rec'd 4/14/94

Earth Consultants Inc.
Geotechnical Engineers, Geologists & Environmental Scientists

January 20, 1988 E-3416-1

E and H Properties
827 - 108th Avenue Northeast
Bellevue, Washington 98008

Subject: Preliminary Environmental Evaluation
Proposed Garden Plaza Office
and Parking Structure
Renton, Washington

Gentlemen:

Earth Consultants, Inc. (ECI) has reviewed the available environmental information for the proposed Garden Plaza property in Renton, Washington. Prior geotechnical study work for this project consisted of drilling fourteen (14) test borings.

Our review of the site history included examination of historical documents held at the Seattle Public Library, King County Tax Assessor's records, and soils information from a Dames and Moore report on the subject site. Based on these sources, the following approximation of the chronology of site use was obtained:

1943 - Shell Heating Oil Distributor located at Park Avenue and 6th Street. Two above-ground storage tanks were located on the south side of the property.

1953 - Sunset Coal and Oil operated a fuel oil/coal supply yard from this location. A boiler works and small foundry were located south of the existing structure at 531 Garden Avenue.

1967 - Pacific Northwest Bell constructed a maintenance shop on the site. This structure is still located at the north end of the site.

1982 - Skyway Towing purchased the property with the PNB structure and have owned the property to date.

Based on our review of the historical data, geotechnical study results, and preliminary chemical analysis, it is our opinion that any contaminants presently existing on the site represent isolated, relatively small volume, spills which are limited in extent. Typical of similar industrial sites in this area, it is expected that the contaminants will consist of petroleum hydrocarbons, with some small potential for heavy metals. Remediation of these conditions are anticipated to involve simple removal of the affected soils and disposal to an approved local disposal site.

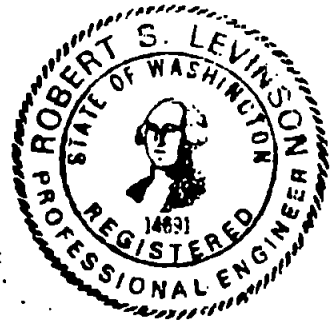
This letter has been prepared for specific application to the referenced project in accordance with generally accepted environmental science practices for the exclusive use of E and H Properties and their representatives. No other warranty, expressed or implied, is made. As new information is developed in future site work which may include excavations, borings, studies, etc., ECI will re-evaluate the conclusions of this report and provide amendments as required.

We trust that the information presented in this report will be adequate for your current needs. We appreciate the opportunity of providing environmental consulting services to the project. If you have any questions or if we may be of further service, please do not hesitate to contact us.

Respectfully submitted,

EARTH CONSULTANTS, INC.

John J. Moran
Project Manager



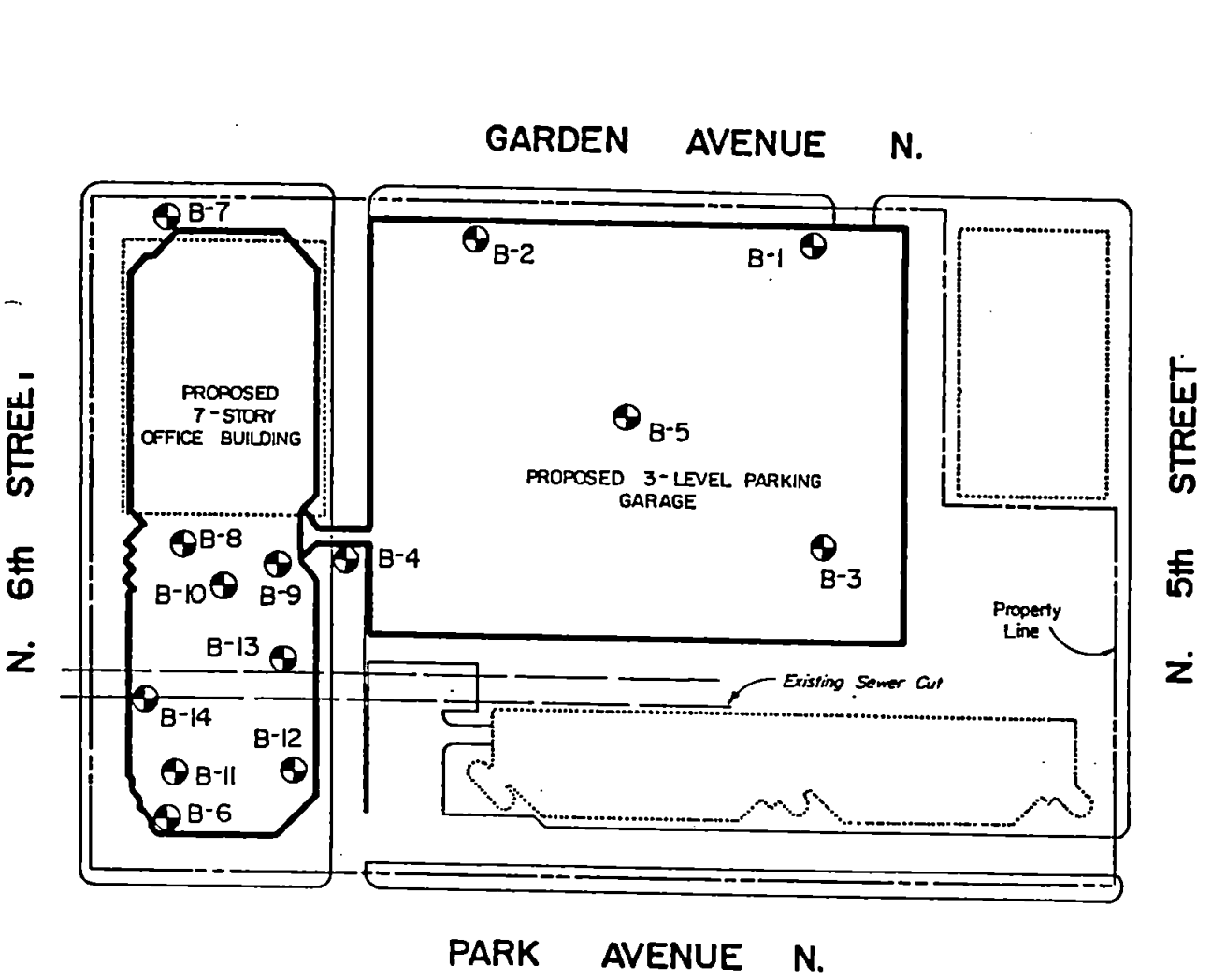
Robert S. Levinson, P. E.
President

JJM/RSL/kml

Attachment: Table A - Analytical Results

TABLE A

Boring Number	Depth (FT)	Oil and Grease (ppm)	Petroleum Hydrocarbons (ppm)
Soil Analyses (IR)			
B-10	2.5-4	17.2	5.0
	7.5-9	5.0	5.0
	12.5-14	.5.0	5.0
B-11	2.5-4	31.9	12.4
	7.5-9	1200	1200
	12.5-14	52.8	2.1
Water Analyses (IR)			
B-9 Water		3.3	3.3
Water Analyses (BTX-EPA Method 602)			
B-6		(Parts Per Billion-pbb)	(Detection Limit-ppb)
	Benzene	0 none found	0.5
	Toluene	0 none found	0.5
	Xylene	0 none found	1.0
Water Analyses (Gas Chromatography Scan-GC/PID)			
B-6	< 4.0 ppm Gasoline		
	20.0 ppm Diesel		
B-7	< 4.0 ppm Gasoline		
	4.0 ppm Diesel		



N

Approximate Scale
0 40 80 160ft.

LEGEND

B-1 E.C.I. Boring, Proj. No. E-3416, June 1987

Proposed Building

Existing Building

Reference :
Sheet 1
Cover Sheet, Site Plan & Statistics
By Curtis Beattie & Associates Architects
Dated 2/17/87

Earth Consultants Inc.
Geotechnical Engineering and Geology

Boring Location Plan
Garden Plaza
Renton, Washington

Proj. No. 3416	Date July '87	Plate 2

rec'd 4/14/94

Final Report

PROPERTY ASSESSMENTS
E & H PROPERTIES
(RENTON, KENT, AUBURN, DUWAMISH)
KING COUNTY, WASHINGTON

Prepared for

Boeing Environmental Affairs

Prepared by

Landau Associates, Inc.
P.O. Box 1029
Edmonds, WA 98020-1029

July 24, 1989

EXECUTIVE SUMMARY

Property assessments were performed by Landau Associates, Inc. at seven properties (E&H Properties) being considered for purchase by Boeing. The properties are located in south King County, in the cities of Renton, Auburn, Kent, and Tukwila. The properties all contain recently constructed office buildings, currently leased by The Boeing Company.

The assessments focused on review of past and present uses of the properties for information that may suggest potential environmental problems or risks to the subject properties. Our investigation included analyses of historic maps and air photos, review of relevant agency files, review of available previous reports, property reconnaissances, and sampling and testing of soil and ground water (at the four Renton properties).

At three of the properties (Auburn, Kent, and Duwamish), no evidence of significant environmental problems or risks was found. At the four properties in Renton, past usage activities and previous reports information suggest that hydrocarbon releases to soil and ground water may have occurred in the past. In addition, the Renton properties were determined to be located hydrogeologically downgradient of the PACCAR superfund site, where previous investigations have discovered contamination of shallow and deeper ground water.

A Work Plan entitled "Soil and Ground Water Investigation, E&H Properties Assessment, Renton, Washington" was prepared by Landau Associates in June 1989. This plan outlined a field sampling and

laboratory analysis program designed to investigate reported and suspected contamination at the Renton properties.

Soil and ground water sampling and laboratory analyses were conducted in June and July 1989. Results of these investigations confirmed that: 1) the Renton properties are downgradient of the PACCAR site, 2) ground water from one of the seven wells installed for our investigation (LMW-2D) along Garden Avenue North contains vinyl chloride, 3) petroleum hydrocarbons are present in ground water at the Garden Plaza property, and 4) low concentrations of acetone, tetrachloroethene, and bis(2-ethylhexyl)phthalate are also present in soil at isolated locations.

The vinyl chloride concentration encountered in ground water at Well LMW-2D was 45 parts per billion (ppb). The adjacent shallow well (LMW-2S) at this location did not show a detectable level of vinyl chloride. The occurrence of vinyl chloride in ground water beneath the Garden Plaza property is consistent with findings at the PACCAR site.

Petroleum hydrocarbons were found in ground water in the northwest corner of the Garden Plaza property at Well LMW-6, indicating the probable presence of diesel or heating oil. This is consistent with historical site usage (i.e., a heating oil distributor). Neither the full extent of the vinyl chloride or petroleum hydrocarbon presence was determined during our investigation.

Both the vinyl chloride concentration detected in Well LMW-2D and total petroleum hydrocarbons in Well LMW-6 are in exceedance of Federal Environmental Protection Agency (EPA) or Washington

State Department of Ecology (Ecology) criterion or guidelines. Estimation of cleanup costs for these compounds was not performed as part of this study.

Soil samples collected and tested at an area of soil staining north of the cabinet shop located at the northwest corner of Garden Avenue North and North 5th Street showed trace amounts of tetrachloroethene and bis(2-ethylhexyl) phthalate. The low concentrations, and probable limited extent, do not suggest that a serious problem exists at that location.

