SUMMARY OF SITE CONDITIONS ELECTRO-COATINGS, INC. FACILITY 1401 AND 1421 PARK AVENUE EMERYVILLE, CALIFORNIA

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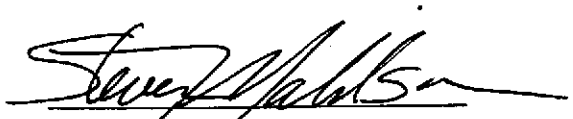

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1.0
INTRODUCTION

In 1963, Electro-Coatings, Incorporated (ECI) purchased the assets of a metal plating facility at 1401 and 1421 Park Avenue, Emeryville, California (Figure 1). Prior to 1963, Industrial Hard Chrome Plating Corporation operated the metal plating facility at the 1401 and 1421 Park Avenue address.

This report is in response to the 26 August 1994 letter from the Regional Water Quality Control Board (RWQCB). This letter outlines six specific items for inclusion in a technical report:

1. Discussion of investigations completed to date and inclusion of all relevant data.

2. Work plan to define the vertical and lateral extent of chlorinated solvents and chromium in soil and groundwater.

3. Proposed interim remedial measures to prevent the migration of the plumes to adjacent sites.

4. Documentation of the removal of the underground storage tanks.

5. Proposed remedial action to be implemented at the site to prevent migration and impact of the plumes.

6. Determination of potential health risks posed by the presence of the contaminant plumes to on-site workers and to occupants of adjacent sites.

1.1 OBJECTIVES

The objective of this report is to identify reasonable remediation actions based on current site conditions, risk to human health and the environment, and current and future use of the property including the soil and groundwater. While this report is in response to requests from the RWQCB, ECI has an ongoing program to identify and evaluate reasonable and appropriate remediation alternatives.

1.2 STRUCTURE OF THIS REPORT

This report is organized to address each of the above items described in the 26 August 1994 letter from the RWQCB:

- Section 2 describes the site and history of operations, summarizes environmental actions to date, and briefly describes the regional setting.
- Section 3 describes potential sources of chemicals to soil and groundwater, data collected to date, and interprets current environmental conditions at the site.
- Section 4 discusses exposure pathways and potential risk, but this section is not a formal risk assessment.
- Section 5 recommends a plan of action to mitigate further contribution of chemicals to soil and groundwater.

2.1 SITE DESCRIPTION

The 1.0 acre Electro-Coatings, Inc. (ECI) facility consists of two parcels of property. Four buildings are located on the premises. The facility began operation in 1952 under the ownership of Industrial Hard Chrome Plating Corporation. In 1963 the business was purchased by ECI. One of the parcels is owned by ECI and one is leased. The buildings abuts property lines along its northern and eastern borders and is surrounded by parking and paved areas to the south and west.

The facility is bounded to the north by Park Avenue. To the east is a dirt alley with buried railroad tracks which is reportedly scheduled to be improved in order to extend Holden Street from Park Avenue to 40th Street. A lumber yard and parking area are south and immediately adjacent to the facility. About 140 feet further south is the Southern Pacific Railroad right of way which is being reconstructed as an extension of 40th Street. A clothing outlet and a crematorium are immediately adjacent to the west of the facility. About 80 feet further west is Horton Street.

2.2 HISTORY OF SITE OPERATIONS

Chrome plating operations began at the site in 1952 by Industrial Hard Chrome Plating Corporation. Electroless nickel plating began in the late 1950s. In 1963, ECI purchased the assets of the facility. ECI ceased hard chrome plating in 1989 and now only performs nickel plating. The remaining nickel plating operation is slated for relocation sometime in the near future. All plating operations have and continue to be performed in vats constructed above the ground surface. All nickel plating operations have been performed on the 1421 Park Avenue parcel and all chrome plating operations have been performed on the 1401 Park Avenue parcel.

Trichloroethylene (TCE) was used at the facility to vapor degrease metal parts prior to nickel plating. Trichloroethylene (TCE) was in use prior to purchase by ECI in 1963. TCE use was discontinued in 1973 and 1,1,1-trichloroethane (TCA) was substituted in the vapor degreaser. Vapor degreasing was discontinued in 1992. Today, metal degreasing is performed using a liquid alkaline soak process. All metal degreasing operations were performed in the southwest portion of the facility on the 1421 Park Avenue parcel.

2.3 HISTORY OF ENVIRONMENTAL INVESTIGATIONS

In 1977 the California Regional Water Quality Control Board issued a Cleanup and Abatement Order (No. 77-011) which required ECI to investigate groundwater contamination emanating from the site. In response, ECI conducted a well survey and installed seven monitoring wells (wells MW-1, MW-2, MW-3A, MW-3B, MW-3C, MW-4 and MW-5) in 1977. The seven wells were sampled and analyzed for total chromium and hexavalent chromium in August 1977.

In 1978 three additional monitor wells (MW-6, MW-7 and MW-8) were installed. In 1980 five more monitor wells (MW-9, MW-10, MW-11, MW-12 and MW-13) were installed. Soil samples were also collected for analysis from the borings for these wells. All 15 wells were sampled in 1981, some more than once, and analyzed for total and hexavalent chromium.

In 1982 five additional monitor wells (MW-14, MW-15, MW-16, MW-17 and MW-18) were installed and one soil boring (B1) was conducted. Soil samples were also collected from the boring for monitor well 14. No data are available from the reported boring B1. In 1983 four additional wells (MW-18A, MW-19, MW-20 and MW-21) were installed and two soil borings, 22 and 23 were performed. In 1985, eight more soil borings were drilled and sampled, borings 24 through 31. Also, in 1985, 15 of the 24 wells were sampled and analyzed for total and hexavalent chromium and halogenated volatile compounds. It was during this round of sampling that TCE was encountered in the groundwater.

In 1991, 21 of the 24 monitor wells were samples. Three could not be located. Groundwater was analyzed for total chromium, hexavalent chromium and VOCs. Again

in 1991, and in 1994, selected wells were sample and analyzed for total chromium, hexavalent chromium, and VOCs.

Water sample analyses from all sampling events are summarized in Tables 3 through 8. Soil sample analyses are summarized in Table 2.

2.4 MUNICIPAL SETTING

The ECI facility is located in a highly industrialized area north of Interstate 580-Highway 24 and just east of Interstate 80. The facility is roughly 2,500 feet to the east of San Francisco Bay. The area was developed in early 1900s and various areas became industrialized beginning in the 1920s. The area is currently in transition.

On 7 September 1994, the City of Emeryville Zoning Ordinance Revision Committee conducted a public workshop as part of the City's effort to update the land use policies and design guidelines for the creation of a Revitalization Strategy/Zoning Overlay District for five blocks along Park Avenue. The ECI facility at 1401 and 1421 Park Avenue are included in this district.

Since 7 September, ECI has met with the City's Community Development staff, including the Redevelopment Director, Mr. Kofi Bonner. ECI has submitted copies of all existing technical reports describing environmental conditions to the City. The City has expressed the intent to preserve the character of this district while allowing new uses by non-industrial commercial businesses. Many buildings in the area have served their useful economic life for industry and are now in transition to other uses. The City wants to find ways to address the environmental issues so that development can occur without posing unacceptable risk to humans. Mr. Bonner is willing to meet with the County of Alameda Department of Health Services and the RWQCB and the property owners to discuss possible ways to address the environmental issues of this site as it is converted to non-industrial use.

2.5 HYDROGEOLOGIC SETTING

The site is generally underlain by clays and silty clays to roughly 15 feet. Between about 15 to 30 feet, the sediments become coarser, consisting of layers of sand and gravel with varying silt and clay content. This coarser zone comprises the water bearing unit and shallow aquifer. While variations exist at each boring location, the lithology and hydrogeology of the site can be generally described by the boring logs and cross-sections (Appendix C). Monitor well construction details are summarized in Table 1.

The shallow aquifer is semi-confined to confined, with a potentiometric surface roughly 6 to 9 feet below ground surface, and a hydraulic gradient to the west and northwest. An aquifer test performed in the aquifer yielded permeability of 28 $feet^3/day/foot^2$ (units can also be expressed as feet/day, which is not indicative of groundwater velocity). This permeability is typical for sand and gravel aquifers.

Three monitor wells (3A, 18A, 20) are constructed below the shallow aquifer. Underlying the shallow aquifer is an extensive blue clay with small lenses of sand and gravel. These three monitor wells are screened in deeper water bearing units and data from the deeper wells are not used to interpret conditions in the shallow aquifer. The potentiometric surface in the deeper wells 3A and 18A reveal a slight vertically downward hydraulic head, whereas, monitor well 20 shows an upward vertical head of about 3 feet above the shallow potentiometric surface. This upward head indicates that contaminants are not likely to migrate below the shallow aquifer under natural conditions.

3.1 POTENTIAL SOURCES

There are three identified potential sources of contaminants to soil and/or groundwater. The following generally describes each potential source. Other potential sources of compounds to soil at the facility include general operations and maintenance, but based upon the data, these activities are not considered at this time to be significant. Background or upgradient activities by others is the only other known general source of contaminants to groundwater beneath the ECI facility. The remainder of this section describes historical environmental data and site conditions as described by the most recent set of data.

3.1.1 CHROMIUM WASTE STORAGE AREA

The southeast corner of the facility directly behind the 1401 Park Avenue building is identified as the likely source of contaminants to soil and groundwater. It is labeled as "chromium waste storage area" on Figures 2 through 8. A concrete vault or tank was located there and it was reported leaking sometime in either 1974 or 1977, the record is unclear. In 1977, the storage area was completely reconstructed with double lined concrete and steel tank. The southeast corner of the facility directly behind the 1401 Park Avenue building is identified as the likely source of contaminant to soil and groundwater. It is labeled "chromium waste storage area" on Figures 2 through 8. The groundwater quality data (described below) indicate that elevated chromium concentrations probably emanated from this area. The chromium waste storage area is no longer used, nor available for use.

3.1.2 VAPOR DEGREASER AND SOLVENT ABOVE GROUND STORAGE TANK

Metal parts for nickel plating were degreased in an operation performed in the southwest corner of the facility. The vapor degreaser was located inside the southwest corner of the 1421 Park Avenue building and an above ground tank located outside the building was used to gravity feed the solvent to the degreaser. Until 1973, TCE was the solvent used in the vapor degreasing operation, at which time 1,1,1-TCA was substituted as the degreasing chemical. In 1992, vapor degreasing was discontinued at the facility. Although no leaks or spills are reported in the record, elevated levels of TCE, above background, may have emanated from this area, as this is the only known potential on-site source.

3.1.3 GASOLINE UNDERGROUND STORAGE TANK

A 500 gallon gasoline underground storage tank (UST) is reportedly located to the west of the building at 1421 Park Avenue. No investigation has been performed to date to either locate or assess the integrity of this UST.

3.1.4 BACKGROUND GROUNDWATER QUALITY

While this report does not detail current or historical industrial activities in the area upgradient from the ECI facility, the long term industrialization of this area is known. Groundwater quality in the region has been affected as a consequence of industrialization of the area that began in the early part of this century. Groundwater background, or upgradient, to the ECI facility is to the east, southeast, and northeast and is described by monitor wells MW-1, 2, 8, and 21 (see Figure 2 for locations).

These wells show that background groundwater contains detectable concentrations of chromium and various chlorinated solvents. Although no statistical evaluation of upgradient water quality has been performed, we estimate that upgradient shallow groundwater quality can be generally described as containing up to:

- 1 µg/l 1,1-DCE
- 800 µg/l trans 1,2-DCE

- 2 µg/l 1,1-DCA
- 110 µg/l TCA
- 70 µg/l chromium
- 100 (MW-8) to 2,200 (MW-21) µg/l TCE
- 250 (MW-21) µg/l PCE

It is noted that none of the ECI wells have been analyzed for petroleum products and there is no reported use of perchloroethylene (PCE) at the facility.

3.2 SOIL QUALITY

Soil samples have been analyzed from 15 soil borings shown in Figure 3. Table 2 summarizes the analytical results. Most of the borings were located south of the ECI building, some near the former chromium waste storage area. Borings 9 through 14 are associated with monitor wells with the same identification. Soil has been analyzed for total and hexavalent chromium, but not for solvents nor petroleum products. The data show that background levels of total chromium ranges from about 30 to 60 mg/kg; this is common for soils derived from the Franciscan complex of rocks comprising the San Francisco Bay Area. Hexavalent chromium is not considered an ambient form of chromium and was not detected in soil samples interpreted as representing background conditions.

Some of the soil borings extending 9 feet or more below ground surface (bgs) show an increase in total chromium with depth, notably borings 13, 27, 30, and 31. Because the potentiometric surface of the shallow groundwater is between 6 and 9 feet bgs, this increase probably results from chromium migrating in groundwater.

Soil borings 24 and 25 reveal levels of chromium greater than 1,000 mg/kg in near surface soils with background levels at depth. Because borings 24 and 25 are located east of the facility and off the property, it is not known if this chromium is attributable to ECI. The soil data show that chromium concentrations decrease to background levels by 9 feet bgs in boring 24, and by 6 feet bgs in boring 25, and that background concentrations are maintained to total sampling depth of 11.5 feet bgs. These data are not indicative of a source of chromium to groundwater.

In contrast, soil boring 22, located near the chromium waste storage area, shows that chromium concentrations attenuate to 482 mg/kg at 8.5 feet bgs, which is above background levels. The highest level of chromium in soil below 5 feet bgs, was contained in soil boring 23 at 980 mg/kg at 8 feet bgs. These data are indicative of a source area, which has been consistently described as located in the southeast corner of the facility. Other borings in this area also reveal chromium above background levels in some samples.

3.3 GROUNDWATER QUALITY

Groundwater samples have been collected at various times from 24 monitor wells installed by ECI on and off-site. Tables 3 through 8 summarize 17 years of analytical results beginning with monitor well installation in 1977 and continuing through 1994. Groundwater, when sampled, has been consistently analyzed for total chromium and hexavalent chromium. In 1977 and 1981, selected wells were also analyzed for the metals arsenic, iron, nickel, and zinc, and also pH. In 1985, 1991, and 1994 groundwater from most of the wells (fewer wells in 1994) was analyzed for purgeable halocarbons, with results tabulated for the more common chlorinated compounds 1,1-DCE, trans 1,2-DCE, 1,1-DCA, TCE, TCA, methylene chloride, and vinyl chloride. The analytical results for chromium and TCE are interpreted graphically in Figures 4 through 8.

3.3.1 CHROMIUM IN GROUNDWATER

Figure 4 plots the total chromium concentrations at each monitoring well location for the years 1981, 1985, 1991, and 1994. Figures 5 and 6 depict the distribution of total chromium in shallow groundwater in 1981 and 1991. Several wells recorded highest concentrations in 1985, but as suggested in an earlier technical summary report, it is possible that samples were not filtered in the field. Nonetheless, several important conditions can be interpreted from the data and figures:

- The magnitude, or highest concentrations of the chromium plume, is decreasing over time, from 880,000 µg/l at MW-5 in 1981 to 510,000 µg/l at MW-13 in 1991.

- The size of the chromium plume is increasing over time to the west to northwest and parallel with the direction of the groundwater gradient.

- The center, or most concentrated portion of the chromium plume, is migrating at a rate slower than the less concentrated portions of the plume.

- Significant contributions of chromium to groundwater stopped sometime ago, possibly before 1981) because the center, or most concentrated portions of the plume, is about 100 feet downgradient of the probable chromium source area in 1981 and 200 feet in 1991.

- The data support the source of chromium to groundwater as located near the southeast corner of the ECI building, based on a 10 feet/year migration of the plume center (comparing 1981 and 1991 figures).

- The plume and some background wells exceed drinking water criteria based upon the California maximum contaminant level (MCL) for chromium in drinking water level is 50 µg/l.

- Groundwater below the shallow aquifer contains detectable, but much lower, levels of chromium. It appears that the 1,300 µg/l chromium detected in deep well 20 in 1983 may have been a consequence of drilling because groundwater from this well was non detect for chromium in 1985; MW-20 was installed in 1983.

3.3.2 OTHER METALS IN GROUNDWATER

Detectable levels of arsenic, iron, nickel, and zinc were found in some of the wells sampled and analyzed for these metals. Most of the detected concentrations were near the detection limit. The MCL for arsenic is 50 µg/l and for nickel is 100 µg/l. Primary MCLs have not been promulgated for iron and zinc, secondary drinking water standards are 300 µg/l and 5,000 µg/l, respectively. From the data, only MW-5 had iron and nickel above standards, and only MW-11 had arsenic above standards.

3.3.3 CHLORINATED HYDROCARBONS IN GROUNDWATER

Purgeable halocarbons, which includes chlorinated solvents, were analyzed in selected wells in 1985, 1991, and 1994. Tables 7 and 8 summarize these data. Figure 7 plots TCE concentrations at each location for the years 1985, 1991, and 1994. Figures 8 and 9 depict the distribution of TCE in shallow groundwater in 1985 and 1991.

ECI reports using only the solvents TCE and 1,1,1-TCA at the facility. These solvents were used to degrease metal parts prior to plating. It is recognized that vinyl chloride and some forms of DCE and DCA are degradation products of TCE and TCA, and that TCE (and possibly TCA) is a degradation product of PCE. Because all of these compounds have been detected in ECI wells that monitor upgradient groundwater (see section 3.1.4), ECI is not the only source of these compounds to groundwater. While PCE is also detected in ECI wells, it is highest in background wells MW-1 (221 µg/l) in the northeast corner and MW-21 (380 µg/l) beyond the southern property line. Because PCE has no documented use at this facility and because background wells contain the highest concentrations, ECI is not interpreted to be a source of PCE.

The data and figures do show concentrations of TCE and TCA and their related degradation products DCE and DCA and vinyl chloride, above background levels downgradient from the southwest corner of the facility. This area housed the vapor degreaser with an outside above ground storage tank used to gravity feed TCE and later TCA. Several important conditions can be interpreted from the data and figures:

- The size of the TCE plume is increasing with time to the west to northwest and parallel with the direction of the groundwater gradient.

- The magnitude, or highest concentrations of the TCE plume, appears to be increasing over time, however, this may be due to the center of plume not intercepted by wells in 1985.

- The data support the source of TCE and TCA to groundwater as located near the southwest corner of the facility.

- The California maximum contaminant level (MCL) for TCE, TCA, and PCE in drinking water is 5 µg/l, 200 µg/l, and 5 µg/l, respectively. The

plume and most background wells exceed drinking water criteria for TCE and PCE. Only wells MW-10 and MW-16 exceed the MCL for TCA.

- Groundwater below the shallow aquifer has only been analyzed from well 18A, which contained low levels of TCE and methylene chloride in 1985.

3.4 SUMMARY OF CURRENT ENVIRONMENTAL CONDITIONS

The most recent comprehensive set of data describing groundwater is from 1991. These data are graphically depicted for total chromium in Figure 6 and for TCE in Figure 9. Both figures show that the most concentrated portions of the plumes are still located almost entirely on the ECI property. The figures also show the plume to extend to the west and northwest, parallel with groundwater flow direction Background levels for both total chromium and TCE appear to be reached about 100 to 200 feet beyond MW-6. Based on the limited 1994 data, chromium and TCE concentrations appear to be decreasing. The plume does not extend into any areas known to be a source of drinking water supply.

Data describing soil were collected from 1980 to 1985. Because operations at the facility have remained similar or have decreased over the last several years, the extent of soil with chromium and TCE is not expected to be much different than described by the existing data.

The purpose of this section is to generally describe the potential for exposure to contaminants at the ECI facility, notably chromium and TCE. Routes of human exposure to contaminated soil include dermal absorption, inhalation of particulates, and incidental ingestion. Routes of human exposure to contaminated groundwater include dermal absorption, inhalation of volatiles and water droplets, and ingestion of contaminated water supplies. Some of the following discussion is based on the *Site Inspection Prioritization* report dated 20 September 1993 and generated by Bechtel for the U.S. Environmental Protection Agency for the purpose of assessing 'the relative threat associated with actual or potential releases of hazardous substances at the site."

EXPOSURE TO SOIL

Currently, the site is covered by either buildings or pavement; and the surrounding area is similarly developed. The known or inferred locations of contaminated soil are either beneath buildings, beneath pavement, or beneath several feet of uncontaminated soil. Under current conditions, exposure of on-site workers or workers at adjacent sites to contaminated subsurface soils is unlikely.

The one exception is the chromium detected in shallow soil to the east along the buried railroad tracks (soil borings 24 and 25). Because of the reported planned construction in this area, ECI has notified Catellus Development of the presence of elevated levels of chromium found in soil borings in 1985.

EXPOSURE TO GROUNDWATER

The water bearing unit at the site begins at about 15 feet below ground surface. The only routes of exposure to this groundwater would be via supply wells or excavation. Surveys of groundwater supply wells have been performed by previous consultants to ECI and by Bechtel, the contractor for the EPA in 1993. None of these surveys revealed groundwater supply wells that would be potentially impacted by the plume emanating from the ECI

facility. Under current conditions, exposure of on-site workers or workers at adjacent sites to shallow groundwater is unlikely.

POTENTIAL FUTURE EXPOSURE SCENARIOS

There are potential future scenarios that may result in exposure to contaminated media. If subsurface soils containing concentrations of contaminants above background levels are excavated, potential exposure pathways may include dermal adsorption, inhalation of particulates, and incidental ingestion. If excavation continues into the groundwater, then potential exposures may include inhalation and dermal adsorption. Use of the groundwater as source of drinking water is unlikely because the EBMUD supplies drinking water to the Emeryville area by importng surface water from the Central Valley of California, over 100 miles to the east.

This sections provides recommendations for action in response to known or inferred conditions regarding chromium and TCE in soil and groundwater at the site. These recommendations should be further discussed and developed, and then prioritized based on perceived need, regulatory criteria and request, cost effectiveness, financial abilities of ECI, future use, and potential effects on the redevelopment plan now underway by the City of Emeryville. This section is intended to serve as an outline for a work plan to be further developed following discussions with the regulatory agencies.

5.1 KNOWN AND POTENTIAL SOURCE AREAS

There are three known or potential sources that should be considered for investigation and remediation. They are the chromium waste storage area, the vapor degreasing operation and TCE above ground storage tank, and the gasoline UST.

- The chromium waste storage area should be further investigated. Soil containing elevated levels of chromium should be removed. Contaminated soil can as appropriate, be subject to building integrity serve as a secondary and long term source of compounds to groundwater long after the primary source has been removed. A cleanup level for chromium in soil should be developed one te extent is known.

- The vapor degreasing area should be investigated. Soil with elevated levels of TCE, or other contaminants, should be remediated, as appropriate subject to building integrity. Contaminated soil can serve as a secondary and long term source of compounds to groundwater long after the primary source has been removed. A cleanup level for TCE and other chlorinated hydrocarbons should be developed once the extent is known.

- The gasoline UST should be located and records describing the UST should be located and reviewed. As appropriate, and presuming the UST is not slated for future use, the UST should be removed or abandoned in place by filling with concrete. Soil samples and UST closure should be performed consistent with the RWQCB and County guidelines.

5.2 OTHER AREAS WITH CONTAMINANTS IN SOIL

Only one other area exists with known concentrations of chromium above background that is not associated with a known or potential source area. This is the shallow soil east of the facility adjacent to the buried railroad tracks. While it is not clear if ECI activities are responsible for this chromium, ECI is aware of its existence. As described above, ECI has recently notified Catellus Development of the presence of elevated levels of chromium. We recommend that ECI confirm this notification in writing and receive notification that this issue is being appropriately addressed if and when road construction is contemplated.

5.3 GROUNDWATER

One complete round of groundwater samples should be collected from all monitor wells except 3C. MW-3C is screened in a zone already screened by immediately adjacent well MW-3B. Groundwater from these wells should be analyzed for total chromium and purgeable halocarbons. The samples for chromium should be filtered in the field to exclude artifacts introduced by suspended sediment. In addition, an attempt should be made to determine which previous groundwater samples were submitted filtered or unfiltered for analysis. The results of the recommended groundwater sampling should be evaluated along with previous data for the purpose of developing an annual groundwater sampling program. Annual sampling is considered adequate based on a 17 year history of data and the reasonably predictable behavior of the groundwater plume.

Groundwater remediation is not recommended at this time because:

- Groundwater is not a source of drinking water downgradient of the site.

- There are no actual beneficial uses being impacted by the groundwater plume.

- EBMUD supplies all water to Emeryville, and exposure to, and use of, the groundwater is unlikely.

- There is a regional groundwater contamination problem that should be approached comprehensively with costs allocated accordingly.

- The only identifiable probable use of the groundwater is as discharge to the bay. Concentrations of compounds at this point of discharge are not yet predicted, but based on current data and rates of contaminant attenuation, the discharged concentrations are likely to be much lower than those detected at the ECI facility.

Bechtel Environmental, Inc., Site Inspection Prioritization, September 20, 1993.

American Environmental Management Corporation, Groundwater Monitoring Report for Electro-Coatings, Inc., Emeryville, California, January 27, 1992, pp 1-4, 12-17, 19-22.

Kleinfelder, Inc., Data Summary Report, Electro-Coatings Facility, 1421 Park Avenue, Emeryville, California, April 25, 1991, Tables 1,3,5,7, Plates 2-9.

Poling, Kathleen U., Electro-Coatings, Inc., Letter to Susan Hugo, county of Alameda, Department of Environmental Health Hazardous Materials Division, August 31, 1994.

Table 1
WELL SUMMARY

Well No.	Date of Installation	Depth of Well (feet)	Depth To Water 5 November 1991 (feet)	TOC Elevation (feet)	Water Elevation 5 November 1991 (feet)	Screen Interval (feet)	Depth of Well Seal (feet)	Well Dia. / Slot Size (inch)	Remarks from 5 November 1991 survey
1	08/18/77	29	6.4	15.19	8.79	21-29	14	4/na	New locking well cap, removed tubing from well
2	08/18/77	21	na	na	na	14-21	13	1.5/na	Could not locate
3A	08/15/77	65	7.75	16.1	8.35	57-61	55	1.5/na	7" well cover installed
3B	08/15/77	18	7.1	16.3	9.2	16-18	15	1.5/na	7" well cover installed
3C	08/15/77	15	6.825	16.21	9.38	11-14	10	1.5/na	7" well cover installed
4	08/15/77	20.5	6.6	14.29	7.69	16-20	14.5	1.5/na	7 " well cover installed
5	08/15/77	15	7.55	15.87	8.32	11-15	10	1.5/na	7" well cover installed
6	02/21/78	18	3.675	9.24	5.56	13-17	11	1.5/na	7" well cover installed, found tubing in well
7	02/21/78	18	na	na	na	10-13	9	1.5/na	Could not locate
8	03/13/78	22	6.575	16.42	9.84	16-22	14	na/na	7" well cover installed, extend casing, found tubing in well
9	12/12/80	24.5	7.1	16.03	8.93	17.5-24.5	15.5	4/na	12" well cover installed, new locking well cap- soil boring
10	12/18/80	24.5	7.15	15.1	7.95	17.5-24.5	17	4/na	12" well cover installed, new locking well cap - soil boring
11	12/19/80	29	6.7	15.94	9.24	16-29	14.5	6/na	New locking well cap - soil boring
12	12/22/80	28.5	6.85	16.04	9.19	17.5-28.5	14.5	4/na	New locking well cap
13	04/13/82	45	7.125	15.37	8.24	10.5-15.5	9.5	6/na	12" well cover installed, new locking well cap - soil boring
14	04/13/82	25	7.075	15.49	8.41	15-25	na	4/0.01	New locking well cap - soil boring
15	04/13/82	25	8.35	17.26	8.91	15-25	na	4/0.01	New locking well cap
16	04/13/82	22	4.8	12.08	7.28	12-22	na	4/0.01	New locking well cap
17	04/13/82	25	5.075	12.76	7.68	10-20	na	4/0.01	New locking well cap
18	04/13/82	25	5.375	13.57	8.19	15-25	na	4/0.01	New locking well cap, new well cover lid
18A	1983	51.5	6.5	13.36	6.86	35-50	35	4/0.02	Repair casing, new locking well cap
19	06/10/83	25	na	na	na	10-25	6	4/0.02	Could not locate
20	1983	53	3.55	14.93	11.38	31-51	28	4/0.02	Repair casing, new locking cap, grout inside casing
21	06/08/83	0.5	na	na	na	10-25	7	4/0.02	Could not locate

Notes: na = not available

Table 2
CHROMIUM IN SOIL

Boring Number	Approximate Sample Date	Sample Depth (feet)	Total Chromium (mg/Kg)	Hexavalent Chromium (mg/Kg)
9	12/12/80	6-7	31	-
10	12/16/80	3.5-4.5	29	-
		5-7.5	52	-
11	12/18/80	3	39	-
		5.5	35	-
13	12/22/80	3	48	-
		8	305	-
14	04/13/82	5	33	-
		10	48.8	-
		15	40.2	-
		20	46	-
22	06/08/83	4-4.5	5,200	-
		8-8.5	482	-
23	06/83	2-2.5	38.4	-
		7.5-8	980	-
24	01/09/85	2.0-2.5	6,700	< 0.2
		4.0-4.5	727	-
		6.0-6.5	432	91
		9.0-9.5	41.5	-
		11.0-11.5	41.5	-
25	01/05/85	2.0-2.5	2,030	< 0.2
		4.0-4.5	503	< 0.2
		6.0-6.5	40.9	-
		9.0-9.5	44.9	-
		11.0-11.5	42.9	-
26	01/09/85	4.0-4.5	48.2	< 0.2
		6.0-6.5	39.9	-
		9.0-9.5	45.1	-
		11.0-11.5	66.1	-
27	01/09/85	2.0-2.5	95.3	-
		4.0-4.5	78.2	-
		6.0-6.5	102	-
		9.0-9.5	250	1.6
		11.0-11.5	51.7	-
28	01/09/85	2.0-2.5	52.2	-
		4.0-4.5	434	< 0.2
		6.0-6.5	4934	-
		9.0-9.5	49.5	-
		11.0-11.5	24.1	-
29	01/09/85	2.0-2.4	55.6	0.4
		4.0-4.5	46	-
		6.0-6.5	36.9	-
		9.0-9.5	47.6	-
30	01/09/85	2.0-2.5	45	-
		4.0-4.5	48.5	-
		6.0-6.5	36.1	-
		9.0-9.5	57.9	-
		11.0-11.5	110	44
31	01/09/85	2.0-2.5	60.8	-
		4.0-4.5	45.2	-
		6.0-6.5	37	< 0.2
		9.0-9.5	130	-
		11.0-11.5	73.7	-

Notes: Soil borings 9 through 14 correspond to monitor well locations.
- = no data

Table 3
TOTAL CHROMIUM IN SHALLOW GROUNDWATER

Well Number	Aug-77 (ug/l)	Jan-81 (ug/l)	Jul-81 (ug/l)	Sep-81 (ug/l)	Oct-81 (ug/l)	Nov-81 (ug/l)	Dec-81 (ug/l)	Jun-83 (ug/l)	Feb-85 (ug/l)	Jun-91 (ug/l)	Oct-91 (ug/l)	Jul-94 (ug/l)
1	200	-	-	<1	1	2.5	32	-	<20	-	<50	-
2	60	-	-	<1	4	1.1	2	-	-	-	-	-
3B	60	-	-	<1	480	2,000	190	-	-	-	110,000	-
3C	18,000	-	-	30,000	28,000	22,000	17,000	-	7,250	-	2,300	-
	7,100											
4	90,000		-	57,000	61,000	56,000	55,000	-	59,000	17,000	22,000	-
5	360,000	-	-	-	880,000	610,000	280,000	-	480,000	390,000	260,000	-
6	-	-	-	630	80	790	630	-	3,330	-	31,000	-
7	-	-	-	<1	<1	-	3	-	-	-	-	-
8	-	-	-	<1	2	2.5	70	-	<20	-	<50	-
9	-	258,000	-	-	-	-	-	-	892,000	-	140,000	-
10	-	17,000	-	-	-	-	-	-	746,000	-	490,000	-
11	-	129,000*	340	-	-	-	-	-	2,440	-	470	-
12	-	32,000	-	-	-	-	-	-	240,000	38,000	44,000	-
13	-	381,000*	-	-	-	-	-	-	676,000	-	510,000	230,000
14	-	-	-	-	-	-	-	-	654,000	-	320,000	-
15	-	-	-	-	-	-	-	-	<20	30	<50	-
16	-	-	-	-	-	-	-	-	460,000	-	240,000	120,000
17	-	-	-	-	-	-	-	-	90,000	-	250,000	190,000
18	-	-	-	-	-	-	-	-	60,500	-	31,000	-
19	-	-	-	-	-	-	-	<20	20	-	-	-
21	-	-	-	-	-	-	-	20	40	-	-	-

Notes: October 1991 data also includes November 1991 data

* Data represents the average of 8 sequential samples collected hourly during a pumping test.

