpubl. data, 1982-1986; J.W. Harden, unpubl. data, 1984-1986).

ACKNOWLEDGMENTS

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APPENDIX 1: BORING LOGS

Explanation of log sheets

Auger Samples:

During solid-stem-augering operations, three types of samples were collected: bulk samples, ^{14}C samples, and pollen samples. The sample numbers do not distinguish between the three types: within each boring, samples were numbered sequentially as they were collected. The logs identify the stratigraphic intervals sampled. Age determinations from ^{14}C analysis are listed in the ^{14}C column.

6-Inch Interval Resistance:

Shows blow counts for successive 6-inch increments of the total 18 inches of SPT penetration.

SPT Penetration Resistance:

Shows blow count or penetration resistance, N, for the final 12 inches of the 18-inch SPT penetration. Superscript "a" identifies penetration-resistance values that may have been influenced by gravel, clay, or wood fragments in the SPT interval and that may be inappropriate for geotechnical evaluations of liquefaction susceptibility.

SPT Sample Recovery:

Upper and lower horizontal lines indicate the total length of material retained in the SPT sampler; intermediate lines indicate boundaries between distinctive sedimentary layers. Sample intervals have not been corrected for compaction, stretching, or sample loss that may have occurred during SPT procedures. All intervals identified by one or two dots were sampled. Intervals with two dots are most representative of the entire length of materials penetrated during the SPT.

Mechanical Analysis:

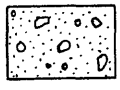
Shows three measures of grain-size variation determined by mechanical analysis (see text). Superscript "b" indicates values for D_{50} based on field descriptions of the SPT samples rather than on mechanical analysis.

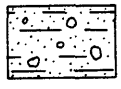
Water Table:

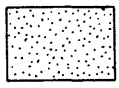
Shows depth to the ground-water table. Symbol "NE" at the bottom of the boring log indicates that ground water was not encountered in that boring. Symbol "ND" at the bottom of the boring log indicates that depth to ground water was not determined in that boring.

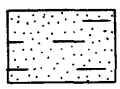
Graphical Log:

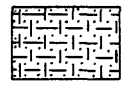
Graphical summary of the lithology of each stratigraphic interval based on field descriptions. The following representative patterns are used:

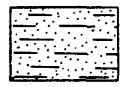

Sandy gravel or gravelly sand


Gravel, sand, and silt mixtures

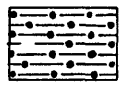

Sand

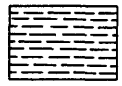

Silty sand or sandy silt

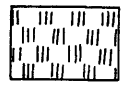

Sand, silt, and clay mixtures


Clayey sand or sandy clay


Silt


Clayey silt or silty clay


Clay


Peat

Interlayered units, graded units, and reverse-graded units are shown using combinations of the patterns described above. Symbol "ND" indicates an interval for which a graphical pattern was not determined.

Group Symbol:

Shows the group symbol or group symbols of each differentiated stratigraphic interval based on the field description of that interval and the group symbol descriptions of the Unified Soil Classification System (U.S. Army Corps of Engineers, 1953). Symbol "I" indicates that the stratigraphic interval has several interlayered lithologies. Symbol "V" indicates that the stratigraphic interval is graded or reverse graded. Symbol "ND" identifies an interval for which a group symbol was not determined.

Field Description:

Provides a generalized field description of each differentiated stratigraphic interval based on observations made during solid-stem augering. Grain-size descriptions are those of Wentworth (1922). Sorting terms follow the recommendations of Compton (1962, p. 214-215). If an interval is described as "gravelly", "sandy", "silty", or "clayey", it contains approximately 20 percent or more of these materials. If an interval is described as "... with gravel", "... with sand", "... with silt", or "... with clay", it contains approximately 5 to 20 percent of these materials.

Color:

Shows color of indicated stratigraphic intervals based on the Munsell system of color notation (Munsell Color, 1975). Two colors shown in a single interval indicate that color grades from the first color to the second. If the color of an interval is described as between two different colors, the color is intermediate between these two colors.

Bulk Sample	^{14}C Sample	Pollen Sample	6"-Interval Resistance	SPT Penetration Resistance	SPT Sample Recovery	Mechanical Analysis: % Finer Than 2.0 mm	Mechanical Analysis: % Finer Than 0.0625 mm	Mechanical Analysis: D_{50} (mm)	Water Table	Depth (feet)	Graphical Log	Group Symbol	Field Description	Color
												SM	Poorly sorted, silty fine-grained sand with gravel (max. dia. 1.5 cm).	7.5YR 4/4
1			2		••			<.15[b]						
			2	5										
			3											
												SW-SM	Poorly sorted, silty, gravelly (max. dia. 6 cm) fine-grained sand.	7.5YR 4/4
2										5				
			3		••			>2.5[b]				SM	Poorly sorted, silty fine-grained sand with gravel (max. dia. 1.5 cm).	
			3	8										
			5		•									
3										10				
			2											
			3	7	••			<.15[b]						7.5YR 4/4
			4											
4										15		SM	Poorly sorted, silty medium-grained sand with gravel (max. dia. 5 cm).	10YR 3/6
			12		•									
5			7	18	••			<.15[b]						
			11											
6														10YR 4.5/4
									NE	20			Refusal at 19 ft.	

Boring Number: DHM 01

Logged By: S.E.C., C.K.T.

Date: 9/12/83

Sheet: 1 of 1

Approximate Location: 30 ft. north of Pacific St., west parkway of Center St.

Approx. Lat. Long.: 34° 07'45" N., 117°12'25" W.

Approx. Elevation: 1320 ft.

Bulk Sample	^{14}C Sample	Pollen Sample	6"-Interval Resistance	SPT Penetration Resistance	SPT Sample Recovery	Mechanical Analysis: % Finer Than 2.0 mm	Mechanical Analysis: % Finer Than 0.0625 mm	Mechanical Analysis: D_{50} (mm)	Water Table	Depth (feet)	Graphical Log	Group Symbol	Field Description	Color
1									NE	5		SW	Poorly sorted, gravelly (max. dia. 6 cm) coarse-grained sand.	2.5Y 5/4
													Refusal at 5 ft.	
										10				
										15				
										20				

Boring Number: DRQ 01

Logged By: S.E.C., J.C.M.

Date: 9/6/83

Sheet: 1 of 1

Approximate Location: 150 ft west of Palm Ave., south parkway Meins St.

Approx. Lat. Long.: 34°06'30" N., 117°12'30" W.

Approx. Elevation: 1190 ft.

Bulk Sample	^{14}C Sample	Pollen Sample	6"-Interval Resistance	SPT Penetration Resistance	SPT Sample Recovery	Mechanical Analysis: % Finer Than 2.0 mm	Mechanical Analysis: % Finer Than 0.0625 mm	Mechanical Analysis: D_{50} (mm)	Water Table	Depth (feet)	Graphical Log	Group Symbol	Field Description	Color
												SW	Moderately sorted medium-grained sand.	5Y 4/4
			4									SW	Poorly sorted, gravelly (typical dia. 4 mm) medium-grained sand.	5Y 6/3
			4	9[a]	••			>.25[b]						
1			5											
												SM	Poorly sorted, silty fine-grained sand with granules and small pebbles near top.	5Y 5/3.5
2										5				
3														
			2		•							SP	Well sorted medium-grained sand.	5Y 6/2
4			3	7	•									
			4		••			>.25[b]						
5												SP	Well sorted fine- to medium-grained sand with minor silt.	5Y 4/4
										10		SW	Poorly sorted, gravelly (typical dia. 3-4 mm, max. dia. 3 cm) medium- to coarse-grained sand.	5Y 5/3
			6											
			7	19	••			>.25[b]						
			12											
6														
										15				
										20				

Boring Number: DRQ 02

Logged By: S.E.C., C.K.T.

Date: 9/10/83

Sheet: 1 of 3

Approximate Location: 250 ft. north of Pioneer Ave., east parkway of Orange St.

Approx. Lat. Long.: 34°04'55" N., 117°10'55" W.

Approx. Elevation: 1350 ft.

Bulk Sample	^{14}C Sample	Pollen Sample	6"-Interval Resistance	SPT Penetration Resistance	SPT Sample Recovery	Mechanical Analysis: % Finer Than 2.0 mm	Mechanical Analysis: % Finer Than 0.0625 mm	Mechanical Analysis: D_{50} (mm)	Water Table	Depth (feet)	Graphical Log	Group Symbol	Field Description	Color
													Continuation of above unit.	
			11 15 17	32[a]				>.25[b]		25				
7												SP	Well sorted fine-grained sand.	2.5Y 4/2
			8 12 15	27				>.25[b]						
8												SW	Poorly sorted medium-grained sand with silt.	5Y 4/4
										30				
			9									SW	Very poorly sorted, gravelly (typical dia. 3 to 4 mm, max. dia. 3 cm) medium- to coarse-grained sand.	5Y 5/3
9			17 19	36				>.25[b]						
										35				
										40				

Boring Number: DRQ 02

Logged By: S.E.C., C.K.T.

Date: 9/10/83

Sheet: 2 of 3

Approximate Location: 250 ft. north of Pioneer Ave., east parkway of Orange St.

Approx. Lat. Long.: 34°04'55" N., 117°10'55" W.

Approx. Elevation: 1350 ft.

Bulk Sample	^{14}C Sample	Pollen Sample	6"-Interval Resistance	SPT Penetration Resistance	SPT Sample Recovery	Mechanical Analysis: % Finer Than 2.0 mm	Mechanical Analysis: % Finer Than 0.0625 mm	Mechanical Analysis: D_{50} (mm)	Water Table	Depth (feet)	Graphical Log	Group Symbol	Field Description	Color
											ND	ND	Sandy gravel? No recovery.	
									NE	45			Refusal at 43 ft.	
										50				
										55				
										60				

Boring Number: DRQ 02	**Approximate Location:** 250 ft. north of Pioneer Ave., east parkway of Orange St.
Logged By: S.E.C., C.K.T.	
Date: 9/10/83	**Approx. Lat. Long.:** 34°04'55" N., 117°10'55" W.
Sheet: 3 of 3	**Approx. Elevation:** 1350 ft.

Bulk Sample	^{14}C Sample	Pollen Sample	6"-Interval Resistance	SPT Penetration Resistance	SPT Sample Recovery	Mechanical Analysis: % Finer Than 2.0 mm	Mechanical Analysis: % Finer Than 0.0625 mm	Mechanical Analysis: D_{50} (mm)	Water Table	Depth (feet)	Graphical Log	Group Symbol	Field Description	Color
			7									SW	Poorly sorted, gravelly (typical dia. 1-2 cm, max. dia. 5 cm) coarse- to very coarse-grained sand.	2.5Y 4.5/4
1			10 12	22[a]	••			>.25[b]		5				
2			8 10 10	20[a]	••			>.25[b]		10		SW	Poorly sorted medium- to coarse-grained sand with gravel (typical dia. 2-4 mm, max. dia. 2.5 cm).	2.5Y 5/4
												SW	Poorly sorted, gravelly (typical dia. 2 mm - 2 cm, max. dia. 3 cm) coarse- to very coarse-grained sand.	
3										15				2.5Y 4/4
										20				2.5Y 4.5/4

Boring Number: DSN 01

Logged By: S.E.C., J.C.M.

Date: 9/8/83

Sheet: 1 of 4

Approximate Location: 30 ft. west of Macy St., north parkway of Darby St.

Approx. Lat. Long.: 34°08'50" N., 117°20'20" W.

Approx. Elevation: 1335 ft.

Bulk Sample	^{14}C Sample	Pollen Sample	6"-Interval Resistance	SPT Penetration Resistance	SPT Sample Recovery	Mechanical Analysis: % Finer Than 2.0 mm	Mechanical Analysis: % Finer Than 0.0625 mm	Mechanical Analysis: D_{50} (mm)	Water Table	Depth (feet)	Graphical Log	Group Symbol	Field Description	Color
													Continuation of above unit.	2.5Y 4.5/4
4														
										25				
												SW	Poorly sorted coarse- to very coarse-grained sand with gravel (typical dia. 2 - 4 mm, max. dia. 1.5 cm).	5Y 4.5/3
5										30		SW	Poorly sorted, gravelly (typical dia. 2 mm - 2.5 cm, max. dia. 10 cm) coarse- to very coarse-grained sand.	2.5Y 4.5/4
										35				
6														
										40				

Boring Number: DSN 01

Logged By: S.E.C., J.C.M.

Date: 9/8/83

Sheet: 2 of 4

Approximate Location: 30 ft. west of Macy St., north parkway of Darby St.

Approx. Lat. Long.: 34°08'50" N., 117°20'20" W.

Approx. Elevation: 1335 ft.

Bulk Sample	^{14}C Sample	Pollen Sample	6"-Interval Resistance	SPT Penetration Resistance	SPT Sample Recovery	Mechanical Analysis: % Finer Than 2.0 mm	Mechanical Analysis: % Finer Than 0.0625 mm	Mechanical Analysis: D_{50} (mm)	Water Table	Depth (feet)	Graphical Log	Group Symbol	Field Description	Color
										45			Continuation of above unit.	
7										50				5Y 5/3
8										55				
										60				

Boring Number: DSN 01	**Approximate Location:** 30 ft. west of Macy St., north parkway of Darby St.
Logged By: S.E.C., J.C.M.	
Date: 9/8/83	**Approx. Lat. Long.:** 34°08'50" N., 117°20'20" W.
Sheet: 3 of 4	**Approx. Elevation:** 1335 ft.

Bulk Sample	^{14}C Sample	Pollen Sample	6"-Interval Resistance	SPT Penetration Resistance	SPT Sample Recovery	Mechanical Analysis: % Finer Than 2.0 mm	Mechanical Analysis: % Finer Than 0.0625 mm	Mechanical Analysis: D_{50} (mm)	Water Table	Depth (feet)	Graphical Log	Group Symbol	Field Description	Color
9													Continuation of above unit.	
									NE			GW	Sandy gravel (max. dia. 13 cm).	
													Refusal at 62 ft.	
										65				
										70				
										75				
										80				

Boring Number: DSN 01

Logged By: S.E.C., J.C.M.

Date: 9/8/83

Sheet: 4 of 4

Approximate Location: 30 ft. west of Macy St., north parkway of Darby St.

Approx. Lat. Long.: 34°08'50" N., 117°20'20" W.

Approx. Elevation: 1335 ft.

Bulk Sample	^{14}C Sample	Pollen Sample	6"-Interval Resistance	SPT Penetration Resistance	SPT Sample Recovery	Mechanical Analysis: % Finer Than 2.0 mm	Mechanical Analysis: % Finer Than 0.0625 mm	Mechanical Analysis: D_{50} (mm)	Water Table	Depth (feet)	Graphical Log	Group Symbol	Field Description	Color
1			1 2 3	5	•• •			< 15[b]		0		SM	Poorly sorted, silty fine- to medium-grained sand with granule-size gravel. Grades into coarser unit below.	10YR 3/3
2			4 7 6	13[a]	••			> .25[b]		5		SW	Poorly sorted, gravelly (typical dia. 2 - 4 mm, max. dia. 1.5 cm) coarse-grained sand. Grades into finer unit below.	10YR 4/4 2.5Y 4/3
3			5 9 12	21[a]	• ••			> .25[b]		10		SM	Poorly sorted, silty fine- to medium-grained sand.	10YR 3/3
4			10 12 10	22[a]	••			> .25[b]		15		SW	Poorly sorted, gravelly (typical dia. 2 mm - 1.5 cm, max. dia. 5 cm) coarse-grained sand.	2.5Y 4/4
5												SM	Poorly sorted, silty medium- to coarse-grained sand with granule size gravel.	2.5Y 4/4
6												SW	Poorly sorted, gravelly (typical dia. 2 - 4 mm, max. dia. 6 cm) coarse-grained sand.	2.5Y 5/4
7										20				

Boring Number: DSN 02

Logged By: S.E.C., C.K.T.