Because all buildings on the properties are relatively new (all constructed after 1979), it is unlikely that equipment containing PCBs is present, or that asbestos occurs in significant quantities. Accordingly, inspections of the buildings themselves were not performed as part of this study.

Additional field investigation activities are not recommended at this time, except for one additional round of ground water sampling at selected Renton wells to further quantify concentrations presented in this report.

1.0 INTRODUCTION

1.1 PURPOSE AND NATURE OF REPORT

This report presents the results of seven property assessments performed by Landau Associates, Inc. for The Boeing Company (Boeing) through its Environmental Affairs division. The seven subject properties, which are being considered for purchase by Boeing, are located in south King County, Washington. The property assessments were authorized to evaluate potential environmental risk due to the presence of dangerous wastes and/or other potentially hazardous materials. These activities were undertaken by Boeing as part of its due diligence property review, to satisfy the "innocent purchaser" provisions of the Superfund Amendments and Reauthorization Act of 1986 [42 U.S.C. 9601 (35)(A)(i)], and the Washington Model Toxic Control Act (RCW 70.105B).

1.2 SCOPE OF SERVICES

Boeing authorized Landau Associates to provide the required consulting services in early June 1989. The scope of services performed included:

Review Background Information

- Review historical maps and aerial photographs;
- Review underground storage tank records; and
- Review public file information on storage or disposal of dangerous wastes and hazardous materials; including federal, state, and local agency files and databases for information regarding underground storage tanks, hazardous chemical spills, PCB transformers, and nearby dangerous waste sites.

Conduct Property Reconnaissances

- Observe property grounds and structures;
- Interview individuals familiar with the properties and their usage and history;
- Document visible evidence of disposal, spills, or questionable waste management practices; and
- Perform the above on adjacent or nearby properties.

Conduct Field Activities

- Analyze existing environmental information;
- Develop a work plan detailing number and type of samples to be collected, sampling procedures, and the analytical testing program; and
- Implement work plan.

Prepare Assessment Report

- Synthesize collected historical information and develop history of property use;
- Summarize collected agency information;
- Summarize conditions observed during property reconnaissance;
- Summarize field activities, analytical results, and interpretations; and
- Develop and present conclusions and recommendations.

1.3 LOCATION OF PROPERTIES

The properties are all located in south King County. Their general locations are shown on Figure 1.1. Four of the properties are in close proximity to each other within the City of Renton. The other three properties are in the cities of Auburn, Kent, and Tukwila.

The Renton properties are discussed first in Section 2.0, followed by the Auburn property (Section 3.0), the Kent Space Center East property (Section 4.0), and the Tukwila (Duwamish) property (Section 5.0).

1.4 USE OF REPORT

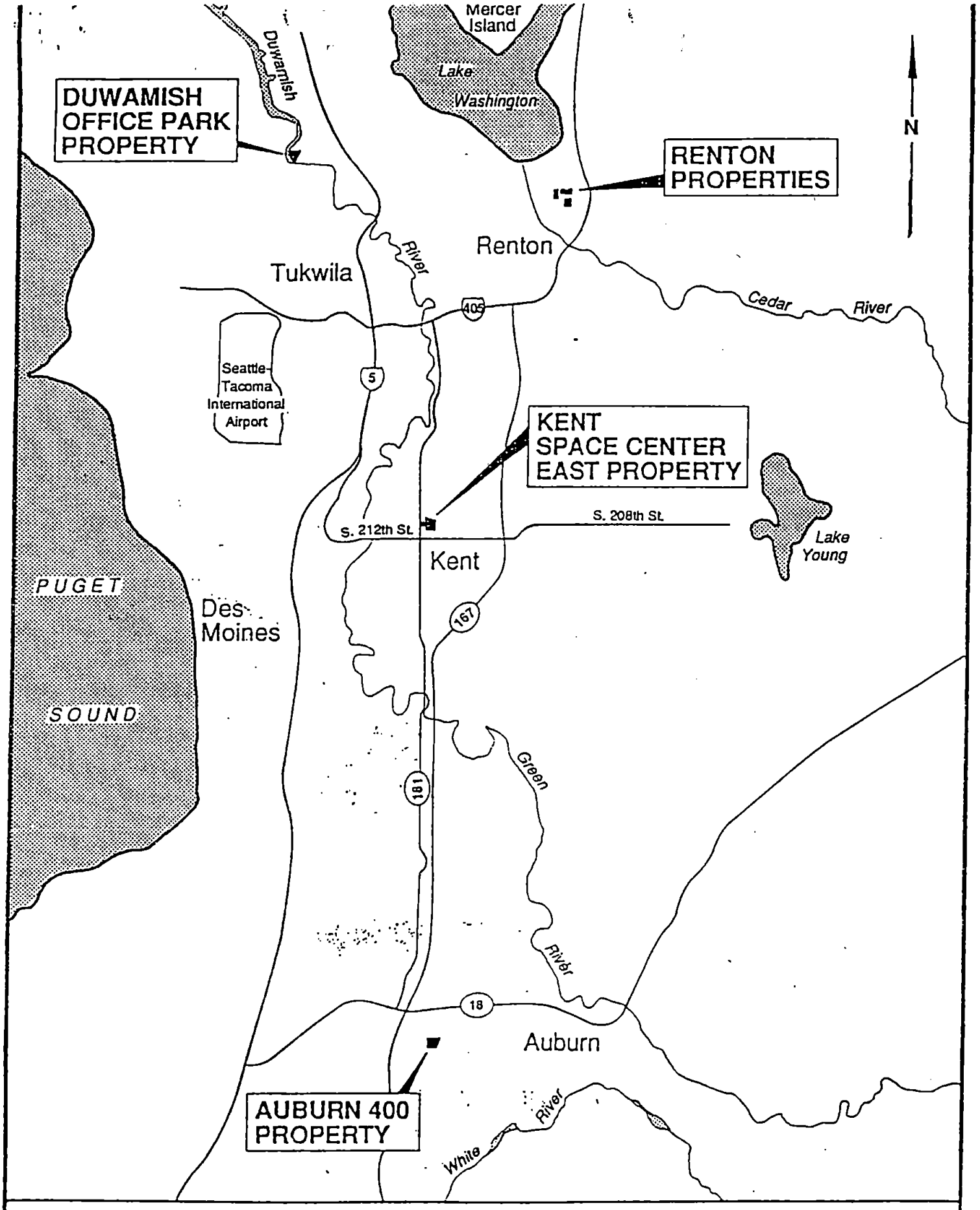
This property assessment report has been prepared for the exclusive use of The Boeing Company. Our report is intended to provide Boeing with an understanding of present environmental conditions, and potential soil and/or ground water problems. The report is based upon data and information obtained during visits by Landau Associates' personnel to the properties identified herein, and is based solely upon the condition of the property on the dates of these visits, supplemented by information and data obtained by Landau Associates and described herein.

In evaluating the properties, Landau Associates has relied in good faith upon representations and information furnished by the individuals noted in the report with respect to existing property conditions and the historic uses of the property to the extent that they have not been contradicted by site observations or data obtained from other sources. Accordingly, Landau Associates accepts no responsibility for any deficiency, misstatements, or inaccuracy contained in this report as a result of misstatements, omissions, misrepresentations, or fraudulent acts of persons interviewed. In addition, Landau Associates cannot accept liability for any loss, injury, claim or damage arising directly or indirectly from any use or reliance on this report.

LANDAU ASSOCIATES, INC.

Landau Associates has performed the services described in this report in accordance with the generally accepted environmental science practices for property assessments in effect in the Seattle, Washington area at the time the work was performed. This warranty stands in lieu of all other warranties, expressed or implied.

While this report can be used as a guide by Boeing, it must be understood that it is neither a rejection nor an endorsement of the properties. It must also be understood that changing circumstances in the environment and in the use of the property can alter the conclusions and information contained in this report.



Source: Kroll Map Company, Metro 4-6.

0 1 2 4

Scale in Miles

LANDAU ASSOCIATES, INC.

Vicinity Map
E & H Properties

2.0 RENTON PROPERTIES

2.1 PROPERTY DESCRIPTIONS

Address

Renton 600 Building
600 North Sixth Street
(Boeing ID: 7-20)
Renton, Washington

BCAG 10-13 Bldg

Fifth and Park Building
500 Park Avenue North
(Boeing ID: 7-13)
Renton, Washington

800 Park Ave N
Boeing Renton Facility

Garden Plaza Building
535 Park Avenue North
(Boeing ID: 7-16)
Renton, Washington

Park Plaza Building
635 Park Avenue North
(Boeing ID: 7-18)
Renton, Washington

Legal Descriptions

Legal descriptions and plat maps for all four properties are included in Appendix A.

General Descriptions

The four properties are all located in Renton, Washington. A Site Plan showing the locations of the Renton properties and associated buildings is presented on Figure 2.1.

Current property developments and use are as follows:

Renton 600 Building Property: Seven-story office building with a two-story parking garage.

Fifth and Park Building Property: Three-story office building.

Garden Plaza Building Property: Seven-story office building with a three-story parking garage.

Park Plaza Building Property: Two separate parcels with a seven-story office building on the west parcel and a three-story parking garage on the east parcel. The structures are connected via a sky bridge which crosses Park Avenue North.

2.2 SETTING

2.2.1 Land Use/Zoning

According to the City of Renton zoning map, the properties are located on land zoned for either business use (Park Plaza Building, Garden Plaza Building, and Fifth and Park Building), or heavy industrial use (Renton 600 Building). Land use in the general vicinity of the property is zoned industrial (Boeing Commercial Airplane Division Renton Facility [BCA-Renton] to the north and PACCAR to the east), and business and residential to the south and west of the properties.

2.2.2 Topography/Drainage

The properties are located in the Cedar River valley; valley sidewalls are located approximately one-half mile to the northeast and one mile to the west. The valley is drained by the Cedar River

which lies one-half mile to the southwest and discharges into Lake Washington. Runoff from the properties enters into the City of Renton storm sewer system and eventually discharges into Lake Washington. The properties are essentially flat, with slight local relief limited to building fill and landscape berms.

Much of the area now occupied by BCA-Renton was once covered by Lake Washington. Rechannelization of the Cedar River and completion of the Chittenden Locks (in Ballard), in about 1917, resulted in a drop in lake level of 8 to 10 feet and a redefinition of river and lake shorelines.

The original natural outlet for Lake Washington, the Black River, once meandered through the Renton airport property and discharged to the Duwamish River near Tukwila. The Cedar River, which once also drained to the Duwamish River (via the Black River) was rechannelized to provide a steady source of fresh water to Lake Washington. The original Black River channel has since been filled along most of its entire length.

2.2.3 Geology/Hydrogeology

Geology

The Cedar River Valley was created during the last ice age by glacial erosion. The erosion and resultant deposition of sediment resulted in the formation of a large delta at the mouth of the Cedar River. The delta deposits consist of coarse sand and gravel near the mouth of the river, and finer sands and silts away from

the mouth (beneath the subject properties). The deltaic deposits are estimated to extend to at least 100 feet below ground surface (Hart Crowser 1986).