< 20 = less than detection limit

\- = no data

Table 4
HEXAVALENT CHROMIUM IN SHALLOW GROUNDWATER

Well Number	Aug-77 (ug/l)	Jan-81 (ug/l)	Jul-81 (ug/l)	Sep-81 (ug/l)	Oct-81 (ug/l)	Nov-81 (ug/l)	Dec-81 (ug/l)	Jun-83 (ug/l)	Feb-85 (ug/l)	Jun-91 (ug/l)	Oct-91 (ug/l)	Jul-94 (ug/l)
1	-	-	-	-	-	-	-	-	<20	-	50	-
2	-	-	-	-	-	-	-	-	-	-	-	-
3B	-	-	-	-	-	-	-	-	-	-	100,000	-
3C	12,000	-	-	-	-	-	-	-	6,300	-	1,600	-
	6,700											
4	67,000	-	-	-	-	-	-	-	59,000	17,800	22,000	6,300
5	295,000	-	-	-	2,240	-	-	-	480,000	-	250,000	454,000
6	-	-	-	-	-	-	-	-	3,300	-	25,000	4,800
7	-	-	-	-	-	-	-	-	-	-	-	-
8	-	-	-	-	-	-	-	-	<20	-	<10	-
9	-	185,000	-	-	-	-	-	-	877,000	-	130,000	-
10	-	14,000	-	-	-	-	-	-	740,000	-	450,000	-
11	-	115,500*	34	-	-	-	-	-	2,410	-	410	-
12	-	12,000	-	-	-	-	-	-	240,000	29,700	39,000	
13	-	325,000	-	-	-	-	-	-	676,000	-	430,000	130,000
14	-	-	-	-	-	-	-	-	632,000	-	310,000	-
15	-	-	-	-	-	-	-	-	<20	-	<10	<10
16	-	-	-	-	-	-	-	-	460,000	-	290,000	320,000
17	-	-	-	-	-	-	-	-	38,200	-	300,000	200,000
18	-	-	-	-	-	-	-	-	55,000	-	24,000	-
19	-	-	-	-	-	-	-	<20	20	-	-	-
21	-	-	-	-	-	-	-	<20	<20	-	-	-

Notes: October 1991 data also includes November 1991 data

* Data represents the average of 8 sequential samples collected hourly during a pumping test.

< 20 = less than detection limit

\- = no data

Table 5
TOTAL CHROMIUM IN DEEP GROUNDWATER

Well Number	Aug-77 (ug/l)	Jan-81 (ug/l)	Jul-81 (ug/l)	Sep-81 (ug/l)	Oct-81 (ug/l)	Nov-81 (ug/l)	Dec-81 (ug/l)	Jun-83 (ug/l)	Aug-83 (ug/l)	Feb-85 (ug/l)	Oct-91 (ug/l)	Jul-94 (ug/l)
3A	50	-	-	<1	<1	230	14	-	-	770	130	-
18A	-	-	-	-	-	-	-	20	-	<20	<50	-
20	-	-	-	-	-	-	-	1,300	90	<20	<50	-
								1,300				

Notes: October 1991 data also includes November 1991 data

* Data represents the average of 8 sequential samples collected hourly during a pumping test.

< 20 = less than detection limit

\- = no data

Table 6
HEXAVALENT CHROMIUM IN DEEP GROUNDWATER

Well Number	Aug-77 (ug/l)	Jan-81 (ug/l)	Jul-81 (ug/l)	Sep-81 (ug/l)	Oct-81 (ug/l)	Nov-81 (ug/l)	Dec-81 (ug/l)	Jun-83 (ug/l)	Aug-83 (ug/l)	Feb-85 (ug/l)	Oct-91 (ug/l)	Jul-94 (ug/l)
3A	-	-	-	-	-	-	-	-	-	80	<500	-
18A	-	-	-	-	-	-	-	<20	-	<20	<10	-
20	-	-	-	-	-	-	-	1200 530	40	<20	14	-

Notes: October 1991 data also includes November 1991 data

* Data represents the average of 8 sequential samples collected hourly during a pumping test.

< 20 = less than detection limit

\- = no data

Table 7

PURGEABLE HALOCARBONS IN SHALLOW GROUNDWATER

Well Number	Date	1,1-DCE (ug/l)	Trans 1,2-DCE (ug/l)	1,1-DCA (ug/l)	TCE (ug/l)	TCA (ug/l)	PCE (ug/l)	Methylen Chloride (ug/l)	Vinyl Chloride (ug/l)
1	3/21/85	<0.5	<0.5	<0.5	33	<0.5	21	<0.5	<0.5
	11/15/91	0.5	4.8	1.6	11	<0.5	0.6	<0.5	<1
2	NS	-	-	-	-	-	-	-	-
3B	10/29/91	13	45	1.2	650	<0.5	6.8	<0.5	6.4
3C	6/11/85	<0.5	23	<0.5	150	2.4	1.7	<0.5	<0.5
	10/29/91	61	46	5.4	180	34	1.7	<0.5	18
4	11/4/91	<5	260	<5	2,100	<5	31	<5	10
	7/28/94	-	-	-	6,500	-	-	-	-
5	11/4/91	4.2	120	42	410	1.3	8.9	<0.5	54
6	6/11/85	<5	54	<5	220	3.9	<5	<5	<5
	11/5/91	29	78	<0.5	420	6.4	5.9	<0.5	19
	7/28/94	-	-	-	790	-	-	-	-
8	6/10/85	<1	19	1	46	<1	18	<1	3
	6/11/85	1	32	1	93	<0.5	35	<5	-
	11/5/91	0.8	23	1.8	38	<0.5	35	<0.5	4.9
9	6/13/85	<5	31	<5	700	<5	26	<50	<5
	10/30/91	<0.5	13	1.3	200	<0.5	11	<0.5	<1
10	6/12/85	<50	<50	<50	5,100	<50	81	<20	<50
	6/12/85	<50	600	<50	12,000	<50	<50	<500	-
	11/7/91	3,800	640	<50	14,000	6,500	<50	<50	<100
11	6/12/85	<0.5	3.4	<0.5	19	1.3	5.3	7.6	<0.5
	11/15/91	<0.5	3.1	<0.5	10	<0.5	1.5	<0.5	<1
12	11/11/91	3.3	9	1.3	130	4.6	10	<1	<2
13	11/8/91	6.8	89	15	630	<5	8.9	<5	20
	7/28/94	-	-	-	770	-	-	-	-
14	3/21/85	<0.5	<0.5	<0.5	580	<0.5	26	<0.5	<0.5
	11/11/91	13	150	19	4,300	17	13	<5	30
15	6/13/85	<50	410	<50	1,200	<50	<50	<50	<50
	11/12/91	<5	220	<5	650	<5	<5	<5	<10
16	3/21/85	<0.5	<0.5	<0.5	360	<0.5	42	<0.5	<0.5
	11/19/91	1,200	2,200	<5	19,000	1300	<5	<5	420
	7/28/94	-	-	-	22,000	-	-	-	-
17	6/13/85	46	23	<5	200	22	18	<5	<5
	11/19/91	54	54	7.8	460	30	8.9	<5	420
	7/28/94	-	-	-	780	-	-	-	-
18	6/12/85	<0.5	140	<0.5	430	52	32	<0.5	<0.5
	6/12/85	<50	<50	<50	340	66	<50	<500	-
	11/19/91	<5	160	<5	560	23	11	<5	30
19	3/21/85	<0.5	<0.5	<0.5	91	<0.5	23	<0.5	<0.5
21	6/13/85	<50	800	<50	2,200	110	<50	380	<50

Notes: - = No data

<5 = Not detected above reported detection limit

Table 8

PURGEABLE HALOCARBONS IN DEEP GROUNDWATER

Well Number	Date	1,1-DCE (ug/l)	Trans 1,2-DCE (ug/l)	1,1-DCA (ug/l)	TCE (ug/l)	TCA (ug/l)	PCE (ug/l)	Methylen Chloride (ug/l)	Vinyl Chloride (ug/l)
3A	10/29/91	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1
18A	6/13/85	<0.5	<0.5	<0.5	10	<0.5	<0.5	2.4	<0.5
	11/19/91	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1
20	11/15/91	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1

Notes: - = No data

<5 = Not detected above reported detection limit

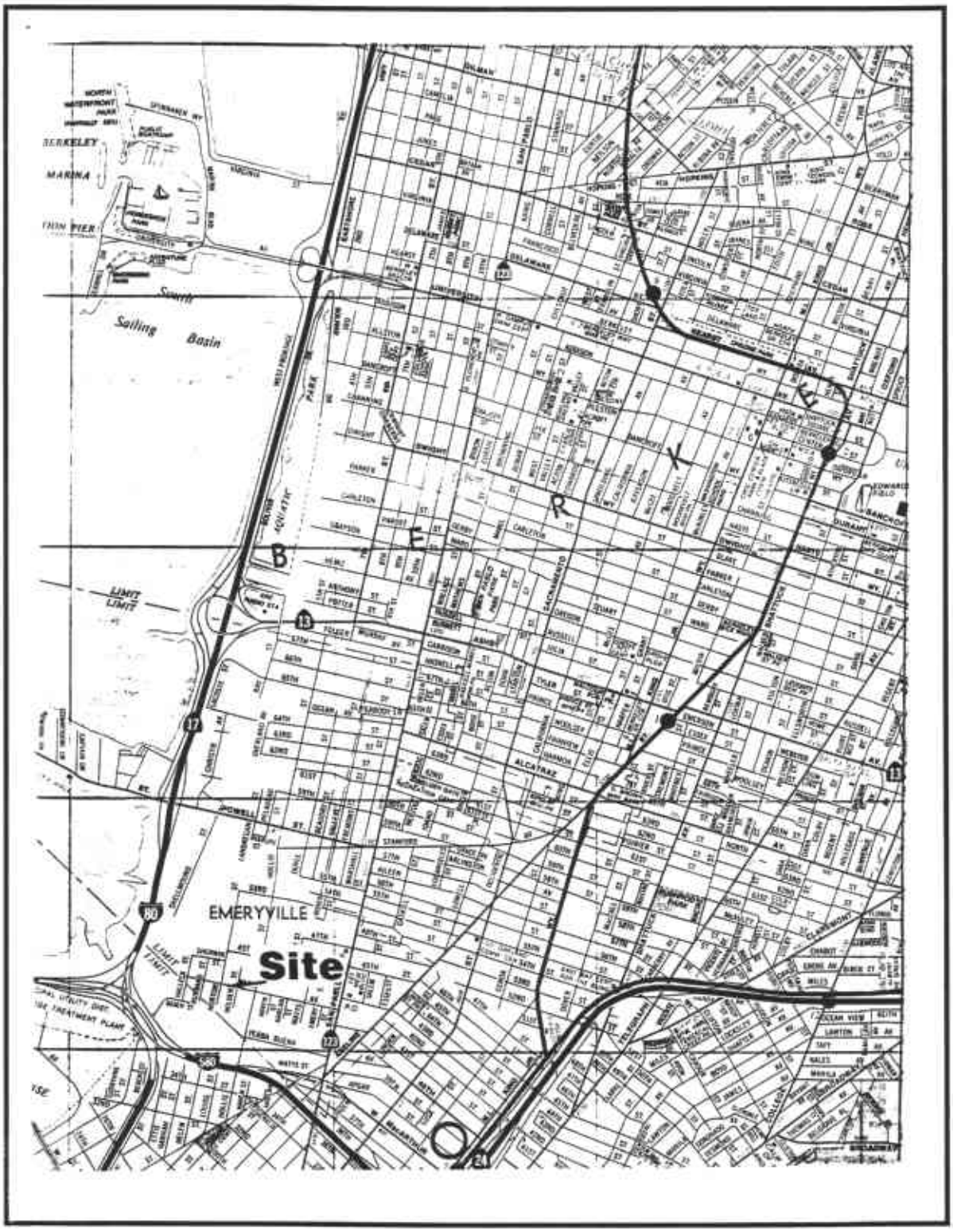
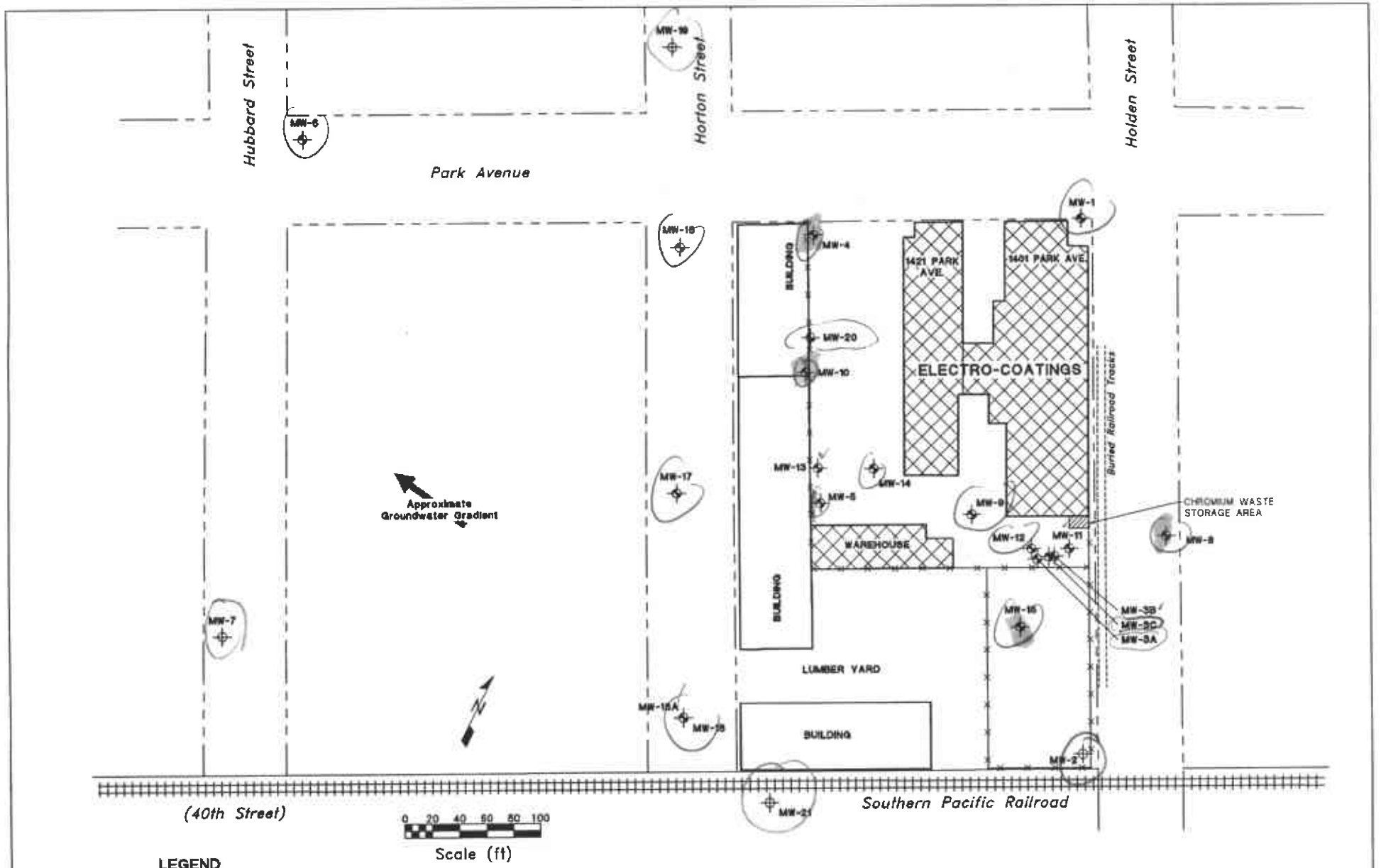


Figure 1. Site of Electro-Coatings, Inc.



LEGEND

- Fence or brick wall
- Buildings
- Property Line
- Monitoring Wells (found 1991)
- Monitoring Wells (not found 1991)

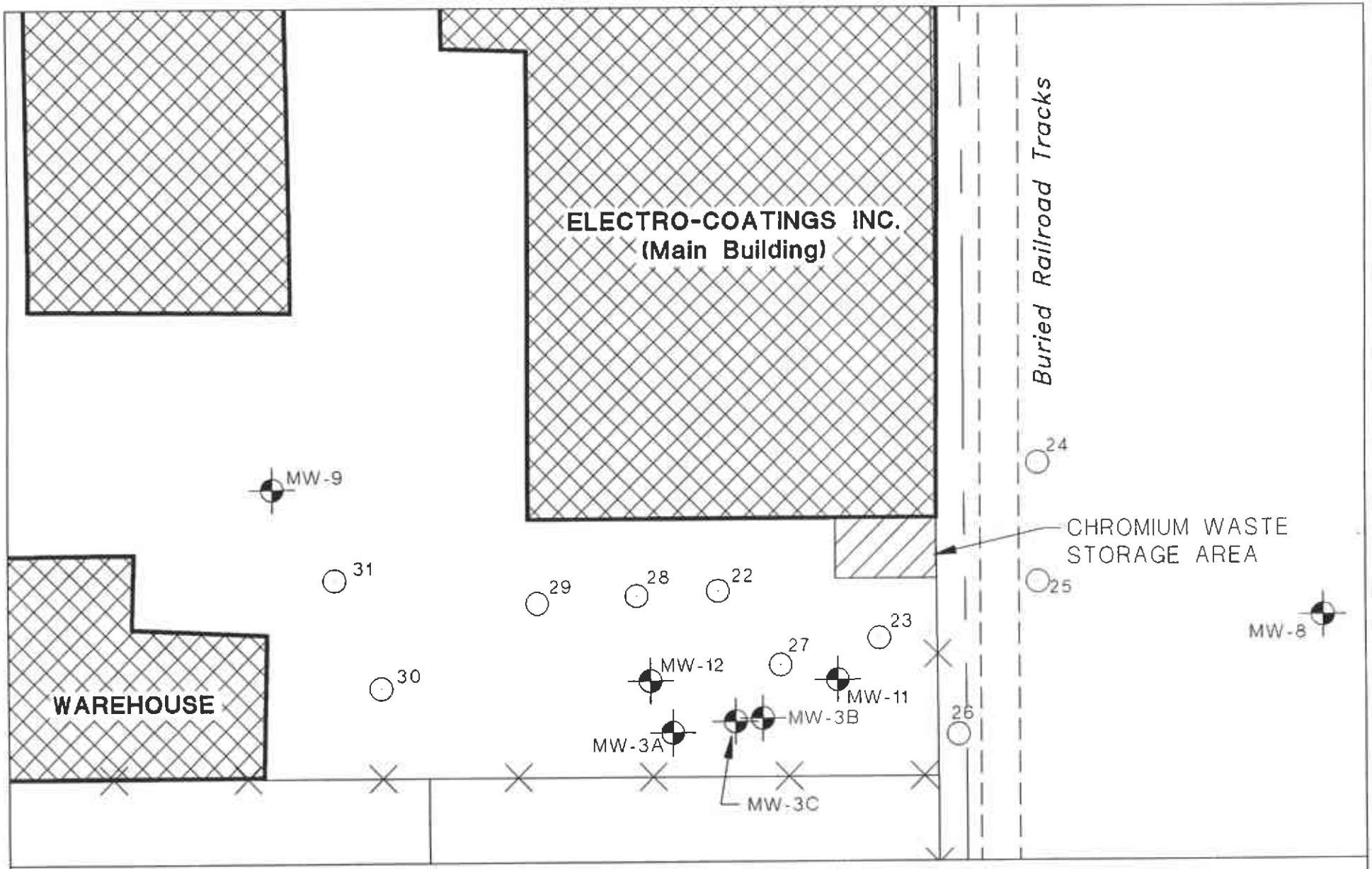
Figure 2. Base Map
1401 and 1421 Park Avenue - Emeryville

Electro-Coatings, Inc.

Emeryville, California

Project: 376402	Draftsperson: RBL
File Name: ECBASE2.DWG	Approval: SM
Creation Date: 10/10/94	Sheet 1 of 1
Revision Date: 10/28/94	
Revision Level: 1.1	

ENTRIX
WALNUT CREEK CALIFORNIA



LEGEND

- Monitoring Well
- Soil Boring
- Building

Note: Soil borings 9 through 14 correspond to monitor well locations. Refer to Figure 2 for other monitor well locations.

Figure 3. Soil Boring Locations
Site Plan Detail Southeast Property Corner

Electro-Coatings Inc.

Emeryville, California

Project: 376401	Draftsperson: MJR
File Name: ECISOIL.DWG	Approval: SM
Creation Date: 10/20/94	Sheet 1 of 1
Revision Date: 10/18/94	
Revision Level: 11	

WALNUT CREEK
CALIFORNIA

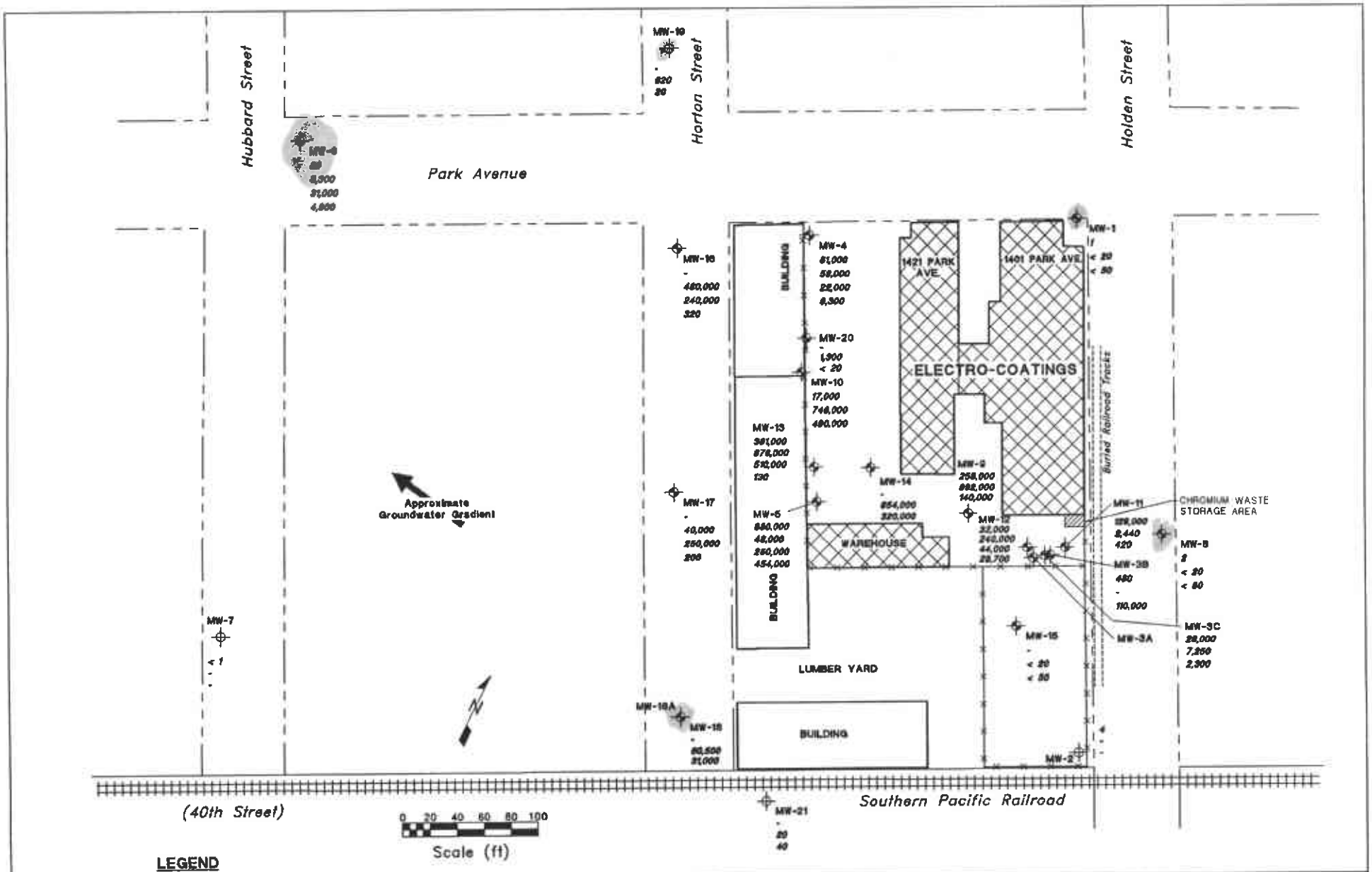


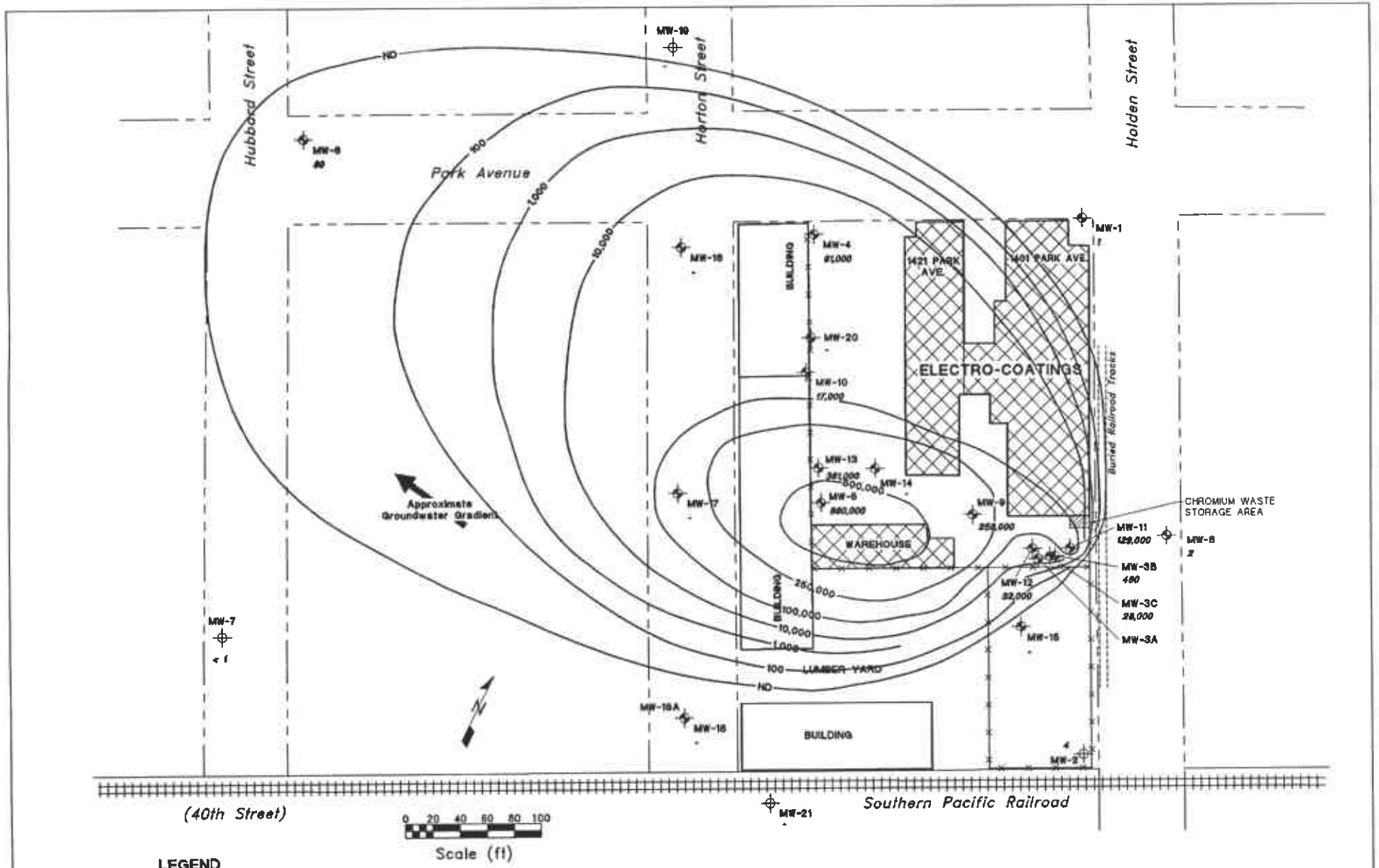
Figure 4. Total Chromium Over Time
1401 and 1421 Park Avenue - Emeryville

Electro-Coatings, Inc.

Emeryville, California

Project: 376402	Draftsperson: RBL
File Name: ECBASE2.DWG	Approval: SM
Creation Date: 10/10/94	Sheet 1 of 1
Revision Date: 10/28/94	
Revision Level: 1.1	

WALNUT CREEK CALIFORNIA



LEGEND

- Fence or brick wall
- Buildings
- Property Line
- 100,000 — Concentration Contour (ug/l)
- Monitoring Wells (found 1991)
- Monitoring Wells (not found 1991)

Figure 5. Total Chromium - January and October 1981
1401 and 1421 Park Avenue - Emeryville

Electro-Coatings, Inc.