Date: 9/12/83

Sheet: 1 of 2

Approximate Location: 30 ft. east of LeRoy St., 400 ft. south of Marshall Blvd.

Approx. Lat. Long.: 34°08'55" N., 117°16'45" W.

Approx. Elevation: 1240 ft.

Bulk Sample	^{14}C Sample	Pollen Sample	6"-Interval Resistance	SPT Penetration Resistance	SPT Sample Recovery	Mechanical Analysis: % Finer Than 2.0 mm	Mechanical Analysis: % Finer Than 0.0625 mm	Mechanical Analysis: D_{50} (mm)	Water Table	Depth (feet)	Graphical Log	Group Symbol	Field Description	Color
													Continuation of above unit.	
									NE	25			Refusal at 24 ft.	
										30				
										35				
										40				

Boring Number: DSN 02

Logged By: S.E.C., C.K.T.

Date: 9/12/83

Sheet: 2 of 2

Approximate Location: 30 ft. east of LeRoy St., 400 ft. south of Marshall Blvd.

Approx. Lat. Long.: 34°08'55" N., 117°16'45" W.

Approx. Elevation: 1240 ft.

Bulk Sample	^{14}C Sample	Pollen Sample	6"-Interval Resistance	SPT Penetration Resistance	SPT Sample Recovery	Mechanical Analysis: % Finer Than 2.0 mm	Mechanical Analysis: % Finer Than 0.0625 mm	Mechanical Analysis: D_{50} (mm)	Water Table	Depth (feet)	Graphical Log	Group Symbol	Field Description	Color
1			1	3	••			>25[b]		5		SM	Poorly sorted, silty fine-grained sand with gravel (typical dia. 2 - 4 mm, max. dia. 2.5 cm).	10Y 3.5/4
2			1 2											10YR3.5/4
3			3 6 5	11	••			<15[b]		10		SW	Poorly sorted medium-grained sand with gravel (typical dia. 2 - 4 mm, max. dia. 1.5 cm).	Between 10YR 4/4 and 2.5Y 4/4
4			12 27 39	66[a]	••			>25[b]		15		SM	Poorly sorted, silty medium-grained sand with gravel (typical dia. 2 - 4 mm, max. dia. 3.5 cm). Increasing coarse-grained sand and granule content toward bottom of unit.	Between 10YR 4/4 and 2.5Y 4/4
5										20				

Boring Number: DSN 03

Logged By: S.E.C., C.K.T.

Date: 9/13/83

Sheet: 1 of 2

Approximate Location: 25 ft. east of Mayfield Ave., south parkway of 46th St.

Approx. Lat. Long.: 34°10'10" N., 117°17'20" W.

Approx. Elevation: 1320 ft.

Bulk Sample	^{14}C Sample	Pollen Sample	6"-Interval Resistance	SPT Penetration Resistance	SPT Sample Recovery	Mechanical Analysis: % Finer Than 2.0 mm	Mechanical Analysis: % Finer Than 0.0625 mm	Mechanical Analysis: D_{50} (mm)	Water Table	Depth (feet)	Graphical Log	Group Symbol	Field Description	Color
6												SM	Poorly sorted, silty fine-grained sand with gravel (typical dia. 2 - 4 mm, max. dia. 5 cm).	Between 10YR 4/4 and 2.5Y 4/4
												SW		
7													Poorly sorted, gravelly (typical dia. 2 mm - 2 cm, max. dia. 8 cm) medium-grained sand.	2.5Y 4/4
8														Between 10YR 4/4 and 2.5Y 4/4
									NE	25			Refusal at 25 ft.	
										30				
										35				
										40				

Boring Number: DSN 03

Logged By: S.E.C., C.K.T.

Date: 9/13/83

Sheet: 2 of 2

Approximate Location: 25 ft. east of Mayfield Ave., south parkway of 46th St.

Approx. Lat. Long.: 34°10'10" N., 117°17'20" W.

Approx. Elevation: 1320 ft.

Bulk Sample	^{14}C Sample	Pollen Sample	6"-Interval Resistance	SPT Penetration Resistance	SPT Sample Recovery	Mechanical Analysis: % Finer Than 2.0 mm	Mechanical Analysis: % Finer Than 0.0625 mm	Mechanical Analysis: D_{50} (mm)	Water Table	Depth (feet)	Graphical Log	Group Symbol	Field Description	Color
			6									SM	Moderately sorted, silty very fine- to fine-grained sand with whitish mottling (calcareous zone?).	10YR 5/2
			7	14	••	98	50	.062		5				
			7											
1					•	99	50	.062						
										10		SW	Poorly sorted, calcareous fine-grained sand with silt.	10YR 4/2
2														
										15		SW	Poorly sorted fine- to medium-grained sand with silt and with orangish mottling (extreme color 2.5Y 5/3) (iron oxidation?).	2.5Y 5/2
3			9		••	100	4	.37						
			11	23										
			12		•	100	12	.32						
												ML or MH	Silt with clay. Top unit of fining-upward sequence.	5Y 5/2
4										20				

Boring Number: DSS 01

Logged By: S.E.C., C.K.T.

Date: 8/29/83

Sheet: 1 of 3

Approximate Location: 200 ft. east of Eureka Ave., north parkway of Huff St.

Approx. Lat. Long.: 34°05'30" N., 117°18'35" W.

Approx. Elevation: 1030 ft.

Bulk Sample	^{14}C Sample	Pollen Sample	6"-Interval Resistance	SPT Penetration Resistance	SPT Sample Recovery	Mechanical Analysis: % Finer Than 2.0 mm	Mechanical Analysis: % Finer Than 0.0625 mm	Mechanical Analysis: D_{50} (mm)	Water Table	Depth (feet)	Graphical Log	Group Symbol	Field Description	Color
													Continuation of above unit.	5GY 4/1
												SP	Well sorted medium-grained sand, with color mottling between 21.5 ft. and 27 ft. Part of fining-upward sequence.	2.5Y 4/3
									▼ 23 ft.					
5										25				
			18											10YR 4/2
6			32 44	76	••	100	6	.17						
					•	100	15	.27						
										30		V	Graded unit. Poorly sorted coarse-grained sand, with gravel from 35.5 ft. to 37 ft., and gravelly from 37 ft. to 40 ft. Part of fining-upward sequence.	2.5Y 4/2
			13											
			26 48	74	••	100	9	.32						
										35				
7														
										40				

Boring Number: DSS 01

Logged By: S.E.C., C.K.T.

Date: 8/29/83

Sheet: 2 of 3

Approximate Location: 200 ft. east of Eureka Ave., north parkway of Huff St.

Approx. Lat. Long.: 34°05'30" N., 117°18'35" W.

Approx. Elevation: 1030 ft.

Bulk Sample	^{14}C Sample	Pollen Sample	6"-Interval Resistance	SPT Penetration Resistance	SPT Sample Recovery	Mechanical Analysis: % Finer Than 2.0 mm	Mechanical Analysis: % Finer Than 0.0625 mm	Mechanical Analysis: D_{50} (mm)	Water Table	Depth (feet)	Graphical Log	Group Symbol	Field Description	Color
										45		SW	Poorly sorted, gravelly (max. dia. 3 cm) coarse- to very coarse-grained sand. Part of fining-upward sequence.	2.5Y4.5/2
8														
										50		SW	Poorly sorted, gravelly (max. dia. 4 cm) coarse- to very coarse-grained sand. Bottom unit of fining-upward sequence.	
9												CL	Silty clay with sand.	5Y 5/1
										55			Refusal at 53 ft.	
										60				

Boring Number: DSS 01

Logged By: S.E.C., C.K.T.

Date: 8/29/83

Sheet: 3 of 3

Approximate Location: 200 ft. east of Eureka Ave., north parkway of Huff St.

Approx. Lat. Long.: 34°05'30" N., 117°18'35" W.

Approx. Elevation: 1030 ft.

Bulk Sample	^{14}C Sample	Pollen Sample	6"-Interval Resistance	SPT Penetration Resistance	SPT Sample Recovery	Mechanical Analysis: % Finer Than 2.0 mm	Mechanical Analysis: % Finer Than 0.0625 mm	Mechanical Analysis: D_{50} (mm)	Water Table	Depth (feet)	Graphical Log	Group Symbol	Field Description	Color
												SM	Moderately sorted, silty fine-grained sand. (Fill?)	
1			2 2 5	7[a]	• •• •	100	62	.013				SW	Moderately sorted fine-grained sand with silt.	2.5Y 4.5/2
2						100	35	.098		5		ML or MH	Silt with clay and sand.	2.5Y 4.5/2
3												CL or CH	Silty clay with gravel (max. dia. 2 cm).	2.5Y 3.5/2
4										10		I	Interlayered unit. Silty clay, and clay with silt.	2.5Y 3.5/2
												SC	Poorly sorted, clayey fine-grained sand.	2.5Y 4/4
5										15		I	Interlayered unit. Silty clay, and clay with minor silt.	2.5Y 3.5/2
6												ML or MH	Clayey silt.	2.5Y 4.5/2
										20		I	Interlayered unit. Silty clay, and clay with minor silt	2.5Y 3.5/2

Boring Number: DSS 02

Logged By: S.E.C., J.C.M.

Date: 9/7/83

Sheet: 1 of 3

Approximate Location: 200 ft. north of Mill St., west parkway of J St.

Approx. Lat. Long.: 34°05'35" N., 117°18'20" W.

Approx. Elevation: 1020 ft.

Bulk Sample	^{14}C Sample	Pollen Sample	6"-Interval Resistance	SPT Penetration Resistance	SPT Sample Recovery	Mechanical Analysis: % Finer Than 2.0 mm	Mechanical Analysis: % Finer Than 0.0625 mm	Mechanical Analysis: D_{50} (mm)	Water Table	Depth (feet)	Graphical Log	Group Symbol	Field Description	Color
												SM	Moderately sorted, silty very fine- to fine-grained sand.	
7														
8									▼ 23 ft.			I	Interlayered unit. Poorly sorted, clayey, silty fine-grained sand, and poorly sorted, clayey, silty medium-grained sand.	2.5Y 4.5/2
			6		·	100	41	.076						
			10	29	·	100	86	.040						
			19		..	100	28	.11		25				
			11		·	100	90	.017						
9			17	40	..	100	18	.19						
			23											
										30				
			9		·	100	31	.11						
10			10		·	100	32	.10						
			23	33	..	100	18	.12						
11	7,600±80 y.B.P.											SM-SC	Poorly sorted, clayey, silty medium-grained sand.	
										35		ML or MH	Clayey, sandy silt.	
12												CL or CH	Silty clay. Grades into coarser unit above.	Between 5Y 4/1 and 5GY 4/1
	12A													
13												SM	Moderately sorted, silty very fine- to fine-grained sand with clay, blackish organic streaks, and wood fragments.	
	13A													
	13B									40				

Boring Number: DSS 02

Logged By: S.E.C., J.C.M.

Date: 9/7/83

Sheet: 2 of 3

Approximate Location: 200 ft. north of Mill St., west parkway of J St.

Approx. Lat. Long.: 34°05'35" N., 117°18'20" W.

Approx. Elevation: 1020 ft.

Bulk Sample	^{14}C Sample	Pollen Sample	6"-Interval Resistance	SPT Penetration Resistance	SPT Sample Recovery	Mechanical Analysis: % Finer Than 2.0 mm	Mechanical Analysis: % Finer Than 0.0625 mm	Mechanical Analysis: D_{50} (mm)	Water Table	Depth (feet)	Graphical Log	Group Symbol	Field Description	Color
												SM	Poorly sorted, silty fine- to medium-grained sand.	5Y 4/2.5
			10											
14			19	45	..	98	5	.52						
			26											
15												SM-	Poorly sorted, silty medium- to coarse-grained sand.	5Y 4/2.5
										45		SM-SC	Poorly sorted, clayey, silty fine-grained sand.	5Y 4/2.5
16														7.5YR 4.5/0
17												ML or MH	Clayey silt with blackish organic streaks and with wood fragments.	7.5YR 4.5/0
										50		SM-SC	Poorly sorted, clayey, silty fine-grained sand.	5Y 4/2
18												CL- or CH	Silty clay with organic material in lower portion of unit.	Between 5Y 4/1 and 5GY 4/1
	19													
										55		SW-SP	Moderately sorted medium-grained sand.	2.5Y 4/4
20												SW	Poorly sorted coarse-grained sand with gravel (max. dia. 1 cm).	2.5Y 5/2
21														
										60			Bottom of boring at 60 ft.	

Boring Number: DSS 02

Logged By: S.E.C., J.C.M.

Date: 9/7/83

Sheet: 3 of 3

Approximate Location: 200 ft. north of Mill St., west parkway of J St.

Approx. Lat. Long.: 34°05'35" N., 117°18'20" W.

Approx. Elevation: 1020 ft.

Bulk Sample	^{14}C Sample	Pollen Sample	6"-Interval Resistance	SPT Penetration Resistance	SPT Sample Recovery	Mechanical Analysis: % Finer Than 2.0 mm	Mechanical Analysis: % Finer Than 0.0625 mm	Mechanical Analysis: D_{50} (mm)	Water Table	Depth (feet)	Graphical Log	Group Symbol	Field Description	Color
												SW	Poorly sorted coarse-grained sand with gravel (max. dia. 2.5 cm).	
1			1		·									
			2	5[a]	··	92	28	.22						10YR 6/6
			3		·	96	6	.26						
					·					5				10YR 5/3
												CL or CH	Clay with silt.	2.5Y 4/2
2			8		··	51	4	1.9				SW	Poorly sorted coarse-grained sand.	2.5Y 4/2
			9	22[a]	·									
			13							10		SM	Very poorly sorted, silty coarse-grained sand with gravel (typical dia. 2mm - 5 cm, max. dia. 9 cm).	2.5Y 4/2
3									12.5 ft.					
										15				
			11		··	93	5	.67				SM	Poorly sorted, silty coarse-grained sand.	2.5Y 4/2
4			17	34										
			17		·	100	16	.32						
5										20		ML or MH	Clayey silt.	2.5Y 4/2

Boring Number: DSS 03

Logged By: S.E.C., C.K.T.

Date: 8/31/83

Sheet: 1 of 3

Approximate Location: 150 ft. south of Rialto Ave., 30 ft. east of K St.

Approx. Lat. Long.: 34°06'00" N., 117°18'20" W.

Approx. Elevation: 1055 ft.