Lying above the deltaic deposits are recent alluvial deposits of the Cedar River (which once meandered across the valley) and lake bottom sediments associated with Lake Washington. The alluvium generally consists of silt, sand, gravel, and peat. Due to the generally soft (loose) nature of the alluvial sediments, virtually all of the area has been mantled with man-placed fill.

Geotechnical investigation reports associated with the construction of each of the buildings contain boring logs consistent with this subregional geologic description (Earth Consultants, Inc. [ECI] 1979, 1985, 1987a,b). Logs of borings conducted by Landau Associates for these properties' assessments also match this geologic interpretation, and are included in Appendix B.

Hydrogeology

The Cedar River Valley sediments contain a major ground water aquifer which is tapped by the City of Renton at a well field located about one-half mile to the south of the subject properties. The wells are the source of drinking water for residents of the City of Renton, and the Cedar River Aquifer has been designated as a sole source aquifer (Federal Register 1988).

The city wells pump from depths between 40 to 100 feet below ground surface and substantially alter ground water flow direction

in the vicinity of the wells. Well field drawdown extends approximately 800 feet from the wells or about 1,500 feet south of the subject properties (CH2M Hill 1984). Studies of drawdown at increased pumping rates did not significantly change the limits of drawdown (RH2 Engineering 1987).

According to the Ecology well logs (Ecology 1989), there are no registered domestic users of ground water within one-half mile of the properties.

In the vicinity of the subject properties, ground water conditions have been studied at the PACCAR facility (Hart Crowser 1986) and BCA-Renton (Landau Associates, Inc. 1989). An aquifer consisting primarily of alluvial and deltaic sands and silts exists beneath these facilities to a depth of at least 100 feet. Ground water occurs between 6 and 12 feet below the ground surface and no major aquitards are present to this 100 foot depth. Ground water flow is generally to the west, towards the Cedar River. Slight seasonal variations occur.

2.3 BACKGROUND INFORMATION

2.3.1 Historical Summary

Information Sources

Property history was developed from:

- 1971 and 1987 Kroll maps;
- 1927 Sanborn map;
- 1940 Metsker map;

- Historic aerial photographs from 1936, 1946, 1960, 1964, 1967, 1970, 1974, 1977, 1981 and 1985;
- City of Renton Building Department records;
- Boeing file information;
- Other consultant reports; and
- General knowledge of the areas history.

Vicinity History

At the turn of the century, land use in the vicinity of the properties was mostly agricultural. Industrialization started soon thereafter with the 1907 development of the PACCAR site as a foundry and heavy equipment manufacturer. Shipping activities and rail transport of coal were established at the southern end of Lake Washington by the early 1930s, and by the early 1940s the Boeing-Renton Plant was producing airplanes.

Most of the vacant or agricultural land near the properties had been converted to residential, commercial, or industrial use by the 1950s. Since then, land use essentially has not changed, although development has intensified.

Property History

Property histories are presented for each parcel as follows (the Garden Plaza and Fifth and Park Building properties are combined):

Renton 600 Building Property: This property was undeveloped until 1936. In 1946, two one-story office buildings with radio

towers (apparently identical to the radio tower building identified at the Park Plaza Building property) were in existence along the western edge of the parcel. From 1960 until 1981, the property was developed as a mobile home park, with two commercial buildings facing North 6th Street. By 1985, the property had been cleared except for a single small building left over from the mobile home park development. The Renton 600 Building was constructed in 1986. Construction of the Renton 600 Building occurred well after the partial ban on use of asbestos in building materials (1977) and use of PCBs in new transformers and capacitors (1979); therefore, these materials should not be contained in this building.

Fifth and Park and Garden Plaza Building Properties: The block that these buildings occupy has had a complex history of development over the last 50 years. The following text highlights the past usage of the properties, and Figure 2.2 shows the approximate locations of past features relative to the present-day buildings.

The block was mostly vacant or agricultural land in 1936, except for a single residence along Park Avenue. A Shell heating oil distributor reportedly existed at the northwest part of the block in 1943 (Rittenhouse-Zeman & Associates, Inc. [RZA] 1989). A possible fuel storage tank with an above ground pipe can be observed on the Renton Boiler Works site (1946 aerial photograph), along with possible surface staining. From 1950 until 1967, the

heating oil distribution facility was operated by Sunset Coal and Oil (RZA 1989).

A 1960 aerial photograph shows two above-ground storage tanks at the west end of what is now the Garden Plaza Building. Possible fuel delivery trucks are noted nearby. In 1968, the fuel storage facility is gone and replaced by a Pacific Northwest Bell (PNB) maintenance building and parking lot.

Bruce's Welding operated a shop on Park Avenue just south of the PNB yard from before 1960 to approximately 1979.. In the 1970 aerial photograph, the Renton Boiler Works appears to have been replaced by a towing company lot.

The block remained essentially unchanged between 1977 and 1981, when a cabinet shop (Custom Cabinet Sales) was built in the southeast corner. In 1979, the Fifth and Park Building was constructed, and in 1988; the PNB building was razed and the rest of the property cleared for construction of the Garden Plaza Building and parking garage. Construction of the Fifth and Park and Garden Plaza Buildings, and the parking garage, occurred after the partial ban on use of asbestos in building materials (1977) and use of PCBs in new transformers and capacitors (1979); therefore, these materials should not be contained in these buildings. The 1989 RZA study included an inspection for asbestos and PCBs; their conclusion was that the building is free of these materials.

Park Plaza Building Property: The location of the present day parking garage (east parcel) was the location of a residential duplex from 1929 until 1958 (ECI 1988). From 1958 until 1970, the east parcel was used as a parking lot. A 1970 aerial photograph shows a building on the portion of the property adjacent to Garden Avenue North. According to the 1987 Kroll map, this building was used as a tavern. The (tavern) building was demolished in 1988 for construction of the parking garage.

The west parcel where the Park Plaza Building is now located was undeveloped in the 1936 aerial photograph. By 1946, a one-story building with a radio tower, along with a union and recreation hall, was constructed on the property (ECI 1988). The City of Renton used these buildings and the property as a recreational park and equipment storage yard until late 1987 when the Park Plaza Building was constructed. Construction of the parking garage and Park Plaza Building occurred well after the partial ban on use of asbestos in building materials (1977) and use of PCBs in new transformers and capacitors (1979); therefore, these materials should not be contained in this building.

2.3.2 Agency Information

Information Sources

The following agency contacts were made to identify environmental concerns about the subject properties and vicinity:

- Ecology - Regional Files,
- Ecology - List of Hazardous Waste Cleanup Sites,
- Ecology - Underground Storage Tank Program,
- Ecology - Northwest Regional Inspector Knowledge,
- EPA - CERCLIS List,
- EPA - RCRA Generators List,
- King County Health Department, and
- City of Renton Fire Department.

Property Information

Ecology's underground storage tank (UST) program has records of two heating oil tanks at the Park Plaza Building property. These tanks are registered as having a volume of less than 1000 gallons each and are approximately two years old. Due to their recent age, tank tightness tests were not performed.

The Renton Fire Department has a record of one UST removal in 1987 at the Fifth and Park Building. No contamination or other concerns were noted on the tank removal record. The contents of the tank were not specified.

No other environmentally-related files or concerns about any of the properties were noted in the agency information.

Vicinity Information

The adjacent PACCAR facility is on Ecology's list of cleanup sites, and also on the EPA CERCLIS list. The PACCAR site is discussed in more detail within Section 2.3.3 of this report.

The EPA list of RCRA generators includes numerous facilities which either treat, store, or dispose of hazardous waste in the Renton area. However, only one, Kenny's Auto Rebuild (which is an automotive repair and painting shop located between the Park Plaza parking garage and the Garden Plaza Building [see Figure 2.1]), is close enough to have a potential impact on the properties. This site is also discussed within Section 2.3.3.

2.3.3 Existing Environmental Reports

Property Reports

There are several environmental reports concerning the subject properties. The Park Plaza property received an environmental audit conducted by Earth Consultants, Inc. in 1988 (ECI 1988). The audit concluded: "Based on our review of the development and use history, results of (our) geotechnical study and examination of existing conditions, no evidence exists that hazardous, toxic or dangerous substances are present on the site in quantities or concentrations exceeding normal background levels for the region."

The Garden Plaza Building and adjacent parking garage property were the subject of a preliminary environmental evaluation by ECI

(ECI 1988a). The environmental evaluation was conducted in conjunction with a geotechnical investigation for the Garden Plaza Building (prior to its construction). Samples of soil were obtained from two borings, and samples of water were obtained from three borings drilled during the ECI studies. The soil samples were analyzed for oil and grease and total petroleum hydrocarbons (TPH). The ground water samples were analyzed for benzene, toluene, and xylenes (BTX), and gasoline/diesel content.

One ECI soil sample from the center of the Garden Plaza Building contained 1,200 ppm TPH, which is above the Ecology (draft) cleanup guideline of 200 parts per million (ppm). The ECI ground water samples from the northeast and northwest corners of the building area contained 4.0 and 20.0 ppm diesel, respectively. The 20.0 ppm diesel concentration is also above Ecology's (draft) cleanup guideline of 15 ppm. The ECI report concluded: "Based on our review of the historical data, geotechnical study results, and preliminary chemical analysis, it is our opinion that any contaminants presently existing on the site represent isolated, relatively small volume spills which are limited in extent."

The Fifth and Park Building recently received an environmental evaluation by Rittenhouse-Zeman & Associates, Inc. (RZA 1989). The RZA evaluation involved drilling nine soil borings around the building and installing one ground water monitoring well (MW-1, Figure 2.1) near the building's northwest corner. A ground water sample from the monitoring well was found to contain 13 ppm TPH.

No volatile or semi-volatile hazardous substance list compounds were detected in the ground water sample.

Two soil samples from one RZA boring at the north side of the building near the monitoring well indicated TPH at 4,700 and 1,300 ppm. No PCBs, total halogens, or EP toxicity metals were detected above Federal Hazardous Waste criteria. The RZA report concluded: "It appears that shallow soils and ground water on the subject property have been impacted by petroleum product migration from former sites of nearby fuel distributors or service station operations located to the north or northwest."

not likely due to flow direction.

Vicinity Reports

Environmental reports concerning sites in the immediate vicinity of the E&H properties are limited to the PACCAR facility. The PACCAR site has been designated as a Superfund site by the EPA; Ecology has been designated as the lead agency for the site investigation and cleanup. The PACCAR property occupies 82 acres to the east of the Renton E&H properties. The facility has been in operation since 1907 as a foundry and manufacturer of heavy transportation equipment. The facility closed in 1988 and is presently partially dismantled. Relevant points from a summary report are presented below (Hart Crowser 1986):

- Potential sources of contaminants were identified as spills and tank leaks from above or below ground storage tanks containing fuels and solvents. Also, fill materials containing heavy metals were deposited on the site, as well as PCB-containing transformers.

- Site soils contain elevated levels of heavy metals including lead, chromium, nickel, zinc, arsenic, barium, copper and cadmium. Site soils also contain elevated levels of polynuclear aromatic hydrocarbons (PAHs) and low concentrations of PCBs.

- Site ground water in both shallow wells (less than 20 feet) and deep wells (greater than 25 feet) contain volatile and semi-volatile compounds and metals. Common volatile compounds detected include benzene and vinyl chloride; common semi-volatile contaminants include PAHs, chlorinated benzenes and phenolic compounds. In addition, arsenic was detected in ground water in both shallow and deep wells at concentrations exceeding the maximum contaminant level (MCL).