Emeryville, California

Project: 376402	Draftsperson: RBL
File Name: ECBASE2.DWG	Approval: SM
Creation Date: 10/10/94	Sheet 1 of 1
Revision Date: 10/28/94	
Revision Level: 1.1	

WALNUT CREEK, CALIFORNIA

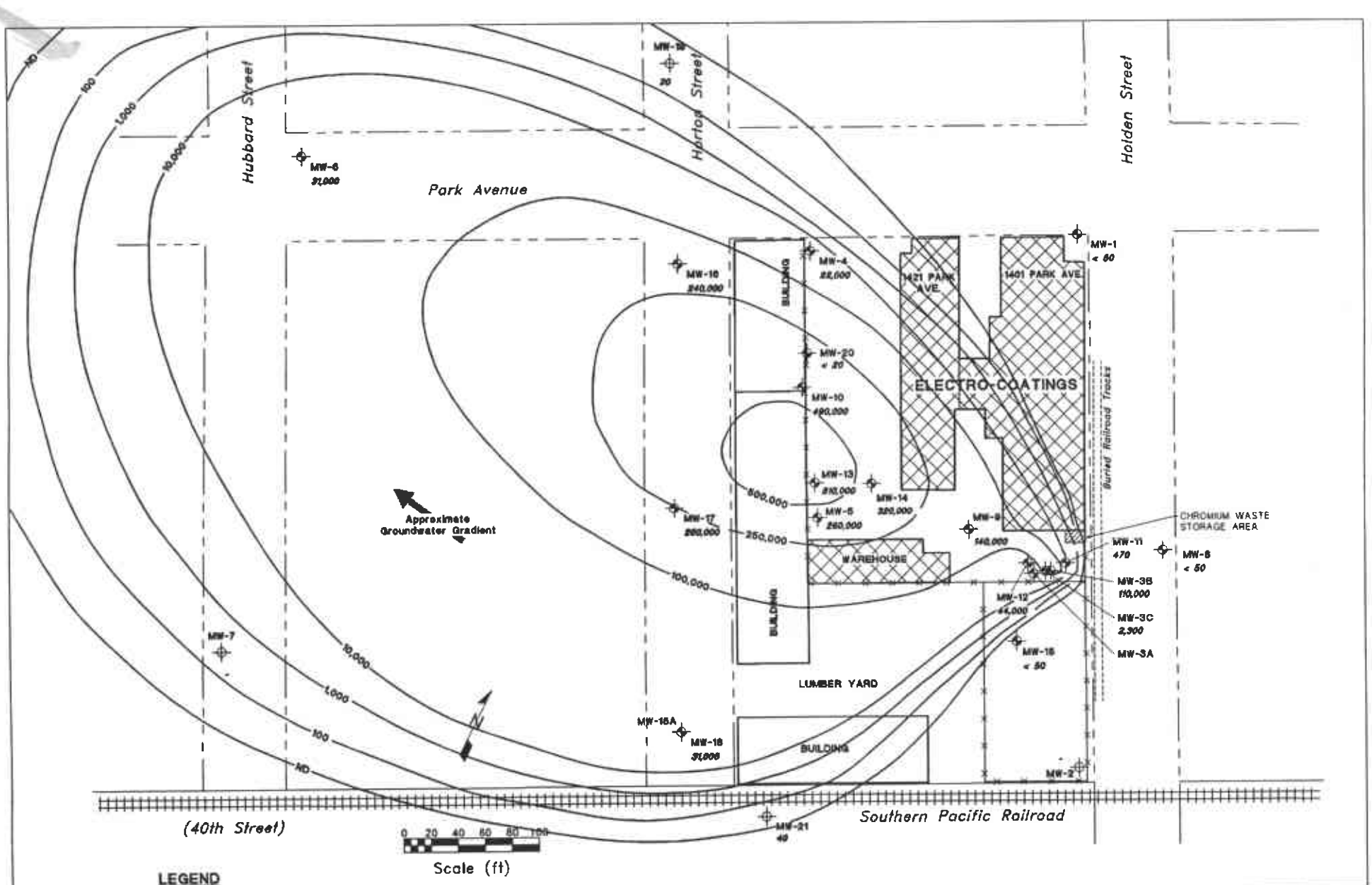


Figure 6. Total Chromium - October and November 1991
1401 and 1421 Park Avenue - Emeryville

Electro-Coatings, Inc.	Project: 376402	Draftsperson: RBL
	File Name: ECBASE2.DWG	Approval: SM
Emeryville, California	Creation Date: 10/10/94	Sheet 1 of 1
	Revision Date: 10/28/94	
	Revision Level: 1.1	

WALNUT CREEK CALIFORNIA

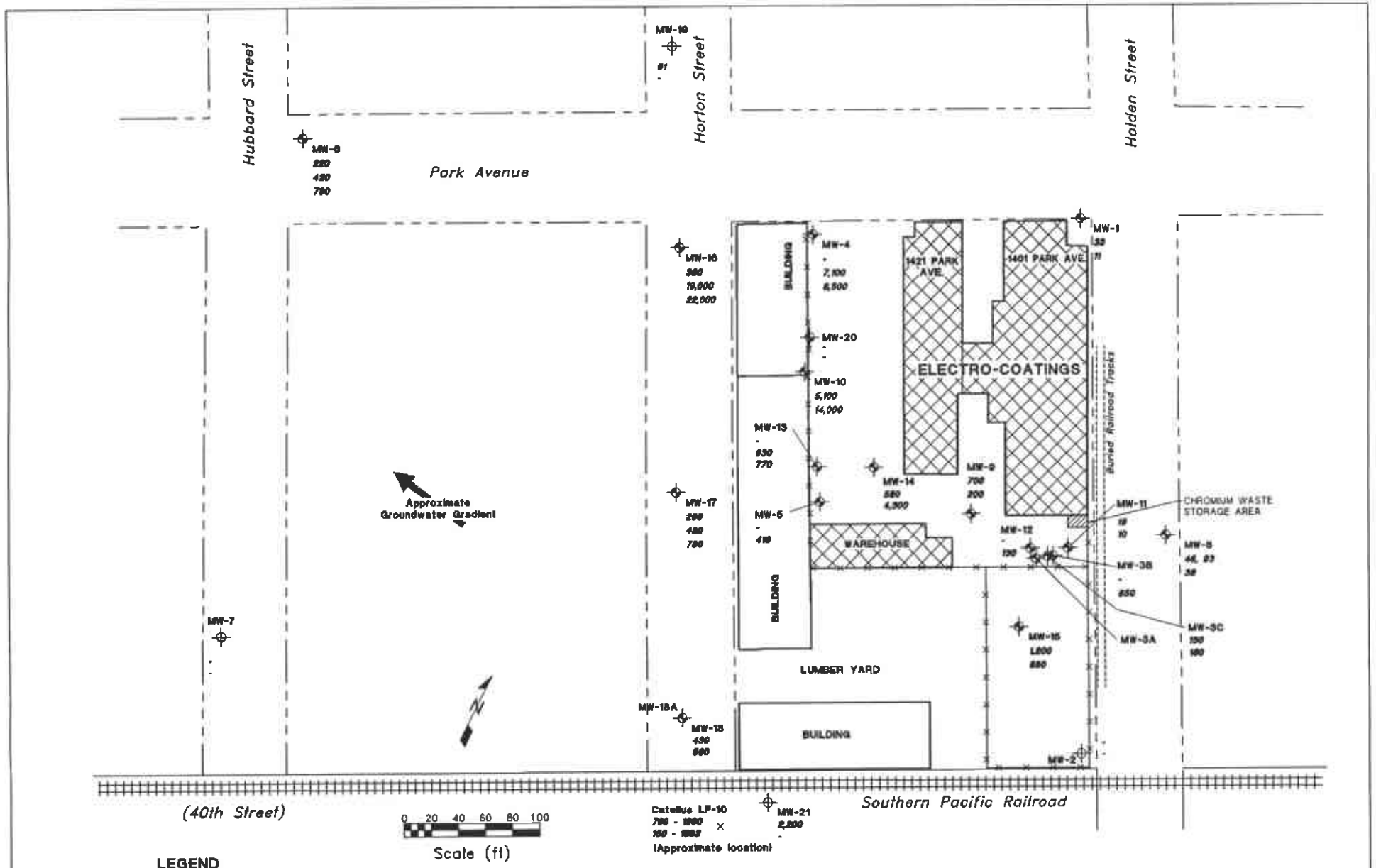


Figure 7. Trichloroethylene Over Time
1401 and 1421 Park Avenue - Emeryville

Electro-Coatings, Inc.

Emeryville, California

Project: 376402	Draftsperson: RBL
File Name: ECBASE2.DWG	Approval: SIM
Creation Date: 10/10/94	Sheet 1 of 1
Revision Date: 10/28/94	
Revision Level: 1.1	

WALNUT CREEK CALIFORNIA

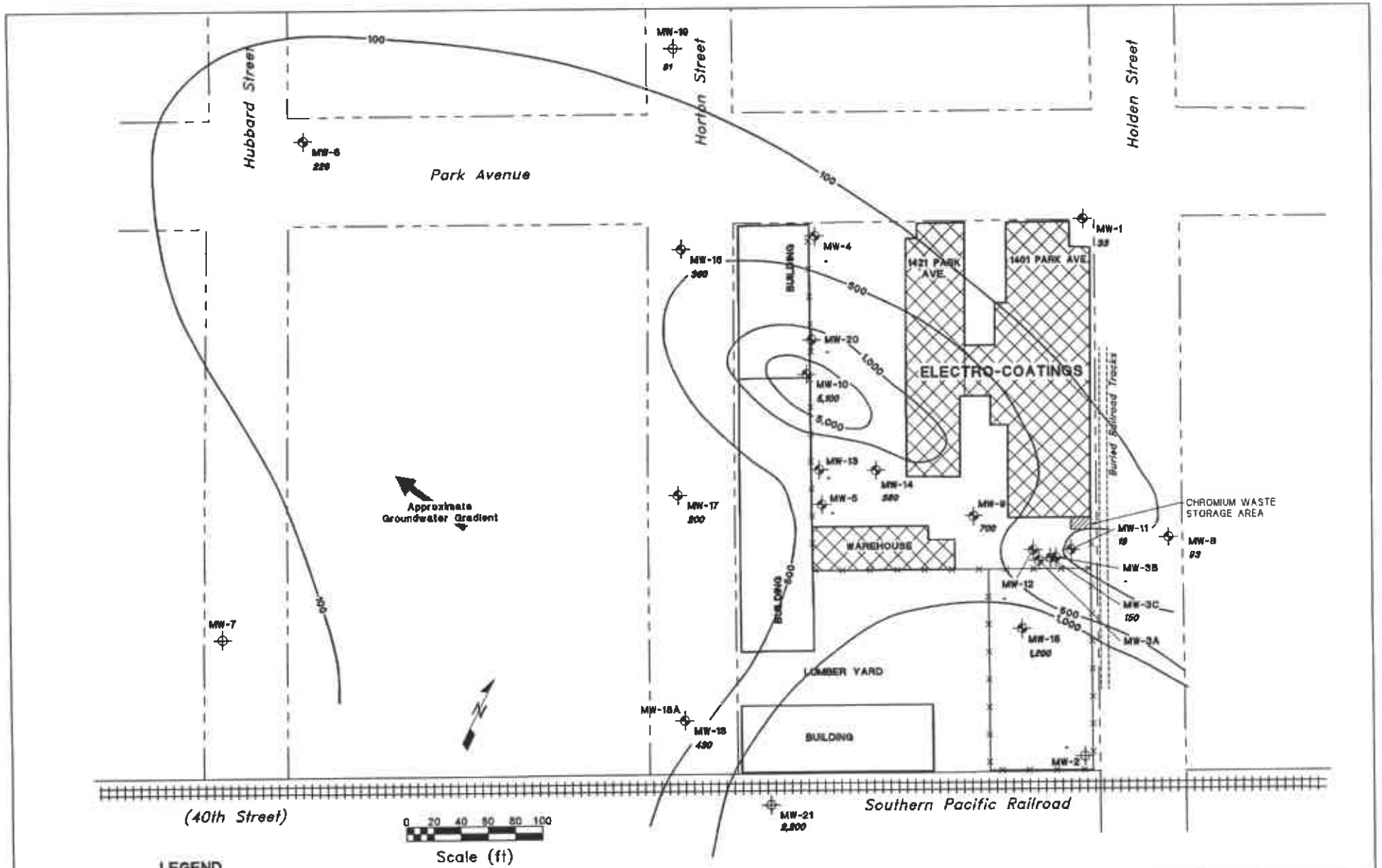


Figure 8. Trichloroethylene - February 1985
1401 and 1421 Park Avenue - Emeryville

Electro-Coatings, Inc.

Emeryville, California

Project: 376402	Draftsperson: RBL
File Name: ECBASE2.DWG	Approval: SIM
Creation Date: 10/10/94	Sheet 1 of 1
Revision Date: 10/28/94	
Revision Level: 1:1	

WALNUT CREEK CALIFORNIA

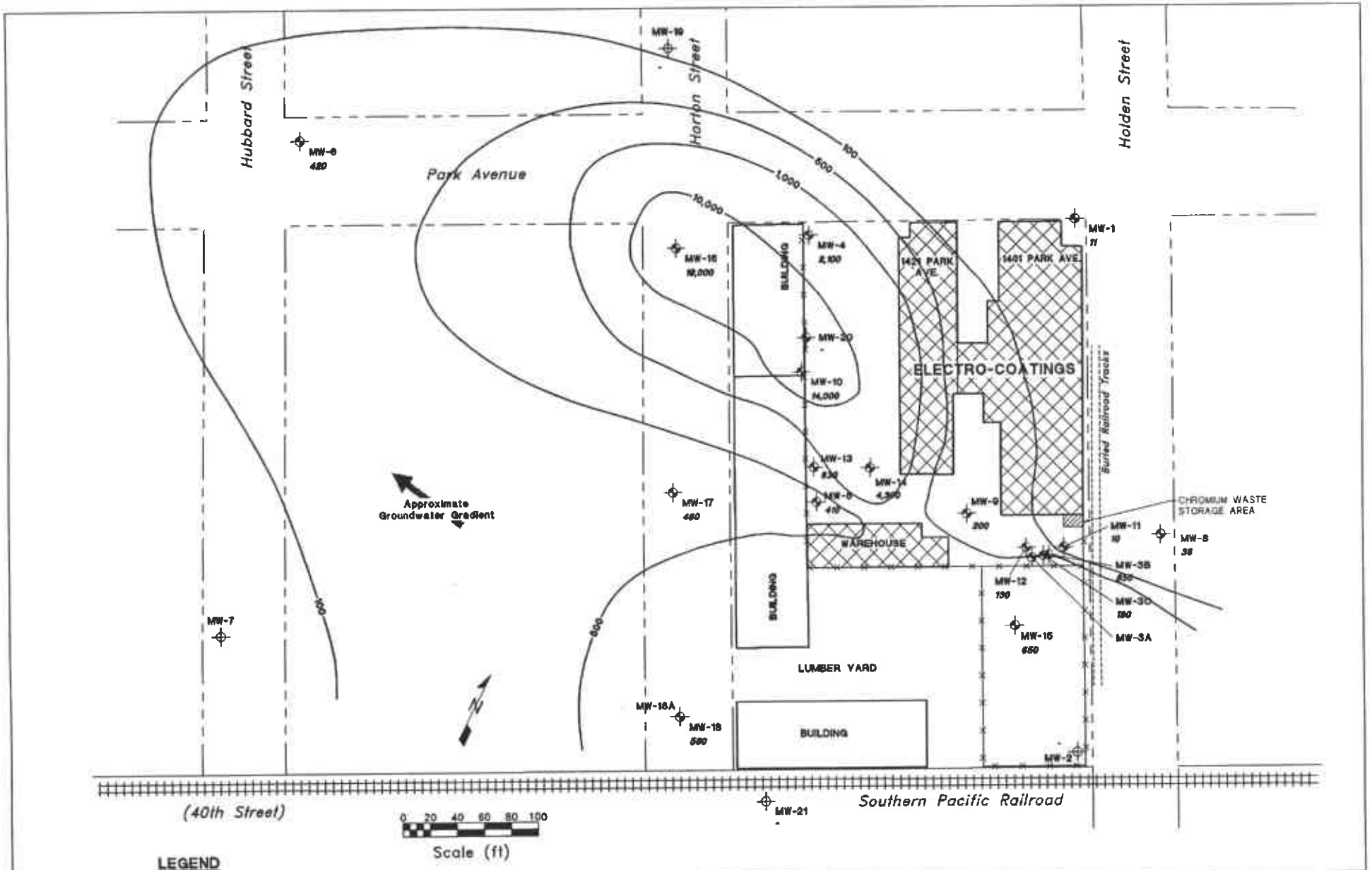


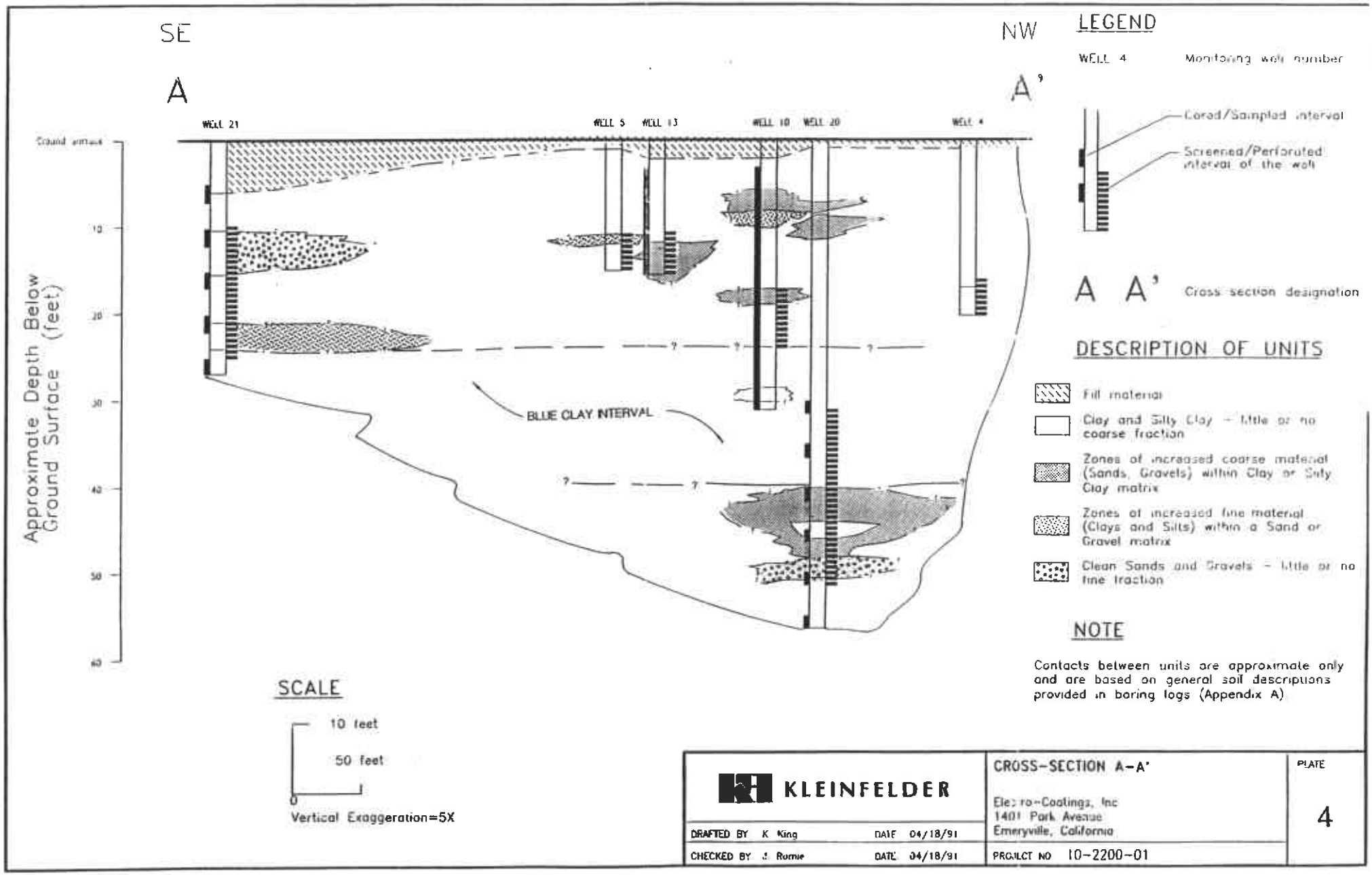
Figure 9. Trichloroethylene - October and November 1991
1401 and 1421 Park Avenue - Emeryville

Electro-Coatings, Inc.

Emeryville, California

Project: 376402	Draftsperson: RBL
File Name: ECBASE2.DWG	Approval: SM
Creation Date: 10/10/94	Sheet 1 of 1
Revision Date: 10/28/94	
Revision Level: 1.1	

UNITED
WALNUT CREEK
CALIFORNIA



KLEINFELDER

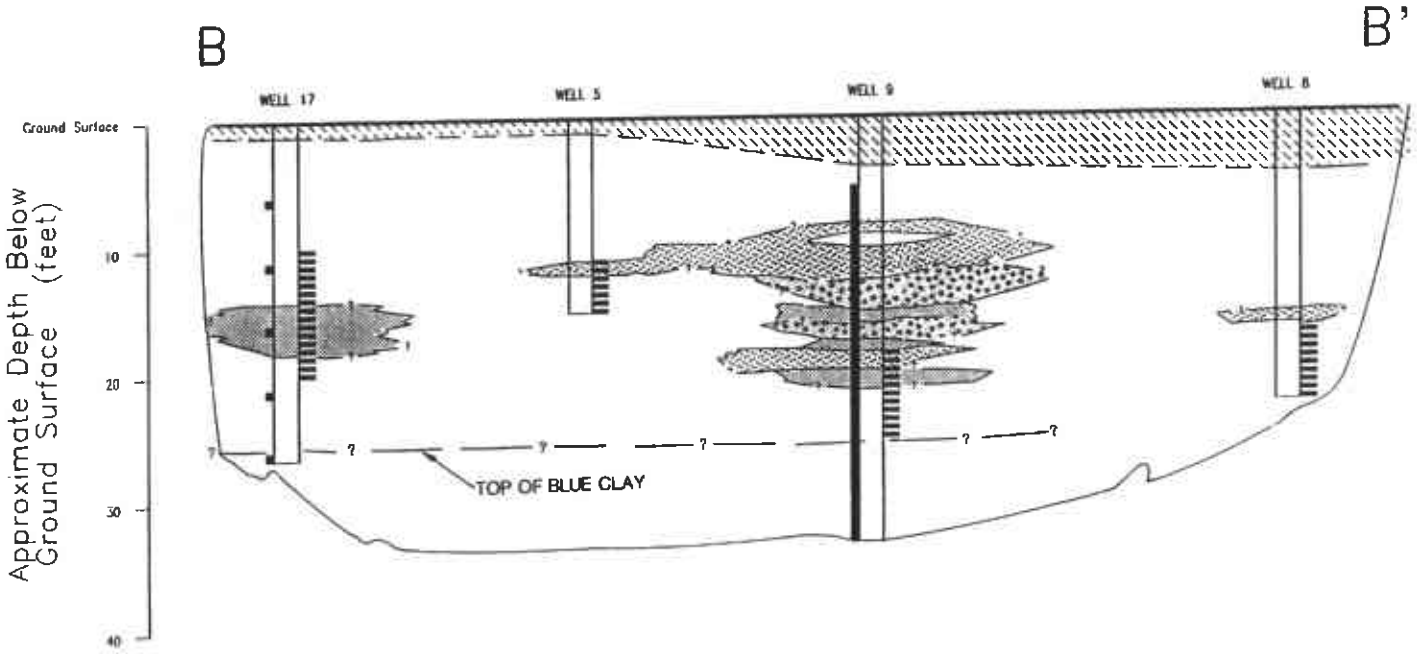
DRAFTED BY K King	DATE 04/18/91
CHECKED BY J. Romie	DATE 04/18/91

CROSS-SECTION A-A'

Electro-Coatings, Inc
1401 Park Avenue
Emeryville, California

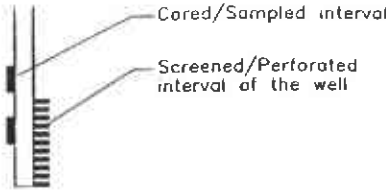
PROJECT NO 10-2200-01

PLATE 4



LEGEND

WELL 5 — Monitoring well number



A A' — Cross section designation

DESCRIPTION OF UNITS

- Fill material
- Clay and Silty Clay – little or no coarse fraction
- Zones of increased coarse material (Sands, Gravels) within Clay or Silty Clay matrix
- Zones of increased fine material (Clays and Silts) within a Sand or Gravel matrix
- Clean Sands and Gravels – little or no fine fraction

NOTE

Contacts between units are approximate only and are based on general soil descriptions provided in boring logs (Appendix A)

SCALE

10 feet

50 feet

0

Vertical Exaggeration=5X

KLEINFELDER

DRAFTED BY: F. King DATE: 04/18/91

CHECKED BY: J. Ronne DATE: 04/18/91

CROSS-SECTION B-B'

Electro-Coatings, Inc
1401 Park Avenue
Emeryville, California

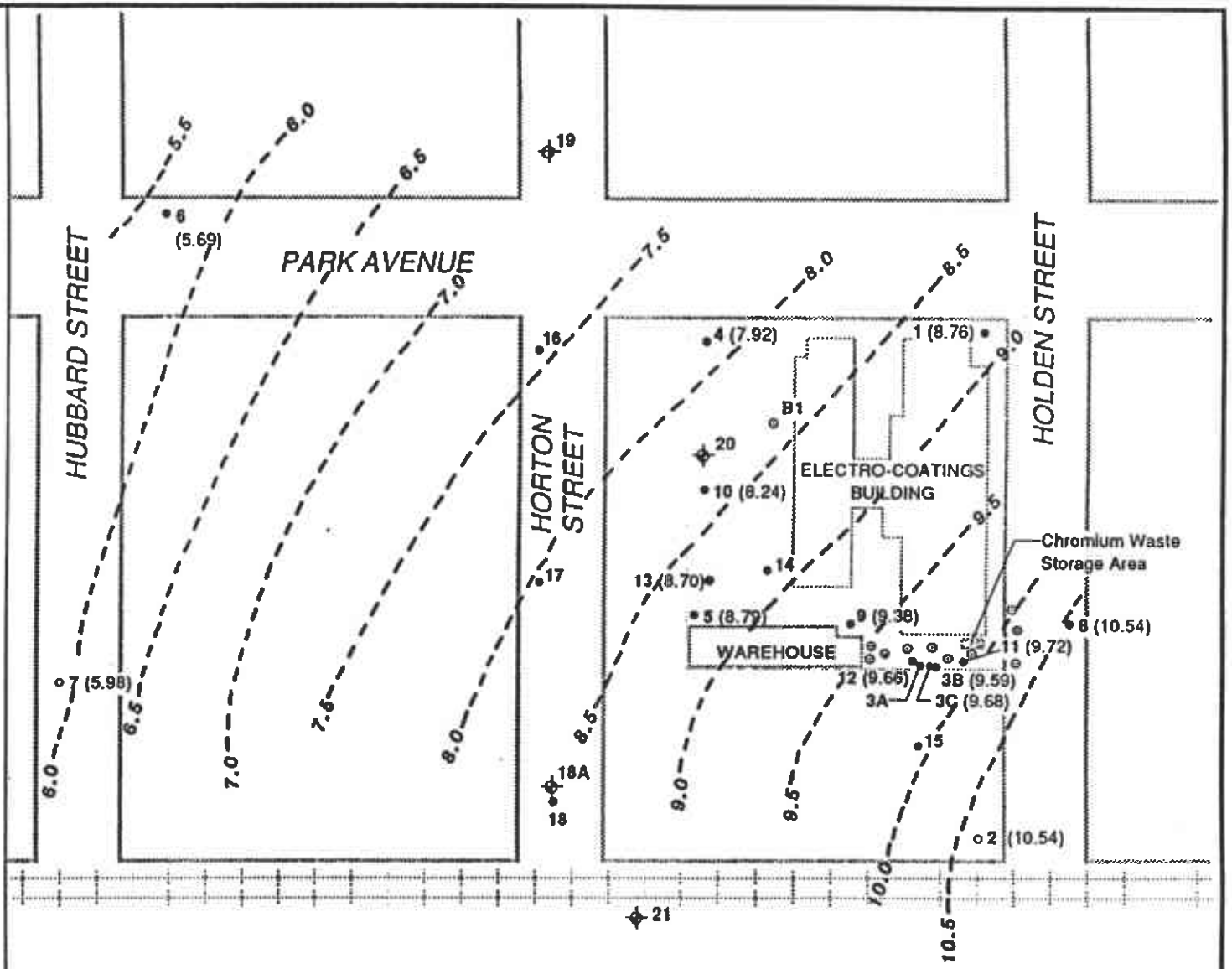
PROJECT NO 10-2200-01

PLATE 5

LEGEND

- ELECTRO-COATINGS, INC., PROPERTY LINE
- •1 — WELLS INSTALLED BY PREVIOUS INVESTIGATORS
- ⌖ 20 — WELLS INSTALLED BY KLEINFELDER AS OF 1985
- ○ 2 — WELLS INSTALLED BY PREVIOUS INVESTIGATORS THAT COULD NOT BE LOCATED AS OF FEBRUARY 1991
- ⌖ 19 — WELLS INSTALLED BY KLEINFELDER THAT COULD NOT BE LOCATED AS OF FEBRUARY 1991
- B1 ○ — SOIL BORING
- (5.90) — GROUND WATER SURFACE ELEVATION (feet)
- 6.5 — GROUND WATER SURFACE ELEVATION CONTOUR (feet)

NOTE: Ground water elevations are based on an arbitrary survey datum.