Bulk Sample	^{14}C Sample	Pollen Sample	6"-Interval Resistance	SPT Penetration Resistance	SPT Sample Recovery	Mechanical Analysis: % Finer Than 2.0 mm	Mechanical Analysis: % Finer Than 0.0625 mm	Mechanical Analysis: D_{50} (mm)	Water Table	Depth (feet)	Graphical Log	Group Symbol	Field Description	Color
												SW-SM	Very poorly sorted, silty gravelly (max. dia. 6 cm) sand. With clay and with increased silt content toward bottom of unit.	2.5Y 4/2
6														
			2		•	100	86	.032				I	Interlayered unit. Silty clay, and silt with clay and very fine-grained sand.	5Y 4/1
					•	100	89	.0079		25				
7		7A	4	12[a]	••	100	71	.021						
			8											
8														
9										30		I	Interlayered unit. Silty clay and clayey silt.	Between 5Y 4/1 and 5GY 4/1
			10											
			18	30	••	99	12	.46						
			12											
										35		I	Interlayered unit. Silty clay with organics, and silt with clay and with organics. Contains fine-grained sand toward bottom of unit. Top unit of fining-upward sequence.	Between 5Y 4/1 and 5GY 4/1
10	11	12												
			3									SM-SC	Very poorly sorted, clayey, silty medium-grained sand. Part of fining-upward sequence.	Between 5Y 4/1 and 5GY 4/1
					••	99	9	.30						
			13	39[a]	•	65	8	.90						
			26							40				

Boring Number: DSS 03

Logged By: S.E.C., C.K.T.

Date: 8/31/83

Sheet: 2 of 3

Approximate Location: 150 ft. south of Rialto Ave., 30 ft. east of K St.

Approx. Lat. Long.: 34°06'00" N., 117°18'20" W.

Approx. Elevation: 1055 ft.

Bulk Sample	^{14}C Sample	Pollen Sample	6"-Interval Resistance	SPT Penetration Resistance	SPT Sample Recovery	Mechanical Analysis: % Finer Than 2.0 mm	Mechanical Analysis: % Finer Than 0.0625 mm	Mechanical Analysis: D_{50} (mm)	Water Table	Depth (feet)	Graphical Log	Group Symbol	Field Description	Color
												SW	Poorly sorted coarse- to very coarse-grained sand with gravel (max. dia. 1 cm), and with wood fragments. Bottom unit of fining-upward sequence.	5Y 4.5/2
13														
	13A													
										45				
14												ML or MH	Silt with clay, organics, and color mottling (see colors at right).	5Y 4/2 and 5GY 4/1
	15													
													Refusal at 48.5 ft.	
										50				
										55				
										60				

Boring Number: DSS 03

Logged By: S.E.C., C.K.T.

Date: 8/31/83

Sheet: 3 of 3

Approximate Location: 150 ft. south of Rialto Ave., 30 ft. east of K St.

Approx. Lat. Long.: 34°06'00" N., 117°18'20" W.

Approx. Elevation: 1055 ft.

Bulk Sample	^{14}C Sample	Pollen Sample	6"-Interval Resistance	SPT Penetration Resistance	SPT Sample Recovery	Mechanical Analysis: % Finer Than 2.0 mm	Mechanical Analysis: % Finer Than 0.0625 mm	Mechanical Analysis: D_{50} (mm)	Water Table	Depth (feet)	Graphical Log	Group Symbol	Field Description	Color
												SM-SC	Very poorly sorted, clayey silty sand with whitish mottling (calcareous zone?). (Fill?)	2.5Y 4/3
1														
												SW	Poorly sorted, fine- to medium-grained sand with silt and with gravel (max. dia. 1.5 cm).	5Y 5/3
2														
3										5		V	Graded unit. From clayey silt to silty fine-grained sand with gravel (max. dia. 1 cm). Contains whitish mottling (calcareous zone?).	2.5Y 3/2
														10YR 5/2
4														10YR 5/3
			3		·	100	65	.023		10		SM	Moderately sorted, silty fine-grained sand, with clay from 7 ft. to 15.5 ft.	
			8											2.5Y 5/3
			9	17	..	100	62	.047						
5														
														2.5Y 4.5/4
										15		SM	Poorly sorted, silty fine- to medium-grained sand.	
6														
												ML or MH	Silt with sand.	2.5Y 5.5/4
7														
										20		SW-SP	Moderately sorted fine- to medium-grained sand.	2.5Y 6/4

Boring Number: DSS 04

Logged By: S.E.C., C.K.T.

Date: 8/30/83

Sheet: 1 of 3

Approximate Location: 75 ft. south of 7th St., west parkway of L St.

Approx. Lat. Long.: 34°06'40" N., 117°18'30" W.

Approx. Elevation: 1100 ft.

Bulk Sample	^{14}C Sample	Pollen Sample	6"-Interval Resistance	SPT Penetration Resistance	SPT Sample Recovery	Mechanical Analysis: % Finer Than 2.0 mm	Mechanical Analysis: % Finer Than 0.0625 mm	Mechanical Analysis: D_{50} (mm)	Water Table	Depth (feet)	Graphical Log	Group Symbol	Field Description	Color
8			18 18 16	34	••	100	38	.094		25		I	Interlayered unit. Moderately sorted, silty fine-grained sand, and occasional layers of medium sand.	5Y5.5/3.5
9												SW	Poorly sorted medium- to coarse-grained sand with gravel (max. dia. 1 cm).	5Y 5/3
10												ML or MH	Sandy silt.	5Y 5/2
11												SW-SP	Moderately sorted medium-grained sand.	2.5Y 5.5/4
12			6 9 8	17	•• • •	100 100 100	17 88 57	.15 .006 .057		30		SW-SP	Moderately sorted fine- to medium-grained sand.	10YR 5/2.5
13												SW	Poorly sorted medium- to coarse-grained sand with gravel (max. dia. 1 cm).	10YR 5/2.5
14										35		SW	Poorly sorted medium-grained sand with silt.	10YR 5/2.5
15			21 21 25	46[a]	••	86	9	.58	39 ft.	40		SW-SP	Moderately sorted medium-grained sand.	10YR 5/2.5

Boring Number: DSS 04

Logged By: S.E.C., C.K.T.

Date: 8/30/83

Sheet: 2 of 3

Approximate Location: 75 ft. south of 7th St., west parkway of L St.

Approx. Lat. Long.: 34°06'40" N., 117°18'30" W.

Approx. Elevation: 1100 ft.

Bulk Sample	^{14}C Sample	Pollen Sample	6"-Interval Resistance	SPT Penetration Resistance	SPT Sample Recovery	Mechanical Analysis: % Finer Than 2.0 mm	Mechanical Analysis: % Finer Than 0.0625 mm	Mechanical Analysis: D_{50} (mm)	Water Table	Depth (feet)	Graphical Log	Group Symbol	Field Description	Color
16												I	Interlayered unit. Sandy clay and very poorly sorted clayey sand.	2.5Y 4/2
17												I	Interlayered unit. Silty clay and moderately sorted fine- to medium-grained sand.	2.5Y 4/2
										45		SW-SP	Moderately sorted fine- to medium-grained sand with clay and with silt.	5Y 4.5/3
18												I	Interlayered unit. Clay, silt, and sand layers, and various combinations of each.	5Y 4.5/3
19												CL or CH	Clay. Contains silt toward top of unit.	5Y 5/3
										50		SW	Poorly sorted medium- to coarse-grained sand with gravel (max. dia. 3 cm).	5Y 4.5/3
20														
										55		SM	Poorly sorted, silty fine- to medium-grained sand.	5Y 4.5/3
										60			Bottom of boring at 60 ft.	

Boring Number: DSS 04

Logged By: S.E.C., C.K.T.

Date: 8/30/83

Sheet: 3 of 3

Approximate Location: 75 ft. south of 7th St., west parkway of L St.

Approx. Lat. Long.: 34°6'40" N., 117°18'30" W.

Approx. Elevation: 1100 ft.

Bulk Sample	^{14}C Sample	Pollen Sample	6"-Interval Resistance	SPT Penetration Resistance	SPT Sample Recovery	Mechanical Analysis: % Finer Than 2.0 mm	Mechanical Analysis: % Finer Than 0.0625 mm	Mechanical Analysis: D_{50} (mm)	Water Table	Depth (feet)	Graphical Log	Group Symbol	Field Description	Color
												SM-SC	Poorly sorted, clayey silty fine-grained sand. (Fill?)	
1										5				
												SM	Moderately sorted, silty fine-grained sand with brownish mottling (organic zone?), and with granule-size gravel between 12 ft. and 13 ft.	2.5Y 4/3
2										10				
3			5	12	·	100	16	.35						
					·	100	47	.075						
			7		·:	100	9	.24						
			5		·	100	55	.047						
										15		I	Interlayered unit. Silty clay, clayey silt, and moderately sorted, silty fine-grained sand.	5Y 4.5/3
4										20				

Boring Number: DSS 05

Logged By: S.E.C., C.K.T.

Date: 9/1/83

Sheet: 1 of 3

Approximate Location: 15 ft. north of 10th St., 30 ft. east of Sierra Way.

Approx. Lat. Long.: 34°07'05" N., 117°17'00" W.

Approx. Elevation: 1080 ft.

Bulk Sample	^{14}C Sample	Pollen Sample	6"-Interval Resistance	SPT Penetration Resistance	SPT Sample Recovery	Mechanical Analysis: % Finer Than 2.0 mm	Mechanical Analysis: % Finer Than 0.0625 mm	Mechanical Analysis: D_{50} (mm)	Water Table	Depth (feet)	Graphical Log	Group Symbol	Field Description	Color
			7		·							SW	Poorly sorted fine- to coarse-grained sand with silt. Fines toward top of unit.	2.5Y 4.5/4
			9	24	·	100	34	.097						
5			15		··	96	13	.31		25				
6												SW	Poorly sorted, gravelly (max. dia. 3 cm) coarse-grained sand.	2.5Y 5/4
7			11									SP	Well sorted medium-grained sand.	5Y 5/3
			14	33	··									
			19			100	8	.38		30				
												SP	Well sorted fine-grained sand.	2.5Y 4/2
8			10		·	100	9	.14						
			18	42	··	100	11	.18						
			24		·	97	9	.25						
												SM	Moderately sorted, silty fine-grained sand.	5Y 4/3
9										35				5Y 4/1
												ML or MH	Clayey silt. Grades into coarser unit above.	5Y 4/1
10	—11,860±190 y.B.P.													
												CL or CH	Clay with charcoal fragments. Grades into coarser unit above.	5Y 4/1
12	11	13								40				

Boring Number: DSS 05

Logged By: S.E.C., C.K.T.

Date: 9/1/83

Sheet: 2 of 3

Approximate Location: 15 ft. north of 10th St., 30 ft. east of Sierra Way.

Approx. Lat. Long.: 34°07'05" N., 117°17'00" W.

Approx. Elevation: 1080 ft.

Bulk Sample	^{14}C Sample	Pollen Sample	6"-Interval Resistance	SPT Penetration Resistance	SPT Sample Recovery	Mechanical Analysis: % Finer Than 2.0 mm	Mechanical Analysis: % Finer Than 0.0625 mm	Mechanical Analysis: D_{50} (mm)	Water Table	Depth (feet)	Graphical Log	Group Symbol	Field Description	Color
												I	Interlayered unit. Clay, clayey silt, and silt.	Between 5Y 4/1 and 5GY 4/1
14									▼ 43 ft.			SM	Poorly sorted, silty coarse-grained sand with gravel (max. dia. 3 cm).	5Y 4/3
										45				
15														
												V	Reverse graded unit. From poorly sorted very coarse-grained sand with gravel (max. dia. 1 cm) at top of unit to moderately sorted, silty fine-grained sand at bottom of unit.	10YR 4.5/4
16														
														5Y 5/3
17										50				
												SM-SC	Very poorly sorted, clayey, silty medium- to coarse-grained sand.	10YR 4.5/3
18														
										55				
												SW	Poorly sorted, gravelly (typical dia. 2 mm - 3 cm) coarse-grained sand.	2.5Y 5/3
19														
												I	Interlayered unit. Moderately sorted, silty fine-grained sand and moderately sorted coarse-grained sand with orangish color (extreme 10YR4/4)	2.5Y 5/3
20														Bottom of boring at 60 ft.
21										60				

Boring Number: DSS 05

Logged By: S.E.C., C.K.T.

Date: 9/1/83

Sheet: 3 of 3

Approximate Location: 15 ft. north of 10th St., 30 ft. east of Sierra Way.

Approx. Lat. Long.: 34°07'05" N., 117°17'00" W.

Approx. Elevation: 1080 ft.

Bulk Sample	^{14}C Sample	Pollen Sample	6"-Interval Resistance	SPT Penetration Resistance	SPT Sample Recovery	Mechanical Analysis: % Finer Than 2.0 mm	Mechanical Analysis: % Finer Than 0.0625 mm	Mechanical Analysis: D_{50} (mm)	Water Table	Depth (feet)	Graphical Log	Group Symbol	Field Description	Color
												ND	Mixed unit. Clay and sand. (Fill?)	2.5Y 4/2
			2		..	97	8	.24				SW-SP	Moderately sorted medium-grained sand.	2.5Y 4/2
			2	4	.	93	63	.042						
1			2		.	80	5	.51		5				
									5.5 ft.					
2												SW-SP	Moderately sorted coarse-grained sand.	2.5Y 4/2
										10		SW-SP	Moderately sorted fine- to medium-grained sand.	2.5Y 5/3
3												SW	Poorly sorted, gravelly (max. dia. 7 cm) coarse-grained sand.	2.5Y 6/2
4										15				
										20				

Boring Number: DSS 06

Logged By: S.E.C., C.K.T.

Date: 8/26/83

Sheet: 1 of 3

Approximate Location: 2500 ft. south of Orange Show Rd., W. parkway of E St.

Approx. Lat. Long.: 34°04'50" N., 117°17'05" W.

Approx. Elevation: 980 ft.

Bulk Sample	^{14}C Sample	Pollen Sample	6"-Interval Resistance	SPT Penetration Resistance	SPT Sample Recovery	Mechanical Analysis: % Finer Than 2.0 mm	Mechanical Analysis: % Finer Than 0.0625 mm	Mechanical Analysis: D_{50} (mm)	Water Table	Depth (feet)	Graphical Log	Group Symbol	Field Description	Color
												SW	Moderately sorted, gravelly coarse-grained sand with thin clay layers.	2.5Y 6/2
5												I	Interlayered unit. Silty clay and silty very fine-grained sand.	Clay 5GY 4/1 Sand 5Y 4/2
6										25				
												SW	Poorly sorted, gravelly (max. dia. 7.5 cm) sand with thin clay layers in lower portion of unit.	5Y 4.5/1
										30				
												SW	Poorly sorted, gravelly (max. dia. 7 cm) very coarse-grained sand.	10YR 5/4
7										35				
										40				

Boring Number: DSS 06

Logged By: S.E.C., C.K.T.

Date: 8/26/83

Sheet: 2 of 3

Approximate Location: 2500 ft. south of Orange Show Rd., W. parkway of E St.

Approx. Lat. Long.: 34°04'50" N., 117°17'05" W.

Approx. Elevation: 980 ft.