- Pumping from the City of Renton well field is not thought to be effecting the migration of contaminants from the PACCAR site.

- The extent of offsite migration of contaminants has not been determined.

2.4 SITE INVESTIGATIONS

2.4.1 Site and Vicinity Reconnaissance

Each of the four properties, and adjacent properties, were inspected by Landau Associates personnel on June 9, 1989. Observations were made concerning property uses and features of environmental interest. The reconnaissance was documented by field notes, video camera, and photographs.

No environmental concerns were noted on any of the four properties. All buildings are new and appear well maintained. The following environmental concerns were noted in the vicinity of the properties (see Figure 2.1):

- Walt's Automotive (located at the southeast corner of Burnett and North 6th Street): This facility has two gasoline pumps which appear to be fed by underground storage tanks. The City of Renton Fire Department was called on this matter and stated that the tanks had been removed in the last month and no contamination was noted during removal (Gordon 1989).

- Gary's Automotive and B & L Best Automotive (both located on Park Avenue across from the Garden Plaza and Fifth and Park Buildings): These facilities have the potential for petroleum product releases, but are located hydrogeologically down-gradient or cross gradient from any of the properties. The Renton Fire Department stated that Gary's Automotive is a "very clean operation" (Gordon 1989).

- Renton School District Maintenance and Bus Storage Yard (located immediately south of the Fifth and Park Building): According to Ecology (UST program), the school district facility has one UST. The facility is located hydrogeologically cross gradient to the Fifth and Park Building.

- Kenny's Auto Rebuild (located at the northeast corner of Park Avenue North and North 6th Street): This facility is a listed RCRA generator of dangerous waste. A 55-gallon drum labeled "hazardous waste" was observed in the rear of the facility. The drum did not have any containment structure and spillage of what appeared to be paint lacquer was noted on the side of the drum. It is possible that past and present operations from this facility have caused releases of paint wastes or other substances to the soil and/or ground water.

- Custom Cabinet Sales (located at the northwest corner of Garden Avenue North and North Fifth Streets): Custom Cabinet Sales is a cabinet manufacturer and is located immediately upgradient of the Fifth and Park Building. A drum storage area was noted on the north side of the building. The drums were labeled as containing "Unicoat Sealant". White staining from what appears to be runoff from the drum storage area was observed on a patch of soil approximately 50 square feet in size. This white staining extended onto the Garden Plaza property. In addition, a petroleum hand pump was observed in the front parking lot of the cabinet shop. The Renton Fire Department reported that an UST on the Custom Cabinet Sales site contained diesel fuel, but had recently been purged dry and will be removed soon, reportedly after the tenants lease (Custom Cabinet Sales) expires (Gordon 1989).

- PACCAR: As noted earlier, the PACCAR facility is located east of Garden Avenue North. Section 2.3.3 contains a summary of conditions at the PACCAR facility.

2.4.2 Sampling and Testing

Sampling Program

A total of seven monitoring wells, including one well point, were installed at five locations on the properties during the period of June 29 through July 7, 1989. Ground water samples and water level measurements were obtained from each well and from a pre-existing well on BCA-Renton property. Subsurface soil samples were obtained from each boring and selected samples were submitted for analyses. Two soil samples were submitted for analyses from the area of white staining observed north of Custom Cabinet Sales.

Monitoring well and soil sample locations are presented on Figure 2.1. Appendix B contains the boring logs and well as-builts. Appendix C contains a description of well installation and sampling procedures, and Appendix D contains copies of the chain-of-custody forms. Laboratory reports are contained in Appendix E.

Field Observations

Subsurface materials encountered during drilling consist primarily of fine sands and silts, with layers of peat and gravel. No unusual fill material was noted, except for metal debris in Boring LMW-1S. No unusual odors or sheens were noted on any of the soil samples obtained. Field screening on freshly obtained samples with a Photovac TIP photoionization meter (10.2 eV lamp, calibrated to isobutylene) did not indicate above background readings, except on two samples in which readings of 2 to 3 ppm above background

were noted. These two samples were from LMW-1D at a depth of 32.5 feet and from LMW-2D at a depth of 8.5 feet. The two samples were submitted for volatile organic analysis in addition to total petroleum hydrocarbons.

The TIP meter also registered readings of 3 to 10 ppm above background during installation of the casing for Well Point LMW-6. A petroleum hydrocarbon odor was noted during ground water sampling at this location. No sheen was noted on the purge water or sample.

At the time of sampling, stains were no longer visible at the surface soil sampling location (No. 3) north of the cabinet shop, and no visible or olfactory signs of contamination were noted during sampling procedures.

Analytical Results

Results of the laboratory analyses are summarized in Tables 2.1 through 2.3. The TPH results are presented in Table 2.1, and volatile and semi-volatile analyses are presented in Table 2.2. Selected ground water samples were analyzed for priority pollutant metals, these results are presented in Table 2.3. Because field investigations encountered no sludges or unusual fill material, no soils were analyzed for metals.

Summary of Results

Total petroleum hydrocarbons (TPH) were detected in only one soil sample (in Boring LMW-7, east of the Park Plaza Building).

This sample was taken from a depth of 5.5 to 7.0 feet and contained 160 ppm TPH, which is below the current Ecology (draft) cleanup guideline of 200 ppm. The occurrence probably represents an isolated event as deeper samples from the same boring contained no TPH, and no TPH was detected in the ground water sample from that monitoring well.

The ground water sample from Well LMW-6 was the only well with detectable levels of TPH. The location of Well LMW-6 is close to the former location of the heating oil distributor (see Figure 2.2); thus the TPH in this well may be related to past spillage of heating oil. The water sample from Well LMW-6 did not contain any detectable volatile organic compounds (VOCs), which should be present if the petroleum source was a lighter fuel (i.e., gasoline). In addition, reports of prior analyses of ground water at the Garden Plaza Building indicate "diesel" constituents (ECI 1988a).

The volatile organic analyses revealed methylene chloride at low concentrations in two soil samples; one from Boring LMW-2D, and the surface sample from the soil staining area noted near the cabinet shop. In addition, the cabinet shop surface sample contained low concentrations of tetrachloroethene. Neither of these constituents were detected in the deeper soil sample taken at the cabinet shop location. It should be noted that methylene chloride is a common laboratory contaminant; however, it was not

detected in the laboratory blanks associated with analyses of these two samples (see Appendix E).

Acetone was reported in two subsurface soil samples (LWM-1D at 32.5 feet and LMW-2D at 8.5 feet) and, although also a common laboratory contaminant, was not detected in the associated laboratory blanks. The levels that were detected were elevated above what is typical of laboratory or bottle contamination (no solvents were used in the field). If these acetone values do represent true field concentrations, because of the high solubility of acetone in water, some acetone would be expected in ground water samples from those two wells. However, no acetone was noted in these ground water samples.

Vinyl chloride was detected in the ground water sample from Well LMW-2D at a concentration of 45 parts per billion (ppb), which is similar in values reported at the PACCAR site. The present drinking water MCL for vinyl chloride is 2 ppb. In addition, a low concentration of chloroform was reported in the same sample. Chloroform has not been reported as a significant contaminant at the PACCAR site.

The semi-volatile constituent bis(2-ethylhexyl)phthalate was detected in the two soil samples from the cabinet shop and from ground water samples (LWM-2S and LMW-4). This compound is often found in urban areas and is a common laboratory contaminant at the trace concentrations reported for these samples.

The analytical data for priority pollutant metals received to date indicates ground water under the properties has not been adversely affected by metallic sources of contamination. Metals that were detected above the laboratory detection limit include arsenic, lead, nickel, and zinc; however, concentrations are well below the MCL. Although arsenic was detected in four out of five samples, the concentrations are an order of magnitude less than those detected at PACCAR, and thus may reflect background conditions. Metals results for antimony and thallium were not available at the time of this report. The data for these two metals will be provided in a supplemental letter or report.

Ground Water Elevations

Following completion of well installation, the static water level in each well was measured and the elevation of each well surveyed. Table 2.4 presents the ground water elevation data; Figure 2.3 shows ground water elevation contours in the vicinity of the E&H properties. The data indicate that ground water flow is in a westerly direction, as indicated by previous studies, and confirms PACCAR as being upgradient from the E&H properties.

A slight depression of the water table is evident near Well LMW-6 (approximately 3 feet lower than expected for that location). The cause of this may be the storm sewer line located approximately 20 feet north of the well point. The sewer line runs along North 6th Street and is encased in a gravel backfill (Lumbert 1989). The

gravel backfill may act to dewater the sewer line and may be causing a local drawdown effect. The sewer line slopes to the west and discharges to a METRO lift station at the corner of Logan and Burnet, and eventually discharges to the Cedar River.

The ground water elevations for the deep monitoring wells (LMW-1D and 2D) are slightly lower than ground water elevations measured in the adjacent shallow wells. This reflects a slight downward gradient between the two screened intervals.

2.5 CONCLUSIONS AND RECOMMENDATIONS

Conclusions:

- No evidence was found to suggest any releases of dangerous wastes or hazardous materials from current usage of any of the properties.
- The properties were found to be located hydrogeologically downgradient of the PACCAR site where elevated levels of arsenic and vinyl chloride have been detected in shallow (<20 feet) and deep (25 to 40 feet) ground water monitoring wells along Park Avenue North.
- Because of the recent construction of these buildings (1979 to 1988), neither asbestos nor PCBs should be contained in the structures. The Fifth and Park building was constructed in 1979 and may have a somewhat higher possibility of containing these materials; however, a building survey by Rittenhouse Zeman & Associates (RZA 1989) did not reveal the presence of either of these two substances.
- For the Renton 600 and Park Plaza properties:
  - No evidence was found to suggest that releases of dangerous wastes or hazardous materials occurred from (historical) uses of these properties.
  - Soils and ground water sampling on these properties indicate no significant levels of any of the parameters analyzed (TPH, VOCs, semi-volatiles).
- For the Fifth and Park and Garden Plaza properties:

- Review of historical uses of these properties revealed sources of potential releases of hydrocarbons.

- Recent investigations reported detections of petroleum hydrocarbons in subsurface soil and ground water beneath the properties.

- No TPH in exceedance of Ecology (draft) guidelines was found in soil samples taken from the properties during this investigation. TPH was found in ground water only at Well Point LMW-6, which is located at the northwest corner of the Garden Plaza property, near where a previous investigation had reported finding diesel fuel in ground water. Definition of the extent of hydrocarbons in ground water in the vicinity of the Garden Plaza Building would require additional investigation.

- Ground water flow in the area of Well LMW-6 is generally in a westerly direction; however, a nearby storm sewer line may locally influence the rate and direction of movement.

- In Well LMW-2D, vinyl chloride was detected at 45 ppb, which is similar to levels found at the PACCAR site. This suggests that PACCAR contamination may have migrated beneath the Garden Plaza property, but may be limited to the deeper aquifer. The extent of this migration is not known.

- Significant surface soil contamination (0 to 2 feet) was not encountered on the parking garage property north of Custom Cabinet Sales.