KLEINFELDER

DRAFTED BY: L. Sue/L. Latman DATE: 4-17-91

CHECKED BY: J. Romie DATE: 4-23-91

INFERRED PIEZOMETRIC SURFACE CONTOUR MAP FOR SHALLOW WATER BEARING ZONE, JANUARY 1981

ELECTRO-COATINGS, INC.
1401 PARK AVENUE
EMERYVILLE, CALIFORNIA

PROJECT NO. 10-2200-01

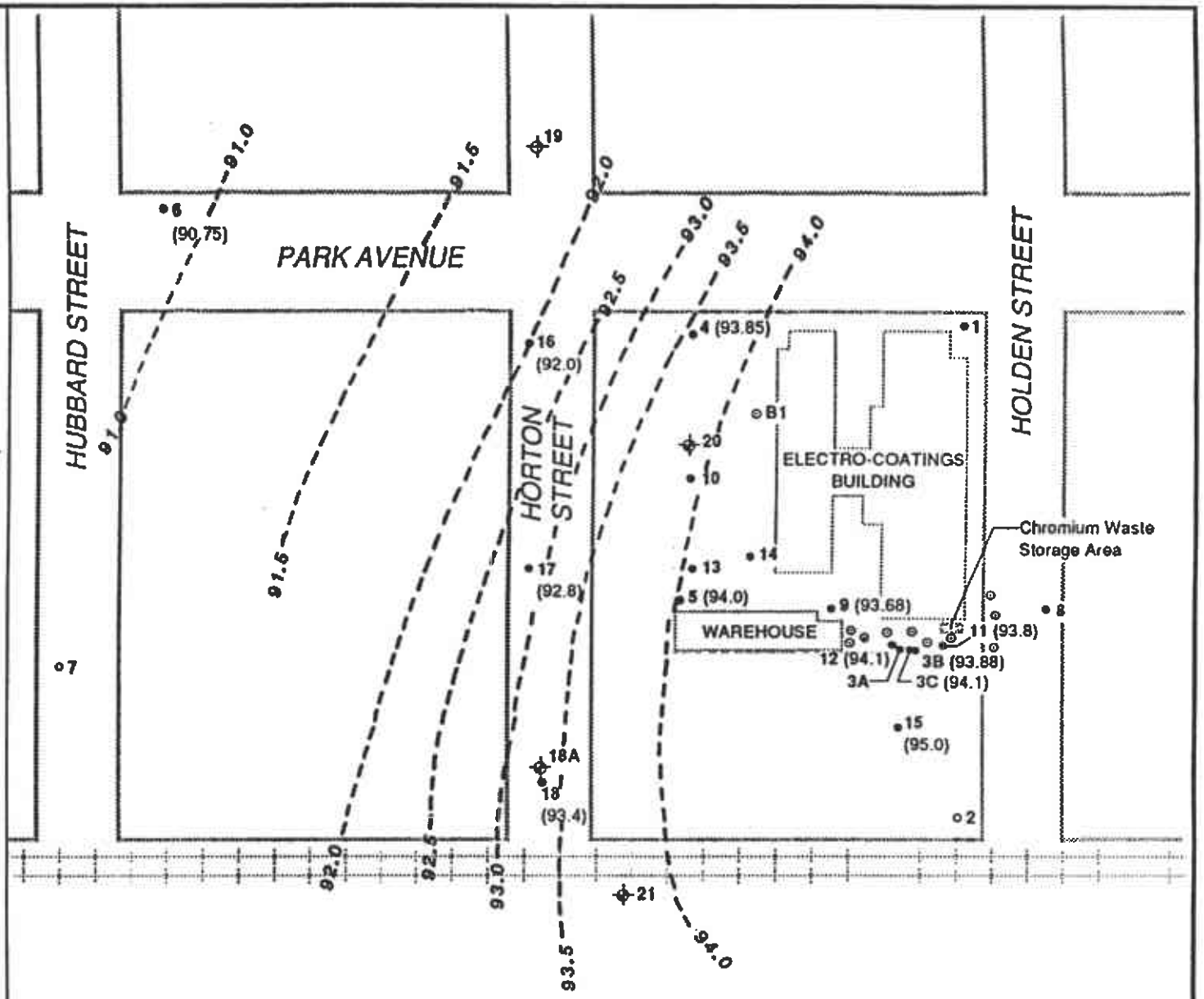
PLATE 6

LEGEND

- ELECTRO-COATINGS, INC., PROPERTY LINE
- •1 WELLS INSTALLED BY PREVIOUS INVESTIGATORS
- ⊕ 20 WELLS INSTALLED BY KLEINFELDER AS OF 1985
- ○ 2 WELLS INSTALLED BY PREVIOUS INVESTIGATORS THAT COULD NOT BE LOCATED AS OF FEBRUARY 1991
- ⊕ 19 WELLS INSTALLED BY KLEINFELDER THAT COULD NOT BE LOCATED AS OF FEBRUARY 1991
- B1 ⊙ SOIL BORING
- (93.4) GROUND WATER SURFACE ELEVATION (feet)
- 93.5 GROUND WATER SURFACE ELEVATION CONTOUR (feet)

NOTE: Ground water elevations are based on an arbitrary survey datum.

120 0 120
Approximate Scale (feet)



KLEINFELDER

DRAFTED BY: L. Sue/L. Latman DATE: 4-17-91

CHECKED BY: J. Romle DATE: 4-23-91

INFERRED PIEZOMETRIC SURFACE CONTOUR MAP FOR SHALLOW WATER BEARING ZONE, FEBRUARY 21, 1991

ELECTRO-COATINGS, INC.
1401 PARK AVENUE
EMERYVILLE, CALIFORNIA

PROJECT NO. 10-2200-01

PLATE 9

Project: ELECTRO COATINGS INC.
Emeryville, California

LOG OF WELL NO. 1

Date Drilled: August 18, 1977
Type of Boring: 6" Auger
Hammer Weight: ---

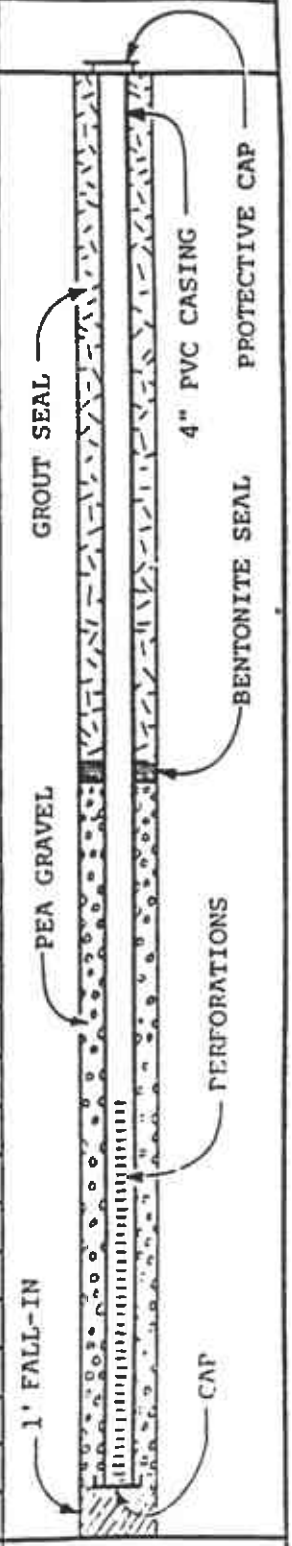
Remarks:

(See Legend Sheet for sampler sizes and hammer weights)

Surface Elevation:

Depth, Ft.	Samples	Blows/Ft.	MATERIAL DESCRIPTION
			S I L T Y C L A Y (CL-CH) Stiff, dry, dark gray Becomes moist (FILL)
5			**S I L T Y C L A Y (CL-CH)** Stiff, moist, dark gray
			▽ 9-8-77 **S I L T Y C L A Y (CL)** Medium stiff to stiff, moist, tan, very calcareous, with nodules
10			**S I L T Y C L A Y (CL)** Stiff, moist to wet, greenish tan, trace of sand and subrounded gravel Gravelly layer Becomes medium stiff to stiff, dark brown and gray mottled
15			**S I L T Y C L A Y (CL)** Stiff, wet, green and brown ▽ Upon completion of drilling Some sand
20			Becomes brown
			S I L T Y C L A Y (CL) Stiff, moist to wet, blue Stiff to very stiff Becomes very silty, blue and brown Thin gravelly layer
25			Grades to sandy clay Clayey sand and gravel layer
30			BOTTOM OF HOLE @ 30'

WELL INSTALLATION DETAILS



Proj. No. 13895B | WOODWARD-CLYDE CONSULTANTS | Figure 2

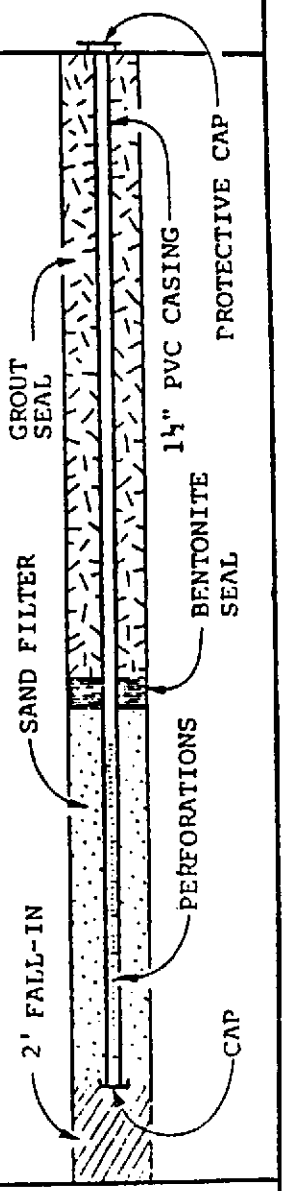
Project: ELECTRO COATINGS INC.
Emeryville, California

LOG OF WELL NO. 2

Date Drilled: August 18, 1977
Type of Boring: 6" Auger
Hammer Weight: ---
Remarks:
(See Legend Sheet for sampler sizes and hammer weights)

Depth, Ft.	Samples	Blows/Ft.	MATERIAL DESCRIPTION
			Surface Elevation:
			S I L T Y C L A Y (CL) (FILL) Dense, dry, light gray-brown, with trash
			S I L T Y C L A Y (CL): Stiff, moist, mottled dark brown & black & green (FILL)
			S I L T Y C L A Y (CL) Stiff, moist, black
5			Becomes grayish brown
			9-8-77 S I L T Y C L A Y (CL) Stiff, moist, mottled green and gray, with trace of fine sand and gravel
			SILTY GRAVEL (GM): Dense, damp, brown
10			C L A Y E Y S I L T: Dense, damp, mottled gray and brown, with clay lenses
			S I L T Y C L A Y (CL): Stiff, moist, grayish brown, trace of fine sand and small gravel
			Trace of water
			Trace to some gravel
15			C L A Y E Y G R A V E L (GC) Dense, moist, brown
			V E R Y S I L T Y C L A Y (CL) Stiff, moist, gray-brown, with sand pockets
			CLAYEY GRAVEL: Dense, wet, brown
20			V E R Y S I L T Y C L A Y (CL) Very stiff, moist, brown
			BOTTOM OF HOLE @ 23'
25			
30			

WELL INSTALLATION DETAILS



Proj. No. 13895B | WOODWARD-CLYDE CONSULTANTS | Figure 3

Project: ELECTRO COATINGS INC.
Emeryville, California

LOG OF WELL NO. 3A

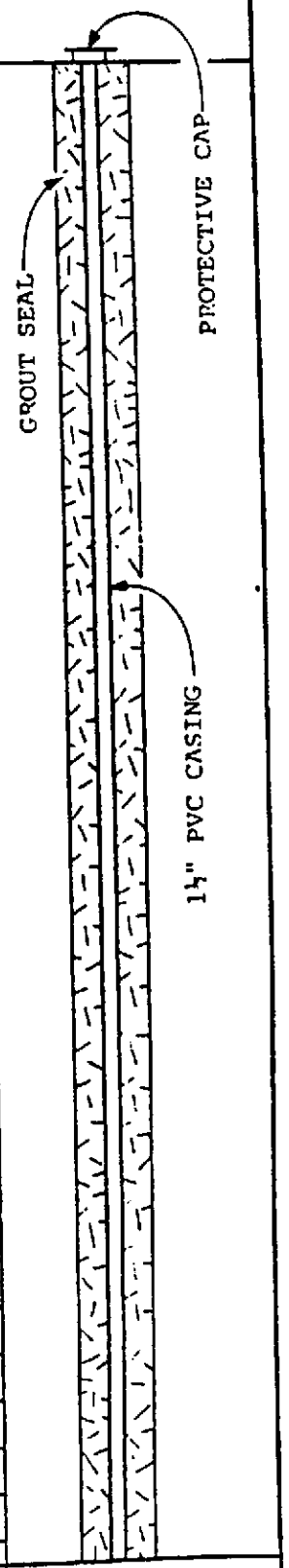
Date Drilled: August 15, 1977
Type of Boring: 4 7/8" ϕ Rotary
Hammer Weight: ---

Remarks:

(See Legend Sheet for sampler sizes and hammer weights)

Depth, Ft.	Samples	Blows/Ft.	MATERIAL DESCRIPTION
			Surface Elevation:
			6" ASPHALT CONCRETE
			SANDY CLAY FILL Stiff, moist, brown, with bricks & blue clay
			CLAYEY SAND FILL (SC-SP) Dense, moist, bluish green to brown
			GRAVEL LAYER: Dense, gray, with clay binder
5			SILTY CLAY (CL-CH) (FILL) Very stiff, moist, black Becomes gray, with trace of gravel 9-8-77 Becomes bluish gray
10			SILTY CLAY (CL) Stiff, moist, blue-gray
15			SILTY CLAY (CL) Very stiff, moist, mottled gray and brown, with rust streaks
20			SAND AND GRAVEL (GW-SW) Dense, wet, brown, with trace of clay
25			
30			VERY SILTY CLAY (CL-ML): Medium stiff, very moist, blue, with trace of fine gravel No gravel

WELL INSTALLATION DETAILS

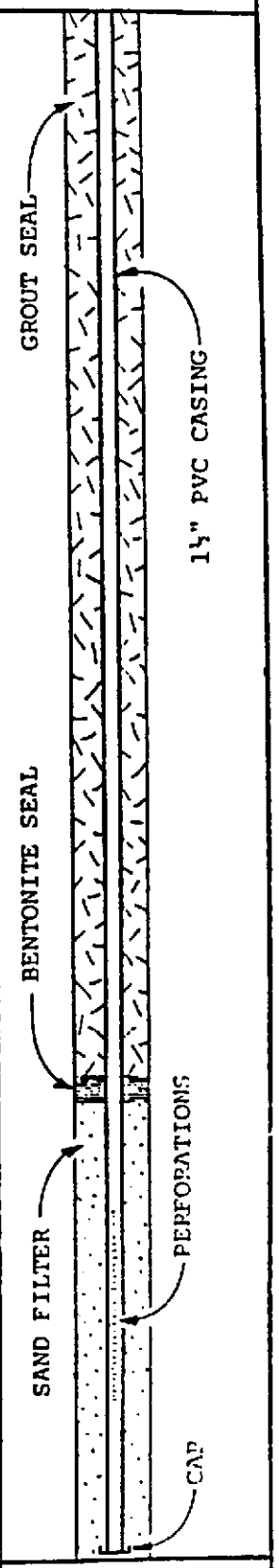


Proj. No. 13895B | WOODWARD-CLYDE CONSULTANTS | Figure 4

Project: ELECTRO COATINGS INC.
Emeryville, California

LOG OF WELL NO. 3A (Continued)

Depth, Ft.	Samples	Blows/Ft.	MATERIAL DESCRIPTION
35			} Sand lense: black and blue
40			
45			VERY SILTY CLAY (CL-ML) Stiff, moist, gray, possibly with thin sand lenses
50			
55			SILTY CLAY (CL) Stiff, moist, brown
60			SILTY SAND & GRAVEL (GM-SM) Dense, wet, reddish brown, gravel to ± 1" diameter
			SILTY CLAY (CL) Stiff, moist, reddish brown
65			BOTTOM OF HOLE @ 65'



Proj. No. 138958 | WOODWARD-CLYDE CONSULTANTS | Figure 5

Project: ELECTRO COATINGS INC.
Emeryville, California

LOG OF WELL NO. 3B

Date Drilled: August 15, 1977
Type of Boring: 6" Auger
Hammer Weight: ---
Remarks:
(See Legend Sheet for sampler sizes and hammer weights)

Depth, Ft.	Samples	Blows/Ft.	MATERIAL DESCRIPTION	WELL INSTALLATION DETAILS

Surface Elevation:

6" ASPHALT CONCRETE

SANDY CLAY FILL: Stiff, moist, brown, with bricks

C L A Y E Y S A N D (SC-SP): Medium dense, very moist, blue-green to brown

▽ 3'-0" after drilling

} Gravel lense, (FILL)

SILTY CLAY (CL): Very stiff, moist, black

▽ 9-8-77

Becomes gray, with organic material

Becomes mottled blue-gray, with trace of fine gravel

S I L T Y C L A Y (CL)

Medium stiff, moist, gray-brown, trace of fine gravel and sand

V E R Y S I L T Y C L A Y (CL)

Very stiff, moist, mottled gray and brown

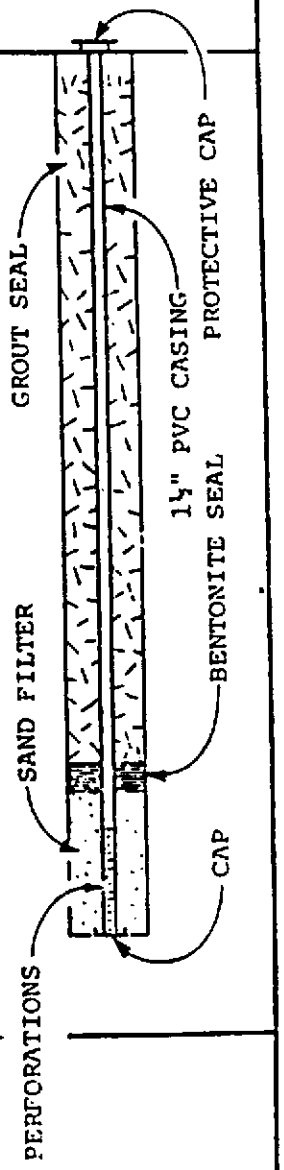
---Trace of water at time of drilling

S A N D A N D G R A V E L (SW-GW)

Dense, wet, dark brown, with trace of clay

Sand and gravel

BOTTOM OF HOLE @ 20'



Proj. No. 13895B | WOODWARD-CLYDE CONSULTANTS | Figure 6

Project: ELECTRO COATINGS INC.
Emeryville, California

LOG OF WELL NO. 3C

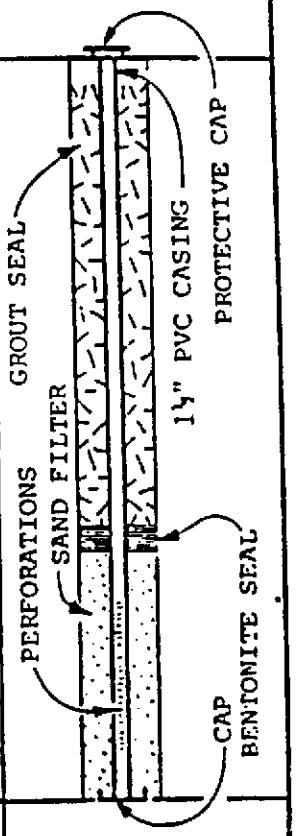
Date Drilled: August 15, 1977
Type of Boring: 4 7/8" ϕ Rotary
Hammer Weight: ---

Remarks:

(See Legend Sheet for sampler sizes and hammer weights)

Depth, Ft.	Samples	Blows/Ft.	MATERIAL DESCRIPTION
			Surface Elevation:
			6" ASPHALT CONCRETE
			SANDY CLAY FILL: Stiff, moist, brown, with bricks
			C L A Y E Y S A N D F I L L (SC-SP) Dense, moist, blue green to brown
			CLAYEY GRAVEL: Dense, damp, brown, angular to 1½" in diameter (FILL)
5			after drilling S I L T Y C L A Y (CL-CH) Very stiff, moist, black
			9-8-77 Becomes grayish blue, with organics, trace of fine gravel and hard nodules
			SILTY CLAY (CL): Stiff, moist, mottled brown and blue-gray, with trace of organic materials
10			SILTY CLAY (CL): Very stiff, moist, gray and brown and black mottled, with trace of fine gravel & sand
			SILTY CLAY (CL): Very stiff, moist, mottled gray and brown Trace of water
15			BOTTOM OF HOLE @ 15'
20			
25			
30			

WELL INSTALLATION DETAILS



Proj. No. 13895B | WOODWARD-CLYDE CONSULTANTS | Figure 7

Project: ELECTRO COATINGS INC.
Emeryville, California

LOG OF WELL NO. 4

Date Drilled: August 15, 1977
Type of Boring: 6" Auger
Hammer Weight: ---
Remarks:
(See Legend Sheet for sampler sizes and hammer weights)

Depth, Ft.	Samples	Blows/Ft.	MATERIAL DESCRIPTION	WELL INSTALLATION DETAILS

Surface Elevation:

3" ASPHALT CONCRETE

S I L T Y C L A Y (CL)

Very stiff, moist, black

5

after drilling 16'-17'

9-8-77

Becomes gray

Trace of gravel

10

S I L T Y C L A Y (CL)

Very stiff, moist, gray-brown, with trace of gravel and sand

15

Water inflow, possibly gravelly layer

V E R Y C L A Y E Y S I L T (ML-CL)

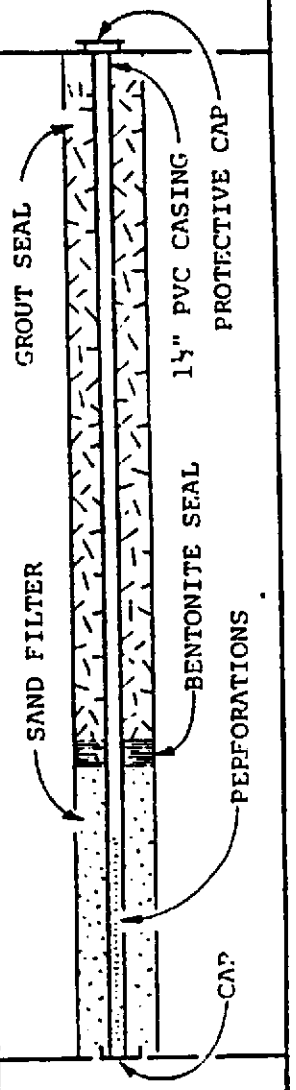
Medium dense, moist, brown

20

BOTTOM OF HOLE @ 20.5'

25

30



Proj. No. 13895B | WOODWARD-CLYDE CONSULTANTS | Figure 8

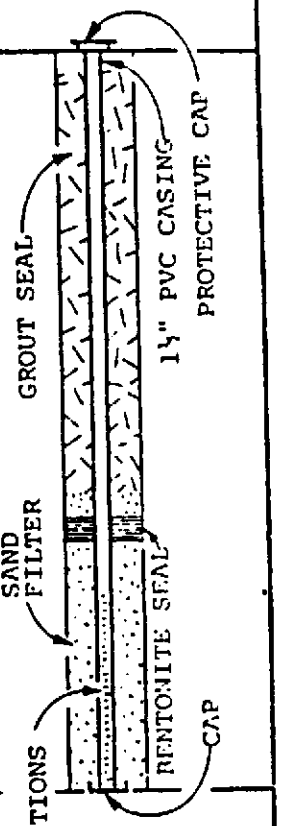
Project: ELECTRO COATINGS INC.
Emeryville, California

LOG OF WELL NO. 5

Date Drilled: August 15, 1977
Type of Boring: 6" Auger
Hammer Weight: ---
Remarks:
(See Legend Sheet for sampler sizes and hammer weights)

Depth, Ft.	Samples	Blows/Ft.	MATERIAL DESCRIPTION
			Surface Elevation:
			3" ASPHALT CONCRETE
			CLAYEY GRAVEL (GC): Dense, moist, gray to reddish brown
			S I L T Y C L A Y (CL-CH)
			Very stiff, moist, black
			▽ 9-8-77 — Becomes bluish light gray, with trace of fine gravel
			SILTY CLAY (CL): Very stiff, moist, mottled gray & brown
			SILTY CLAY (CL): Very stiff, moist, brown, trace of fine gravel and sand
			CLAYEY GRAVEL (GC): Dense, wet, brown
			S I L T Y C L A Y: Very stiff, moist, gray-brown, with trace of fine gravel
			BOTTOM OF HOLE @ 15'

WELL INSTALLATION DETAILS



Proj. No. 13895B | WOODWARD-CLYDE CONSULTANTS | Figure 9

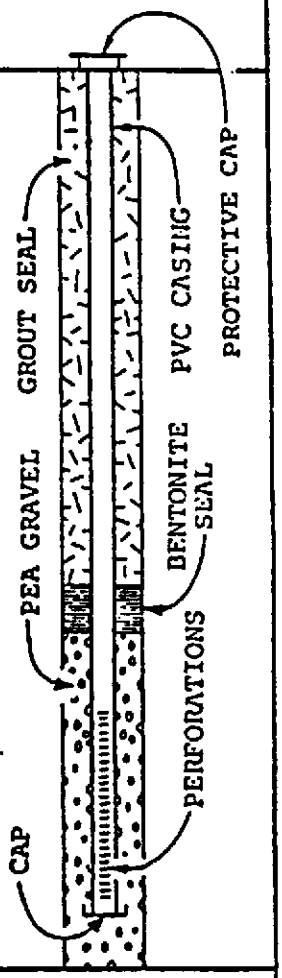
Project: ELECTRO COATINGS INC.
Emeryville, California

LOG OF WELL NO. 6

Date Drilled: February 21, 1978
Type of Boring: 6" Auger
Hammer Weight: ---
Remarks:
(See Legend Sheet for sampler sizes and hammer weights)

Depth, Ft.	Samples	Blows/Ft.	MATERIAL DESCRIPTION
			Surface Elevation: 9.09
			1" ASPHALT CONCRETE
			5" CONCRETE
			SILTY CLAY (CL-CH): Medium stiff, moist, dark gray to black
			2/24/78
			Becomes brown and dark gray mottled
			Becomes stiff
5			Becomes stiff to very stiff, trace of calcareous fragments
			Becomes brownish gray, trace of organics
			ATD
			Trace of yellow and green with fine sand
10			SILTY CLAY (CL): Stiff to very stiff, wet yellowish green, some fine sand, trace of fine gravel
			Becomes yellow with a trace of sand
			Very silty clay layer, yellowish brown
			Becomes brown, no sand or gravel
15			Becomes medium stiff, brown and gray interbedded
			Very silty sand to sandy silt layer
			BOTTOM OF HOLE @ 18'
20			
25			
30			

WELL INSTALLATION DETAILS



Proj. No. 13895C | WOODWARD-CLYDE CONSULTANTS | Figure

Project: ELECTRO COATINGS INC.
Emeryville, California

LOG OF WELL NO. 7

Date Drilled: February 21, 1978
Type of Boring: 6" Auger
Hammer Weight: ---
Remarks:
(See Legend Sheet for sampler sizes and hammer weights)

Depth, Ft.	Samples	Blows/Ft.	MATERIAL DESCRIPTION	WELL INSTALLATION DETAILS

Surface Elevation: 9.58

SILTY CLAY (CL)
Medium stiff to stiff, moist, dark gray to black

2/24/78

Trace of fine gravel

Becomes stiff, dark bluish gray, with trace of brown

Trace of lime nodules, bluish gray

SILTY CLAY (CL-CH): Stiff to very stiff, moist to wet, light green

SILTY CLAY (CL): Very stiff, moist, green and brown, some gravel and sand

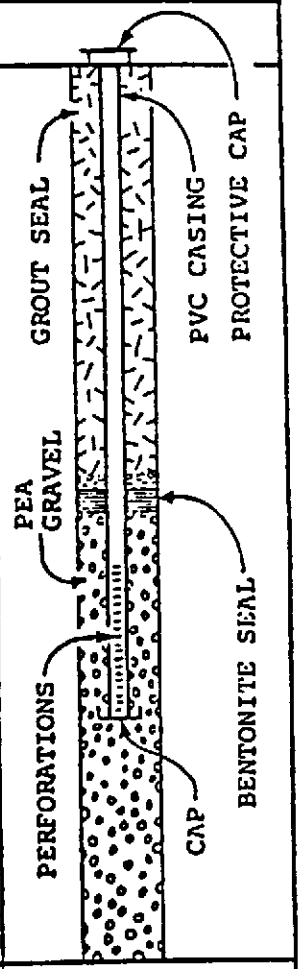
More sand and gravel (GC-CL)
seep in bottom of hole

CLAYEY SAND AND GRAVEL (SC-GC)
Medium dense, wet, brown, gravel to 1"

SILTY CLAY (CL)
Stiff to very stiff, brown, trace of fine gravel

Becomes brown and gray mottled

BOTTOM OF HOLE @ 18'



Project: ELECTRO COATINGS INC.
Emeryville, California

LOG OF WELL NO. 8

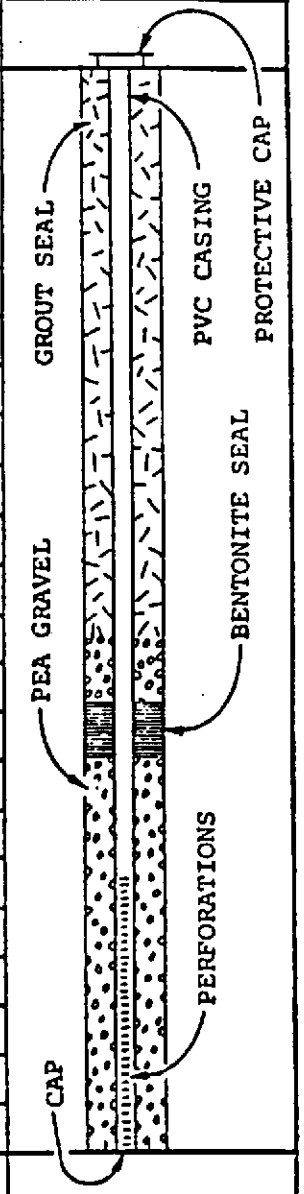
Date Drilled: March 13, 1978
Type of Boring: 6" Auger
Hammer Weight: ---

Remarks:

(See Legend Sheet for sampler sizes and hammer weights)

Depth, Ft.	Samples	Blows/Ft.	MATERIAL DESCRIPTION
			Surface Elevation:
			4" ASPHALT CONCRETE 5" AGGREGATE BASE
			CLAYEY SAND & GRAVEL FILL (SC-GC): Loose, moist, black
			SILTY CLAY (CL-CH) (FILL): Medium stiff, moist, black, trace of wood
			CLAYEY TO SANDY SILT (ML) (FILL) Loose, wet, black, trace of wood
5			SILTY CLAY (CL-CH): Stiff, moist, dark gray Grades to grayish blue, trace of lime nodules
			S I L T Y C L A Y (CL) Stiff to very stiff, wet, bluish green, trace of lime nodules
		ATD	Trace of fine gravel
10			Becomes more silty, brown interbedded with dark gray
			S I L T Y C L A Y (CL): Stiff to very stiff, moist, reddish brown and gray marbled
			Trace of fine sand, slightly greenish
15			With some sand
			CLAYEY SAND & FINE GRAVEL (SC) Medium dense, wet, reddish brown
			VERY SILTY CLAY (CL): Medium stiff, wet, brown, trace of sand and fine gravel
20			With thin clayey and silty fine and coarse sand layers
			VERY SILTY CLAY (CL): Stiff to very stiff, brown marbled with gray
			BOTTOM OF HOLE @ 22'
25			
30			

WELL INSTALLATION DETAILS



Proj. No. 13895C | WOODWARD-CLYDE CONSULTANTS | Figure 2

Project: ELECTRO COATINGS INC.
Emeryville, California

Log of Boring No. 9

Date Drilled: 12/10/80 to 12/12/80
Type of Boring: 4 5/8" Pitcher Core Barrel
Hammer Weight:
Remarks:
(See Legend Sheet for sampler types and hammer weights)

Depth, Ft.	Samples	Ft. recovered/ Ft. cored	MATERIAL DESCRIPTION
			Surface Elevation:
0			8" ASPHALT
1			GRAVEL FILL angular fragments (up to 1"), reddish-brown
2			
3			
4			CLAY medium hard, very dark gray
5	CONTINUOUS CORING	0/1	lost sample in hole
6		2.15/2.5	12/29/80 | Water Levels 1/14/81 | CLAY firm to stiff, mottled, trace of coarse sand, fine gravel
7			grading more sandy and softer
8			CLAYEY SAND trace fine gravel, light green
9		1.5/1.5	CLAYEY SILT–SILTY CLAY soft, wet, gray GRAVELLY SILTY SAND green, orange mottling
10			
11		1.1/2.5	SILTY SANDY GRAVEL crumbly, moist, gravel is subangular-subrounded (maximum size of gravel is 1"), mottled, greenish-reddish brown
12			core loss
13		1.7/2.5	SAND fine-medium sand, trace gravel and clay, mottled, light brown to light green transitional
14			
15		1.0/1.0	SANDY SILTY CLAY soft, light brown to light green SANDY GRAVEL

WELL INSTALLATION DETAILS

PROTECTIVE CAP
4" PVC CAP
GROUT SEAL
5 7/8" BOREHOLE
4" PVC CASING
BENTONITE SEAL (APPROXIMATE)
SAND (APPROXIMATE)