Bulk Sample	^{14}C Sample	Pollen Sample	6"-Interval Resistance	SPT Penetration Resistance	SPT Sample Recovery	Mechanical Analysis: % Finer Than 2.0 mm	Mechanical Analysis: % Finer Than 0.0625 mm	Mechanical Analysis: D_{50} (mm)	Water Table	Depth (feet)	Graphical Log	Group Symbol	Field Description	Color
8										45			Continuation of above unit.	
										50			Bottom of boring at 50 ft.	
										55				
										60				

Boring Number: DSS 06	**Approximate Location:** 2500 ft. south of Orange Show Rd., W. parkway of E St.
Logged By: S.E.C., C.K.T.	
Date: 8/26/83	**Approx. Lat. Long.:** 34°04'50" N., 117°17'05" W.
Sheet: 3 of 3	**Approx. Elevation:** 980 ft.

Bulk Sample	^{14}C Sample	Pollen Sample	6"-Interval Resistance	SPT Penetration Resistance	SPT Sample Recovery	Mechanical Analysis: % Finer Than 2.0 mm	Mechanical Analysis: % Finer Than 0.0625 mm	Mechanical Analysis: D_{50} (mm)	Water Table	Depth (feet)	Graphical Log	Group Symbol	Field Description	Color
												SM	Poorly sorted, silty fine-grained sand. (Fill?)	
1										5		SM	Moderately sorted, silty very fine- to fine-grained sand with clay.	2.5Y 3/2
2			4		·	99	10	.19	6 ft.			I	Interlayered unit. Layers range from clayey silt with very fine-grained sand to moderately sorted, silty fine-grained sand. Top unit of fining-upward sequence.	5Y 5/4
			6	12										
			6		··	100	5	.21		10				
3			4		Top at 18.5 ft. ··	99	2	.32		15		SW-SP	Moderately sorted coarse- to very coarse-grained sand with gravel (max. dia. 2 cm). Grades into finer unit above. Bottom unit of fining-upward sequence.	
			18		·	100	7	.23						
			4	58[a]	·	64	4	.94		20				

Boring Number: DSS 07

Logged By: S.E.C., C.K.T.

Date: 8/26/83

Sheet: 1 of 3

Approximate Location: South parkway of Valley St., in line with centerline of D St.

Approx. Lat. Long.: 34°05'45" N., 117°17'30" W.

Approx. Elevation: 1000 ft.

Bulk Sample	^{14}C Sample	Pollen Sample	6"-Interval Resistance	SPT Penetration Resistance	SPT Sample Recovery	Mechanical Analysis: % Finer Than 2.0 mm	Mechanical Analysis: % Finer Than 0.0625 mm	Mechanical Analysis: D_{50} (mm)	Water Table	Depth (feet)	Graphical Log	Group Symbol	Field Description	Color
No sample number 6.													Continuation of above unit.	
	5	4										CL or CH	Silty clay with wood fragments and with organic-rich zones (color extreme 5Y 2.5/2).	5Y 3.5/1
	3,310±50 y.B.P.									25		SW-SP	Moderately sorted coarse- to very coarse-grained sand with gravel.	
7												V	Reverse graded. From moderately sorted coarse-grained sand with granule- and pebble-size gravel at top of unit to silty clay at bottom of unit.	5Y 3/1
8			2		..	95	7	.26				SM	Moderately sorted silty fine-grained sand with orangish mottling.	10YR 3/4
			2	11	.	100	25	.094						
			9							30				
			7		..							SW	Poorly sorted very coarse-grained sand with gravel (max. dia. 3 cm).	2.5Y 4/3
			13	34[a]		99	12	.15						
			21		.	100	17	.12						
					.	51	3	1.9						
9										35		SW-SP	Moderately sorted medium-grained sand. Grades into finer silty unit below.	2.5Y 4/3
10												SM	Moderately sorted silty fine-grained sand.	2.5Y 4/3
										40				

Boring Number: DSS 07

Logged By: S.E.C., C.K.T.

Date: 8/26/83

Sheet: 2 of 3

Approximate Location: South parkway of Valley St., in line with centerline of D St.

Approx. Lat. Long.: 34°05'45" N., 117°17'30" W.

Approx. Elevation: 1000 ft.

Bulk Sample	^{14}C Sample	Pollen Sample	6"-Interval Resistance	SPT Penetration Resistance	SPT Sample Recovery	Mechanical Analysis: % Finer Than 2.0 mm	Mechanical Analysis: % Finer Than 0.0625 mm	Mechanical Analysis: D_{50} (mm)	Water Table	Depth (feet)	Graphical Log	Group Symbol	Field Description	Color
												I	Interlayered unit. Predominantly moderately sorted, silty fine-grained sand, but also layers ranging from silty clay to poorly sorted coarse-grained sand.	5Y 3/2
11														
12										45		I	Interlayered unit. Layers ranging from clayey silt to poorly sorted, silty medium-grained sand.	5Y 5/3
												I	Interlayered unit. Predominantly sandy silt, but also layers of orangish (color extreme 10YR 4/4) moderately sorted medium- to coarse-grained sand.	5Y 5/3
13										50		I	Interlayered unit. Clay, silty clay and clayey silt.	Clay color- 5Y 5/1
15		14												
		16												
	17									55		I	Interlayered unit. Clayey silt and poorly sorted, silty fine-grained sand.	
												I	Interlayered unit. Predominantly silty clay but also layers of clayey silt.	Clay color- 5Y 5/1
17A										60			Bottom of boring at 60 ft.	

Boring Number: DSS 07	**Approximate Location:** South parkway of Valley St., in line with centerline of D St.
Logged By: S.E.C., C.K.T.	
Date: 8/26/83	**Approx. Lat. Long.:** 34°05'45" N., 117°17'30" W.
Sheet: 3 of 3	**Approx. Elevation:** 1000 ft.

Bulk Sample	^{14}C Sample	Pollen Sample	6"-Interval Resistance	SPT Penetration Resistance	SPT Sample Recovery	Mechanical Analysis: % Finer Than 2.0 mm	Mechanical Analysis: % Finer Than 0.0625 mm	Mechanical Analysis: D_{50} (mm)	Water Table	Depth (feet)	Graphical Log	Group Symbol	Field Description	Color
												ML or MH	Sandy silt. (Fill?)	
1														10YR 5/8
2														2.5Y4.5/4
			3		·	100	62	.05		5		SP	Well sorted fine-grained sand.	
3			5	10[a]										
			5		··	100	13	.17						2.5Y 4/4
					·									
4												ML or MH	Clayey silt with fine-grained sand.	5Y 4.5/3
												SW-SP	Moderately sorted coarse- to very coarse-grained sand.	
												SM	Moderately sorted, silty fine- to medium-grained sand.	
										10		SW-SP	Moderately sorted, gravelly (typical dia. 2 - 4 mm, max. dia. 3 cm) coarse- to very coarse-grained sand.	
									11 ft.					
			20		·	100	6	.22						2.5Y 4.5/4
5			21	47[a]	··	90	9	.97						
			26							15				
6			13		··	61	4	1.3						2.5Y 5/2
			13	27[a]										
			14							20				

Boring Number: DSS 08

Logged By: S.E.C., J.C.M.

Date: 9/7/83

Sheet: 1 of 3

Approximate Location: North parkway of 3rd St., in line with east side of Allen St.

Approx. Lat. Long.: 34°06'15" N., 117°16'50" W.

Approx. Elevation: 1025 ft.

Bulk Sample	^{14}C Sample	Pollen Sample	6"-Interval Resistance	SPT Penetration Resistance	SPT Sample Recovery	Mechanical Analysis: % Finer Than 2.0 mm	Mechanical Analysis: % Finer Than 0.0625 mm	Mechanical Analysis: D_{50} (mm)	Water Table	Depth (feet)	Graphical Log	Group Symbol	Field Description	Color
													Continuation of above unit.	2.5Y 5/2
												I	Interlayered unit. Predominantly poorly sorted, silty coarse-grained sand and poorly sorted, silty very coarse-grained sand, but also poorly sorted, clayey coarse-grained sand.	2.5Y 5/4
										25				
7												V	Graded unit. From silty fine-grained sand at top of unit to silty medium-grained sand at bottom of unit. Top unit of fining-upward sequence.	2.5Y 4/4
8														
										30		V	Graded unit. From poorly sorted medium- to coarse-grained sand with gravel (typical dia. 2 - 4 mm, max. dia. 1.5 cm) at top of unit to poorly sorted, gravelly (typical dia. 2 mm to 1.5 cm, max. dia. 2.5 cm) coarse- to very coarse-grained sand. Bottom unit of fining-upward sequence.	2.5Y 4.5/4
9														
										35				
10														2.5Y 5.5/4
										40				

Boring Number: DSS 08

Logged By: S.E.C, J.C.M.

Date: 9/7/83

Sheet: 2 of 3

Approximate Location: North parkway of 3rd St., in line with east side of Allen St.

Approx. Lat. Long.: 34°06'15" N., 117°16'50" W.

Approx. Elevation: 1025 ft.

Bulk Sample	^{14}C Sample	Pollen Sample	6"-Interval Resistance	SPT Penetration Resistance	SPT Sample Recovery	Mechanical Analysis: % Finer Than 2.0 mm	Mechanical Analysis: % Finer Than 0.0625 mm	Mechanical Analysis: D_{50} (mm)	Water Table	Depth (feet)	Graphical Log	Group Symbol	Field Description	Color
													Continuation of above unit.	2.5Y 5/4
11										45				2.5Y 5.5/2
12										50		CL or CH	Clay with silt.	5Y 5/3 2.5Y 5/4
										55		SW	Poorly sorted, gravelly (typical dia. 2 - 4 mm, max. dia. 5 cm) coarse- to very coarse-grained sand.	2.5Y 5.5/4 2.5Y 4.5/4
										60			Bottom of boring at 60 ft.	

Boring Number: DSS 08

Logged By: S.E.C., J.C.M.

Date: 9/7/83

Sheet: 3 of 3

Approximate Location: North parkway of 3rd St., in line with east side of Allen St.

Approx. Lat. Long.: 34°06'15" N., 117°16'50" W.

Approx. Elevation: 1025 ft.

Bulk Sample	^{14}C Sample	Pollen Sample	6"-Interval Resistance	SPT Penetration Resistance	SPT Sample Recovery	Mechanical Analysis: % Finer Than 2.0 mm	Mechanical Analysis: % Finer Than 0.0625 mm	Mechanical Analysis: D_{50} (mm)	Water Table	Depth (feet)	Graphical Log	Group Symbol	Field Description	Color
												SW	Poorly sorted medium-grained sand. (Fill?)	10YR 3/3
1														
			2		.	95	19	.28				SW	Poorly sorted medium-grained sand with gravel (max. dia. 3 cm).	10YR 4/6
			6	12	..	98	18	.29						
2			6											
										5		ML or MH	Silt with clay.	2.5Y 4/3
3														
					.							SW	Poorly sorted, medium-grained sand with gravel (typical dia. 2 - 3 mm, max. dia. 2 cm) and with orangish mottling.	10YR 5.5/4
			4		..	99	11	.17						
			6	13	.									
4			7											
										10		SW-SP	Moderately sorted fine- to medium-grained sand.	2.5Y 4/3
			7											
			9	18[a]	..	99	7	.23						
			9											
5														
										15		SW-SP	Moderately sorted fine- to medium-grained sand with gravel (max. dia. 3 cm).	2.5Y 4/3
6										20		ND	Whitish colored calcareous silt or clay (caliche?).	

Boring Number: DSS 09

Logged By: S.E.C., C.K.T.

Date: 9/1/83

Sheet: 1 of 3

Approximate Location: 50 ft. north of 6th St., east parkway of Donna Dr.

Approx. Lat. Long.: 34°06'35" N., 117°15'10" W.

Approx. Elevation: 1080 ft.

Bulk Sample	^{14}C Sample	Pollen Sample	6"-Interval Resistance	SPT Penetration Resistance	SPT Sample Recovery	Mechanical Analysis: % Finer Than 2.0 mm	Mechanical Analysis: % Finer Than 0.0625 mm	Mechanical Analysis: D_{50} (mm)	Water Table	Depth (feet)	Graphical Log	Group Symbol	Field Description	Color
										25		SW	Poorly sorted, gravelly (typical dia. 2 mm - 2 cm, max. dia. 6 cm) coarse- to very coarse-grained sand. Less gravelly toward bottom of unit.	2.5Y 5.5/4
7												I	Interlayered unit. Predominantly poorly sorted coarse- to very coarse-grained sand, but also fine-grained sand.	
										30		SW	Poorly sorted fine- to coarse-grained sand with gravel.	10YR 5/4
8														
										35				10YR 5/6
									36.5 ft.					
9												SW-SP	Moderately sorted fine-grained sand with silt and with orangish mottling (extreme 2.5Y 4/3).	2.5Y 4.5/2
10										40				

Boring Number: DSS 09

Logged By: S.E.C., C.K.T.

Date: 9/1/83

Sheet: 2 of 3

Approximate Location: 50 ft. north of 6th St., east parkway of Donna Dr.

Approx. Lat. Long.: 34°06'35" N., 117°15' 10" W.

Approx. Elevation: 1080 ft.

Bulk Sample	^{14}C Sample	Pollen Sample	6"-Interval Resistance	SPT Penetration Resistance	SPT Sample Recovery	Mechanical Analysis: % Finer Than 2.0 mm	Mechanical Analysis: % Finer Than 0.0625 mm	Mechanical Analysis: D_{50} (mm)	Water Table	Depth (feet)	Graphical Log	Group Symbol	Field Description	Color
												SM	Poorly sorted, silty fine- to coarse-grained sand.	5Y 4/1
11														
	6,340±70 y.B.P.											SC	Very poorly sorted, clayey very coarse-grained sand with gravel.	5Y 4/1
12														
	13	13A								45		I	Interlayered unit. Predominantly very poorly sorted, clayey coarse-grained sand and clayey silt, but also silty clay. Silt and clay color varies from 5G 4/1 to 2.5R 5/2.	Between 5Y 4/1 and 5GY 4/1
14														
												SM-SC	Poorly sorted, clayey, silty fine- to medium-grained sand.	5Y 4/1
										50				
	15											V	Graded unit. From clayey silt with organic material at top of unit to poorly sorted, silty coarse-grained sand with gravel (max. dia. 5 cm) at bottom of unit.	Between 5Y 4/1 and 5GY 4/1
	6,760±80 y.B.P.													
										55				
												V	Graded unit. From clayey silt at top of unit to poorly sorted, silty coarse-grained sand at bottom of unit.	Between 5Y 4/1 and 5GY 4/1
16														
										60			Bottom of boring at 60 ft.	

Boring Number: DSS 09

Logged By: S.E.C., C.K.T.

Date: 9/1/83

Sheet: 3 of 3

Approximate Location: 50 ft. north of 6th St., east parkway of Donna Dr.

Approx. Lat. Long.: 34°06'35" N., 117°15'10" W.

Approx. Elevation: 1080 ft.