Recommendations:

o Analytical results for VOCs are not conclusive because sampling occurred almost immediately after well installation which may affect the quality of the sample. For this reason, we recommend verification of these results through an additional round of ground water sampling at a later date.

o Drum handling procedures at Custom Cabinet Sales should be monitored periodically. If future releases occur on or near Boeing property, action should be taken to mitigate the release and assure that future releases do not occur.

o The physical condition of the monitoring wells on the subject properties should be periodically checked. Any damage should

be immediately repaired. Wells which are no longer needed must be properly abandoned per WAC 173-160.

- Installation details concerning the two underground storage tanks at the Park Plaza Building should be reviewed for compliance with current UST regulations. The two tanks should also be added to Boeing's tank inventory records.

- It is also recommended that the City of Renton UST coordinator be contacted after removal of the UST at Custom Cabinet Sales. If a release has occurred, it should be determined if Boeing property has been impacted.

Other:

- Results of analyses for the metals antimony and thallium in ground water were not available at the time of report preparation. These results will be submitted when they become available.

TABLE 2.1
TOTAL PETROLEUM HYDROCARBONS (TPH) IN
SOIL AND GROUND WATER
RENTON PROPERTIES

Soil Samples		Ground Water Samples	
Well Identifier and Sample Depth(a)	TPH(b) (ppm)	Well Identifier	TPH(b) (ppm)
		LMW-1S	ND
LMW-1D/5.5	ND		
LMW-1D/8.5	ND		
LMW-1D/32.5	ND		
		LMW-2S	NA
LMW-2D/5.5	ND		
LMW-2D/7.0	ND		
LMW-2D/8.5	ND		
LMW-2D/32.5	ND		
LMW-4/4.0	ND	LMW-4	ND
LMW-4/5.5	ND		
LMW-4/7.0	ND		
		LMW-6	56
LMW-7/5.5	160	LMW-7	ND
LMW-7/7.0	ND		
LMW-7/12.5	ND		
		HC-10-71-C	ND
		Equipment Blank #1	ND
		Equipment Blank #2	ND

ND = Not detected (less than 20 ppm [soil]; less than 0.5 ppm [water]).
NA = Not analyzed.

NOTES:
a) Sample ID for soil samples is the boring number and beginning of sample interval. For example, LMW-1D/5.5 is the sample from Boring LMW-1D beginning at a depth of 5.5 feet. The sample interval is 1.5 feet.
b) TPH was determined by EPA method 418.1.

TABLE 2.2
SUMMARY OF DETECTED VOLATILE AND SEMI-VOLATILE ORGANIC COMPOUNDS IN SOIL AND GROUND WATER, RENTON PROPERTIES

Well Identifier and Sample ID	Medium	Volatile Organics Compounds (VOC)(a) Methylene Chloride (ppb)	Acetone (ppb)	Vinyl Chloride (ppb)	1,1-Dichloro-ethene (ppb)	Tetra Chloro-ethene (ppb)	Chloroform (ppb)	Semi-Volatile Organics (ABN)(a) Phthalates (Total) ppb
LMW-1S	Water	<1	<5	<1	<1	<1	<1	NA
LMW-1D	Water	<1	<5	<1	<1	<1	<1	NA
LMW-1D/32.5	Soil	<2	82	<2	<2	<2	<2	
LMW-2S	Water	<1	<5	<1	<1	<1	<1	3
LMW-2D	Water	<1	<5	45	<1	<2	1	NA
LMW-2D/8.5	Soil	4	51	<2	<2	<2	<2	NA
3S/0.0	Soil	4	<9	<2	<2	6	<2	1868
3S/2.0	Soil	<2	<10	<2	<2	<2	<2	130
LMW-4	Water	<1	<5	<1	1	<1	<1	5
LMW-6	Water	<1	<5	<1	<1	<1	<1	NA
LMW-7	Water	<1	<5	<1	<1	<1	<1	NA
HC-10-71-C	Water	<1	<5	<1	<1	<1	<1	NA
Equipment Blank #1		<1	<5	<1	<1	<1	<1	NA
Equipment Blank #2		<1	<5	<1	<1	<1	<1	NA

NOTES:
NA = Not analyzed

a) VOCs were determined by EPA method 8240. ABNs were determined by EPA method 8270.
b) Sample ID for soils is the boring number followed by the beginning of the 1.5' sample interval, except for Sample 3 which included a 0.5' sample interval.

TABLE 2.3
SUMMARY OF DETECTED PRIORITY POLLUTANT METALS IN GROUND WATER,
RENTON PROPERTIES

Monitoring Well Identifier

Analyte	LMW-1S ppb	LMW-1D ppb	LMW-2S ppb	LMW-2D ppb	LMW-4 ppb	Equipment Blank ppb	MCL(1) ppb
Arsenic	10	5	9	<5	8	<5	50
Antimony(2)	NA	NA	NA	NA	NA	NA	None
Cadmium	<1	<1	<1	<1	<1	<1	10
Chromium	<1	<1	<1	<1	<1	<1	50
Copper	<1	<1	<1	<1	<1	<1	None
Lead	<5	5	<5	<5	<5	<5	50
Mercury	<1	<1	<1	<1	<1	<1	2
Nickel	<2	2	4	<2	<2	<2	None
Selenium	<5	<5	<5	<5	<5	<5	10
Silver	<1	<1	<1	<1	<1	<1	50
Thallium(2)	NA	NA	NA	NA	NA	NA	None
Zinc	16	15	14	28	4	6	None

NOTES:

(1) MCL = Maximum Contaminant Level, EPA Primary Drinking Water Standards (Source: 40 CFR 141)
(2) Results for antimony and thallium not available at the time of this report. This data will be provided as a supplement.

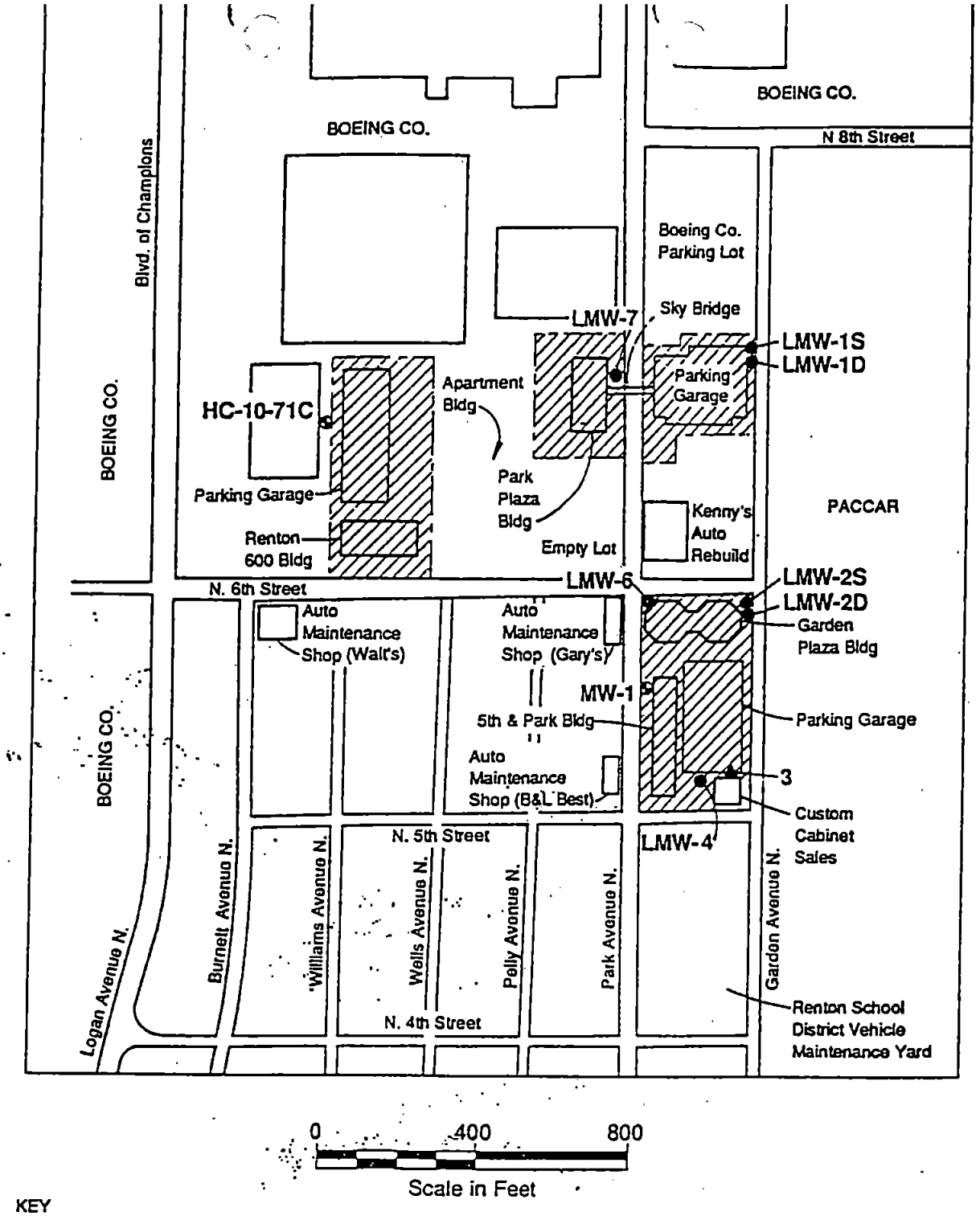
NA = Not available
ppb = parts per billion

TABLE 2.4
GROUND WATER ELEVATION DATA
RENTON PROPERTIES

Well Identifier	Elevation of Top of Well Casing(a)	Depth to Water(b)	Water Elevation 7/7/89
LMW-1S	28.30	6.38	21.92
LMW-1D	28.26	6.42	21.84
LMW-2S	27.13	5.48	21.65
LMW-2D	27.21	6.31	20.90
LMW-4	24.61	3.84	20.77
LMW-6	30.51	10.95	19.56
LMW-7	27.74	7.00	20.74
HC-10-71C	27.14	8.41	18.73(c)

NOTES:

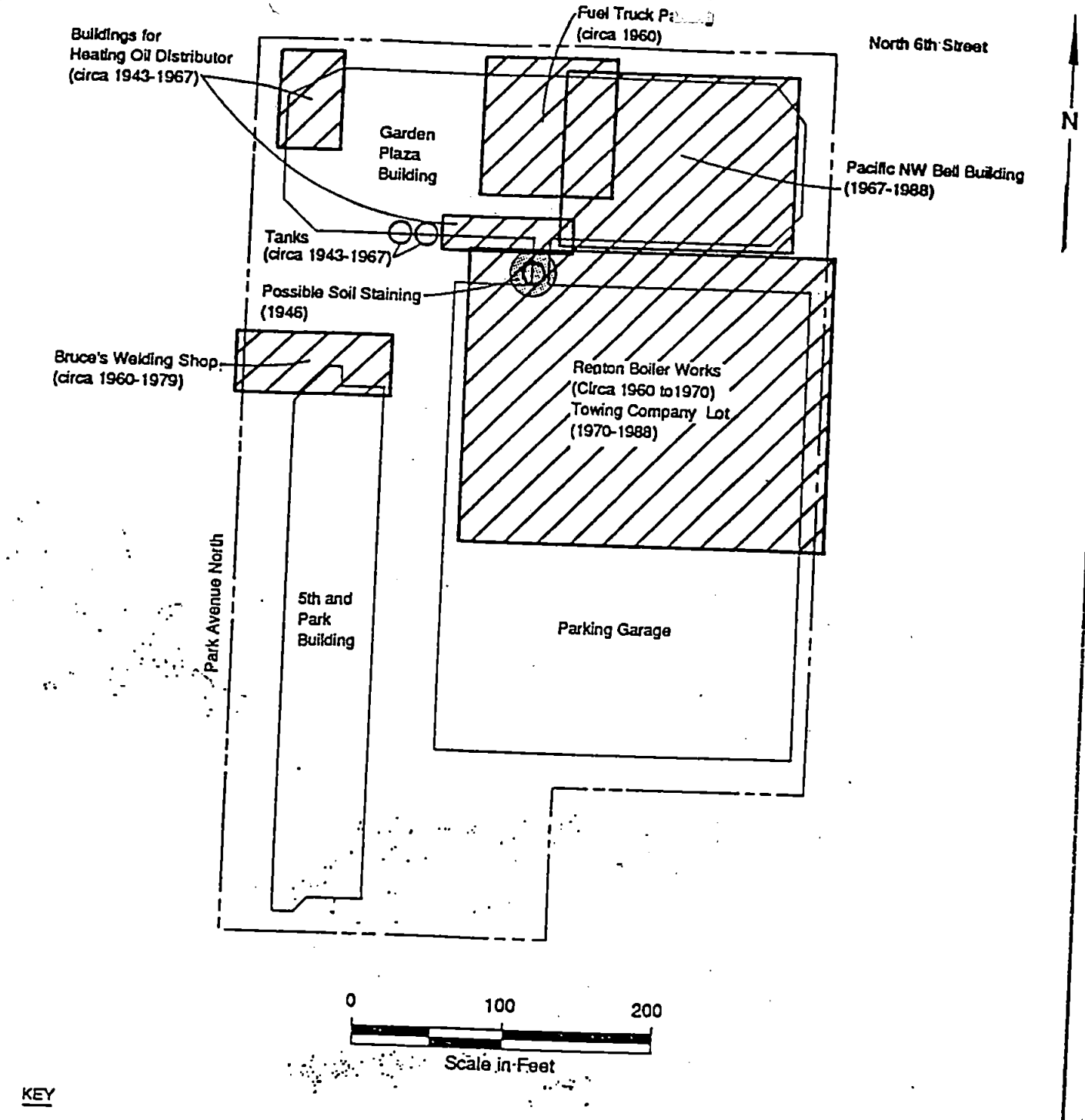
a) Elevations and depths are in feet and refer to the City of Renton NGVD datum (8th and Park survey reference point). Refer to Appendix B for well installation details.
b) Depth to water is measured from top of well casing.
c) Measured on July 12, 1989.



25-42.10 Boeing/E & H Properties, Renton 7-24-89

LANDAU ASSOCIATES, INC.	Site Plan Renton Properties

Figure 2.1

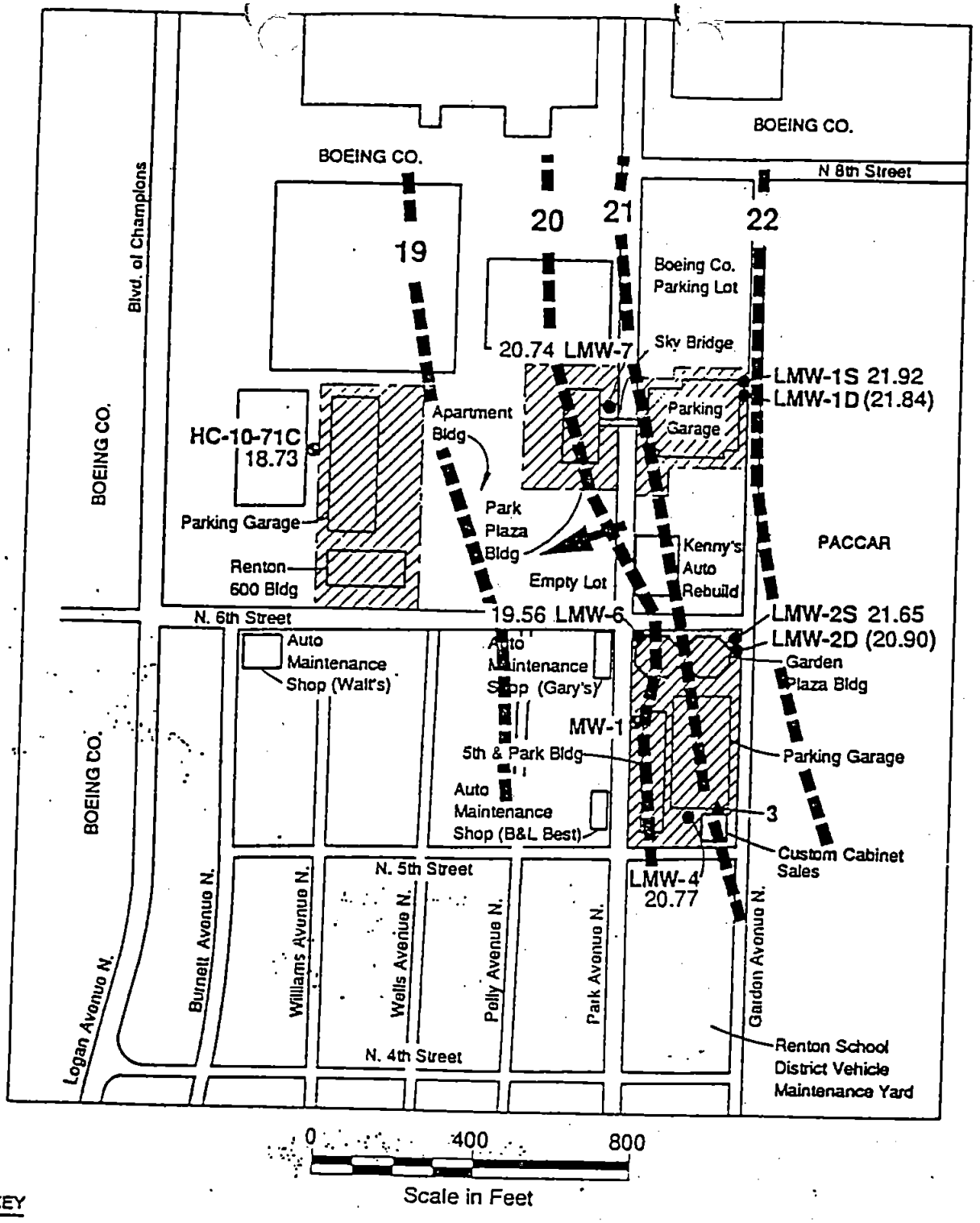


Source: Aerial Photographs from Walker and Associates, 1936, 1946, 1960, 1964, 1967, 1970, 1977, 1981, and 1985; and Rittenhouse-Zeman and Associates, 1989.

25-42.21 Boeing/E & H Properties, Renton, 7-21-89

LANDAU ASSOCIATES, INC.	Past Usage at Garden Plaza and 5th and Park Buildings, Renton Properties

Figure 2.2



KEY

- Boeing Company Leased Property
- Property Boundary
- 19 — Ground Water Elevation Contours, in Feet (City of Renton Datum)
- 21.92 — Ground Water Elevation, Shallow Monitoring Well
- (21.84) — Ground Water Elevation, Deep Monitoring Well
- HC-10-71C — Location and Identification of Existing Monitoring Well Installed by Others
- LMW-6 — Location and Identification of Monitoring Well or Well Point Installed by Landau Associates, Inc., 1989
- 3 — Location and Identifcation of Surface Soil Sample
- General Direction of Ground Water Flow

LANDAU ASSOCIATES, INC.

Ground Water Elevation Contours, Renton Properties, July 10, 1989

Figure 2.3

REFERENCES

CH2M Hill, 1984. Report on Well Field Protection Study, City of Renton, Washington.

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_____, 1985. Letter to Mr. Gene Horbach, c/o Lance Mueller & Associates, AIA. May 1.

_____, 1987a. Letter to E&H Properties. August 4.

_____, 1987b. Letter to E&H Properties. August 13.

_____, 1988. Letter report to E&H Properties, January 12.

_____, 1988a. Letter Report to E&H Properties, January 20.

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Renton Fire Department, City of, 1989. Personal communication with Gary Gordon, Hazardous Waste Division, to Thomas Colligan, Landau Associates, Inc. June 21.

RH2 Engineering, 1987. Analysis Report for the City of Renton Cedar Valley Aquifer Test Conducted June 24-26.

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Washington Department of Ecology, 1989. Well Logs, T23N, R5E, Sec. 8, on file in Redmond, Washington (NW District Office).