Proj. No. 14929A

Woodward-Clyde Consultants

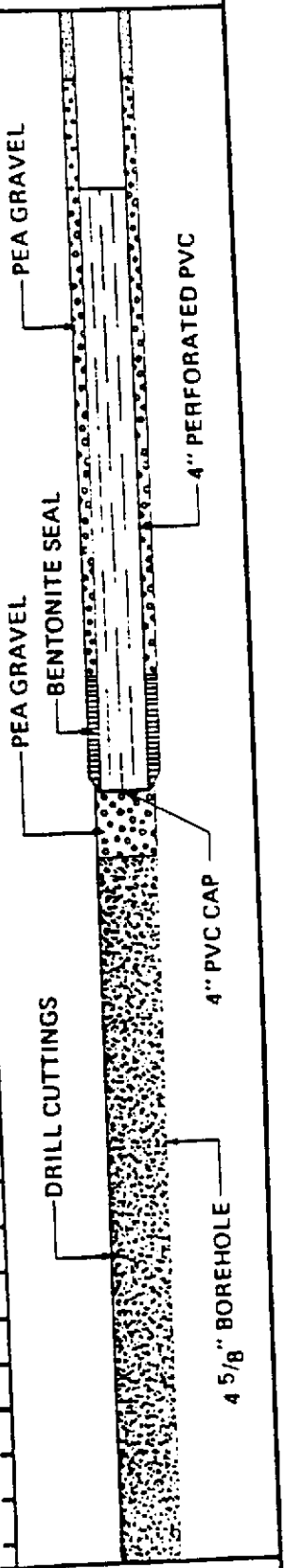
Figure 2a

Project: ELECTRO COATINGS INC.
Emeryville, California

Log of Boring No. 9 (Continued)

Depth, Ft.	Samples	Ft. recovered/ Ft. cored	MATERIAL DESCRIPTION
16	CONTINUOUS CORING		subrounded gravel, crumbly
			more clayey
17		2.1/2.5	SANDY CLAY firm, light brown to light green
18			CLAYEY SAND trace of fine gravel, firm, slightly moist, in places sandy clay
19			core loss
20		1.3/2.5	SANDY CLAY fine sand, firm, slightly moist, light brown to light green, reddish-brown and brown mottling
21			SILTY CLAY moderately stiff, light brown to light green
22		1.5/2.5	core loss
23			
24		1.7/2.5	core loss more sandy orange mottling more common
25			trace gravel near base
26			SILTY CLAY firm, common orange mottles, blue
27		1.7/2.5	core loss angular fine gravel more predominant with minor sandy zones
28			
29		2.3/2.5	SANDY CLAY fine sand, trace gravel, orange mottling, bluish-gray
30			
31			extensive orange mottling
32		2.2/2.5	grading more sandy

WELL INSTALLATION DETAILS



Proj. No. 14929A

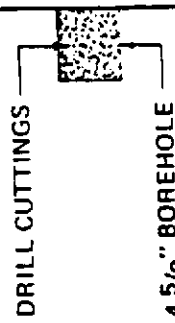
Woodward-Clyde Consultants

Figure 2b

Project: ELECTRO COATINGS INC.
Emeryville, California

Log of Boring No.9 (Continued)

Depth, Ft.	Samples	Ft. recovered/ Ft. cored	MATERIAL DESCRIPTION	WELL INSTALLATION DETAILS
33			as above	
			Bottom of boring @ 33.5 feet	



Proj. No. 14929A

Woodward-Clyde Consultants

Figure 2c

Project: ELECTRO COATINGS INC.
Emeryville, California

Log of Boring No. 10

Date Drilled: 12/12/80 to 12/16/80

Type of Boring: 4 5/8" Pitcher Core Barrel

Hammer Weight: _____

Remarks: _____

(See Legend Sheet for sampler types and hammer weights)

Depth, Ft	Samples	Ft. recovered/ Ft. cored	MATERIAL DESCRIPTION
			Surface Elevation:
0			6" ASPHALT
			GRAVEL FILL (road ballast)
1			SILTY CLAY slightly stiff, moist, black
2			more gravelly
3		1.5/1.5	crumbly with less silt
4		.5/.5	
5		2.6/2.5	SANDY CLAY moist, trace orange mottling, dark gray angular gravel (up to 3 cm) near top
6			12/29/80, 1/14/81 } Water Levels
7			core loss
8		1.8/2.5	SILTY SAND firm, yellowish-brown
9			SILTY CLAY trace coarse sand, firm, olive brown
10			core loss
11		1.5/2.5	some orange-brown color with coarse sand and fine gravel, orange mottling
12			core loss
13		2.0/2.5	more sandy
14			brown mottling
15			

CONTINUOUS CORING

WELL INSTALLATION DETAILS

PROTECTIVE CAP

4" PVC CAP

GROUT SEAL

8" BOREHOLE

4" PVC CASING

Proj. No. 14929A

Woodward-Clyde Consultants

Figure 3a

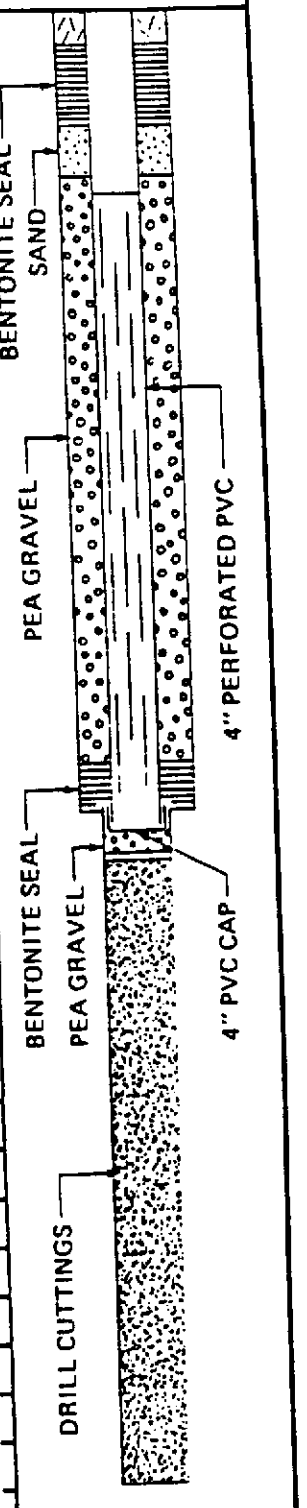
Project: ELCTRO COATINGS INC.
Emeryville, California

Log of Boring No. 10 (Continued)

Depth, Ft.	Samples	Ft. recovered/ Ft. cored	MATERIAL DESCRIPTION
16		1.8/2.0	
17			CLAYEY SAND gravelly, firm, wet, olive-brown
18		2.8/3.0	
19			SANDY SILTY CLAY firm, moist, orange mottling, greenish-brown
20			
21		2.4/3.0	
22			core loss grading more brown
23			
24		2.9/3.0	SILTY CLAY trace sand, firm, blue
25			grading more clayey
26			
27		2.3/2.5	
28			orange mottling predominant at base of core
29			SILTY SANDY CLAY firm, orange mottling, blue
30		2.2/2.5	grading to clayey fine sand
31			SILTY CLAY firm, reddish-orange mottling, blue Bottom of boring @ 31.0 feet
32			

CONTINUOUS CORING

WELL INSTALLATION DETAILS



Proj. No. 14929A

Woodward-Clyde Consultants

Figure 3b

Project: ELECTRO COATINGS INC.
Emeryville, California

Log of Boring No.11

Date Drilled: 12/16/80 to 12/18/80
Type of Boring: 4 5/8" Pitcher Core Barrel
Hammer Weight:

Remarks:

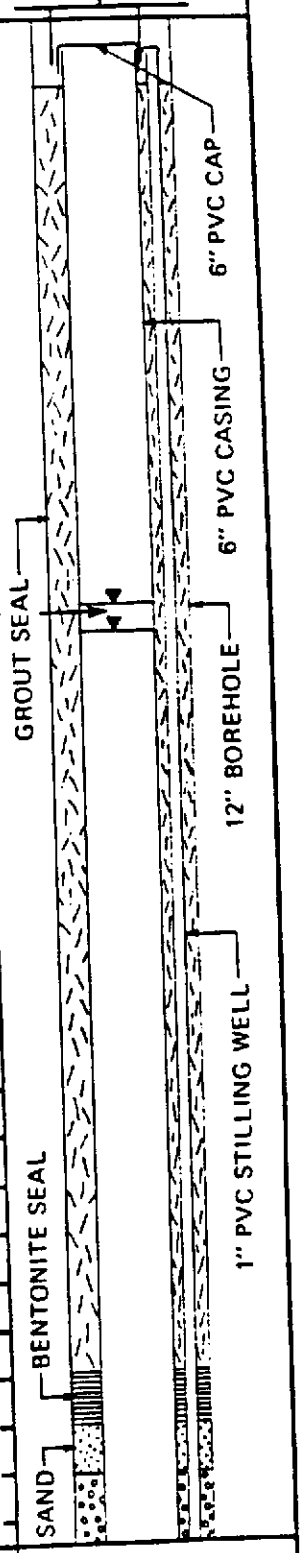
(See Legend Sheet for sampler types and hammer weights)

Surface Elevation:

Depth, Ft	Samples	Ft. recovered / Ft. cored	MATERIAL DESCRIPTION
1			8" ASPHALT
2			CLAY FILL medium soft, moist, black
3			becoming firmer with depth
4		2.7 / 2.5	SILTY CLAY trace sand and fine angular gravels, brown-orange mottling, dark gray
5			core loss
6			12/29/80, 1/14/81 } Water Levels grading more dark green
7		1.3 / 2.5	core loss
8			SANDY CLAY fine sand, trace angular gravel, minor orange mottling, moist, dark green to green-blue
9		2.8 / 3.0	grading to more olive green
10			increased orange mottling
11			gravel more common
12		2.3 / 2.5	SANDY SILTY CLAY trace gravel, orange mottling, olive green
13			
14		2.0 / 2.0	
15			increased fine gravel and orange mottling

CONTINUOUS CORING

WELL INSTALLATION DETAILS



Proj. No. 14929A

Woodward-Clyde Consultants

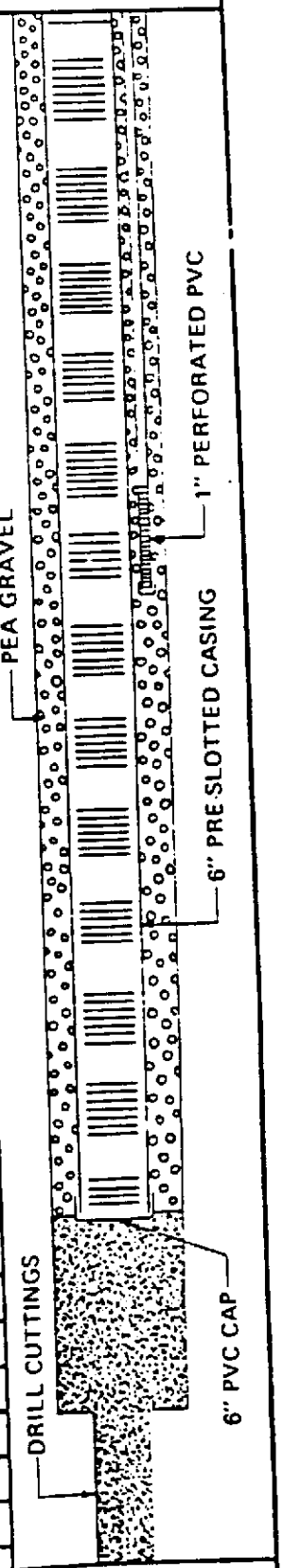
Figure 4a

Project: ELECTRO COATINGS INC.
Emeryville, California

Log of Boring No. 11 (Continued)

Depth, Ft.	Samples	Ft. recovered/ Ft. cored	MATERIAL DESCRIPTION
16	CONTINUOUS CORING		GRAVELLY CLAYEY SAND fine sand, poor to moderate sorting, moist to wet
17		2.2/2.5	GRAVELLY SANDY CLAY firm, wet, bright orange mottling, light brown
18			GRAVELLY SAND gravel up to 25mm across, predominantly medium to coarse sand, poor sorting, minor clay, wet, loose, permeable, dark brown
19		1.3/2.5	
20			
21		0/1	core loss
22		2.2/2.5	CLAYEY GRAVELLY SAND pebble to cobble sizes, fine to coarse sand, poorly sorted, wet, orange mottling throughout, tan brown to light brown
23			less clay, loose
24			as above, with less cobble-sized gravel, better sorting
25		2.0/2.5	gravel constituents: sandstone, chert, milky quartz, basalt
26			gravel is angular
27			core loss
28		1.3/2.5	as above, less clay, moderately sorted, saturated appearance
			clayey gravelly sand near top and bottom of interval
29			core loss
30		1.8/2.5	SILTY SANDY CLAY trace fine angular gravel, moist, orange-dark brown mottling, green to light brown
31			minor gravel lense
32		2.5/2.5	SANDY CLAY–CLAYEY SAND firm, slightly moist, gray to olive-brown

WELL INSTALLATION DETAILS



Proj. No. 14929A

Woodward-Clyde Consultants

Figure 4b

Project: ELECTRO COATINGS INC.
Emeryville, California

Log of Boring No. 11 (Continued)

Depth, Ft.	Samples	Ft. recovered/ Ft. cored	MATERIAL DESCRIPTION	WELL INSTALLATION DETAILS
33			SILTY CLAY trace sand, orange mottling, some fat clay, bluish-gray	DRILL CUTTINGS
34			Bottom of boring @ 34 feet	

Proj. No. 14929A

Woodward-Clyde Consultants

Figure 4c

Project: ELECTRO COATINGS INC.
Emeryville, California

Log of Boring No.12

Date Drilled: 12/18/80 to 12/19/80

Type of Boring: 8" Rotary

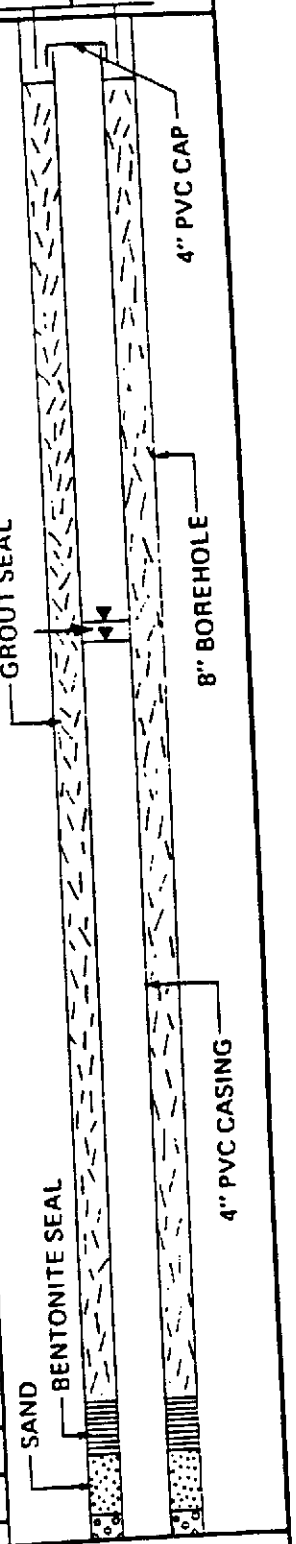
Hammer Weight:

Remarks:

(See Legend Sheet for sampler types and hammer weights)

Depth, Ft	Samples	Ft. recovered/ Ft. cored	MATERIAL DESCRIPTION
			Surface Elevation:
			6" ASPHALT
1			FINE SAND brown to gray with angular chips of gray gravel
2			
3			fragments of granite (?) (very rough drilling)
4			SAND brown
5			grading to
			SILTY CLAY black
6			12/29/81, 1/14/81 } Water Levels
7			SILTY CLAY gray
8			
9			SILTY CLAY buff brown to blue-gray
10			grading more brown
11			SANDY SILTY CLAY trace coarse sand and angular gravel, tan brown
12			grading less gravel
13			
14			
15			

WELL INSTALLATION DETAILS



Proj. No. 14929A

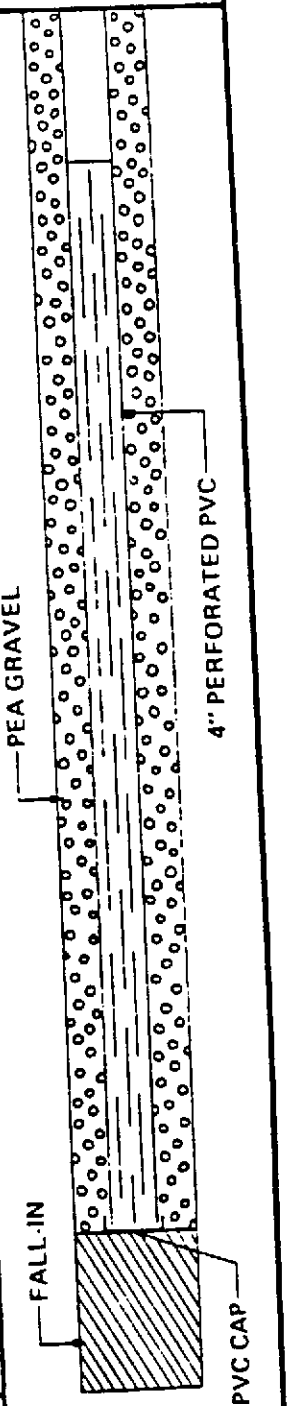
Woodward-Clyde Consultants

Figure 5a

Project: ELECTRO COATINGS INC.
Emeryville, California

Log of Boring No. 12 (Continued)

Depth, Ft.	Samples	Ft. recovered/ Ft. cored	MATERIAL DESCRIPTION	WELL INSTALLATION DETAILS
16				
17			SAND AND GRAVEL coarse sand, fine gravel, brown to gray	
18				
19				
20				
21				
22				
23			grading coarser	
24				
25				
26				
27				
28			SILTY CLAY trace of fine sand, tan-brown	
29				
30			Bottom of boring @ 30 feet	
31				
32				



Proj. No. 14929A

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Figure 5b

Project: ELECTRO COATING INC.
Emeryville, California

Log of Boring No. 13

Date Drilled: 12/22/80

Type of Boring: 4 5/8" Pitcher Core Barrel

Hammer Weight:

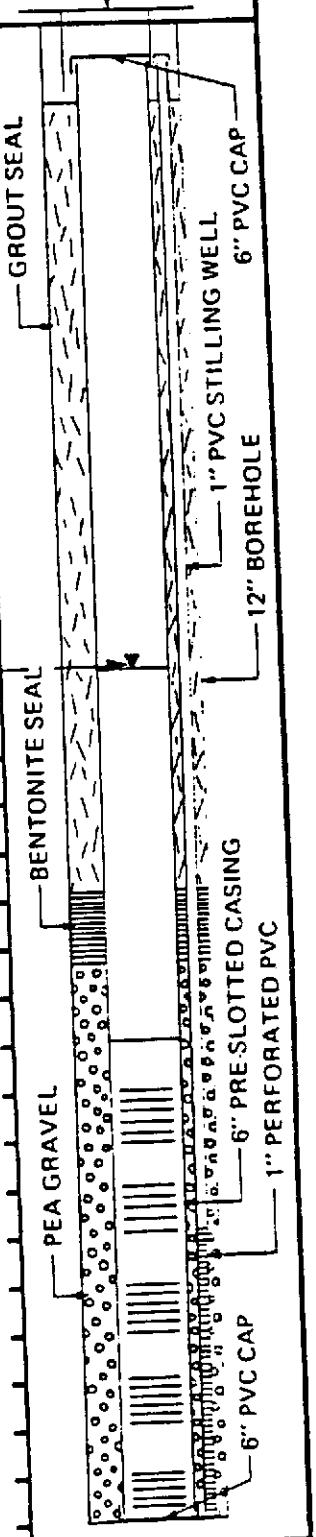
Remarks:

(See Legend Sheet for sampler types and hammer weights)

Depth, Ft.	Samples	Ft. recovered/ Ft. cored	MATERIAL DESCRIPTION
			Surface Elevation:
			4" ASPHALT
			SILTY CLAY FILL
1			SILTY CLAY soft, moist
2			
3			core loss
4		2.0/2.5	grading more firm
5			
6		2.5/2.5	transitional — 1/14/81 Water Level
			trace fine gravels
7			SILTY CLAY trace coarse sub rounded gravel (≈20 mm) stiff, slight moist, light olive brown
8		2.4/2.5	becoming more tan brown, increasing gravel and sand
9			
10			increased mottling
			core loss
11		1.6/2.5	
12			SANDY SILTY CLAY trace gravel, orange mottling around sand grains, tan-brown
			fine gravels common near base
13			core loss
			SANDY GRAVELLY CLAY heavy orange mottling
14		2.3/2.5	SANDY SILTY CLAY trace gravel, dark brown mottling common throughout, light olive green to brown, locally black-orange sand (weathered?) common
15			Bottom of boring @ 15.5 feet

CONTINUOUS CORING

WELL INSTALLATION DETAILS



Proj. No. 14929A

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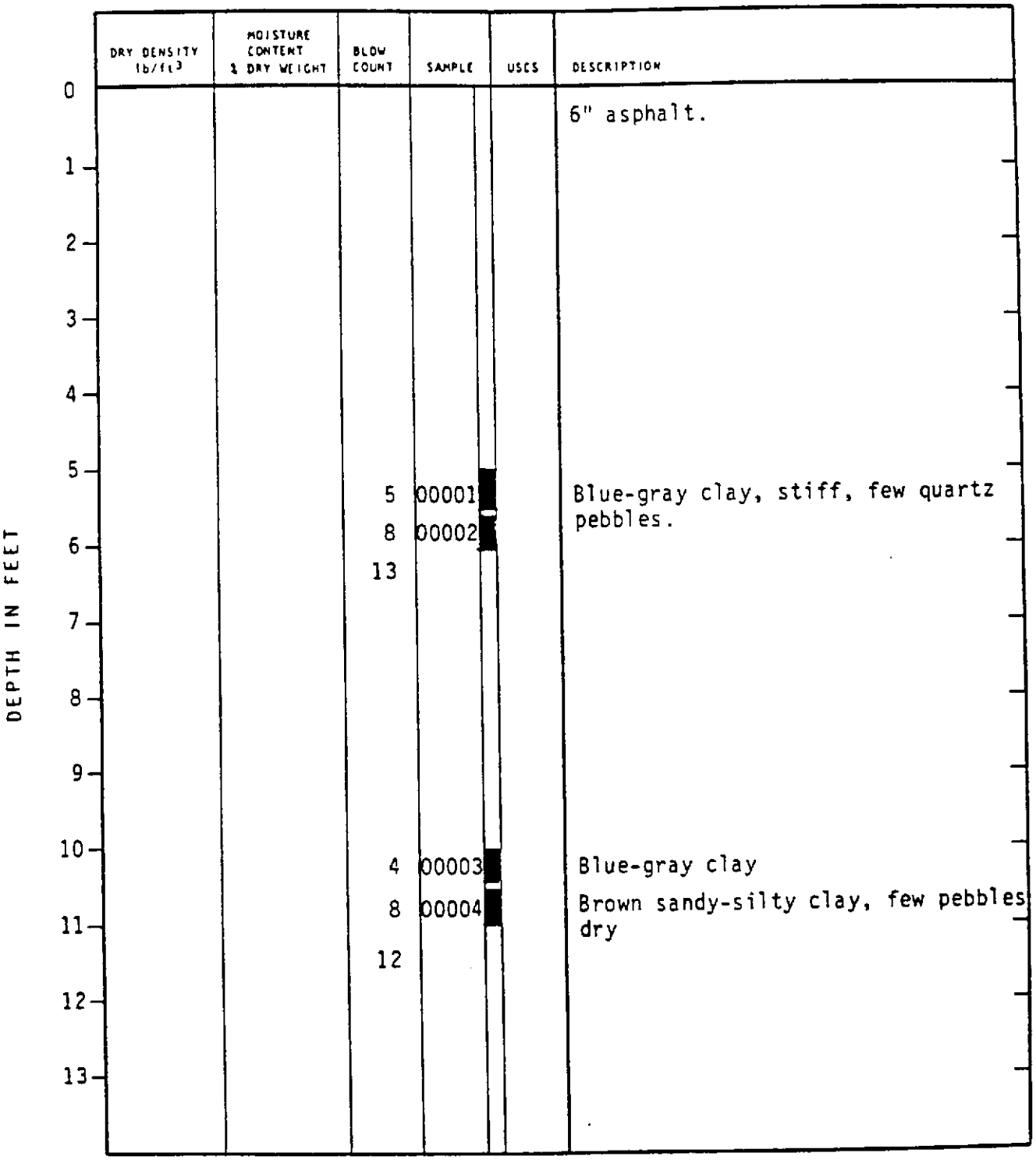
Figure 6



J H. KLEINFELDER & ASSOCIATES
GEOTECHNICAL CONSULTANTS • MATERIALS TESTING

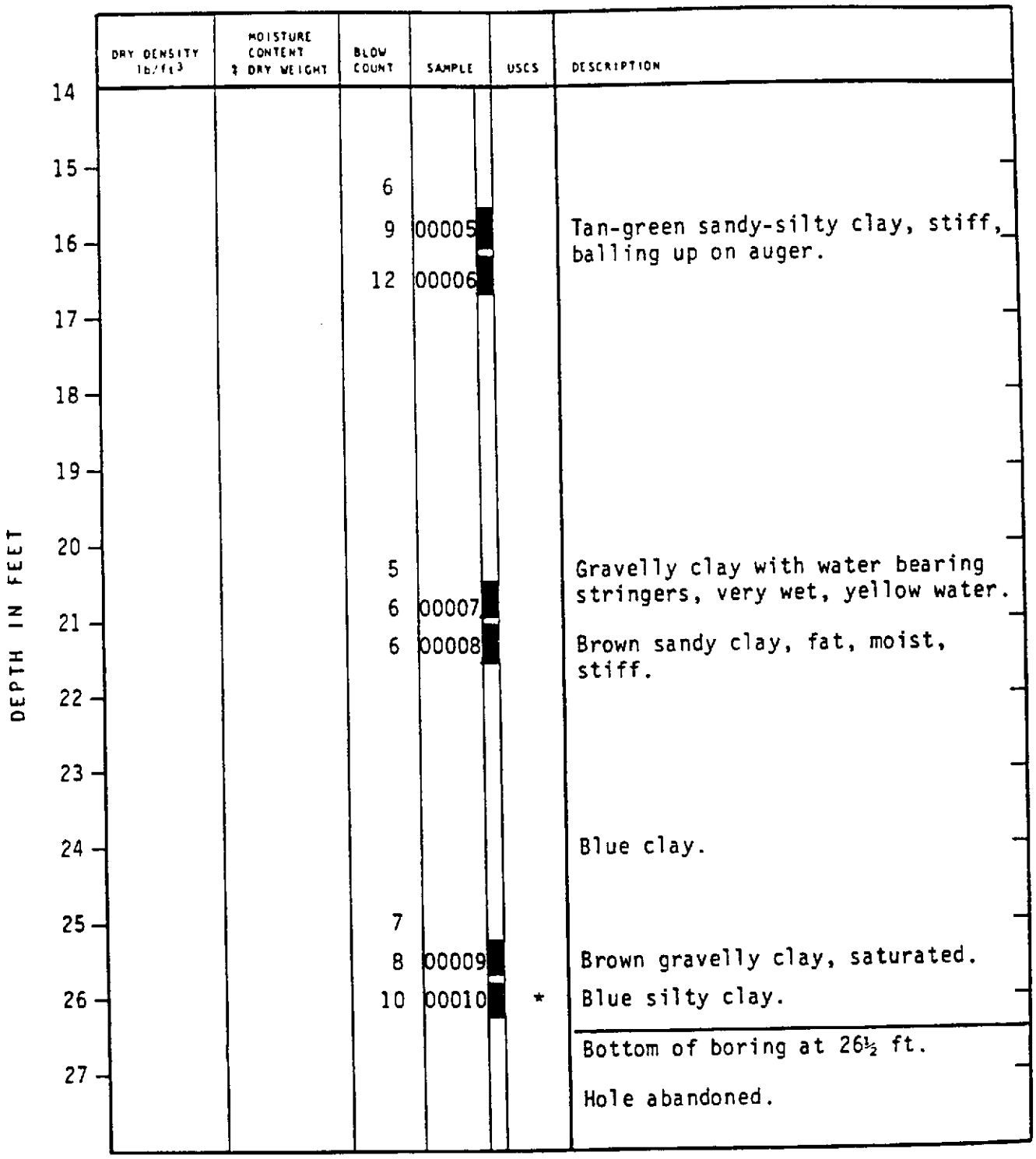
PREPARED BY: RJZ DATE: 5/10/82

CHECKED BY: DCM DATE: 5/10/82

ELECTRO-COATINGS INC.
EMERYVILLE, CALIFORNIA
LOG OF BORING NO. B-1

PROJECT NO. B-1132-3

PLATE
A-2



* Assumed base of shallow groundwater.