Bulk Sample	^{14}C Sample	Pollen Sample	6"-Interval Resistance	SPT Penetration Resistance	SPT Sample Recovery	Mechanical Analysis: % Finer Than 2.0 mm	Mechanical Analysis: % Finer Than 0.0625 mm	Mechanical Analysis: D_{50} (mm)	Water Table	Depth (feet)	Graphical Log	Group Symbol	Field Description	Color
												SM	Moderately sorted, silty fine-grained sand. (Fill?)	2.5Y 4/3
3														
												SM	Moderately sorted, silty fine- to medium-grained sand. Fines slightly toward top of unit.	10YR 5/4
2			8											
			12	26	..	100	42	.096		5				
			14											
												SM	Moderately sorted, silty fine-grained sand with calcareous concretions (typical dia. 1 cm). Fines slightly toward top of unit.	2.5Y 5/3
1														
										10				
4			7		..	100	63	.048				SM	Moderately sorted, silty very fine-grained sand.	5Y 5/3
			8	18[a]										
			10		.	100	45	.071						
												I	Interlayered unit. Predominantly moderately sorted, silty fine-grained sand with calcareous concretions (typical dia. 3 cm), but also clay.	5Y 4.5/3
			4											
5			8	15	..	100	36	.11		15				
			7											
												I	Interlayered unit. Predominantly sandy silt, but also clay.	5Y 4.5/3
6														
										20				

Boring Number: DSS 10

Logged By: S.E.C., C.K.T.

Date: 8/25/83

Sheet: 1 of 3

Approximate Location: South parkway of Gould St., at western terminus.

Approx. Lat. Long.: 34°04'15" N., 117°16'05" W.

Approx. Elevation: 1035 ft.

Bulk Sample	^{14}C Sample	Pollen Sample	6"-Interval Resistance	SPT Penetration Resistance	SPT Sample Recovery	Mechanical Analysis: % Finer Than 2.0 mm	Mechanical Analysis: % Finer Than 0.0625 mm	Mechanical Analysis: D_{50} (mm)	Water Table	Depth (feet)	Graphical Log	Group Symbol	Field Description	Color
7												I	Interlayered unit. Predominantly clayey silt, but also silty clay.	5Y 5/3
8												V	Graded unit. From clayey silt at top to moderately sorted, silty fine- to medium-grained sand at bottom.	1.5Y 5/3
9												V	Graded unit. From clayey silt at top to moderately sorted, silty fine-grained sand at bottom.	2.5Y 4/2
	10									25		I	Interlayered unit. Predominantly moderately sorted, silty fine-grained sand, but also clayey silt (color between 5GY 4/1 and 5GY 5/1).	5Y 5/1
11														
										30		V	Graded unit. From silty clay at top of unit to poorly sorted medium-grained sand at bottom of unit.	clay 5GY 4.5/1
12														
														silt and sand 5Y 4/2
13			10	23	·	91	19	.28						
			8		·	100	51	.062						
			15		··	100	22	.29		35				
14												SM	Moderately sorted, silty fine-grained sand.	5Y 4/3
15												ML or MH	Clayey silt with organic material.	5GY 4.5/1
17	16									40				

Boring Number: DSS 10

Logged By: S.E.C., C.K.T.

Date: 8/25/83

Sheet: 2 of 3

Approximate Location: South parkway of Gould St., at western terminus.

Approx. Lat. Long.: 34°04'15" N., 117°16'05" W.

Approx. Elevation: 1035 ft.

Bulk Sample	^{14}C Sample	Pollen Sample	6"-Interval Resistance	SPT Penetration Resistance	SPT Sample Recovery	Mechanical Analysis: % Finer Than 2.0 mm	Mechanical Analysis: % Finer Than 0.0625 mm	Mechanical Analysis: D_{50} (mm)	Water Table	Depth (feet)	Graphical Log	Group Symbol	Field Description	Color
18												CL or CH	Silty clay.	5GY 5/1
												SM	Poorly sorted, silty fine- to very coarse-grained sand.	5GY 4/1
19			10		·	92	15	.39						
			8	23[a]	..	100	95	.003						
20		21	15		·							CL or CH	Silty clay.	5GY 5/1
22									▼ 45 ft.	45		SM	Poorly sorted, silty very fine- to coarse-grained sand.	5GY 4/1
23												CL or CH	Silty clay.	
												SM	Moderately sorted, silty fine-grained sand.	5GY 4/1
	24	25										CL or CH	Silty clay.	5GY 4.5/1
26										50				
27												SW	Poorly sorted fine- to coarse-grained sand with silt.	5GY 4/1
												CL or CH	Clay with silt.	5GY 4/1
28												SM	Poorly sorted, silty fine- to medium-grained sand.	5GY 4/1
										55		SM	Moderately sorted, silty fine-grained sand.	5Y 4/2
29														
										60			Bottom of boring at 60 ft.	

Boring Number: DSS 10

Logged By: S.E.C., C.K.T.

Date: 8/25/83

Sheet: 3 of 3

Approximate Location: South parkway of Gould St., at western terminus.

Approx. Lat. Long.: 34°04'15" N., 117°16'05" W.

Approx. Elevation: 1035 ft.

Bulk Sample	^{14}C Sample	Pollen Sample	6"-Interval Resistance	SPT Penetration Resistance	SPT Sample Recovery	Mechanical Analysis: % Finer Than 2.0 mm	Mechanical Analysis: % Finer Than 0.0625 mm	Mechanical Analysis: D_{50} (mm)	Water Table	Depth (feet)	Graphical Log	Group Symbol	Field Description	Color
			2		..	98	28	.18		5		SM	Moderately sorted, silty very fine-grained sand with gravel (max. dia. 1.5 cm). (Fill?)	5Y 4/3.5
			3	10	.	100	80	.0087						
			7											
1										10				
			5									I	Interlayered unit. Predominantly moderately sorted, silty very fine- to fine-grained sand, but also clay.	5Y 4/3.5
2			9	20	..	99	28	.16		15				
			11		.									
3										20		SC	Poorly sorted, clayey fine-grained sand.	5Y 4/3.5

Boring Number: DSS 11

Logged By: S.E.C., C.K.T.

Date: 9/2/83

Sheet: 1 of 3

Approximate Location: 1600 ft. east of Tippecanoe Ave., north parkway of Central Ave.

Approx. Lat. Long.: 34°05'10" N., 117°15'15" W.

Approx. Elevation: 1065 ft.

Bulk Sample	^{14}C Sample	Pollen Sample	6"-Interval Resistance	SPT Penetration Resistance	SPT Sample Recovery	Mechanical Analysis: % Finer Than 2.0 mm	Mechanical Analysis: % Finer Than 0.0625 mm	Mechanical Analysis: D_{50} (mm)	Water Table	Depth (feet)	Graphical Log	Group Symbol	Field Description	Color
4												ML or MH	Sandy silt with clay.	5Y 4/2
												SW-SP	Moderately sorted medium-grained sand with silt.	5Y 4/2
5			10	43[a]	·	98	28	.13		25		SW-SP	Moderately sorted medium- to coarse-grained sand with silt, and with gravel between 27 and 28 feet (max. dia. 1 cm).	5Y 4/2
			19		··	90	10	.38						
			24						▼ 28 ft.					
										30				5Y 4.5/2
			3	14	·	100	21	.14						
			4		··	97	7	.42						
			10											
6										35		SM	Moderately sorted, silty fine-grained sand with clay.	5Y 4/2
7												ML or MH	Clayey silt with fine-grained sand.	5GY 4/1
										40		CL or CH	Silty clay with organic fragments (wood?).	5GY 4/1

Boring Number: DSS 11

Logged By: S.E.C., C.K.T.

Date: 9/2/83

Sheet: 2 of 3

Approximate Location: 1600 ft. east of Tippecanoe Ave., north parkway of Central Ave.

Approx. Lat. Long.: 34°05'10" N., 117°15'15" W.

Approx. Elevation: 1065 ft.

Bulk Sample	^{14}C Sample	Pollen Sample	6"-Interval Resistance	SPT Penetration Resistance	SPT Sample Recovery	Mechanical Analysis: % Finer Than 2.0 mm	Mechanical Analysis: % Finer Than 0.0625 mm	Mechanical Analysis: D_{50} (mm)	Water Table	Depth (feet)	Graphical Log	Group Symbol	Field Description	Color
												SM-SC	Poorly sorted, clayey, silty fine-grained sand.	5GY 4/1
												I	Interlayered unit. Silty clay and clayey silt.	5GY 4/1
												SM	Moderately sorted, silty fine-grained sand.	5GY 4/1
8			9		••	100	31	.12		45				
			19	38[a]	•									
			19		•	100	61	.048						
9												SM	Poorly sorted, silty medium-grained sand.	5GY 4/1
10										50		I	Interlayered unit. Silty clay, and clay with wood fragments.	5GY 4/1
11										55		SM	Poorly sorted, silty fine- to medium-grained sand with clay.	5GY 4/1
										60			Bottom of boring at 60 ft.	

Boring Number: DSS 11

Logged By: S.E.C., C.K.T.

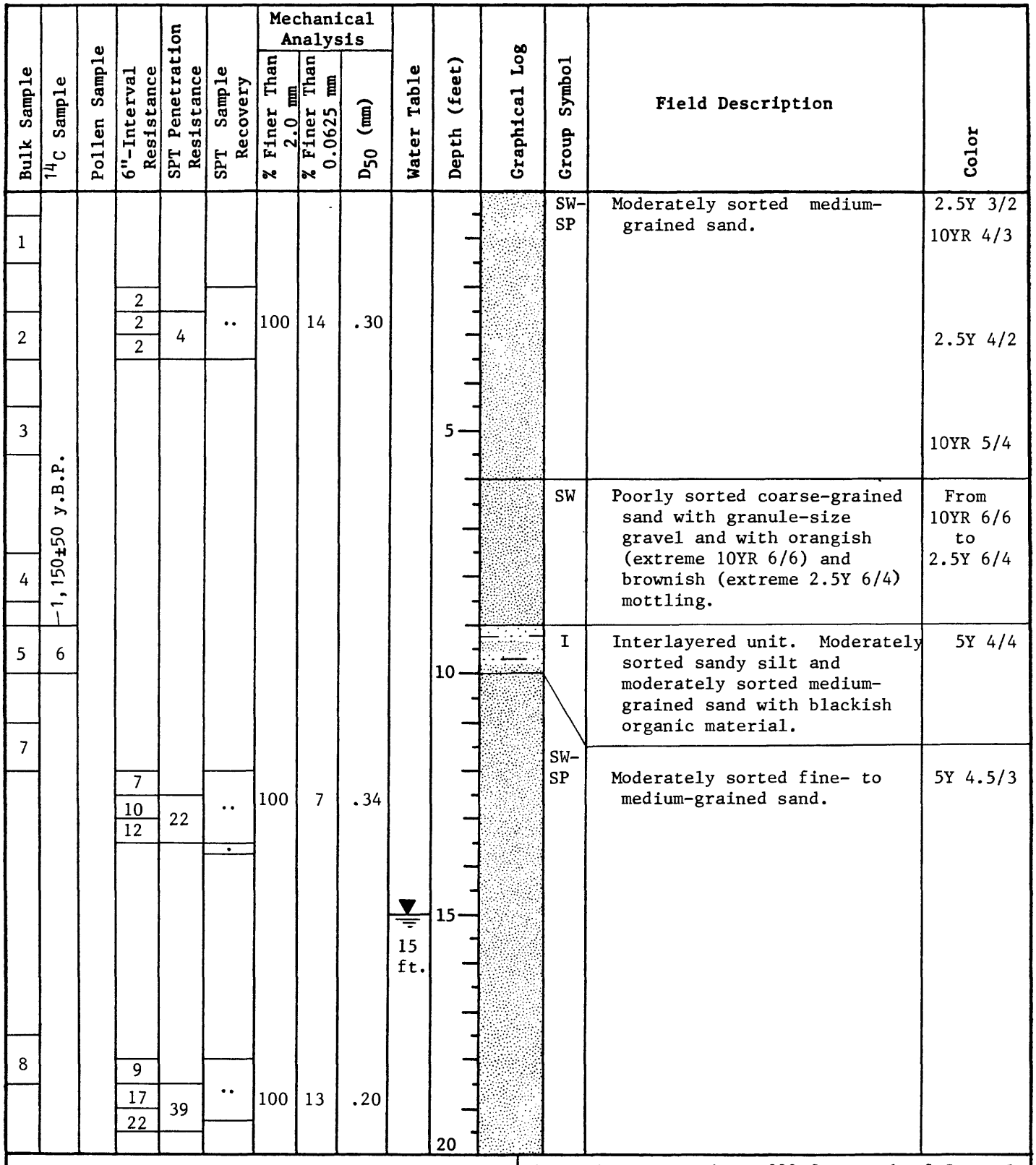
Date: 9/2/83

Sheet: 3 of 3

Approximate Location: 1600 ft. east of Tippecanoe Ave., north parkway of Central Ave.

Approx. Lat. Long.: 34°05'10" N., 117°15'15" W.

Approx. Elevation: 1065 ft.



Boring Number: DSS 12

Logged By: S.E.C., C.K.T.

Date: 9/10/83

Sheet: 1 of 3

Approximate Location: 300 ft. south of Central Ave., east parkway Lincoln Ave.

Approx. Lat. Long.: 34°05'15" N., 117°16'45" W.

Approx. Elevation: 1010 ft.

Bulk Sample	^{14}C Sample	Pollen Sample	6"-Interval Resistance	SPT Penetration Resistance	SPT Sample Recovery	Mechanical Analysis: % Finer Than 2.0 mm	Mechanical Analysis: % Finer Than 0.0625 mm	Mechanical Analysis: D_{50} (mm)	Water Table	Depth (feet)	Graphical Log	Group Symbol	Field Description	Color
													Continuation of above unit.	
9			7 10 18	28	..	99	8	.22						
10										25		SW	Poorly sorted, gravelly (typical dia. 2 - 4 mm, max. dia. 2 cm) coarse-grained sand.	2.5Y 4/4
11		11A										CL or CH	Clay with silt, organic material, and greenish (extreme 5G 6/1) and reddish (extreme 2.5R 4/2) mottling.	5GY 5/1
12	13									30		I	Interlayered unit. Predominantly silty fine-grained sand, but also silty clay and sandy silt.	5GY 4/1
14										35				
										40				

Boring Number: DSS 12

Logged By: S.E.C., C.K.T.

Date: 9/10/83

Sheet: 2 of 3

Approximate Location: 300 ft. south of Central Ave., east parkway Lincoln Ave.

Approx. Lat. Long.: 34°05'15" N., 117°16'45" W.

Approx. Elevation: 1010 ft.

Bulk Sample	^{14}C Sample	Pollen Sample	6"-Interval Resistance	SPT Penetration Resistance	SPT Sample Recovery	Mechanical Analysis: % Finer Than 2.0 mm	Mechanical Analysis: % Finer Than 0.0625 mm	Mechanical Analysis: D_{50} (mm)	Water Table	Depth (feet)	Graphical Log	Group Symbol	Field Description	Color
												SM	Poorly sorted, silty medium-grained sand.	
15		15A												
												CL or CH	Clay with silt and with grayish and blackish mottling.	
										45		I	Interlayered unit. Predominantly moderately sorted fine-grained sand, but also poorly sorted medium-grained sand.	5Y 3/1
16														
18	17											SM	Moderately sorted, silty fine-grained sand with organic rich zone.	2.5Y 4/4
	19									50		SP	Well sorted medium-grained sand.	5Y 4.5/3
20														
										55		SW	Poorly sorted coarse-grained sand with granule-size gravel and with orangish zone (2.5Y 4.5/4) at about 57.5 ft.	
										60		ML or MH	Silt with clay. Bottom of boring at 60 ft.	5Y 5/3

Boring Number: DSS 12

Logged By: S.E.C., C.K.T.