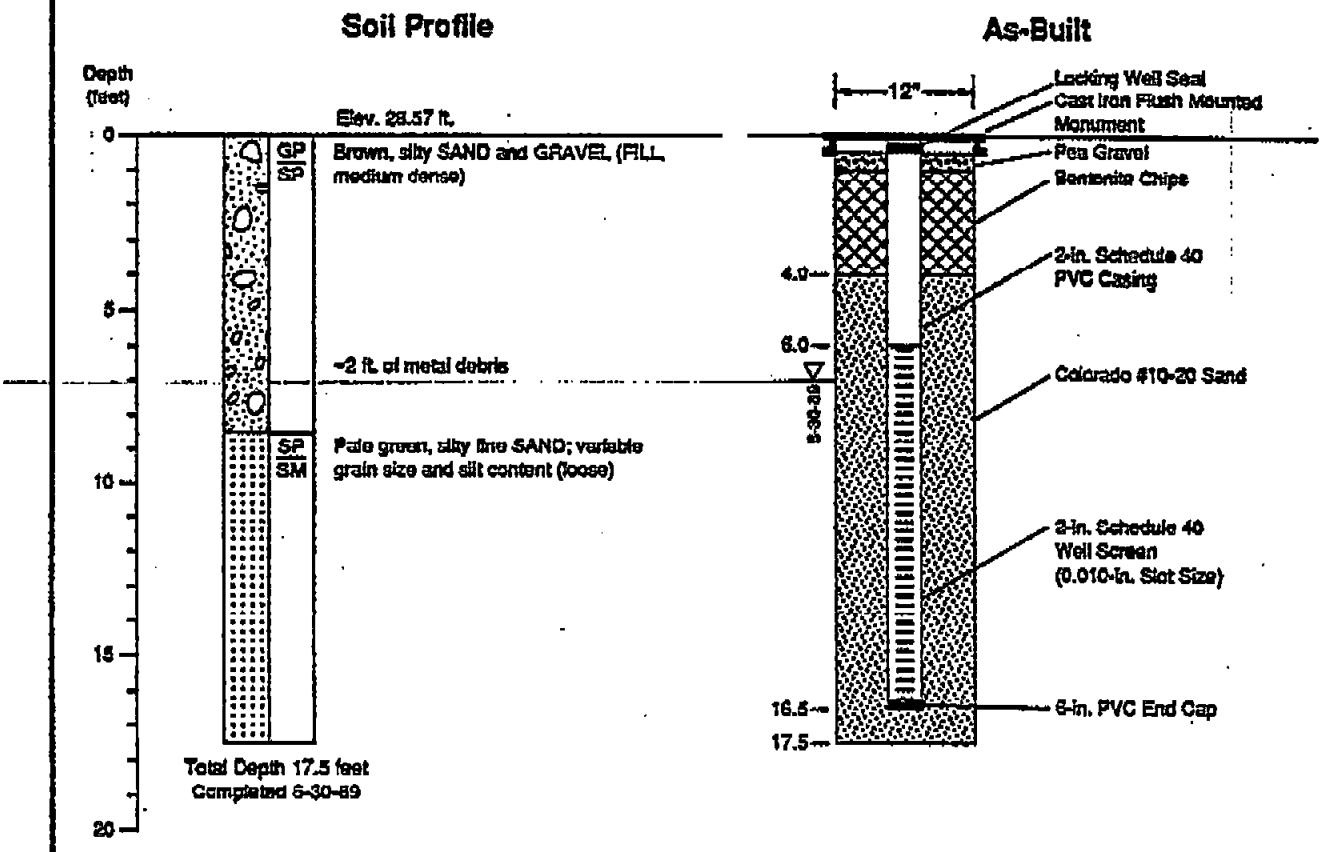
Unified Soil Classification System

MAJOR DIVISIONS			GRAPH SYMBOL	LETTER SYMBOL	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS: More than 50% of material is larger than #200 sieve size	GRAVEL AND GRAVELLY SOILS: More than 50% of coarse fraction retained on #4 sieve	CLEAN GRAVELS (Little or no fines)		GW	Well-graded gravels, gravel-sand mixtures, little or no fines
				GP	Poorly-graded gravels, gravel-sand mixtures, little or no fines
		GRAVELS WITH FINES (Appreciable amount of fines)		GM	Silty gravels, gravel-sand-silt mixtures
				GC	Clayey gravels, gravel-sand-clay mixtures
	SAND AND SANDY SOILS: More than 50% of coarse fraction passing #4 sieve	CLEAN SAND (Little or no fines)		SW	Well-graded sands, gravelly sands, little or no fines
				SP	Poorly-graded sands, gravelly sands, little or no fines
		SANDS WITH FINES (Appreciable amount of fines)		SM	Silty sands, sand-silt mixtures
				SC	Clayey sands, sand-clay mixtures
FINE GRAINED SOILS: More than 50% of material is smaller than #200 sieve size	SILTS AND CLAYS: Liquid Limit less than 50			ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity
				CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
				OL	Organic silt and organic silty clays of low plasticity
	SILTS AND CLAYS: Liquid Limit greater than 50			MH	Inorganic silts, micaceous or diatomaceous fine sand or silty soils
				CH	Inorganic clays of high plasticity, fat clays
				OH	Organic clays of medium to high plasticity, organic silts
HIGHLY ORGANIC SOILS				PT	Peat, humus, swamp soils with high organic contents

Note: Dual symbols are used to indicate borderline soil classifications

25-12.10 Property Transfer Assessment - E&H Properties/Task Report 2-24-9

Boring LMW-1S

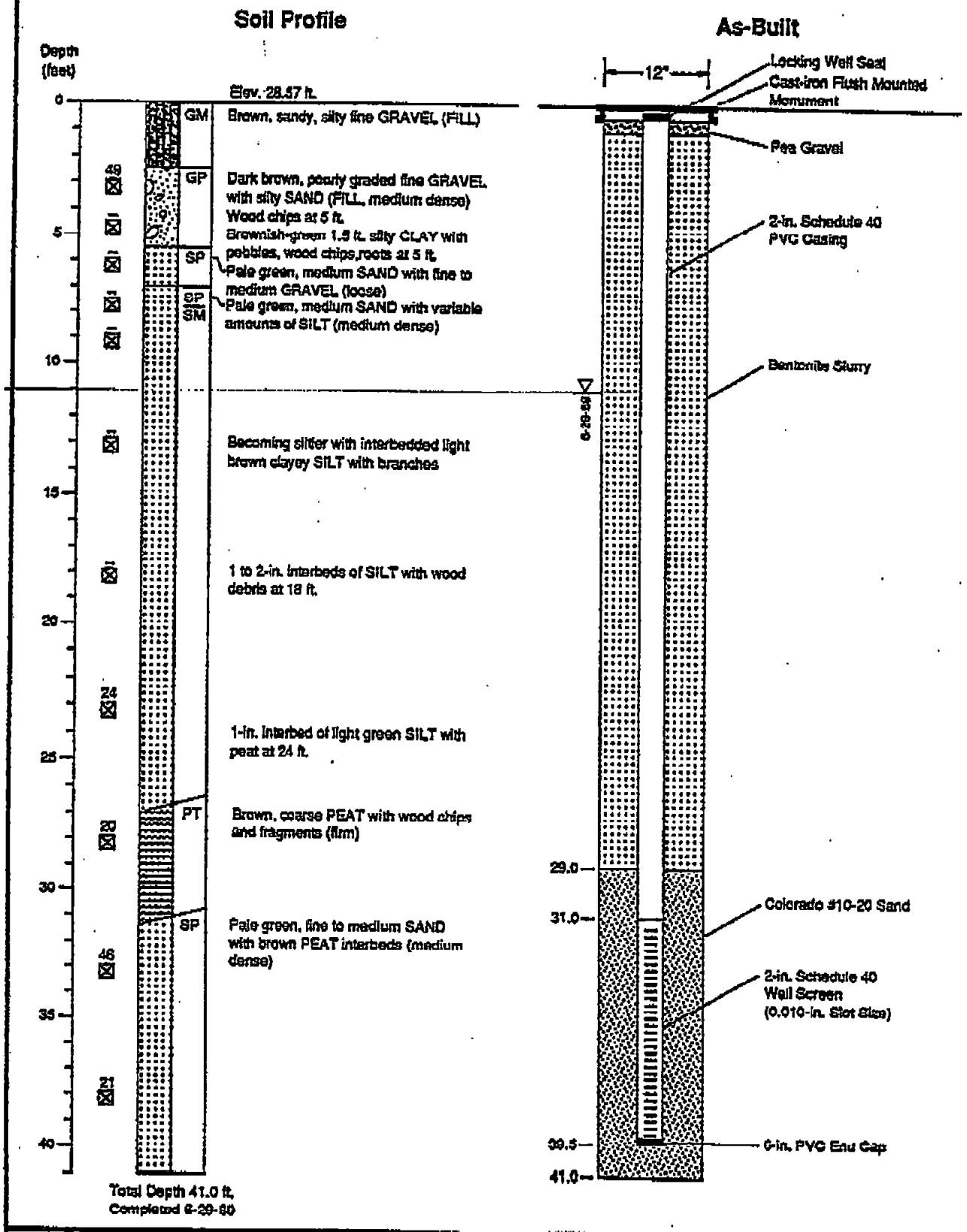


Note: No samples were taken; soil descriptions from cuttings. (See Log of adjacent Boring LMW-1D)

25-02.10 Property Transfer Assessment - Elliott Properties/Draft Report 7-14-89

LANDAU ASSOCIATES, INC.	Soil Profile and Well Log for Boring LMW-1S

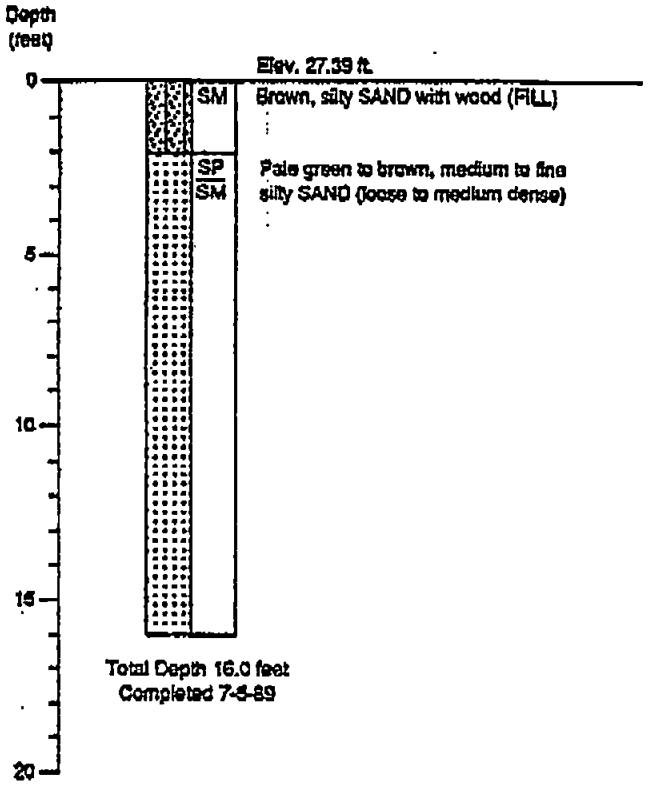
Boring LMW-1D



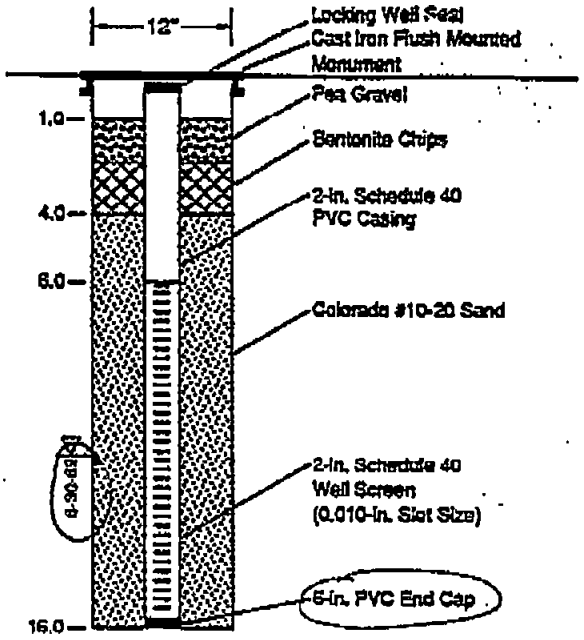
LANDAU ASSOCIATES, INC.	Soil Profile and Well Log for Boring LMW-1D