J.H KLEINFELDER & ASSOCIATES
GEOTECHNICAL CONSULTANTS • MATERIALS TESTING

PREPARED BY: RJZ DATE: 5/10/82

CHECKED BY: DCM DATE: 5/10/82

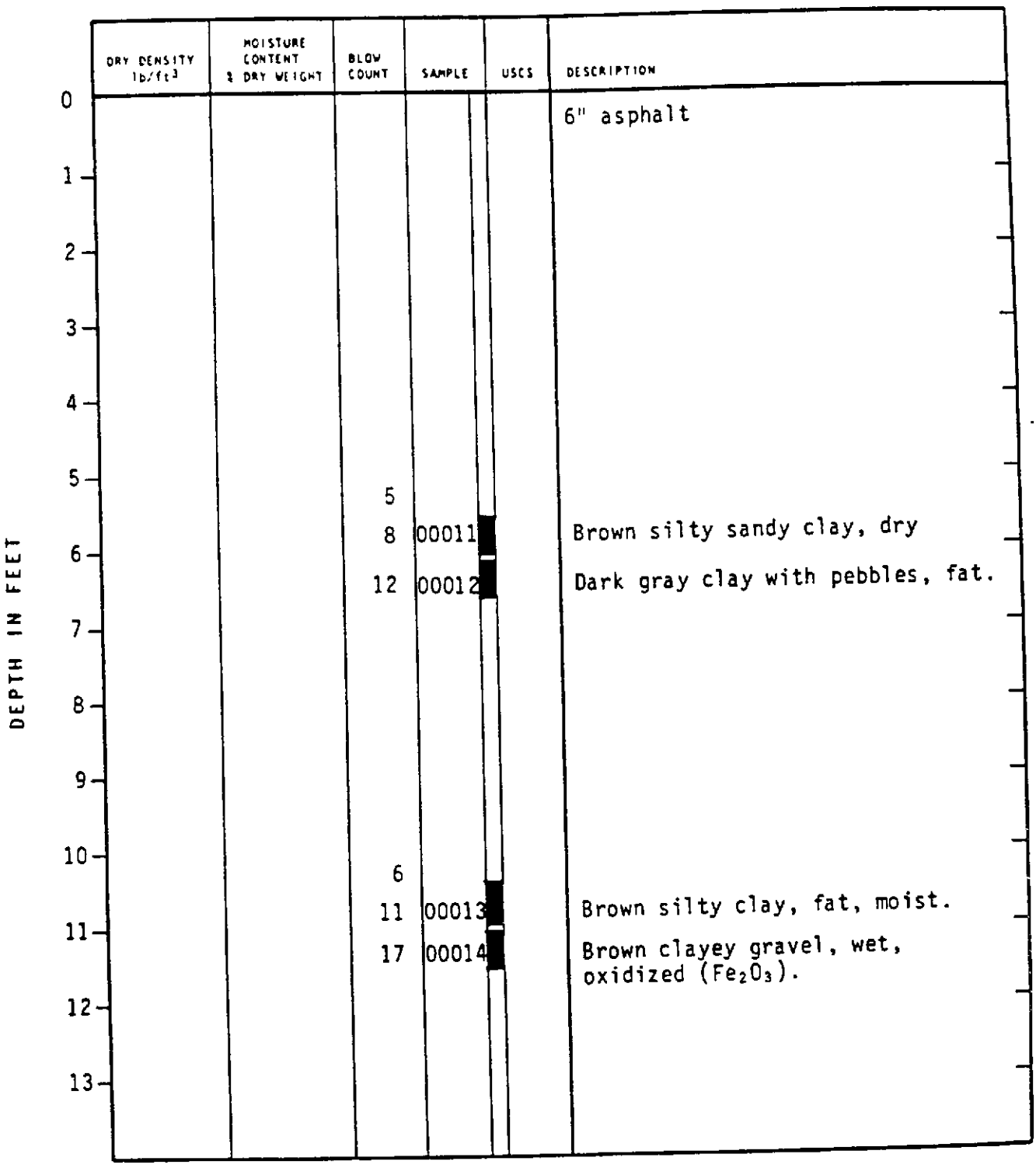
ELECTRO-COATINGS INC.
EMERYVILLE, CALIFORNIA

LOG OF BORING NO. B-1 (CONT)

PROJECT NO. B-1132-3

PLATE

A-2.1



J.H. KLEINFELDER & ASSOCIATES
GEOTECHNICAL CONSULTANTS • MATERIALS TESTING

PREPARED BY: RJZ DATE: 5/10/82
CHECKED BY: DCM DATE: 5/10/82

ELECTRO-COATINGS INC.
EMERYVILLE, CALIFORNIA
LOG OF BORING NO. 14

PROJECT NO. B-1132-3

PLATE
A-3

DRY DENSITY lb/ft³	MOISTURE CONTENT & DRY WEIGHT	BLOW COUNT	SAMPLE	USCS	DESCRIPTION
		5			
		5	00015		Brown silty clay, fairly dry.
		6	00016		Mottled brown clay with extensive oxidation, fat, moist.
		4			
		5	00017		Brown clay with pebbles.
		9	00018		Green-gray clay.
		7			
		10	00019		
		12	00020	*	Blue clay
					Bottom of boring at 26½ ft. Well construction: 0-15', blank 4" PVC 15-25', perforated 4" PVC

DEPTH IN FEET: 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27

* Assumed base of shallow groundwater.

J H. KLEINFELDER & ASSOCIATES
GEOTECHNICAL CONSULTANTS • MATERIALS TESTING

PREPARED BY: RJZ DATE: 5/10/82
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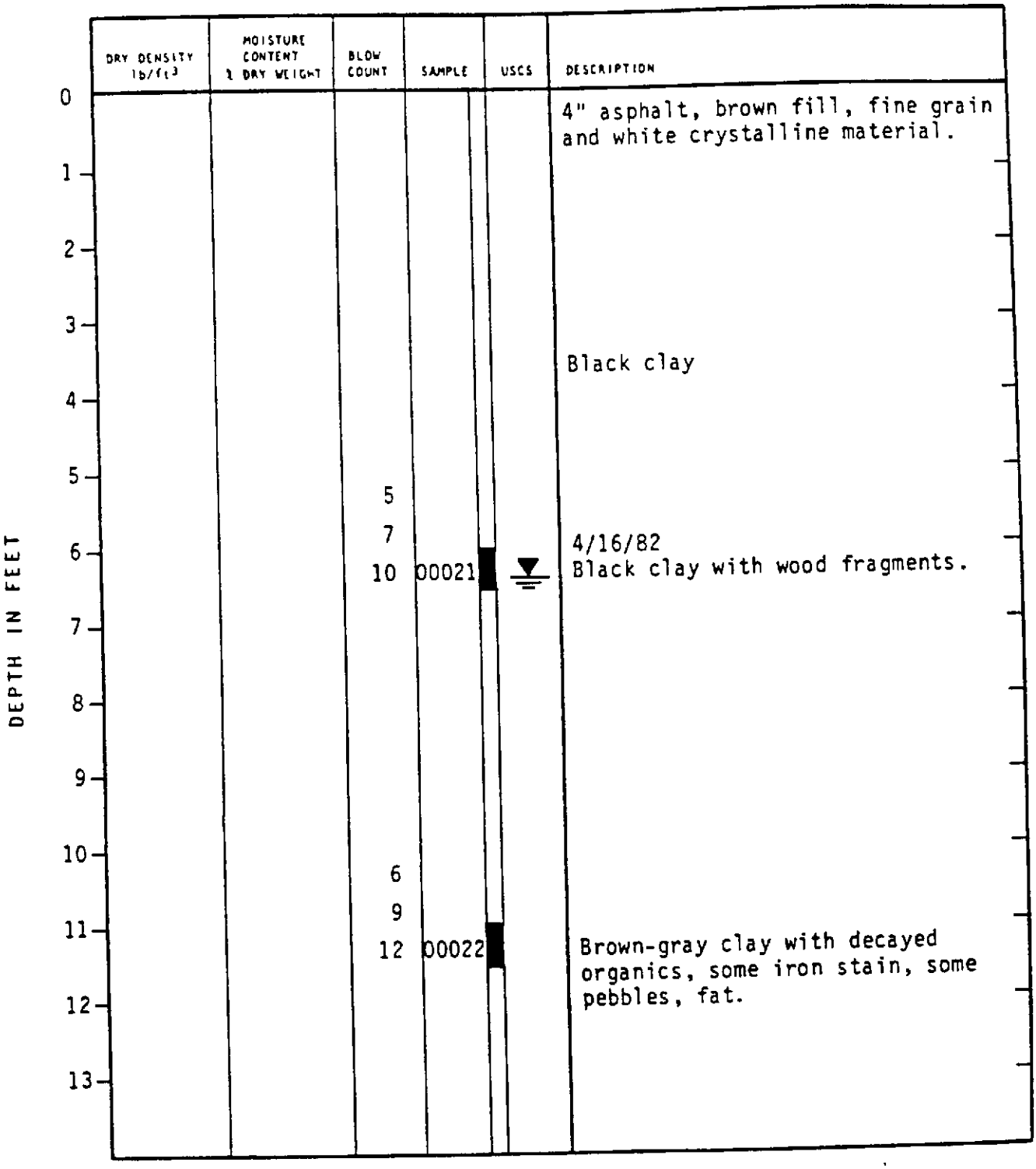
ELECTRO-COATINGS INC.
EMERYVILLE, CALIFORNIA
LOG OF BORING NO. 14 (CONT)

PROJECT NO. B-1132-3

PLATE
A-3.1



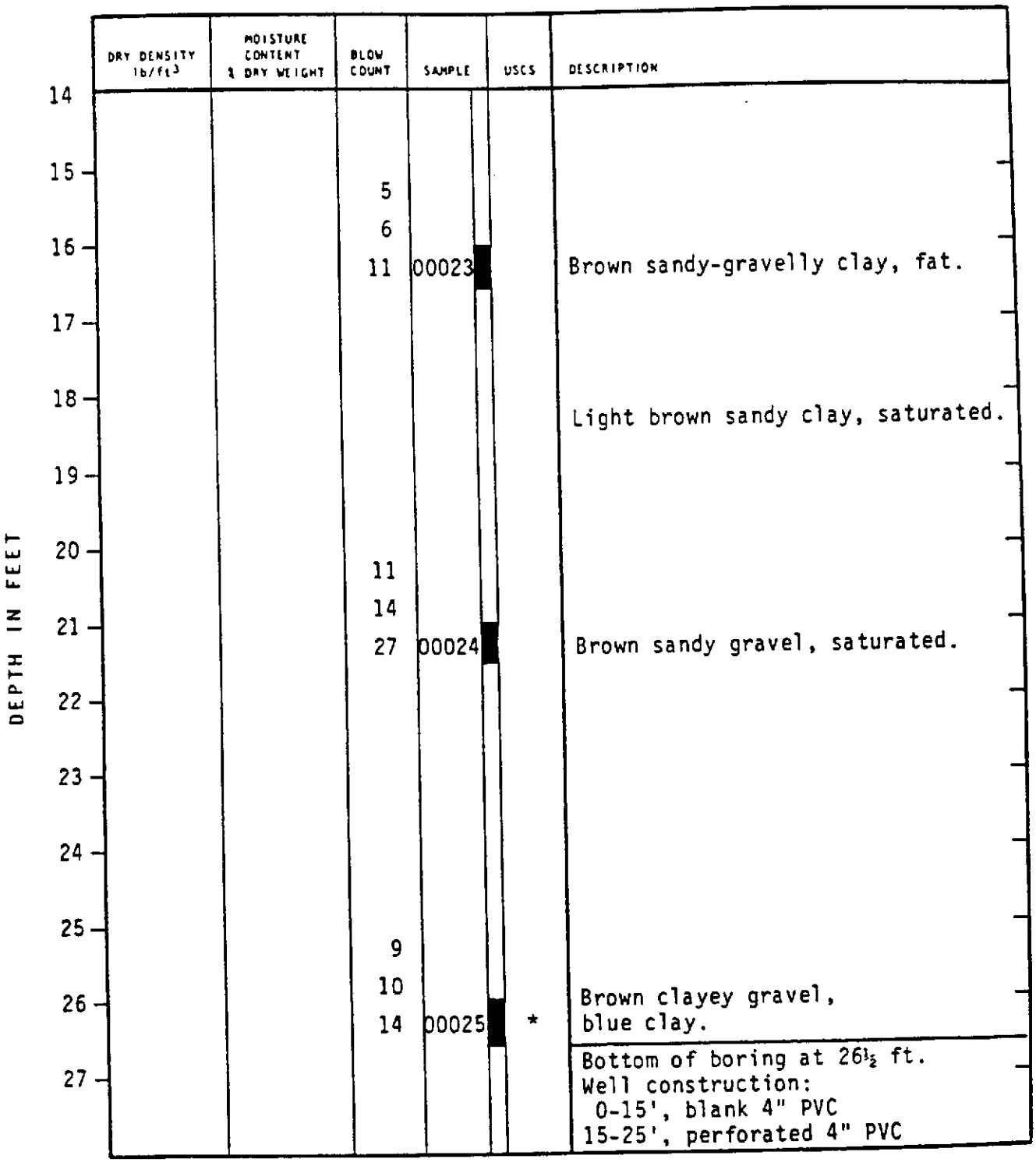
J.H. KLEINFELDER & ASSOCIATES
GEOTECHNICAL CONSULTANTS • MATERIALS TESTING

PREPARED BY: RJZ DATE: 5/10/82
CHECKED BY: DCM DATE: 5/10/82

ELECTRO-COATINGS INC.
EMERYVILLE, CALIFORNIA
LOG OF BORING NO. 15

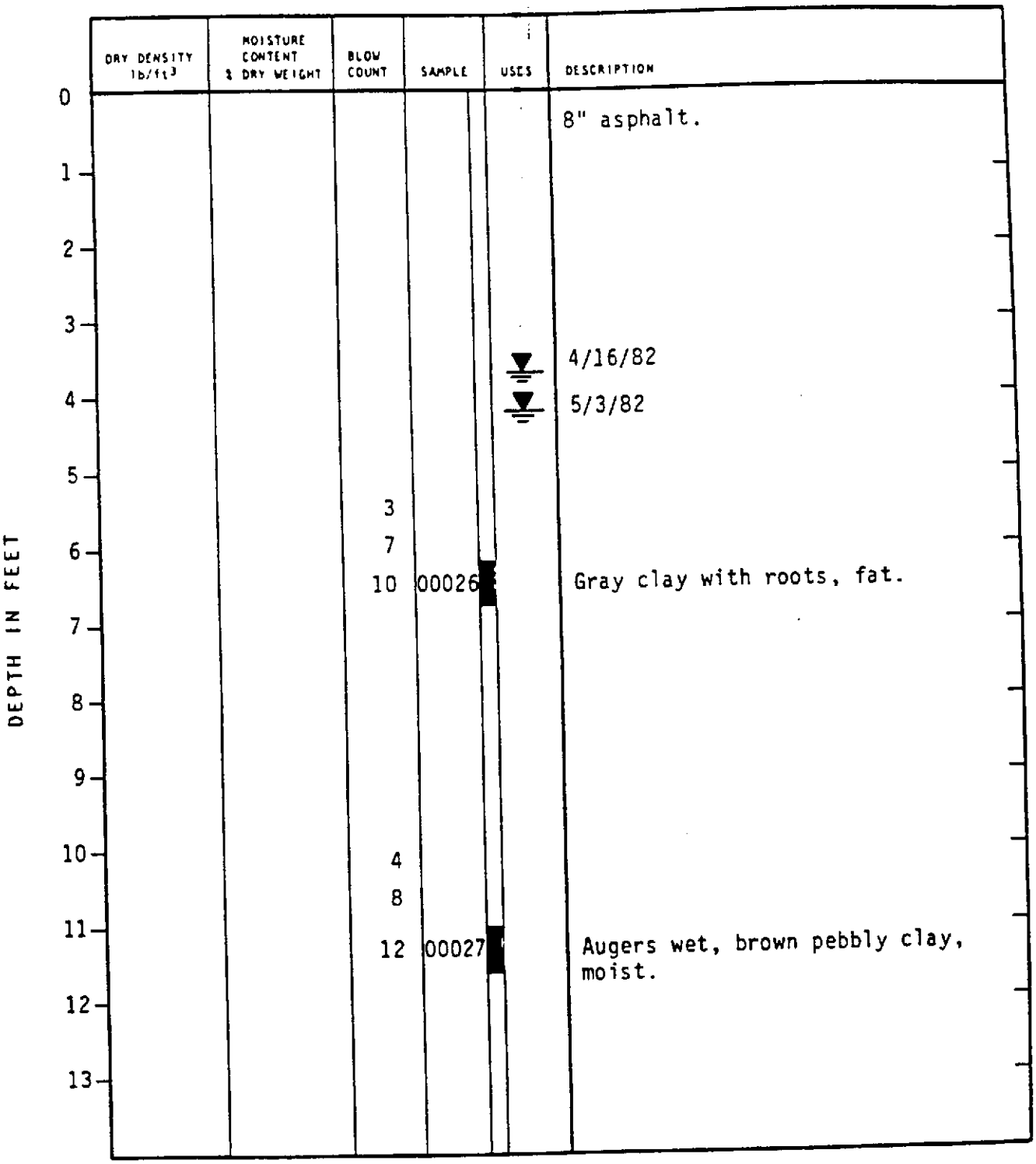
PROJECT NO. B-1132-3

PLATE
A-4



* Assumed base of shallow groundwater.

J H KLEINFELDER & ASSOCIATES GEOTECHNICAL CONSULTANTS • MATERIALS TESTING	ELECTRO-COATINGS INC. EMERYVILLE, CALIFORNIA LOG OF BORING NO. 15 (CONT)	PLATE A-4.1
PREPARED BY: RJZ DATE: 5/10/82		
CHECKED BY: DCM DATE: 5/10/82	PROJECT NO. B-1132-3	



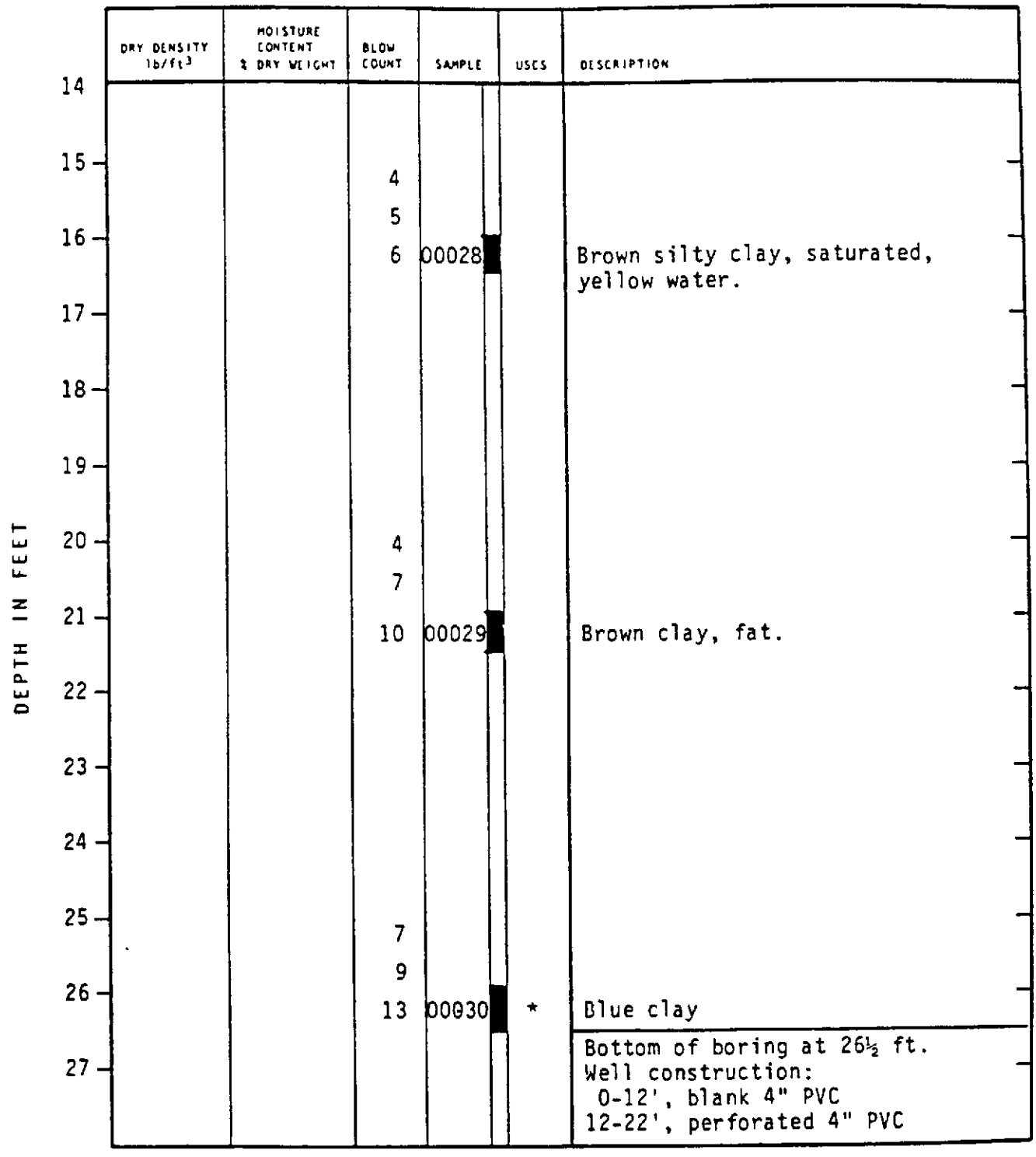
J.H. KLEINFELDER & ASSOCIATES
GEOTECHNICAL CONSULTANTS • MATERIALS TESTING

PREPARED BY: RJZ DATE: 5/10/82
CHECKED BY: DCM DATE: 5/10/82

ELECTRO-COATINGS INC.
EMERYVILLE, CALIFORNIA
LOG OF BORING NO. 16

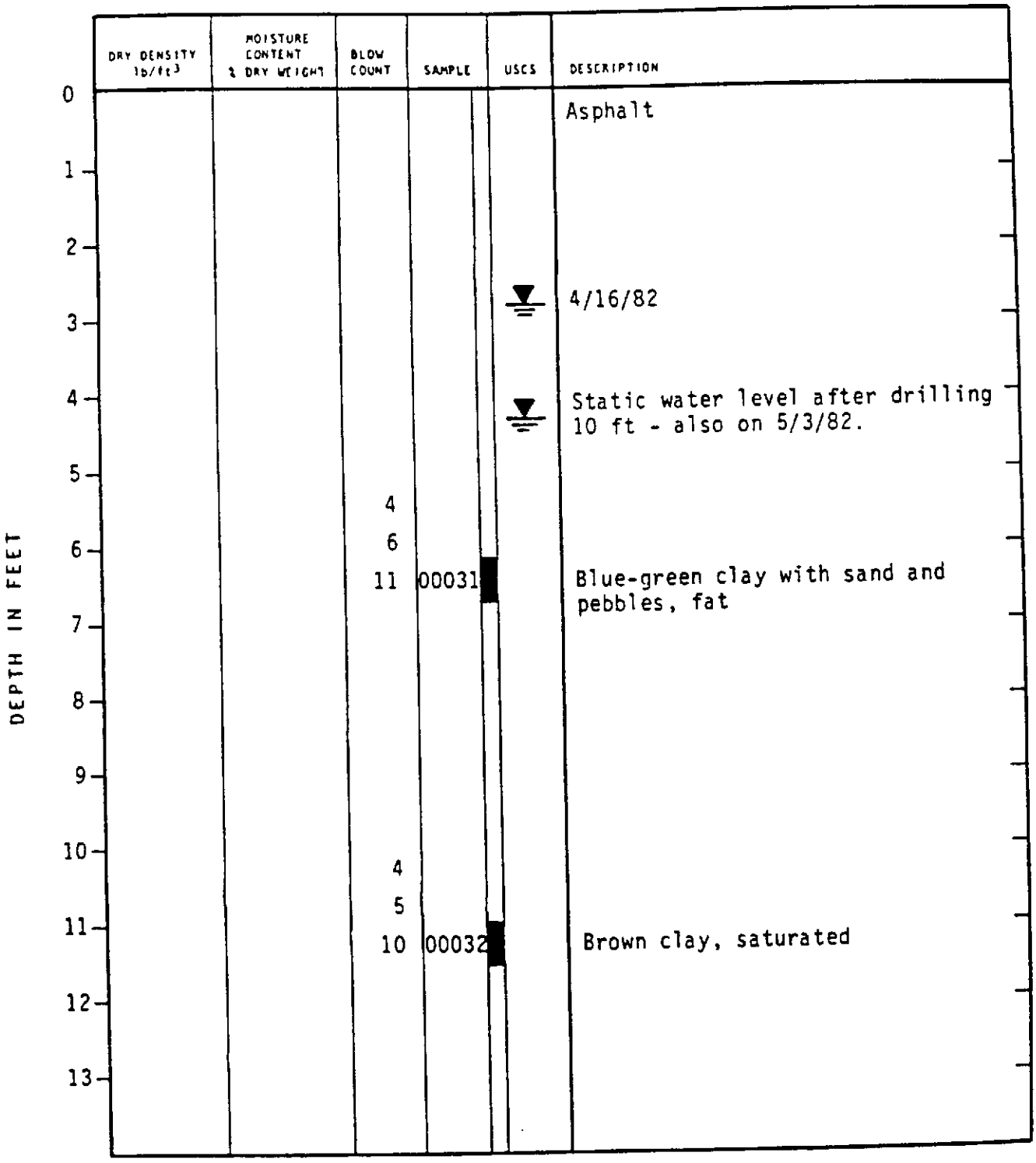
PROJECT NO. B-1132-3

PLATE
A-5

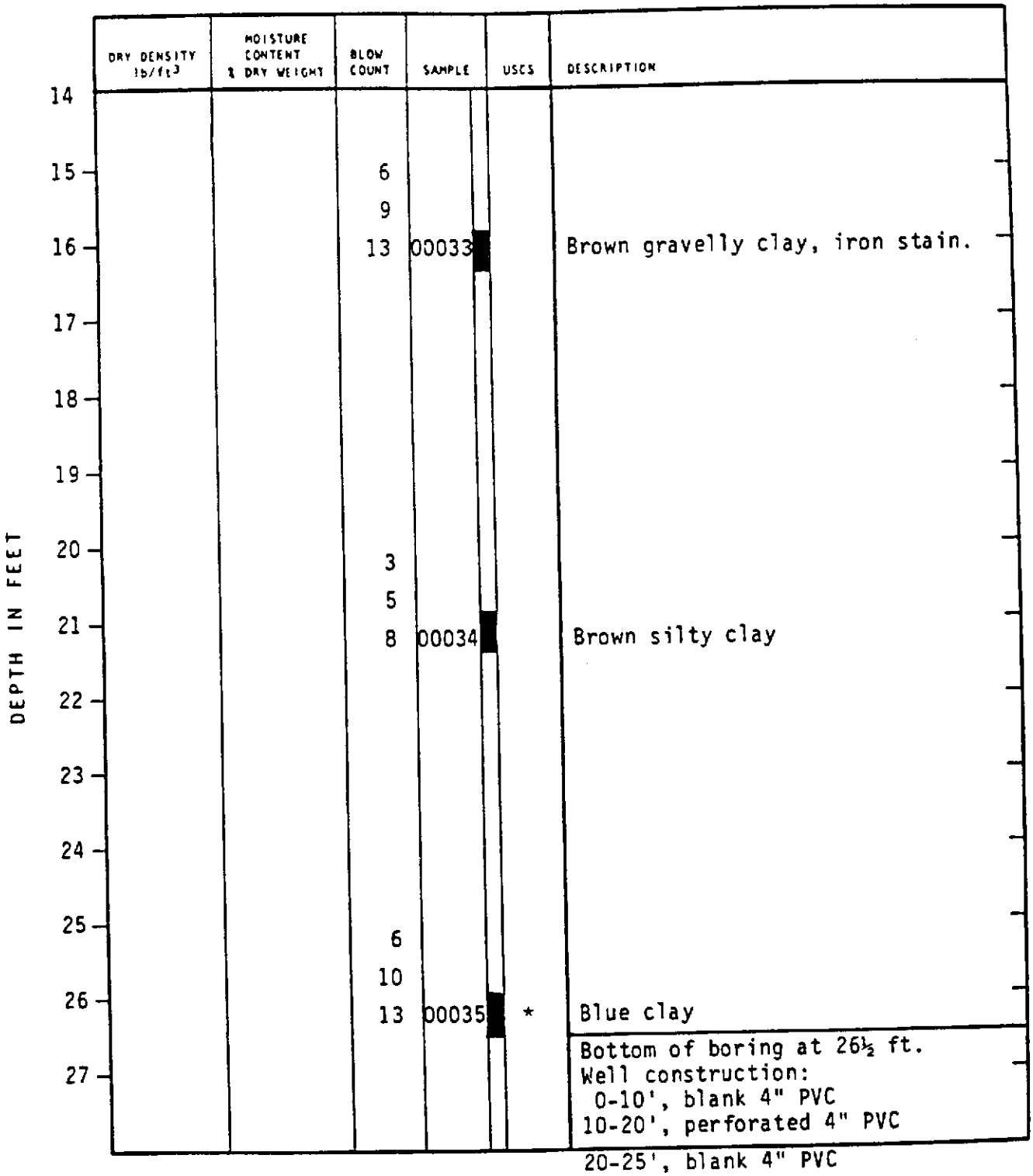


* Assumed base of shallow groundwater.

J.H KLEINFELDER & ASSOCIATES GEOTECHNICAL CONSULTANTS • MATERIALS TESTING	ELECTRO-COATINGS INC. EMERYVILLE, CALIFORNIA LOG OF BORING NO. 16 (CONT)	PLATE A-5.1
PREPARED BY: RJZ DATE: 5/10/82		
CHECKED BY: DCM DATE: 5/10/82	PROJECT NO. B-1132-3	

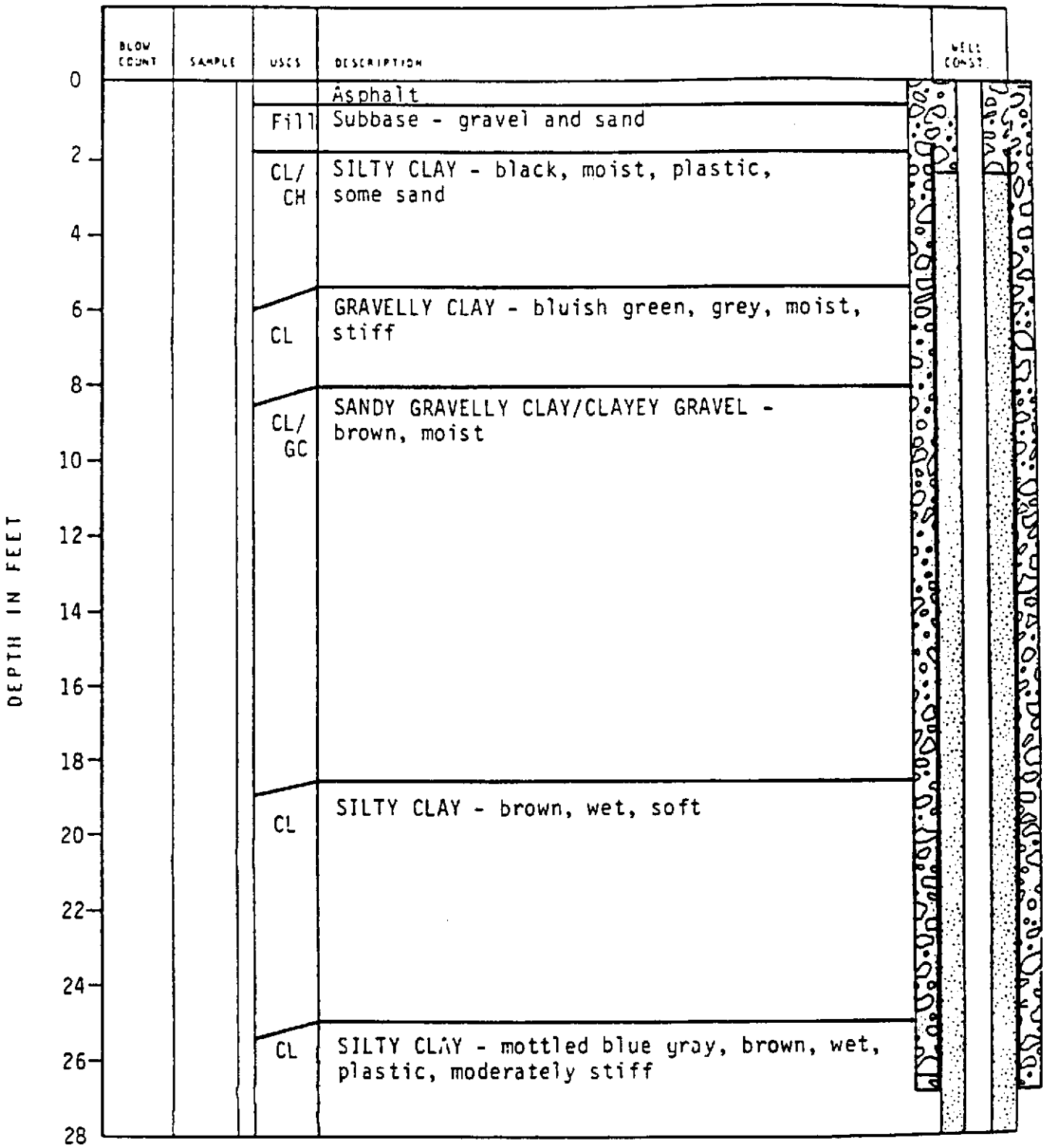


J.H. KLEINFELDER & ASSOCIATES GEOTECHNICAL CONSULTANTS • MATERIALS TESTING	ELECTRO-COATINGS INC. EMERYVILLE, CALIFORNIA LOG OF BORING NO. 17	PLATE A-6
PREPARED BY: RJZ DATE: 5/10/82		
CHECKED BY: DCM DATE: 5/10/82	PROJECT NO. B-1132-3	



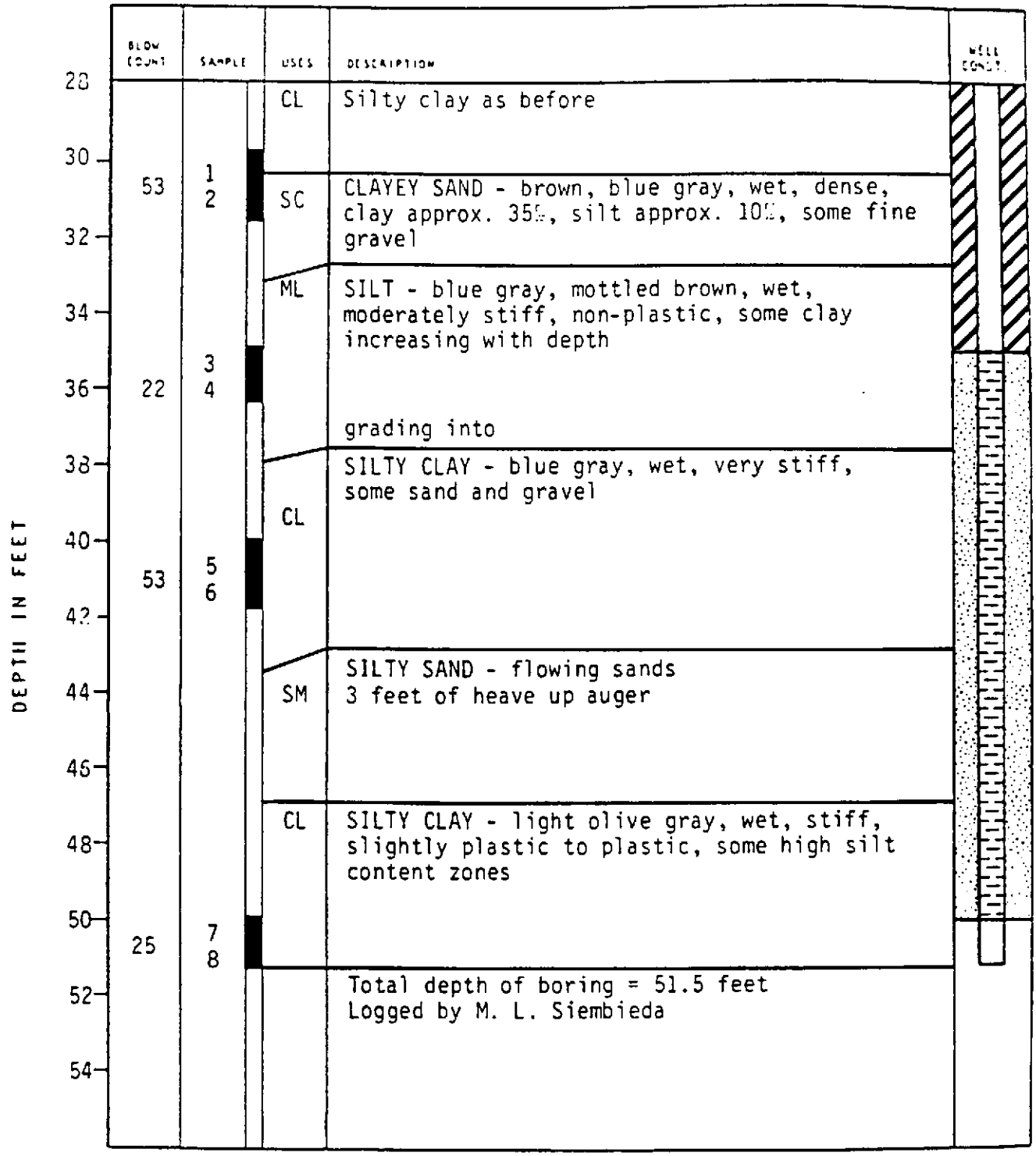
* Assumed base of shallow groundwater.