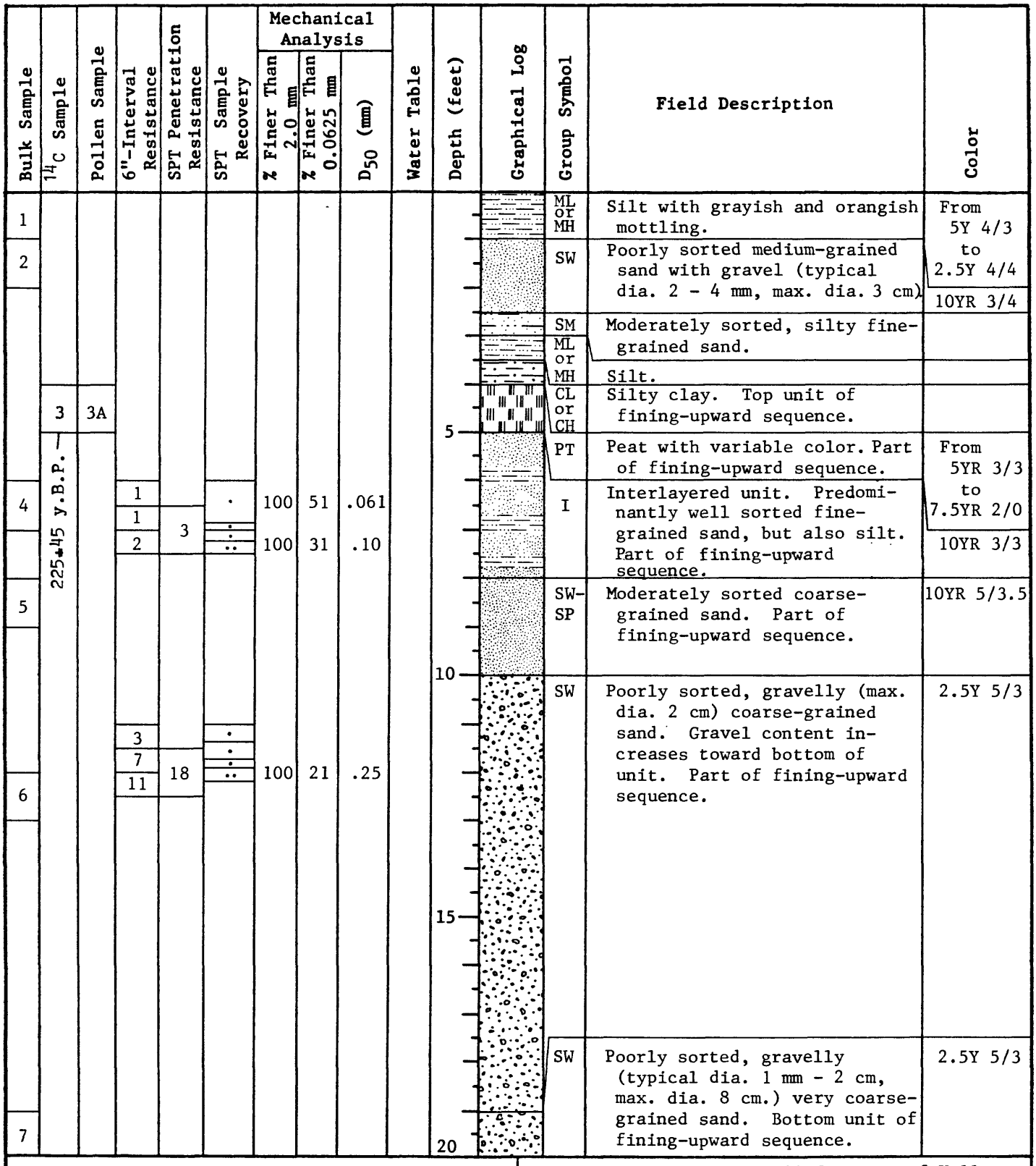
Date: 9/10/83

Sheet: 3 of 3

Approximate Location: 300 ft. south of Central Ave., east parkway Lincoln Ave.

Approx. Lat. Long.: 34°05'15" N., 117°16'45" W.

Approx. Elevation: 1010 ft.



Boring Number: DSS 13

Logged By: S.E.C., C.K.T.

Date: 9/11/83

Sheet: 1 of 3

Approximate Location: 100 ft. east of Valley View Ave., south parkway of Mill St. access road.

Approx. Lat. Long.: 34°05'30" N., 117°16'15" W.

Approx. Elevation: 1030 ft.

Bulk Sample	^{14}C Sample	Pollen Sample	6"-Interval Resistance	SPT Penetration Resistance	SPT Sample Recovery	Mechanical Analysis: % Finer Than 2.0 mm	Mechanical Analysis: % Finer Than 0.0625 mm	Mechanical Analysis: D_{50} (mm)	Water Table	Depth (feet)	Graphical Log	Group Symbol	Field Description	Color
													Continuation of above unit.	
8														
9		10										I	Interlayered unit. Predominantly clay, but also silty clay, and clayey silt. Greenish mottling.	5Y 4/1
										25				
												SW	Poorly sorted, gravelly (typical dia. 2 - 4 mm, max. dia. 3 cm) coarse-grained sand. Grades into finer unit below.	2.5Y 5/2
11														2.5Y 4/4
12												ML or MH	Sandy silt with organic material.	5Y 4/4
												SW	Poorly sorted, gravelly (typical dia. 2 - 4 mm, max. dia. 2 cm) coarse- to very coarse-grained sand. Fines toward top of unit.	2.5Y 4/3
										30				
13														
										35				
												ML or MH	Clayey silt with organic material.	5GY 4/1
14														
14A												SM	Moderately sorted, silty fine-grained sand.	Between 5Y 4/1 and 5GY 4/1
										40				

Boring Number: DSS 13

Logged By: S.E.C., C.K.T.

Date: 9/11/83

Sheet: 2 of 3

Approximate Location: 100 ft. east of Valley View Ave., south parkway of Mill St. access road.

Approx. Lat. Long.: 34°05'30" N., 117°16'15" W.

Approx. Elevation: 1030 ft.

Bulk Sample	^{14}C Sample	Pollen Sample	6"-Interval Resistance	SPT Penetration Resistance	SPT Sample Recovery	Mechanical Analysis: % Finer Than 2.0 mm	Mechanical Analysis: % Finer Than 0.0625 mm	Mechanical Analysis: D_{50} (mm)	Water Table	Depth (feet)	Graphical Log	Group Symbol	Field Description	Color
15	16	15A										CL or CH	Clay with organic material and with light and dark layering.	From 5GY 4/1 to 5Y 4/1
	1,185±50 y.B.P.											SW-SP	Moderately sorted, fine-grained sand.	5Y 4/1
17										45				
18												SM-SC	Poorly sorted, clayey, silty fine- to medium-grained sand.	2.5Y 4/4
										50		SW-SP	Moderately sorted medium-grained sand.	5Y 4.5/3
									ND				Refusal at 53 ft.	
										55				
										60				

Boring Number: DSS 13

Logged By: S.E.C., C.K.T.

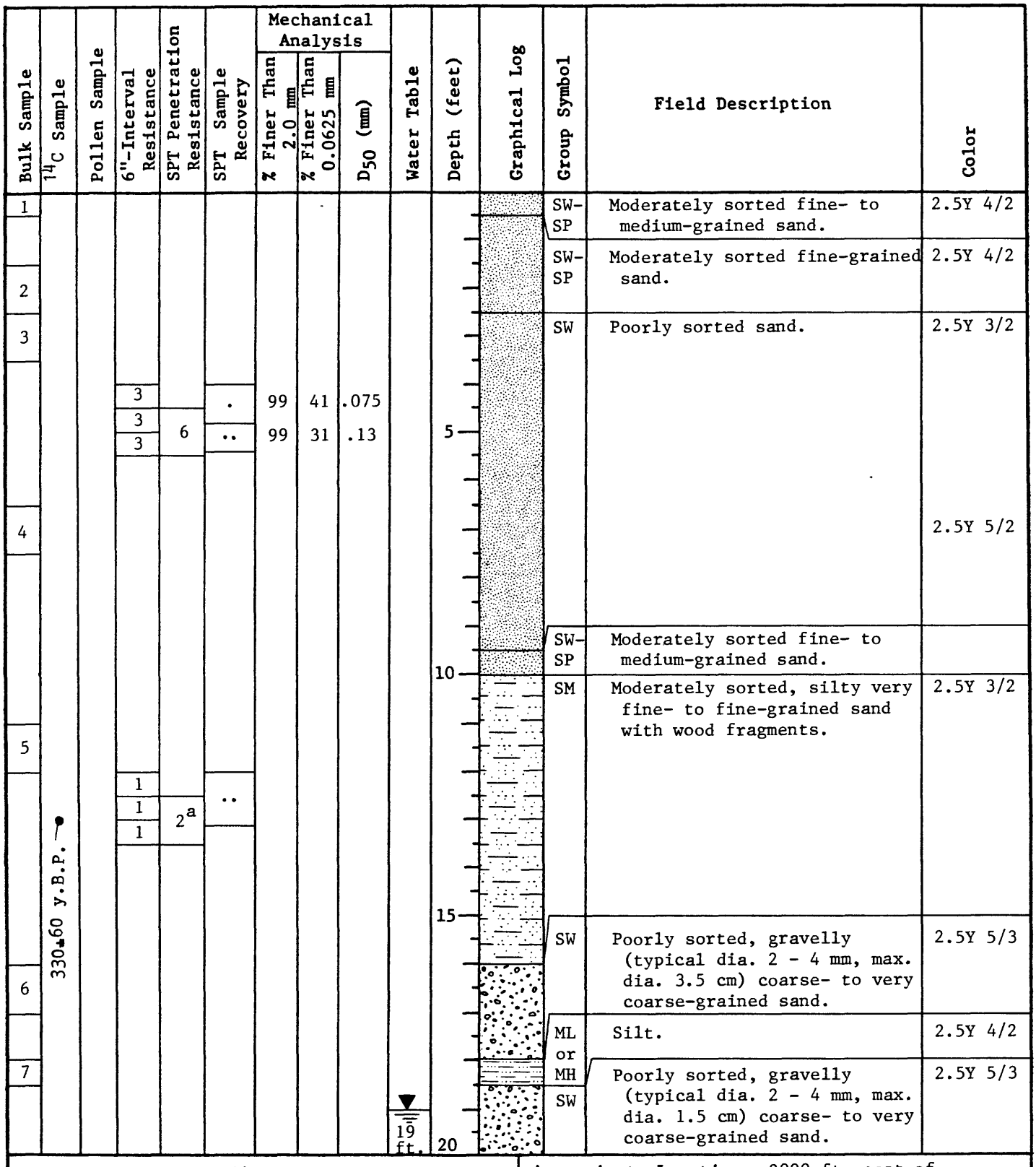
Date: 9/11/83

Sheet: 3 of 3

Approximate Location: 100 ft. east of Valley View Ave., south parkway of Mill St. access road.

Approx. Lat. Long.: 34°05'30" N., 117°16'15" W.

Approx. Elevation: 1030 ft.



Boring Number: DSS 14

Logged By: S.E.C., C.K.T.

Date: 9/13/83

Sheet: 1 of 2

Approximate Location: 2000 ft. east of Waterman Ave., south Parkway of Pioneer St.

Approx. Lat. Long.: 34°04'45" N., 117°16'15" W.

Approx. Elevation: 1025 ft.

Bulk Sample	^{14}C Sample	Pollen Sample	6"-Interval Resistance	SPT Penetration Resistance	SPT Sample Recovery	Mechanical Analysis: % Finer Than 2.0 mm	Mechanical Analysis: % Finer Than 0.0625 mm	Mechanical Analysis: D_{50} (mm)	Water Table	Depth (feet)	Graphical Log	Group Symbol	Field Description	Color
			7 15 19	34	••	91	21	.17					Continuation of above unit.	
8														
													Refusal at 24 ft.	
										25				
										30				
										35				
										40				

Boring Number: DSS 14	**Approximate Location:** 2000 ft. east of Waterman Ave., south parkway of Pioneer St.
Logged By: S.E.C., C.K.T.	
Date: 9/13/83	**Approx. Lat. Long.:** 34°04'45" N., 117°16'15" W.
Sheet: 2 of 2	**Approx. Elevation:** 1025 ft.

Bulk Sample	^{14}C Sample	Pollen Sample	6"-Interval Resistance	SPT Penetration Resistance	SPT Sample Recovery	Mechanical Analysis: % Finer Than 2.0 mm	Mechanical Analysis: % Finer Than 0.0625 mm	Mechanical Analysis: D_{50} (mm)	Water Table	Depth (feet)	Graphical Log	Group Symbol	Field Description	Color
												SM	Moderately sorted, silty fine-grained sand with clay.	2.5Y 4/3
1														
			3											
			4		..	98	37	.10						
			4	8										2.5Y 4/4
										5		SM	Moderately sorted, silty medium-grained sand.	5Y 6/2
2														
									▼					
			3		..	100	22	.19	8 ft.					
3			5	11										5Y 5/3
			6		.	100	16	.30		10				
4												SM	Moderately sorted, silty fine-grained sand.	5Y 4/4
												I	Interlayered unit. Predominantly moderately sorted, silty fine-grained sand, but also silty clay.	
												CL or CH	Clay with silt.	5Y 4/4
5														
										15				
6			4		.	100	23	.17				SM	Moderately sorted, silty fine-grained sand.	5Y 4.5/4
			7	13	..	100	42	.096						
			6									SM	Poorly sorted, silty fine-grained sand.	
												ML or MH	Clayey silt.	5Y 4/4
7										20				

Boring Number: DSS 15

Logged By: S.E.C., C.K.T.

Date: 9/13/83

Sheet: 1 of 3

Approximate Location: 100 ft. south of Hospitality Ln., west parkway of Hunts Ln.

Approx. Lat. Long.: 34°03'05" N., 117°17'15" W.

Approx. Elevation: 990 ft.

Bulk Sample	^{14}C Sample	Pollen Sample	6"-Interval Resistance	SPT Penetration Resistance	SPT Sample Recovery	Mechanical Analysis: % Finer Than 2.0 mm	Mechanical Analysis: % Finer Than 0.0625 mm	Mechanical Analysis: D_{50} (mm)	Water Table	Depth (feet)	Graphical Log	Group Symbol	Field Description	Color
												V	Graded unit. From silty clay at top of unit to moderately sorted, silty medium-grained sand at bottom of unit.	5Y 5/2
8		9												
10			3		·	100	62	.034						5GY 4/1
			9	22	··	100	31	.12						
			13		·	100	16	.15						
11										25				5GY 4/1
												CL or CH	Silty clay.	
			8									SM	Moderately sorted, silty fine- to medium-grained sand with organic material.	5Y 4/1
12			13	29	··	100	33	.12						
			16											
	13									30				Between 5Y 4/1 and 5GY 4/1
14			5											
		15	11	27	··	100	25	.17						
			16											
		16												
		17										I	Interlayered unit. Predominantly clay, but also silty clay. Both with greenish mottling (extreme 5GY 5/1), calcareous concretions, and organic material. Top unit of fining-upward sequence.	5GY 4/1
18										35				
										40				

Boring Number: DSS 15

Logged By: S.E.C., C.K.T.