Boring LMW-2S

Soil Profile



As-Built

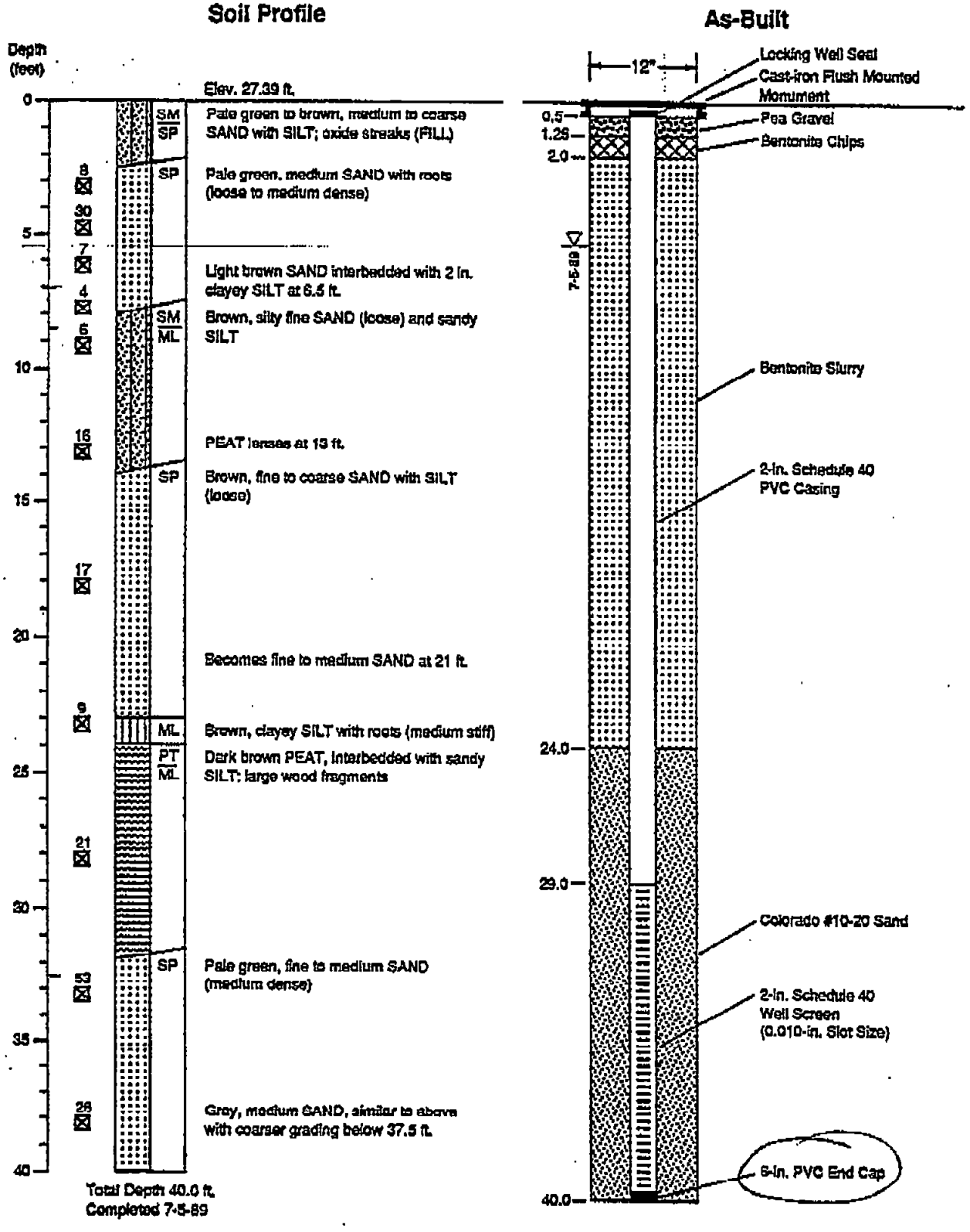


Note: No samples were taken; soil descriptions from cuttings. (See Log of adjacent Boring LMW-2D)

LANDAU ASSOCIATES, INC.	Soil Profile and Well Log for Boring LMW-2S

33-12.10 Property Transfer Assessment - EIH Reports\Draft Report 7-21-89

Boring LMW-2D

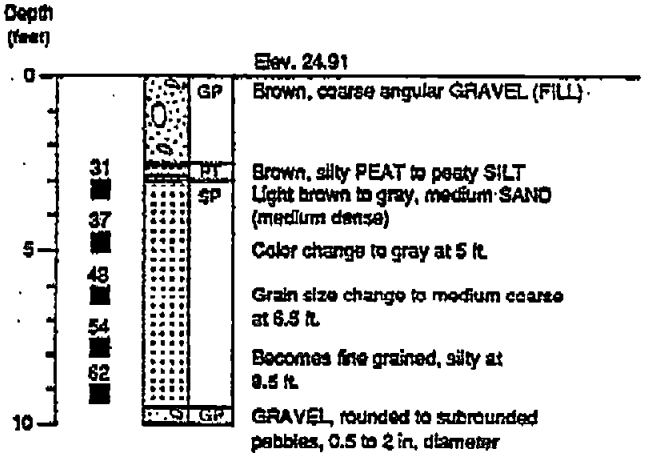


LANDAU ASSOCIATES, INC.	Soil Profile and Well Log for Boring LMW-2D

23-42.10 Property Transfer Assessment - Edit Projects/Draft Report 7-21-89

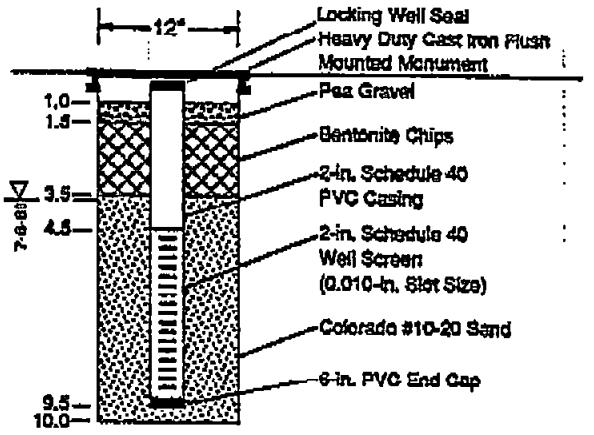
Boring LMW-4

Soil Profile



Total Depth 10.0 feet
Completed 7-6-89

As-Built

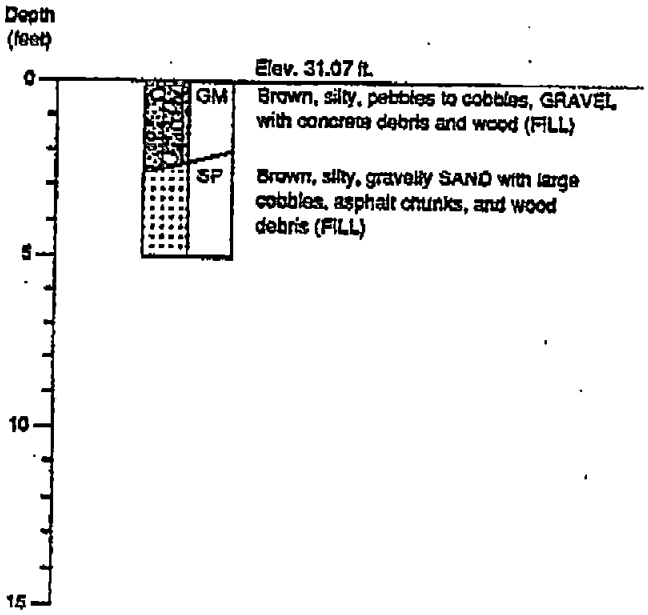


22-42.12 Property Transfer Assessment - E&H Properties\Draft Report 7-24-89

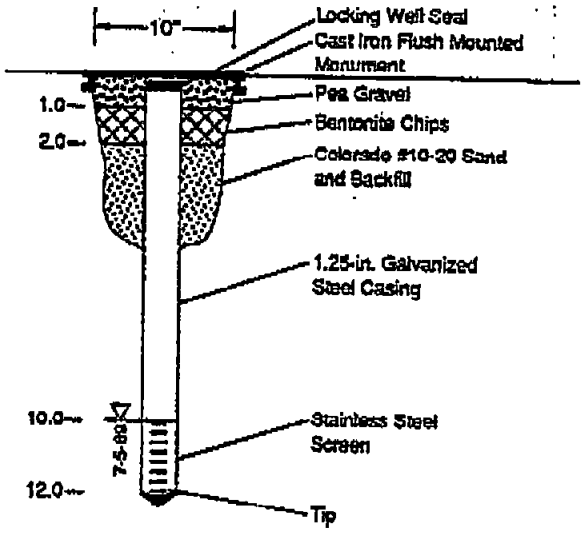
LANDAU ASSOCIATES, INC.	Soil Profile and Well Log for Boring LMW-4

Boring LMW-6

Soil Profile



As-Built



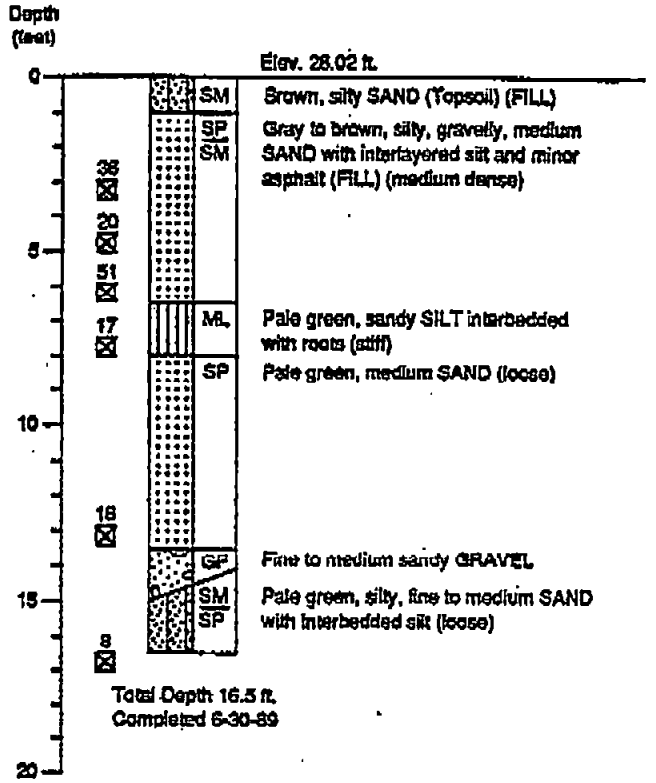
Note: Hand Dug to 3 ft.; Hand augered to 5 ft.; No Soil log below 5.0 ft.; Well point driven to 12.0 feet. Completed 7-6-89.

25-42.10 Property Transfer Assessment - Sikh Properties\Final Report 7-24-09

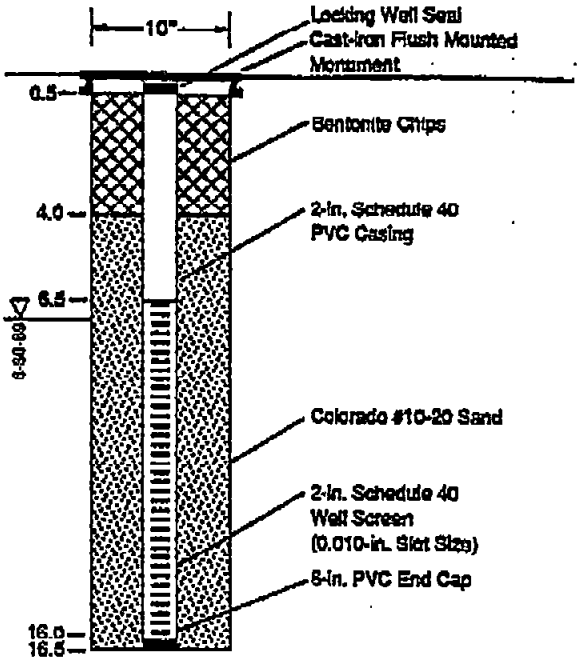
LANDAU ASSOCIATES, INC.	Soil Profile and Well Log for Boring LMW-6

Boring LMW-7

Soil Profile



As-Built



LANDAU ASSOCIATES, INC.	Soil Profile and Well Log for Boring LMW-7