J.H. KLEINFELDER & ASSOCIATES GEOTECHNICAL CONSULTANTS • MATERIALS TESTING	ELECTRO-COATINGS INC. EMERYVILLE, CALIFORNIA LOG OF BORING NO. 17 (CONT)	PLATE A-6.1
PREPARED BY: RJZ DATE: 5/10/82		
CHECKED BY: DCM DATE: 5/10/82	PROJECT NO. B-1132-3	



(1) 16" diameter hole drilled to 27', 10" casing set and annulus backfilled with bentonite/cement grout that was tremied in place.

J H KLEINFELDER & ASSOCIATES GEOTECHNICAL CONSULTANTS • MATERIALS TESTING	ELECTRO-COATINGS INC. EMERYVILLE, CALIFORNIA LOG OF BORING NO. 18A	PLATE 7
PREPARED BY: AP DATE: 7/83		
CHECKED BY: MLS DATE: 7/83	PROJECT NO. B-1132-4	



J H KLEINFELDER & ASSOCIATES
GEOTECHNICAL CONSULTANTS • MATERIALS TESTING

ELECTRO-COATINGS INC.
EMERYVILLE, CALIFORNIA

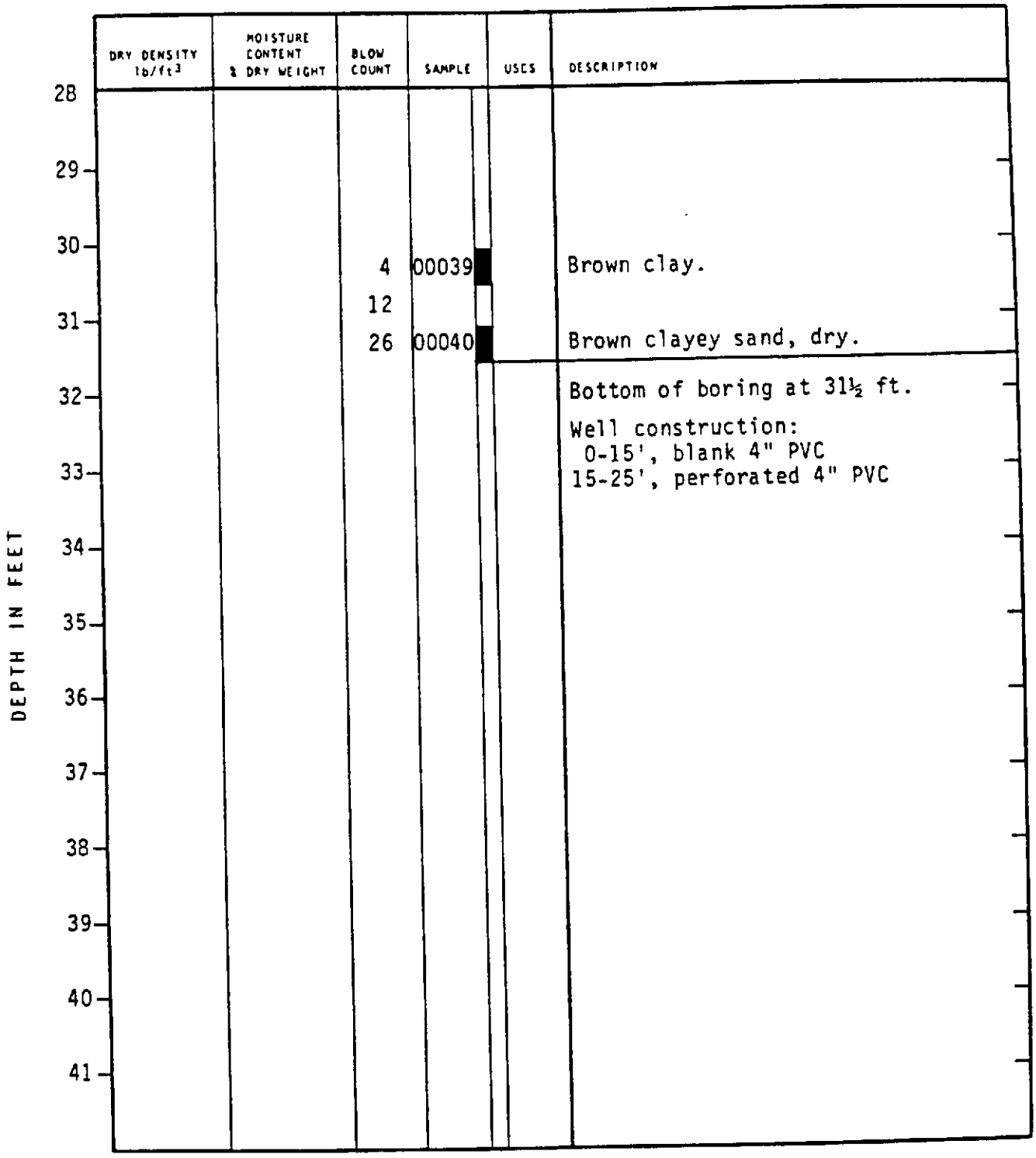
LOG OF BORING NO. 18A

PLATE 7A

PREPARED BY: AP DATE: 7/83

CHECKED BY: MLS DATE: 7/83

PROJECT NO. B-1132-4



J.H KLEINFELDER & ASSOCIATES
GEOTECHNICAL CONSULTANTS • MATERIALS TESTING

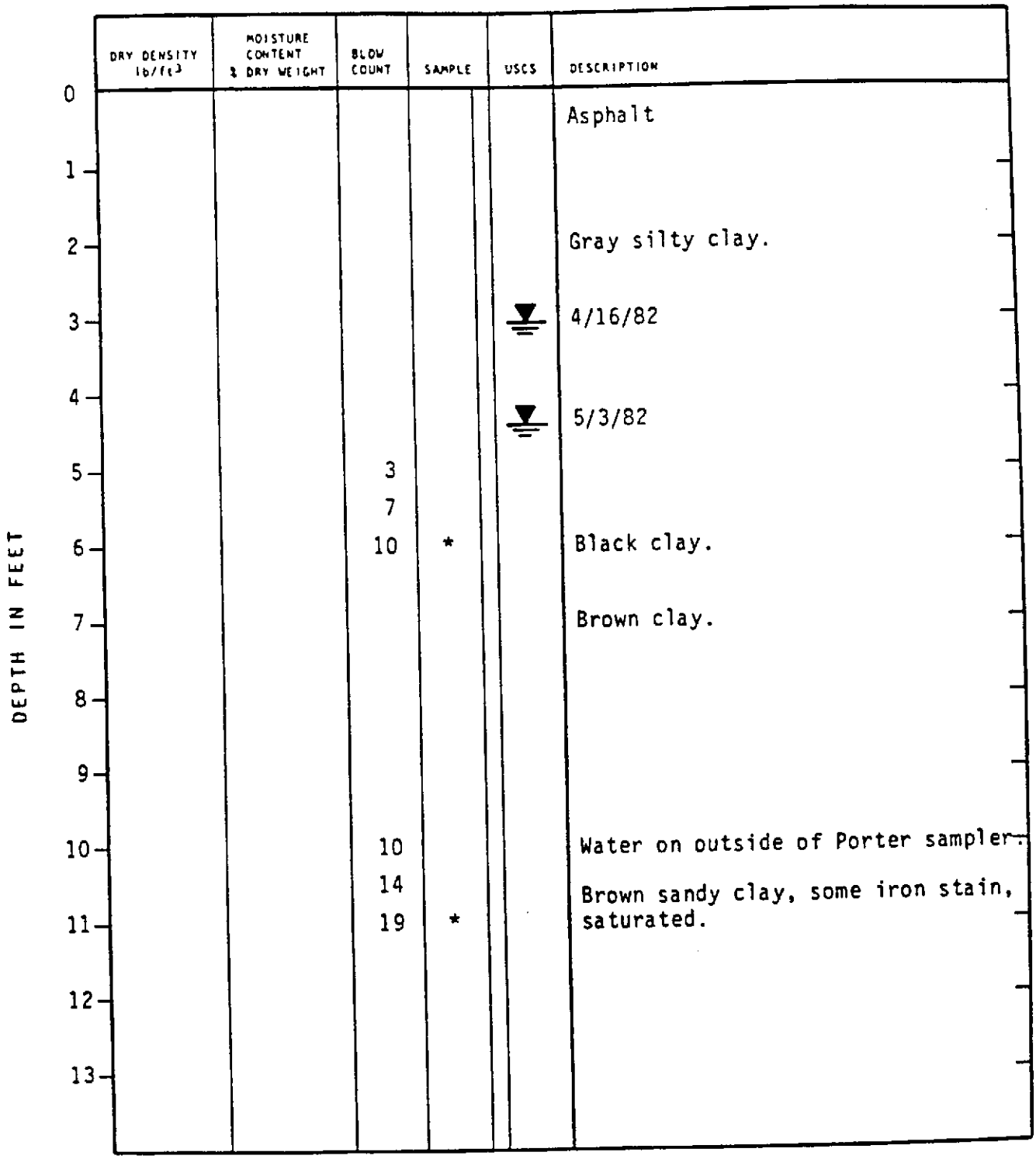
PREPARED BY: RJZ DATE: 5/10/82

CHECKED BY: DCM DATE: 5/10/82

ELECTRO-COATINGS INC.
EMERYVILLE, CALIFORNIA
LOG OF BORING NO. 18 (CONT)

PROJECT NO. B-1132-3

PLATE
A-7.2



J.H. KLEINFELDER & ASSOCIATES
GEOTECHNICAL CONSULTANTS • MATERIALS TESTING

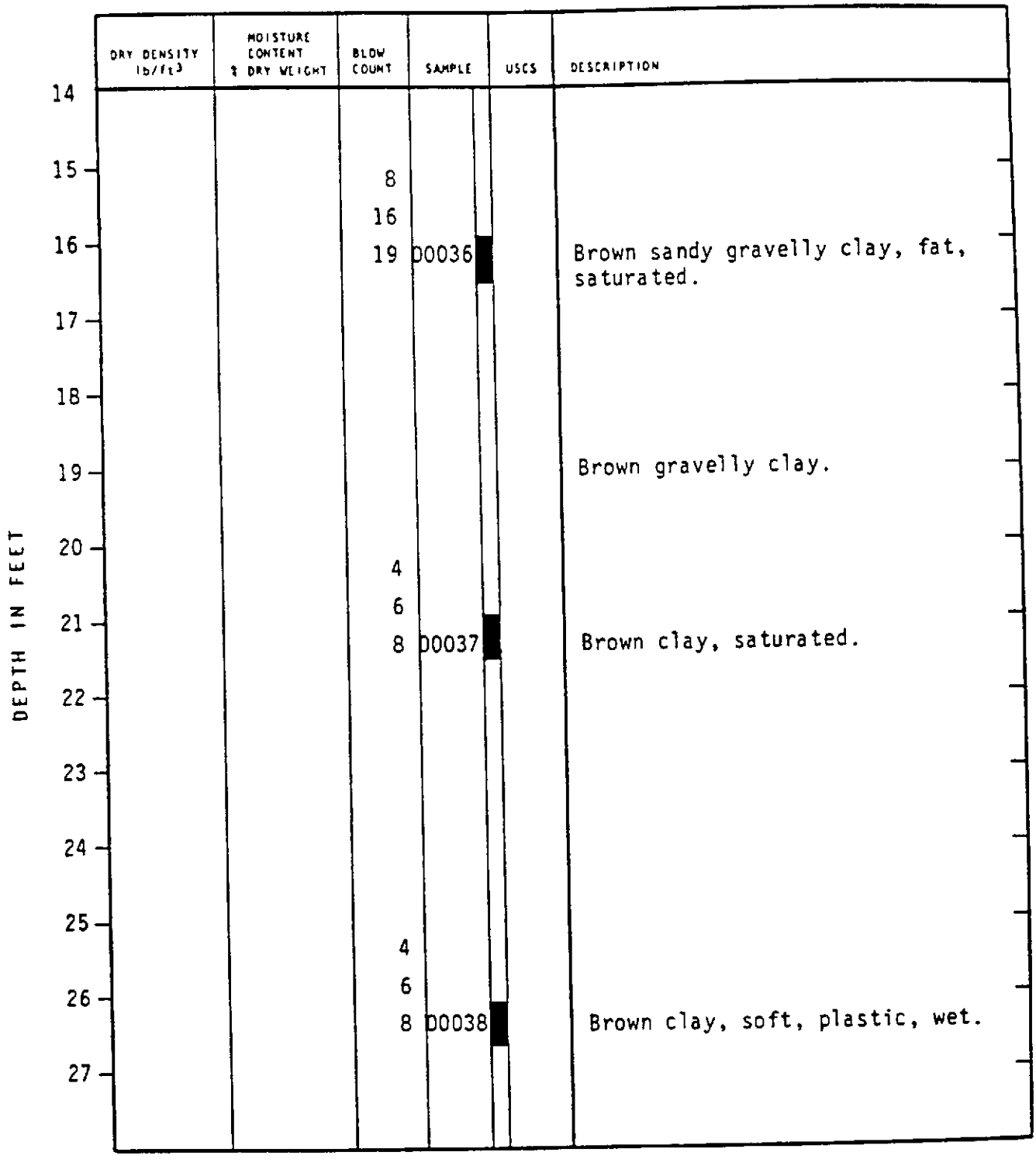
PREPARED BY: RJZ DATE: 5/10/82

CHECKED BY: DCM DATE: 5/10/82

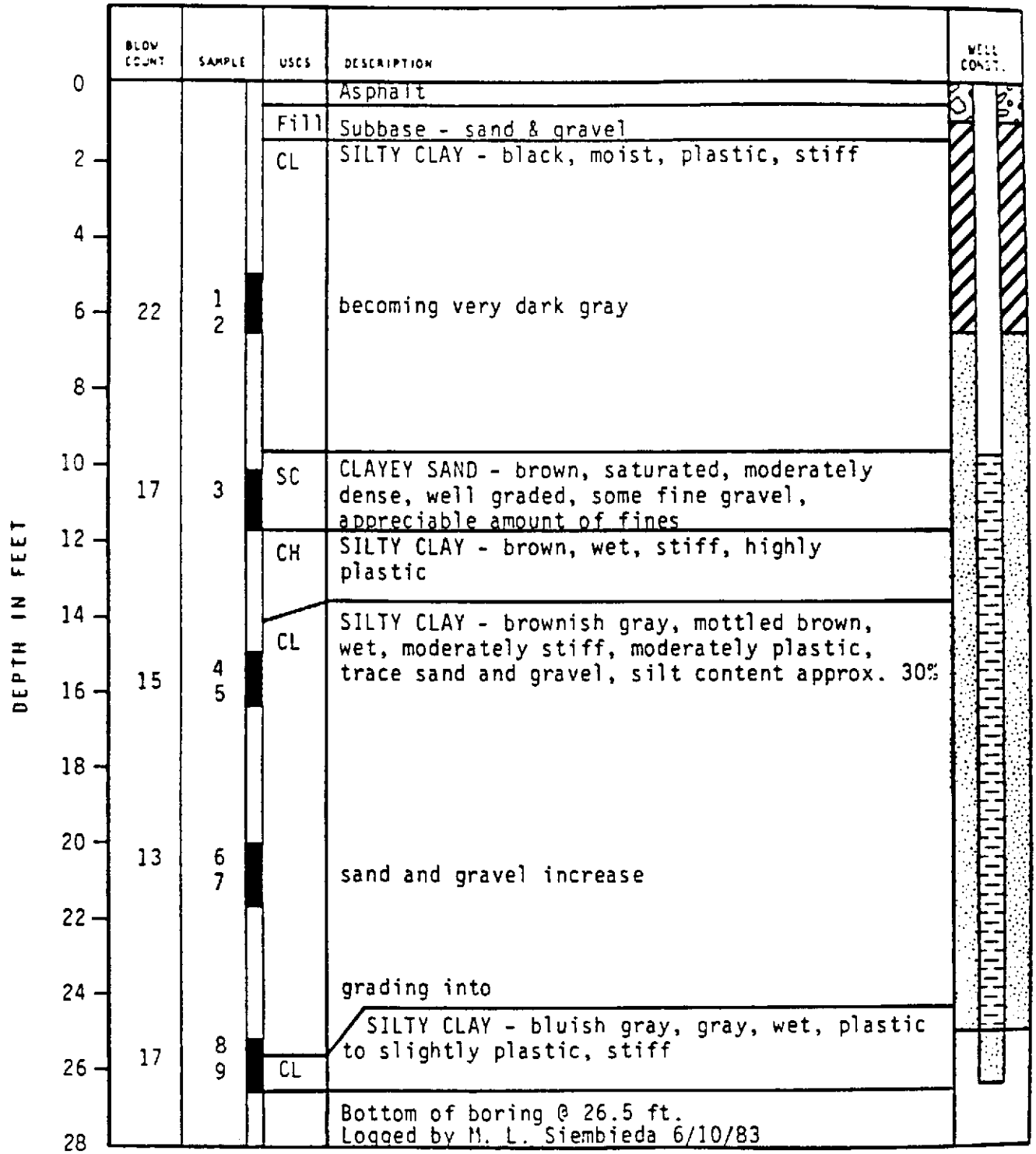
ELECTRO-COATINGS INC.
EMERYVILLE, CALIFORNIA
LOG OF BORING NO. 18

PROJECT NO. B-1132-3

PLATE
A-7



J H KLEINFELDER & ASSOCIATES GEOTECHNICAL CONSULTANTS • MATERIALS TESTING	ELECTRO-COATINGS INC. EMERYVILLE, CALIFORNIA LOG OF BORING NO. 18 (CONT)	PLATE A-7.1
PREPARED BY: RJZ DATE: 5/10/82		
CHECKED BY: DCM DATE: 5/10/82	PROJECT NO. B-1132-3	



J H KLEINFELDER & ASSOCIATES
GEOTECHNICAL CONSULTANTS • MATERIALS TESTING

PREPARED BY: AP DATE: 7/83

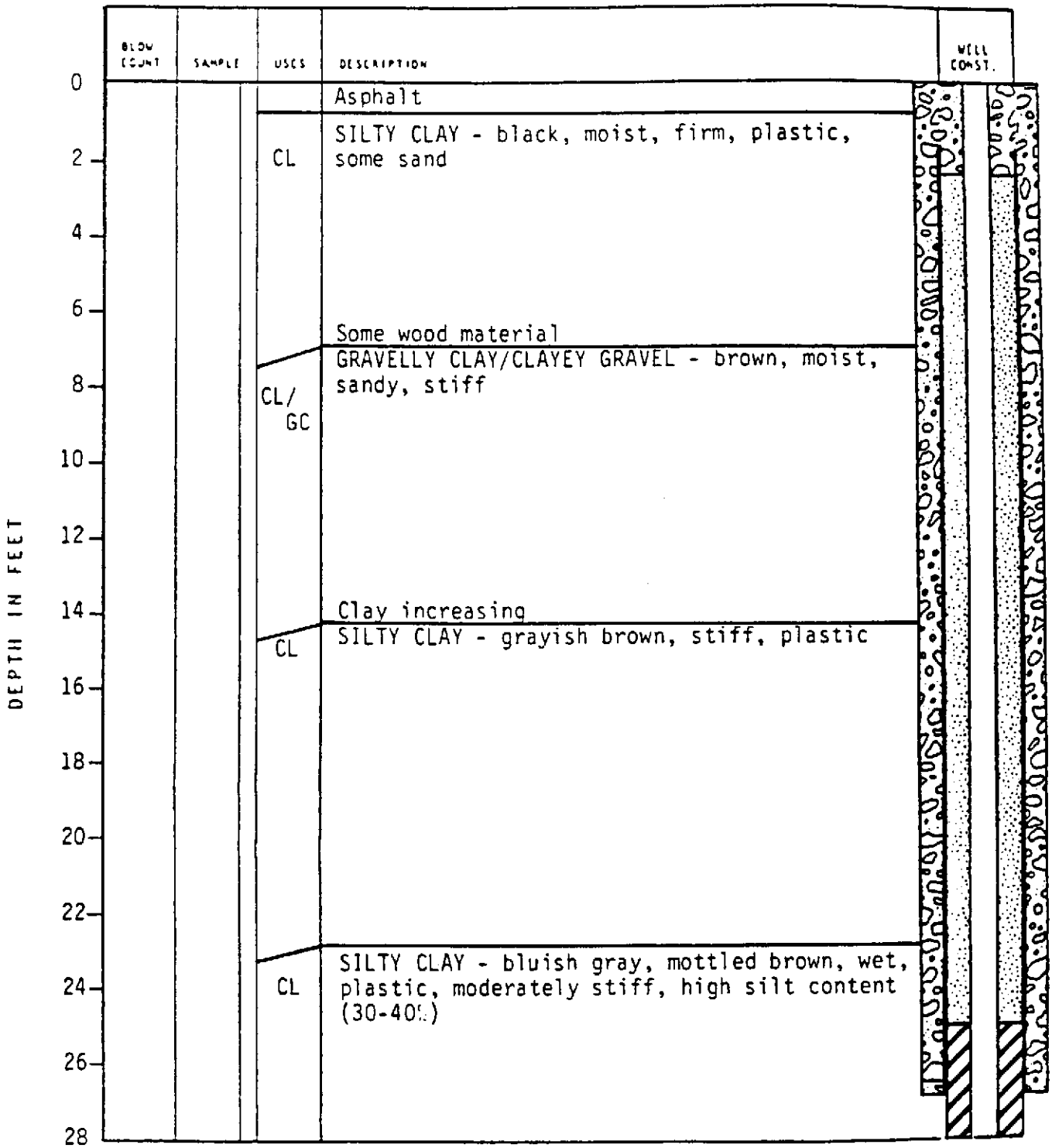
CHECKED BY: MLS DATE: 7/83

ELECTRO-COATINGS INC.
EMERYVILLE, CALIFORNIA

LOG OF BORING NO. 19

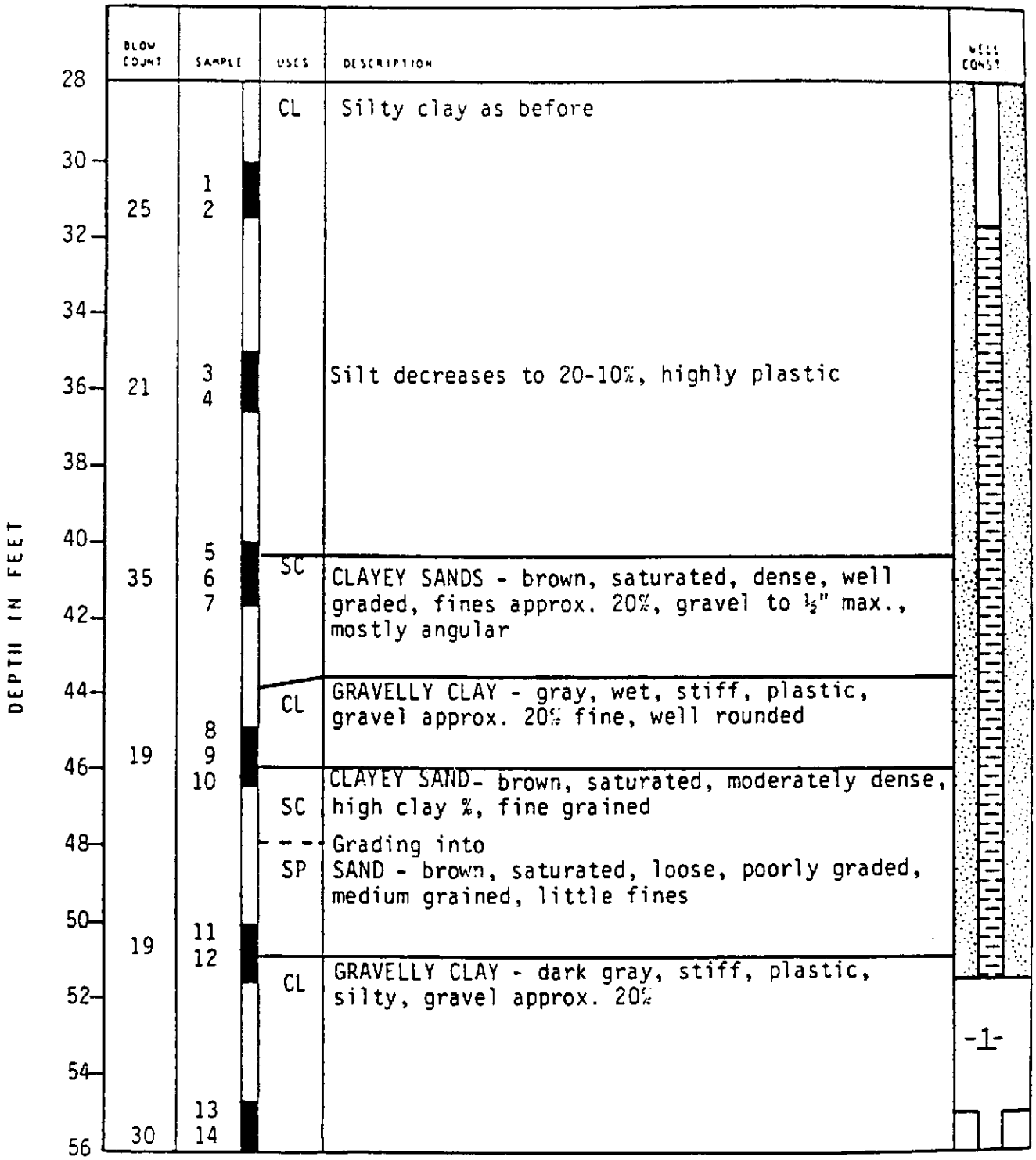
PROJECT NO. B-1132-4

PLATE 8



(1) 16" diameter hole drilled to 26.5 feet, 10 foot casing set & annulus backfilled with bentonite/cement grout that was tremied in place.