Date: 9/13/83

Sheet: 2 of 3

Approximate Location: 100 ft. south of Hospitality Ln., west parkway of Hunts Ln.

Approx. Lat. Long.: 34°03'05" N., 117°17'15" W.

Approx. Elevation: 990 ft.

Bulk Sample	^{14}C Sample	Pollen Sample	6"-Interval Resistance	SPT Penetration Resistance	SPT Sample Recovery	Mechanical Analysis: % Finer Than 2.0 mm	Mechanical Analysis: % Finer Than 0.0625 mm	Mechanical Analysis: D_{50} (mm)	Water Table	Depth (feet)	Graphical Log	Group Symbol	Field Description	Color
												CL or CH	Clay with silt, greenish-mottling (extreme 5GY 5/1), calcareous concretions, and organic material. Part of fining-upward sequence.	5GY 4/1
		19												
20														
21												SM	Moderately sorted, silty medium-grained sand. Part of fining-upward sequence.	5GY 4/1
										45				
22												SM	Poorly sorted, silty medium- to coarse-grained sand. Bottom unit of fining-upward sequence.	5GY 4/1
												SM	Moderately sorted, silty fine- to medium-grained sand.	
										50			Bottom of boring at 50 ft.	
										55				
										60				

Boring Number: DSS 15

Logged By: S.E.C., C.K.T.

Date: 9/13/83

Sheet: 3 of 3

Approximate Location: 100 ft. south of Hospitality Ln., west parkway of Hunts Ln.

Approx. Lat. Long.: 34°03'05" N., 117°17'15" W.

Approx. Elevation: 990 ft.

Bulk Sample	^{14}C Sample	Pollen Sample	6"-Interval Resistance	SPT Penetration Resistance	SPT Sample Recovery	Mechanical Analysis: % Finer Than 2.0 mm	Mechanical Analysis: % Finer Than 0.0625 mm	Mechanical Analysis: D_{50} (mm)	Water Table	Depth (feet)	Graphical Log	Group Symbol	Field Description	Color
												SM-SW	Poorly sorted, silty, gravelly fine-grained sand.	10YR 6/3
1														
										5		SW	Poorly sorted, gravelly (max. dia. 10 cm) coarse-grained sand.	10YR 6/2
2														
										10				
			10											
			13	30[a]	..	54	4	1.8		15		SW	Poorly sorted, gravelly (typical dia. 2 mm - 2 cm) coarse-grained sand.	10YR 6/2
			17											
						100	100	.014				SM	Moderately sorted, silty fine-grained sand with orangish mottling.	10YR 4.5/6
3			5		:									
			5	12	..	100	51	.060						
			7											
										20				

Boring Number: DSS 16

Logged By: S.E.C., C.K.T.

Date: 8/29/83

Sheet: 1 of 2

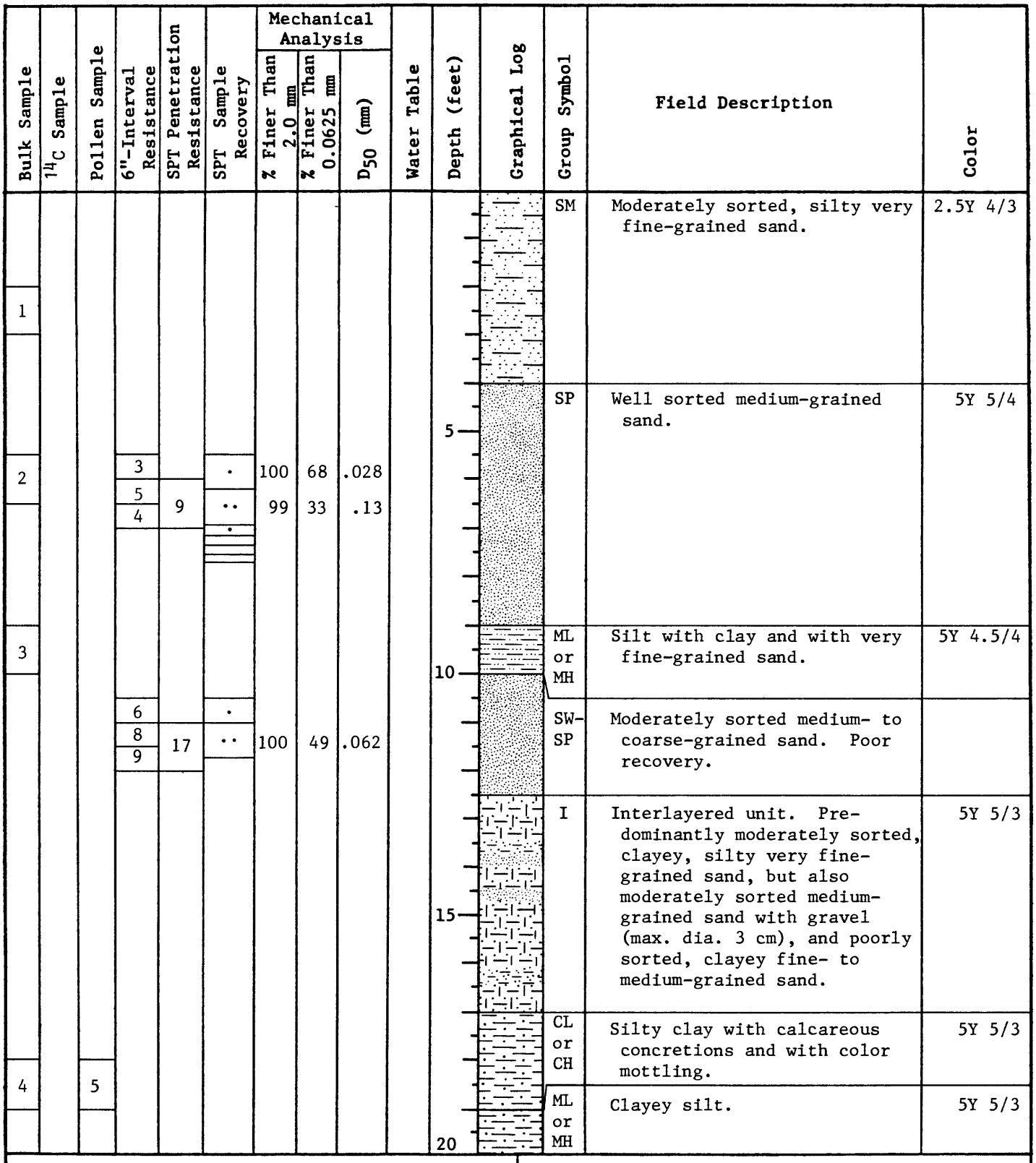
Approximate Location: 350 ft. south of Grant Ave., east parkway of Scott Ave.

Approx. Lat. Long.: 34°05'00" N., 117° 18'25" W.

Approx. Elevation: 1045 ft.

Bulk Sample	^{14}C Sample	Pollen Sample	6"-Interval Resistance	SPT Penetration Resistance	SPT Sample Recovery	Mechanical Analysis: % Finer Than 2.0 mm	Mechanical Analysis: % Finer Than 0.0625 mm	Mechanical Analysis: D_{50} (mm)	Water Table	Depth (feet)	Graphical Log	Group Symbol	Field Description	Color
												SW or SP	Gravelly sand? Poor recovery.	
									NE	25			Refusal at 25 ft.	
										30				
										35				
										40				

Boring Number: DSS 16	**Approximate Location:** 350 ft. south of Grant Ave., east parkway of Scott Ave.
Logged By: S.E.C., C.K.T.	
Date: 8/29/83	**Approx. Lat. Long.:** 34°05'00" N., 117°18'25" W.
Sheet: 2 of 2	**Approx. Elevation:** 1045 ft.



Bulk Sample	^{14}C Sample	Pollen Sample	6"-Interval Resistance	SPT Penetration Resistance	SPT Sample Recovery	Mechanical Analysis: % Finer Than 2.0 mm	Mechanical Analysis: % Finer Than 0.0625 mm	Mechanical Analysis: D_{50} (mm)	Water Table	Depth (feet)	Graphical Log	Group Symbol	Field Description	Color
												SM	Moderately sorted, silty very fine-grained sand.	2.5Y 4/3
1														
										5		SP	Well sorted medium-grained sand.	5Y 5/4
2			3		·	100	68	.028						
			5											
			4	9	··	99	33	.13						
					·									
3										10		ML or MH	Silt with clay and with very fine-grained sand.	5Y 4.5/4
			6		·									
			8									SW-SP	Moderately sorted medium- to coarse-grained sand. Poor recovery.	
			9	17	··	100	49	.062						
										15		I	Interlayered unit. Predominantly moderately sorted, clayey, silty very fine-grained sand, but also moderately sorted medium-grained sand with gravel (max. dia. 3 cm), and poorly sorted, clayey fine- to medium-grained sand.	5Y 5/3
												CL or CH	Silty clay with calcareous concretions and with color mottling.	5Y 5/3
4		5												
										20		ML or MH	Clayey silt.	5Y 5/3

Boring Number: DSS 17

Logged By: S.E.C., C.K.T.

Date: 9/2/83

Sheet: 1 of 3

Approximate Location: 45 feet east of Waterman Ave. access road, south parkway of Industrial Rd.

Approx. Lat. Long.: 34°03'25" N., 117°16'35" W.

Approx. Elevation: 1025 ft.

Bulk Sample	^{14}C Sample	Pollen Sample	6"-Interval Resistance	SPT Penetration Resistance	SPT Sample Recovery	Mechanical Analysis: % Finer Than 2.0 mm	Mechanical Analysis: % Finer Than 0.0625 mm	Mechanical Analysis: D_{50} (mm)	Water Table	Depth (feet)	Graphical Log	Group Symbol	Field Description	Color
												SM-SC	Poorly sorted, clayey, silty fine- to medium-grained sand, with gravel (max. dia. 2 cm) in central portion of unit.	5Y 4.5/3
6														
									▼ 25 ft.	25				
7			8		·	96	23	.34				SM	Poorly sorted, silty coarse-grained sand with gravel (max. dia. 1 cm).	5Y 4.5/3
			14	27[a]										
			13		••	63	15	.82						
												SC	Poorly sorted, clayey fine- to medium-grained sand.	2.5Y 4/3
8										30				
												SM-SC	Poorly sorted, clayey, silty fine- to coarse-grained sand.	5Y 4.5/3
9														
10												I	Interlayered unit. Predominantly clay and silt, both with varying amounts of sand and gravel. Also, poorly sorted medium-grained sand. All with calcareous concretions.	5Y 3/1 5Y 4.5/2 5Y 5/3 5Y 4/3
										35				
11														
										40				

Boring Number: DSS 17

Logged By: S.E.C., C.K.T.

Date: 9/2/83

Sheet: 2 of 3

Approximate Location: 45 feet east of Waterman Ave. access road, south parkway of Industrial Rd.

Approx. Lat. Long.: 34°03'25" N., 117°16'35" W.

Approx. Elevation: 1025 ft.

Bulk Sample	^{14}C Sample	Pollen Sample	6"-Interval Resistance	SPT Penetration Resistance	SPT Sample Recovery	Mechanical Analysis: % Finer Than 2.0 mm	Mechanical Analysis: % Finer Than 0.0625 mm	Mechanical Analysis: D_{50} (mm)	Water Table	Depth (feet)	Graphical Log	Group Symbol	Field Description	Color
												SM-SC	Moderately sorted, clayey, silty very fine- to fine-grained sand.	
12														
13										45		SM-SC	Poorly sorted, clayey, silty very fine- to medium-grained sand.	5Y 4/2
14												SM-SC	Moderately sorted, clayey, silty very fine- to fine-grained sand.	5Y 4.5/3
												SM	Poorly sorted, silty coarse-grained sand.	5Y 5/3
15														
										50		SM-SC	Poorly sorted, clayey, silty fine-grained sand.	5Y 4.5/3
16														
												SM	Poorly sorted, silty medium-grained sand with clay.	5Y 4.5/3
17										55				
												SM	Moderately sorted, silty fine-grained sand with granule-size gravel.	5Y 4.5/3
18														
										60			Bottom of boring at 60 ft.	

Boring Number: DSS 17

Logged By: S.E.C., C.K.T.

Date: 9/2/83

Sheet: 3 of 3

Approximate Location: 45 feet east of Waterman Ave. access road, south parkway of Industrial Rd.

Approx. Lat. Long.: 34°03'25" N., 117°16'35" W.

Approx. Elevation: 1025 ft.

Bulk Sample	^{14}C Sample	Pollen Sample	6"-Interval Resistance	SPT Penetration Resistance	SPT Sample Recovery	Mechanical Analysis: % Finer Than 2.0 mm	Mechanical Analysis: % Finer Than 0.0625 mm	Mechanical Analysis: D_{50} (mm)	Water Table	Depth (feet)	Graphical Log	Group Symbol	Field Description	Color
												ND	Dark brown material, probably fill.	
	1											ML or MH	Silt with sand, whitish calcareous material, and wood fragments.	5Y 4.5/3
2			2 7 8	15[a]	· ··	95	71	.018		5		SM	Moderately sorted, silty fine-grained sand.	2.5Y 5/4
3			5 10 21	31[a]	· ·· ·	100	26	.12		10		ML or MH	Clayey silt with fine-grained sand toward top of unit. Grades into coarser unit above.	5Y 5/2
4										15		SW	Poorly sorted fine-grained sand with silt and gravel (typical dia. 2 mm - 1.5 cm, max. dia. 5 cm).	5Y 4.5/3
5			16 24 32	56[a]	·· ·	60	3	1.0		20		ML or MH	Sandy silt.	5Y 4.5/3

Boring Number: DSS 18

Logged By: S.E.C., J.C.M.