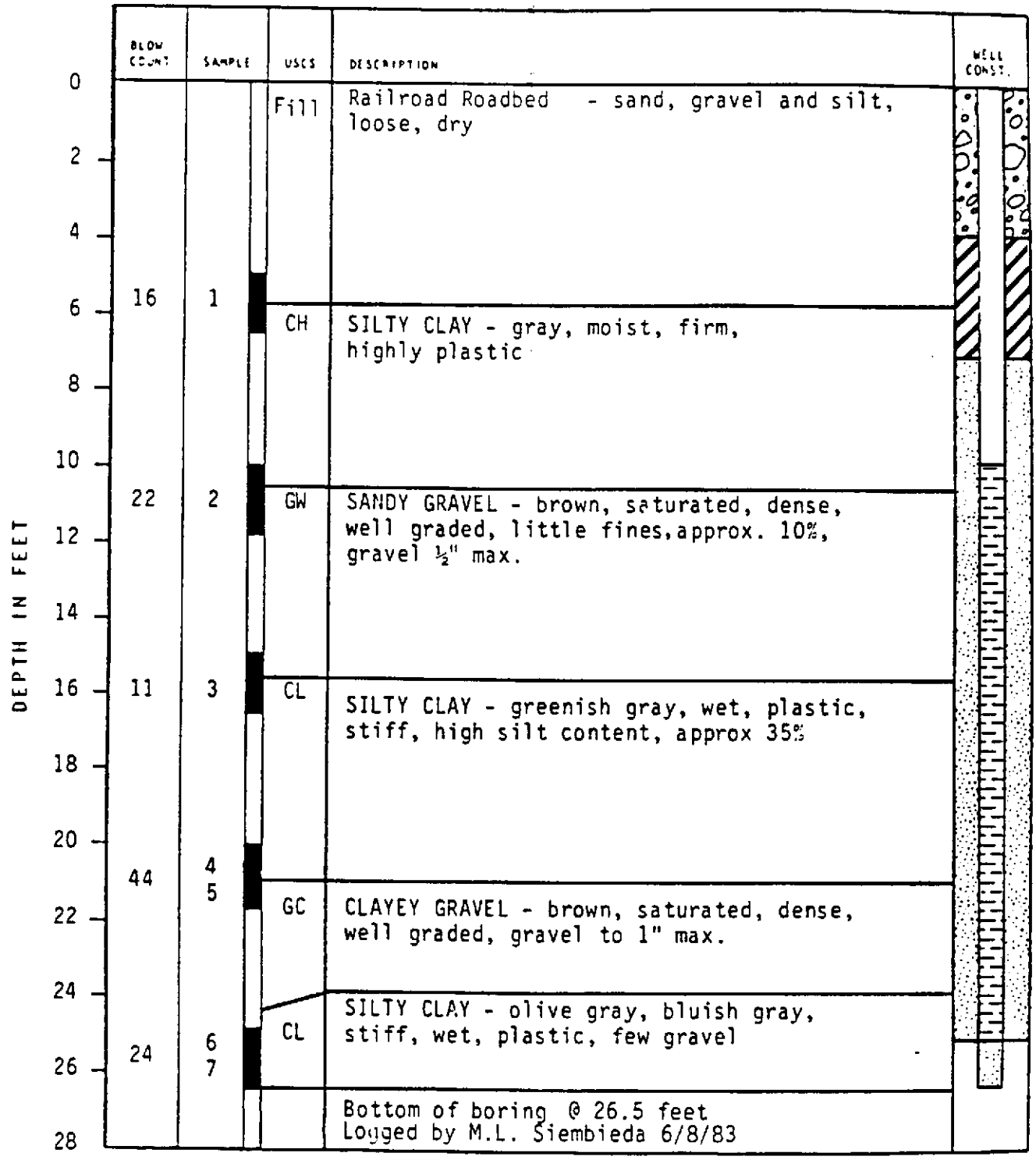
J H KLEINFELDER & ASSOCIATES GEOTECHNICAL CONSULTANTS • MATERIALS TESTING	ELECTRO-COATINGS INC. EMERYVILLE, CALIFORNIA LOG OF BORING NO. 20	PLATE 9
PREPARED BY: AP DATE: 7/83 CHECKED BY: MLS DATE: 7/83	PROJECT NO. B-1132-4	



Bottom of boring @ 56.5 feet
Logged by M.L. Siembieda

(1) 3.5 feet of slough in hole.

J H KLEINFELDER & ASSOCIATES GEOTECHNICAL CONSULTANTS + MATERIALS TESTING	ELECTRO-COATINGS INC. EMERYVILLE, CALIFORNIA LOG OF BORING NO. 20	PLATE 9A
PREPARED BY: AP DATE: 7/83		
CHECKED BY: MLS DATE: 7/83	PROJECT NO. 8-1132-4	



J H KLEINFELDER & ASSOCIATES
GEOTECHNICAL CONSULTANTS • MATERIALS TESTING

PREPARED BY: AP DATE: 7/83

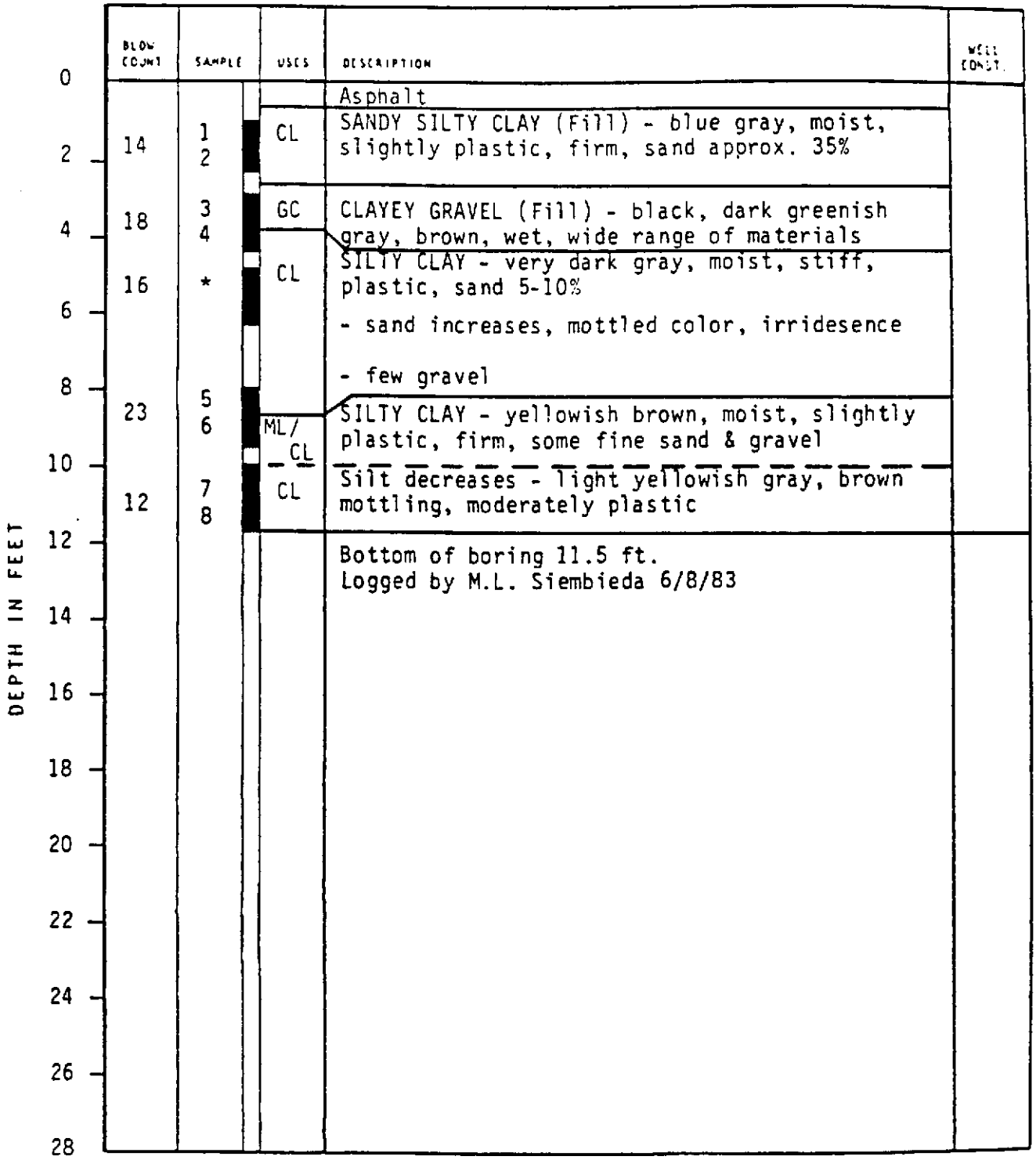
CHECKED BY: MLS DATE: 7/83

ELECTRO-COATINGS INC.
EMERYVILLE, CALIFORNIA

LOG OF BORING NO. 21

PROJECT NO. B-1132-4

PLATE 10



J H KLEINFELDER & ASSOCIATES
GEOTECHNICAL CONSULTANTS • MATERIALS TESTING

PREPARED BY: AP DATE: 7/83

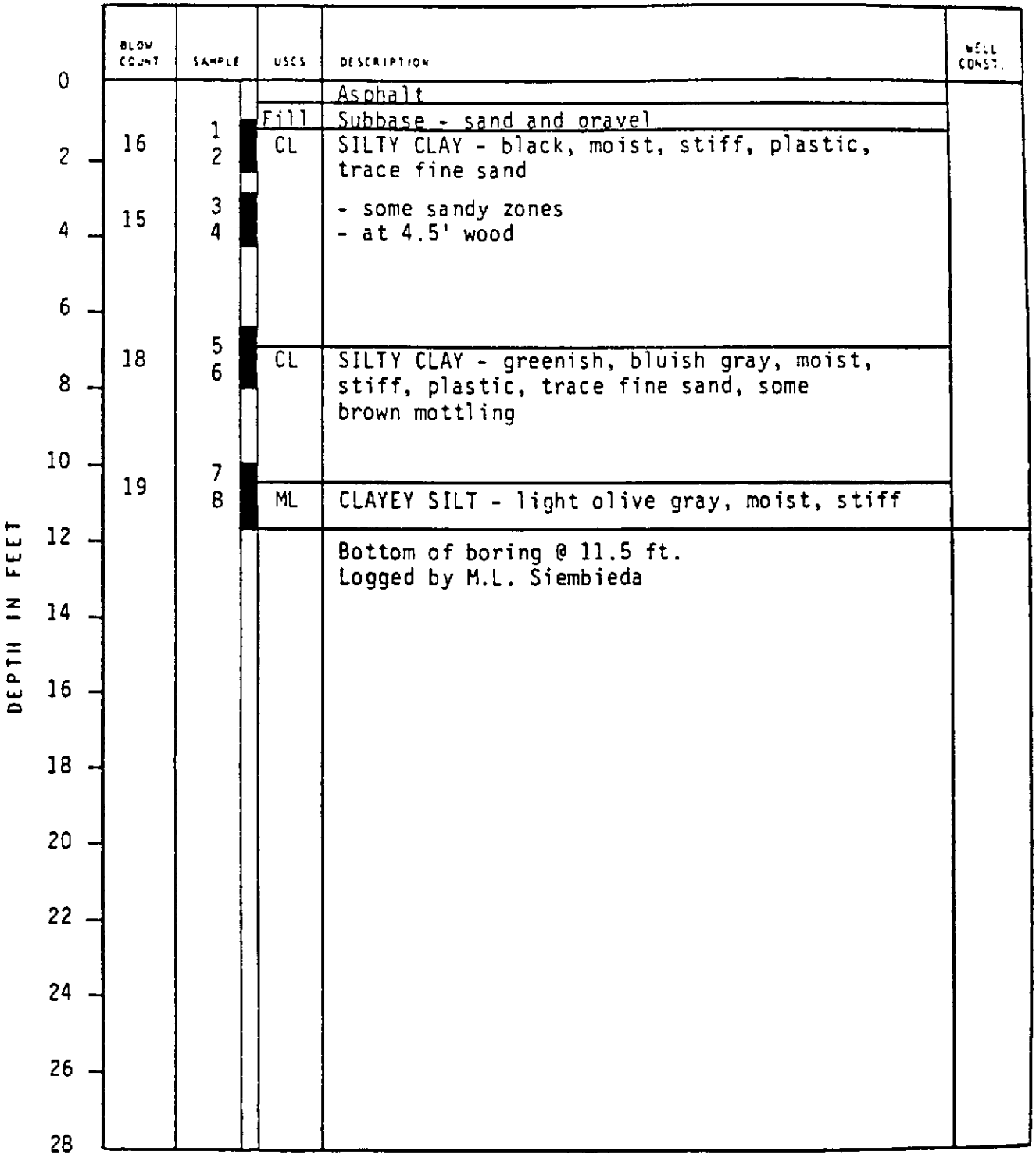
CHECKED BY: MLS DATE: 7/83

ELECTRO-COATINGS INC.
EMERYVILLE, CALIFORNIA

LOG OF BORING NO. 22

PROJECT NO. B-1132-4

PLATE 11



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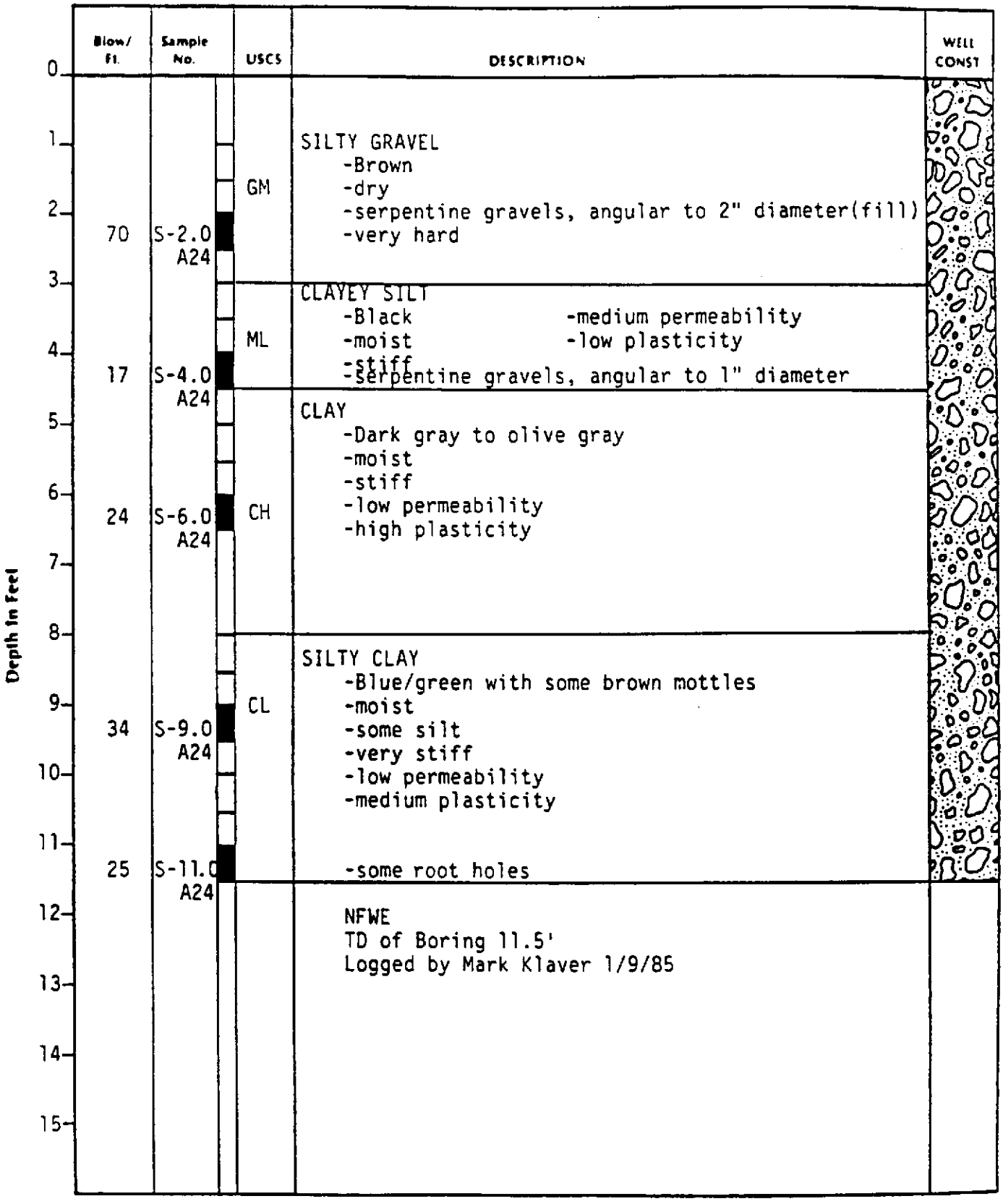
ELECTRO-COATINGS INC.
EMERYVILLE, CALIFORNIA

LOG OF BORING NO. 23

PLATE 12

PREPARED BY	AP	DATE: 7/83	
CHECKED BY	MLS	DATE: 7/83	PROJECT NO. B-1132-4



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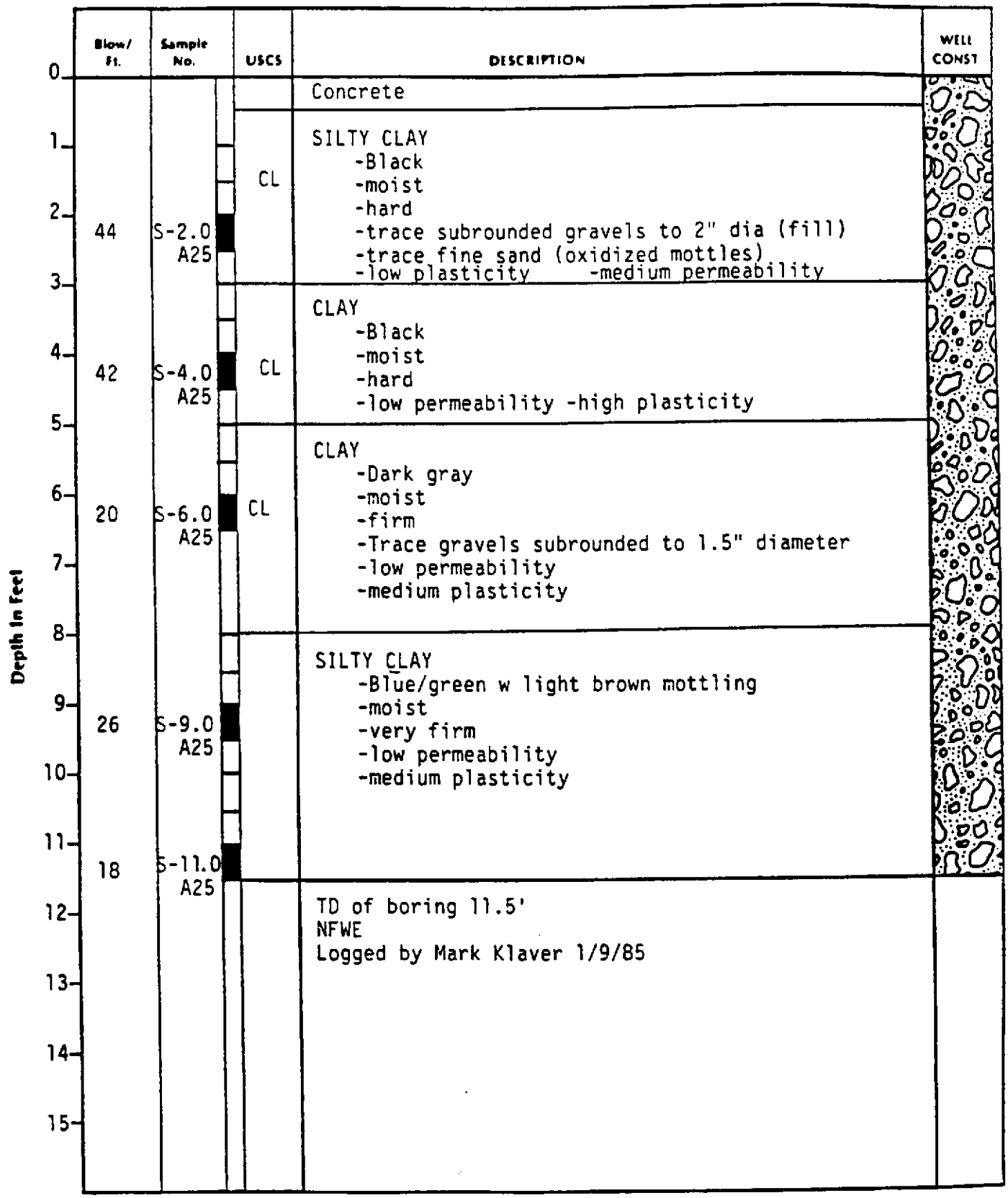
PROJECT NO. B-1132-5

ELECTRO - COATINGS
EMERYVILLE, CALIFORNIA

LOG OF BORING NO. 24

PLATE



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PROJECT NO. B-1132-5

ELECTRO - COATINGS
EMERYVILLE, CALIFORNIA

LOG OF BORING NO. 25

PLATE

Depth in Feet	Blow/ Ft.	Sample No.	USCS	DESCRIPTION	WELL CONST
0–3				Abandoned clay gas pipe sand backfill -No sample recovery	
3–5	17	S-4.0 A26	CL	SILTY CLAY -Black -low permeability -moist -medium plasticity -firm -trace gravels angular to 1" diameter	
5–8	21	S-6.0 A26	CH	CLAY -Gray -moist -firm -trace angular gravel to ½" diameter -low permeability -high plasticity	
8–11	28	A-9.0 A26	CL	CLAY -Tan w/ gray mottling -moist -stiff -some silt stringers -low permeability -medium plasticity	
11–12	24	S-11.0 A26		TD of boring 11.5' Logged by Mark Klaver 1/9/85	
12–15					

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PROJECT NO. B-1132-5

ELECTRO - COATINGS
EMERYVILLE, CALIFORNIA

LOG OF BORING NO. 26

PLATE

Depth in Feet	Blow/ Ft.	Sample No.	USCS	DESCRIPTION	WELL CONST
0–2	13	S-2.0 A27	ML	CLAYEY SANDY SILT -Black -medium permeability -dry -soft/loose -some wood fragments -some fine sand	
3–5	30	S-4.0 A27	SM	SILTY SAND -Brown -moist -dense -fine to medium sand -some wood fragments -trace angular gravel to ¾" diameter	
6–7	46	S-6.0 A27	CH	CLAY -Dark gray -moist -hard -some root holes -redwood fragments (minor)-high plasticity	
8–10	34	S-9.0 A27	CL	CLAYEY SILT -Gray w/tan mottling -moist -stiff -some fine sand -root holes -low permeability -medium plasticity	
11	34	S-11.0 A27		GRAVELLEY CLAYEY SILT -Gray w/orange and black mottling -moist -stiff -medium plasticity -medium permeability	
12–15				NFWE TD of boring 11.5' Logged by Mark Klaver 1/9/85	

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PROJECT NO. B-1132-5

ELECTRO - COATINGS
EMERYVILLE, CALIFORNIA

LOG OF BORING NO. 27

PLATE

Depth In Feet	Blow/ Ft.	Sample No.	USCS	DESCRIPTION	WELL CONST
0–3	19	S-2.0 A28	SM	SILTY SAND -Black w/green-gray sand -medium dense -moist -high permeability -low plasticity	
3–5	—	S-4.0 A28	SC	CLAYEY SAND -Upper 6" green sand -loose *Sampler refusal @ 4.5' hard rock	
5–7	18	S-6.0 A28	CH	CLAY -Black -moist -firm -low permeability -high plasticity	
7–9	19	S-9.0 A28	ML	CLAYEY SILT -Gray w/some orange mottling -green sand stringer 9.0-9.3' -moist -firm -medium permeability -low plasticity	
9–11	11	S-11.0 A28		SILTY CLAY -Gray -moist to wet -soft -low permeability - medium plasticity	
11–15				TD of Boring 11.5' Logged by Mark Klaver 1/9/85	

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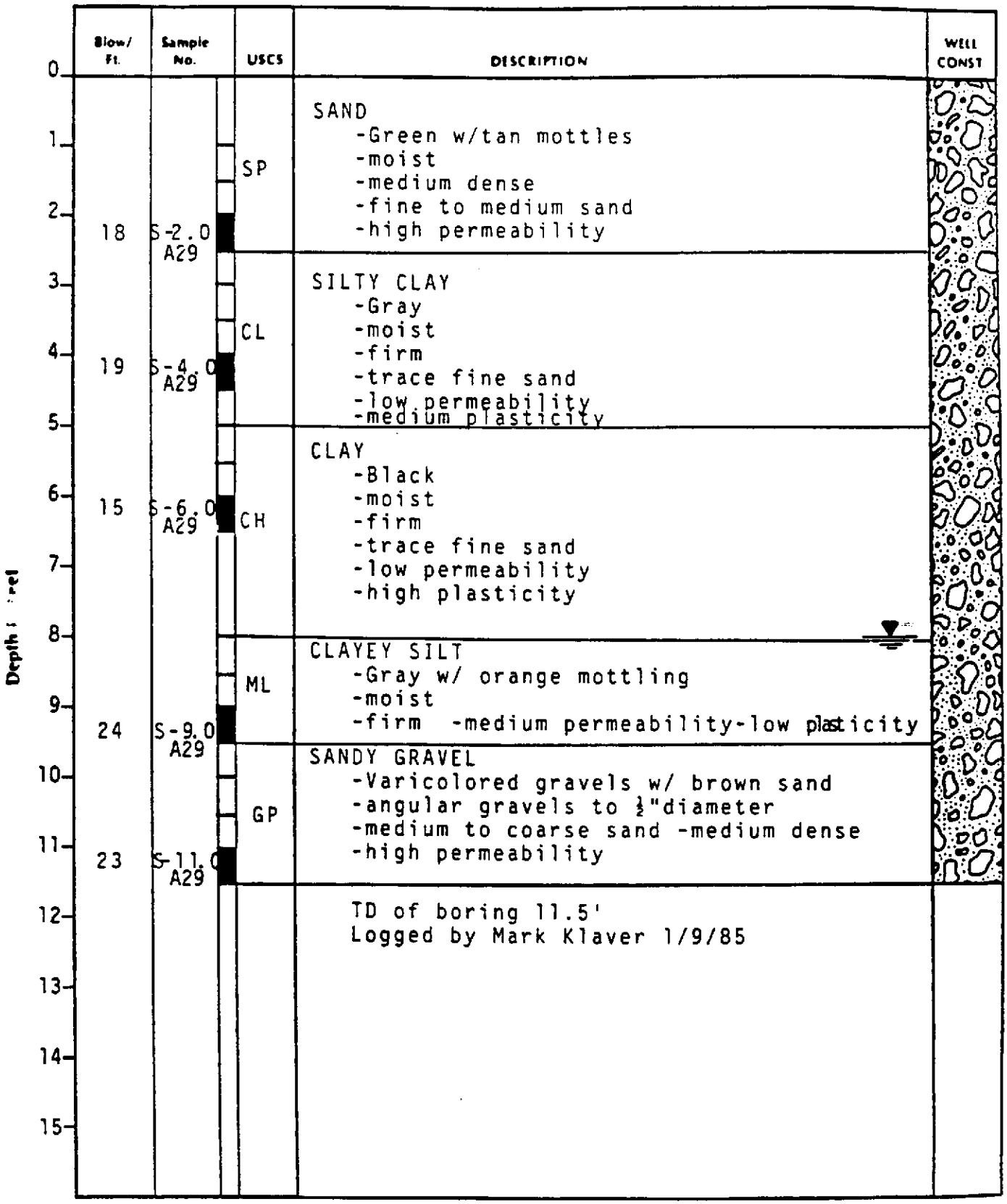
PROJECT NO. B-1132-5

ELECTRO - COATINGS
EMERYVILLE, CALIFORNIA

LOG OF BORING NO. 28

PLATE



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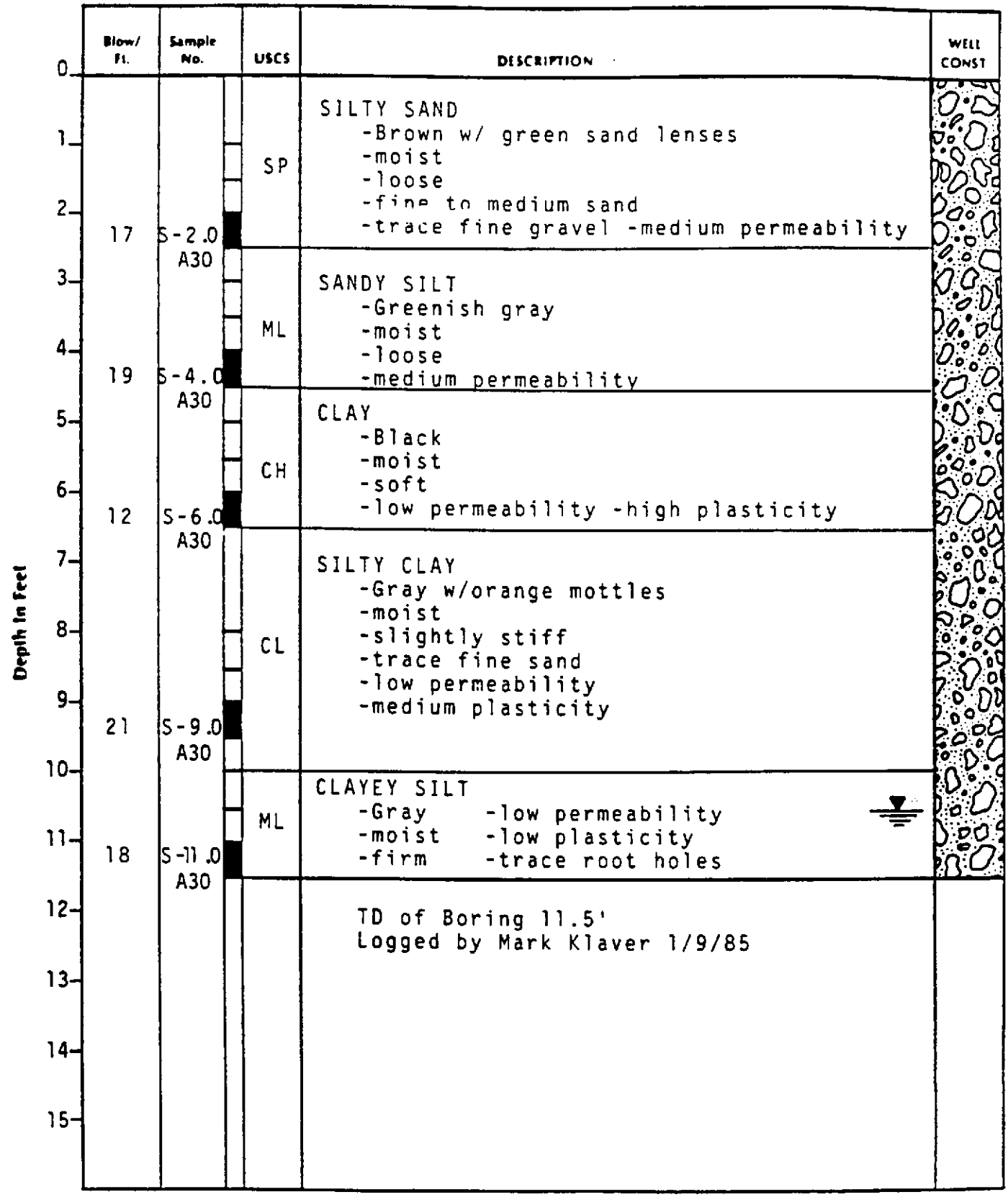
EMERYVILLE, CALIFORNIA

LOG OF BORING NO. 29

PLATE



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LOG OF BORING NO. 30

PLATE

Depth in feet	Blow/ Ft.	Sample No.	USCS	DESCRIPTION	WELL CONST
0–2	31	S-2.0 A31	SW	Concrete 4" GRAVELLEY CLAYEY SAND -Black w/green sand stringers -moist -dense -high permeability	
3–5	18	S-4.0 A31	ML	SANDY SILT -Black w/green sand stringers -moist -loose to medium dense -medium - high permeability	
6–7	18	S-6.0 A31	CL	CLAY -Black -medium plasticity -moist -firm -trace fine sand -low permeability	
8–9	26	S-9.0 A31	ML	SANDY SILT -Light gray -slightly wet -firm -trace fine sand and fine gravels -medium permeability	
10–11	15	S-11.0 A31	CL	GRAVELLEY SILTY CLAY -Gray w/orange and black mottles -wet -firm -medium to high permeability -gravel lens at 10.5'-11.0'	
12–15				TD of Boring 11.5' Logged by Mark Klaver 1/9/85	

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PROJECT NO. B-1132-5

ELECTRO - COATINGS
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LOG OF BORING NO. 31

PLATE