Date: 9/6/83

Sheet: 1 of 2

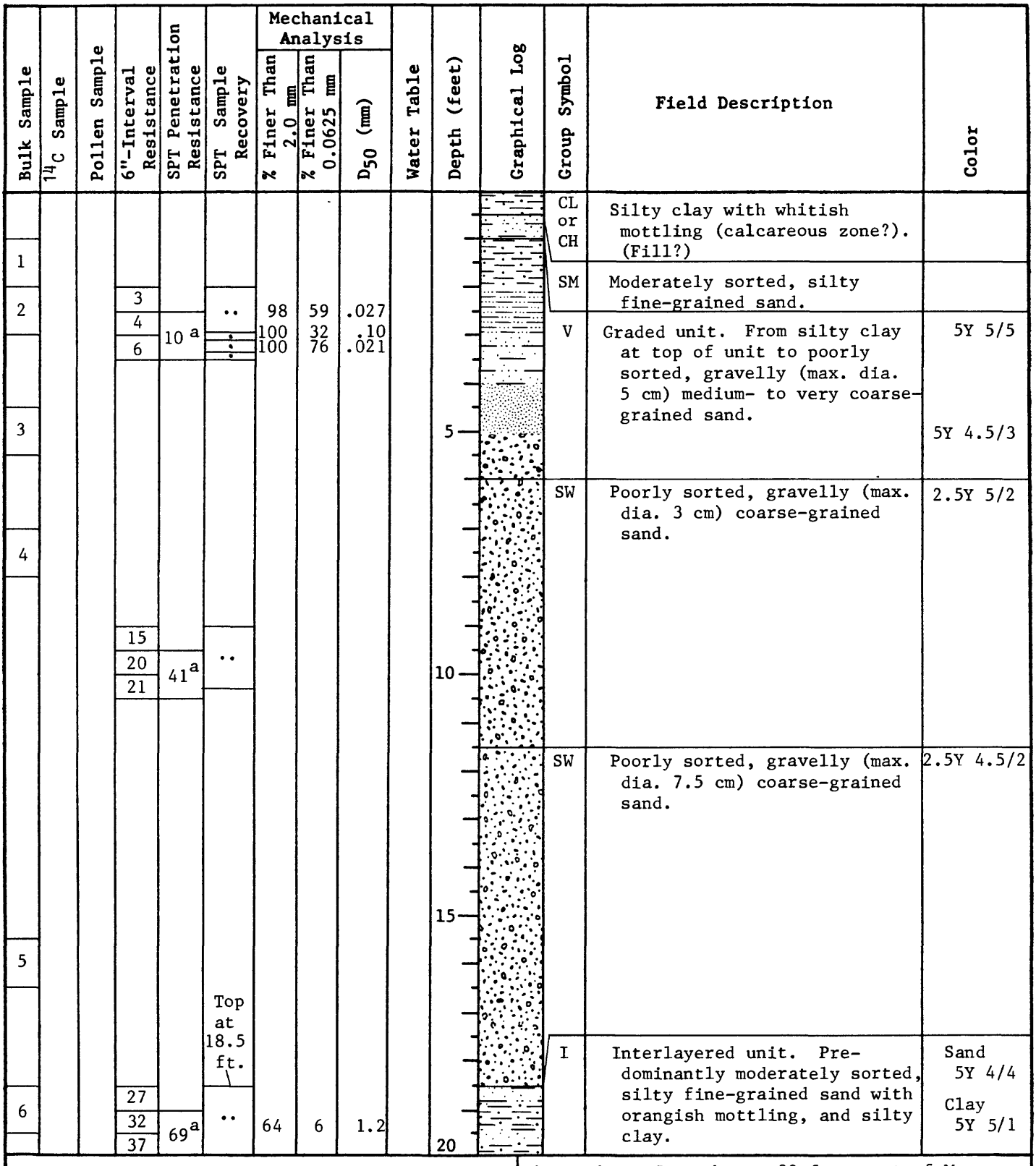
Approximate Location: Southwest corner of south terminus of Scenic Drive.

Approx. Lat. Long.: 34°04'45" N., 117°18'00" W.

Approx. Elevation: 1020 ft.

Bulk Sample	^{14}C Sample	Pollen Sample	6"-Interval Resistance	SPT Penetration Resistance	SPT Sample Recovery	Mechanical Analysis: % Finer Than 2.0 mm	Mechanical Analysis: % Finer Than 0.0625 mm	Mechanical Analysis: D_{50} (mm)	Water Table	Depth (feet)	Graphical Log	Group Symbol	Field Description	Color
											ND	ND	Poor recoverey, but may be cemented silt and clay material. (Hardpan?)	
									NE	25			Refusal at 23.5 ft.	
										30				
										35				
										40				

Boring Number: DSS 18	**Approximate Location:** Southwest corner of south terminus of Scenic Drive.
Logged By: S.E.C., J.C.M.	
Date: 9/6/83	**Approx. Lat. Long.:** 34°04'45" N., 117°18'00" W.
Sheet: 2 of 2	**Approx. Elevation:** 1020 ft.



Boring Number: DSS 19

Logged By: S.E.C., C.K.T.

Date: 8/30/83

Sheet: 1 of 2

Approximate Location: 30 feet west of Maryess Dr., south parkway of Hillcrest Ave.

Approx. Lat. Long.: 34°04'55" N., 117°18'15" W.

Approx. Elevation: 1030 ft.

Bulk Sample	^{14}C Sample	Pollen Sample	6"-Interval Resistance	SPT Penetration Resistance	SPT Sample Recovery	Mechanical Analysis: % Finer Than 2.0 mm	Mechanical Analysis: % Finer Than 0.0625 mm	Mechanical Analysis: D_{50} (mm)	Water Table	Depth (feet)	Graphical Log	Group Symbol	Field Description	Color
												SW	Poorly sorted, gravelly (max. dia. 10 cm) medium- to coarse-grained sand.	2.5Y 4/2
7, 8										25				
												SW	Poorly sorted, gravelly (max. dia. 10 cm) coarse-grained sand.	5Y 4/1.5
9										30				
										35				
									ND	40			Stopped drilling at 40 ft. due to caving.	

Boring Number: DSS 19

Logged By: S.E.C., C.K.T.

Date: 8/30/83

Sheet: 2 of 2

Approximate Location: 30 feet west of Maryess Dr., south parkway of Hillcrest Ave.

Approx. Lat. Long.: 34°04'55" N., 117°18'15" W.

Approx. Elevation: 1030 ft.

Bulk Sample	^{14}C Sample	Pollen Sample	6"-Interval Resistance	SPT Penetration Resistance	SPT Sample Recovery	Mechanical Analysis: % Finer Than 2.0 mm	Mechanical Analysis: % Finer Than 0.0625 mm	Mechanical Analysis: D_{50} (mm)	Water Table	Depth (feet)	Graphical Log	Group Symbol	Field Description	Color
												SM	Poorly sorted, silty fine- to medium-grained sand. (Fill?)	2.5Y 4/3
1														
2												ML or MH	Clayey silt.	5Y 5/3
										5		SM	Moderately sorted, silty fine-grained sand with clay.	5Y 4.5/3
3														
4												CL or CH	Silty clay.	2.5Y 4/3
												CL or CH	Clay with silt, and with whitish concretion in lower portion of unit (calcareous zone?).	2.5Y 4.5/2
5										10				2.5Y 4/2
6														2.5Y 5/2
												ML or MH	Clayey silt, with fine- to course-grained sand in lower portion of unit.	2.5Y 4/2
7														
										15				
			1		·	100	37	.13						
					..	95	27	.28						
8			5	12	·	97	24	.32				SM-SC	Very poorly sorted, clayey, silty fine- to very coarse-grained sand, with orangish mottling at about 28 ft.	2.5Y 4/2
			7		·	93	17	.47						
												CL or CH	Clay with silt.	2.5Y 4/2
9			5		..	100	50	.062						
			6	14	·	100	69	.028		20		SM	Moderately sorted, silty fine-grained sand.	

Boring Number: DSS 20

Logged By: S.E.C., J.C.M

Date: 9/8/83

Sheet: 1 of 3

Approximate Location: 125 feet east of D St., 15 feet north of Rialto Ave.

Approx. Lat. Long.: 34°06'05" N., 117°17'25" W.

Approx. Elevation: 1020 ft.

Bulk Sample	^{14}C Sample	Pollen Sample	6"-Interval Resistance	SPT Penetration Resistance	SPT Sample Recovery	Mechanical Analysis: % Finer Than 2.0 mm	Mechanical Analysis: % Finer Than 0.0625 mm	Mechanical Analysis: D_{50} (mm)	Water Table	Depth (feet)	Graphical Log	Group Symbol	Field Description	Color
10			8		·							SM	Moderately sorted, silty, fine-grained sand with clay.	2.5Y 4/3
												CL or CH	Silty clay.	
11		11A										CL or CH	Clay with silt. Color varies from between 5Y 5/1 and 5GY 5/1 to between 5Y 4/1 and 5GY 4/1.	See Field Description
									▼ 23.5 ft.			SM-SC	Poorly sorted, clayey, silty fine-grained sand.	
			6		··					25		SM	Very poorly sorted, silty, gravelly (typical dia. 2 - 4 mm) medium-grained sand.	
			5	17[a]		100	8	.20						
			12		·							I	Interlayered unit. Clay with silt, and moderately sorted fine-grained sand.	5Y 4/1
12		12A			·	100	84	.016				SW-SP	Moderately sorted medium-grained sand.	5Y 4/2
13												CL or CH	Silty clay.	5Y 4/2
										30				
14												SM-SC	Poorly sorted, clayey, silty fine- to medium-grained sand.	5Y 4/1.5
15												CL or CH	Silty clay with sand, and with organic material toward top of unit. Top unit of fining-upward sequence.	5Y 4/1.5
16														
										35				
			8		··	98	7	.36				SM-SC	Poorly sorted, clayey, silty fine- to medium-grained sand. Part of fining-upward sequence.	5Y 4/1.5
17			19	44[a]										
			25		·	85	12	.38						
18												SW-SP	Moderately sorted medium- to coarse-grained sand. Part of fining-upward sequence.	5YR 4.5/3
										40				

Boring Number: DSS 20

Logged By: S.E.C., J.C.M.

Date: 9/8/83

Sheet: 2 of 3

Approximate Location: 125 feet east of D St., 15 feet north of Rialto Ave.

Approx. Lat. Long.: 34°06'05" N., 117°17'25" W.

Approx. Elevation: 1020 ft.

Bulk Sample	^{14}C Sample	Pollen Sample	6"-Interval Resistance	SPT Penetration Resistance	SPT Sample Recovery	Mechanical Analysis: % Finer Than 2.0 mm	Mechanical Analysis: % Finer Than 0.0625 mm	Mechanical Analysis: D_{50} (mm)	Water Table	Depth (feet)	Graphical Log	Group Symbol	Field Description	Color
												SW	Poorly sorted, gravelly (typical dia. 2 - 4 mm, max. dia. 3 cm) coarse- to very coarse-grained sand. Color becomes more reddish and gravel content increases toward bottom of unit. Bottom unit of fining-upward sequence.	5Y 4.5/3
			16		•	91	5	.51						
19			18	74[a]	••	70	14	.79						
			56		•									
20										45				
21										50				
										55		SW-SP	Moderately sorted medium- to coarse-grained sand.	2.5Y 5/2
22										60			Bottom of boring at 60 ft.	

Boring Number: DSS 20

Logged By: S.E.C., J.C.M.

Date: 9/8/83

Sheet: 3 of 3

Approximate Location: 125 feet east of D St., 15 feet north of Rialto Ave.

Approx. Lat. Long.: 34°06'05" N., 117°17'25" W.

Approx. Elevation: 1020 ft.

Bulk Sample	^{14}C Sample	Pollen Sample	6"-Interval Resistance	SPT Penetration Resistance	SPT Sample Recovery	Mechanical Analysis: % Finer Than 2.0 mm	Mechanical Analysis: % Finer Than 0.0625 mm	Mechanical Analysis: D_{50} (mm)	Water Table	Depth (feet)	Graphical Log	Group Symbol	Field Description	Color
												SM	Moderately sorted, silty fine-grained sand. (Fill?)	5Y 4/3
1														
			4									SW-SP	Moderately sorted fine-grained sand with silt and with orangish mottling.	5Y 5/3
2			4	9	••	97	22	.19						
			5							5				
3												SM	Moderately sorted, silty fine-grained sand.	5Y 3/2
												ML or MH	Sandy silt with orangish mottling (extreme 10YR 4/6).	
4			2		•	100	12	.19						
			3	6	••	100	18	.16						2.5Y 4/4
			3											
5												CL or CH	Silty clay. Top unit of fining-upward sequence.	5Y 4/2
										10				
6			4		••			<15[b]	▼ 11 ft.			V	Graded unit. From moderately sorted, silty fine-grained sand at top of unit to moderately sorted, silty coarse-grained sand at bottom. Part of fining-upward sequence.	5Y 4/2
			3	8										
			5											
7												SW-SP	Moderately sorted, gravelly (max. dia. 6 cm) coarse-grained sand. Part of fining-upward sequence.	
										15				
												SW-SP	Moderately sorted, coarse-grained sand with gravel (max. dia. 2.5 cm). Part of fining-upward sequence.	5Y 5/2
8														
9			5		•									
			10	20[a]		57	5	1.4						
			10							20				

Boring Number: DSS 21

Logged By: S.E.C., C.K.T.

Date: 8/31/83

Sheet: 1 of 3

Approximate Location: 30 ft. north of 2nd St., east parkway of Lugo Ave.

Approx. Lat. Long.: 34°06'20" N., 117°17'00" W.

Approx. Elevation: 1020 ft.

Bulk Sample	^{14}C Sample	Pollen Sample	6"-Interval Resistance	SPT Penetration Resistance	SPT Sample Recovery	Mechanical Analysis: % Finer Than 2.0 mm	Mechanical Analysis: % Finer Than 0.0625 mm	Mechanical Analysis: D_{50} (mm)	Water Table	Depth (feet)	Graphical Log	Group Symbol	Field Description	Color
												SW-SP	Moderately sorted coarse- to very coarse-grained sand with gravel (typically granules). Part of fining-upward sequence.	2.5Y 5/2
			2											
			3		..	82	7	.42						
10			15	18[a]										
										25		SW-SP	Moderately sorted very coarse-grained sand with gravel (max. dia. 1 cm). Part of fining-upward sequence.	2.5Y 5/2
11												SW-SP	Moderately sorted very coarse-grained sand with gravel (max. dia. 2.5 cm). Part of fining-upward sequence.	2.5Y 5/2
										30		SW-SP	Moderately sorted, gravelly (typical dia. 2 mm - 1 cm) coarse- to very coarse-grained sand. Bottom unit of fining-upward sequence.	2.5Y 4.5/2
12										35				
13										40		SM-SC	Clayey silty sand. Poor recovery.	5Y 5/1

Boring Number: DSS 21

Logged By: S.E.C., C.K.T.

Date: 8/31/83

Sheet: 2 of 3

Approximate Location: 30 ft. north of 2nd St., east parkway of Lugo Ave.

Approx. Lat. Long.: 34°06'20" N., 117°17'00" W.

Approx. Elevation: 1020 ft.

Bulk Sample	^{14}C Sample	Pollen Sample	6"-Interval Resistance	SPT Penetration Resistance	SPT Sample Recovery	Mechanical Analysis: % Finer Than 2.0 mm	Mechanical Analysis: % Finer Than 0.0625 mm	Mechanical Analysis: D_{50} (mm)	Water Table	Depth (feet)	Graphical Log	Group Symbol	Field Description	Color
										45		SW-SP	Moderately sorted, gravelly (typical dia. 2 mm - 1 cm, max. dia. 5 cm) coarse- to very coarse-grained sand. Poor recovery.	2.5Y 3/2
										50		SM-SC	Poorly sorted, clayey silty sand. Poor recovery.	2.5Y 4/2
										55		I	Interlayered unit. Layers of material ranging from silty clay to silty fine-grained sand.	2.5Y 4.5/2
14		15										CL or CH	Clay with silt, dark organic material, and whitish calcareous material.	Between 5Y 4/1 and 5GY 4/1
16												CL or CH	Silty clay with fine-grained sand.	5Y 4/1
										60			Bottom of boring at 60 ft.	

Boring Number: DSS 21	**Approximate Location:** 30 ft. north of 2nd St., east parkway of Lugo Ave.
Logged By: S.E.C., C.K.T.	
Date: 8/31/83	**Approx. Lat. Long.:** 34°06'20" N., 117°17'00" W.
Sheet: 3 of 3	**Approx. Elevation:** 1020 ft.