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## **Workplan for Soil Remediation at**

**Young's Cleaners  
Foothill Square Shopping Center  
10700 MacArthur  
Oakland, California**

**December, 1994**

**Prepared by:  
Augeas Corporation**

Young's Cleaners, Foothill Square, Oakland, California

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This workplan was prepared under the supervision of a registered professional engineer. All statements, analytical data and descriptions are based upon information provided by our client and field observations made by Augeas Corporation.

Site conditions are subject to change with time; therefore, our conclusions result only from the interpretation of present conditions and available site information. This report was prepared in accordance with accepted professional standards and technical procedures as certified below.

Prepared by:

Frederick G. Moss, P.E. No. 35162



12/20/94

Date

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Project Number: YNG 120994



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## Young's Cleaners, Foothill Square, Oakland, California

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### 1.0 INTRODUCTION

This workplan has been prepared by Augeas Corporation for Mr. Richard Gilcrease (Drake Builders) for exploratory excavation and soil sampling, at the property located at 10700 MacArthur Boulevard, Oakland, California.

The purpose of this workplan is to remove soil contaminated with dry cleaning chemicals, primarily perchloroethylene (PCE), by excavation in the vicinity of the sewer lines and equipment locations.

It is our understanding that this work will be performed to complete the remediation of this site as required by the Alameda County Health Care Services Agency (ACHCSA).

#### 1.1 Site Location

The site is located east of MacArthur Boulevard and south of 106-th Avenue, Oakland, California. The site location is shown on Figure 1, "Site Location Map".

#### 1.2 Site Description

The site consists of a retail shopping center and paved parking areas. The westerly portion of the site and the adjacent ARCO service station is shown on Figure 2, "Site and Boring Location Plan". The local topography slopes towards the northwest away from the Oakland Hills which are about 1/2 mile to the east.

The depth to bedrock varies beneath the site and bedrock is exposed in the Oakland Hills. Alluvium has been deposited across the site from erosion of the hills and fill has been placed over native soils to allow for site grading. This alluvium consists of clayey silts with layers of sandy gravels where deposition was due to ancient stream channels.

#### 1.3 Site History

Aerial photographs indicate that historical site use included a former truck manufacturing plant. Development of the property as a shopping center began in 1960.

A coin operated dry cleaner, Norge Cleaners, operated in the shopping center (Figure 2) between 1962 and 1980. In July, 1980 the current owners took over management of the property. The current tenant, Young's Cleaners, has been in operation since 1984.



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Young's Cleaners, Foothill Square, Oakland, California

In December, 1980 the cleaners was placed on the CALSITES list for further evaluation. On October 1, 1993, Augeas Corporation contacted Mr. Don Cox, Unit Chief, Site Mitigation Branch, Site Evaluation Unit, Department of Toxic Substances Control, Berkeley, California concerning the status of the investigation.

In January 1989, Western Geological Resources (WGR) installed five monitoring wells on the property to characterize subsurface conditions and to collect soil and ground water samples. Well MW-3 which was located near the ARCO station, was found to contain both benzene and chlorinated solvents, dissolved in the ground water.

Further investigation at the ARCO station was conducted by RESNA Consultants between 1991 and 1993, to define the extent of gasoline contamination resulting from leakage of petroleum fuels. During their investigation RESNA detected chlorinated solvents in several soil borings. On March 23, 1993, ACHCSA requested that the vertical and lateral extent of perchloroethylene (PCE) contamination, discovered on the shopping center site by ARCO, be investigated by Drake Builders.

*is this true?*

According to the correspondence from the ACHCSA, "data generated by ARCO's investigation suggests that perchloroethylene detected in ground water samples from their monitoring wells came from [the shopping center] site."

To verify the source and extent of PCE in soil and ground water, Augeas Corporation submitted a "Workplan for Site Investigation" to the ACHCSA for installation of soil borings and monitoring wells. The work was completed between September and November 1994 and results are compiled in the Augeas report titled "Site Investigation Report". The findings of this report indicated that the extent of soil and ground water contamination is restricted to the vicinity of Young's Cleaners due to perched water conditions. The perched water zone does not appear to be connected to perched ground water in the vicinity of the ARCO station.

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Augeas also collected eight soil samples by hand augering inside the building. This work was completed in July 1994 when a floor drain was being removed. One soil sample collected at a depth of six feet contained a concentration 5,000,000 µg/Kg. The figures attached are from this report and soil sample concentrations are listed in Table 2 which is also attached.

*5000ppm*

*was this ever reported?*

*Need copy of this rep.*

Augeas installed seven soil borings and three monitoring wells to complete the investigation. The locations of these wells and borings are shown on Figure 3, "Site and Boring Location Plan Detail". Concentrations of PCE



ranged from below detection limits to 90,000  $\mu\text{g}/\text{Kg}$ . Augeas recommends that soils which exceed a concentration of 1,000  $\mu\text{g}/\text{Kg}$  be removed by excavating. *oh*

## 2.0 PROPOSED SOIL REMOVAL ACTIONS

Augeas Corporation proposes to excavate soils in the vicinity of the dry cleaners. Remediation work to remove the contaminated soil will be performed by a licensed contractor with a hazardous materials certification. Appropriate health and safety precautions will be implemented during site excavation activities. Shoring will be installed to maintain the integrity of the pit walls and building structures as necessary.

The excavation will encompass three areas as follows:

- Area 1 - Beneath the floor inside the dry cleaners
- Area 2 - Outside the dry cleaners in the pedestrian mall
- Area 3 - In the pedestrian mall near the main sewer line

These areas are shown on Figure 4, "Proposed Soil Excavation Areas". Concrete removal will be required in all three areas. The sewer laterals which cross the excavation can be cut and capped; however, the main sewer line may need to be supported where it crosses through the excavation. Other utilities may also be encountered during excavation.

Area 1 includes the soil from beneath the floor from the front wall of the dry cleaners to 10 feet beyond the floor drain pit where the hand augered soil samples were collected. The area is approximately 50 feet by 30 feet. The excavation will be completed to a depth of 12 feet. Soil samples will be collected during excavation activities to verify the lateral and vertical extent of soil contamination.

Area 2 includes the soil from beneath the pedestrian mall directly in front of the dry cleaners. This area includes both well AMW-2 and soil boring B-6. The area is approximately 15 feet by 40 feet. The excavation will be completed to a depth of 12 feet. Soil samples will be collected during excavation activities to verify the lateral and vertical extent of soil contamination.

Area 3 includes the soil from beneath the pedestrian mall directly opposite the dry cleaners. This area includes soil borings B-4 and B-5. The area is approximately 15 feet by 40 feet. The excavation will be completed to a

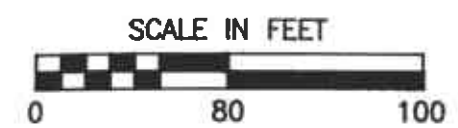
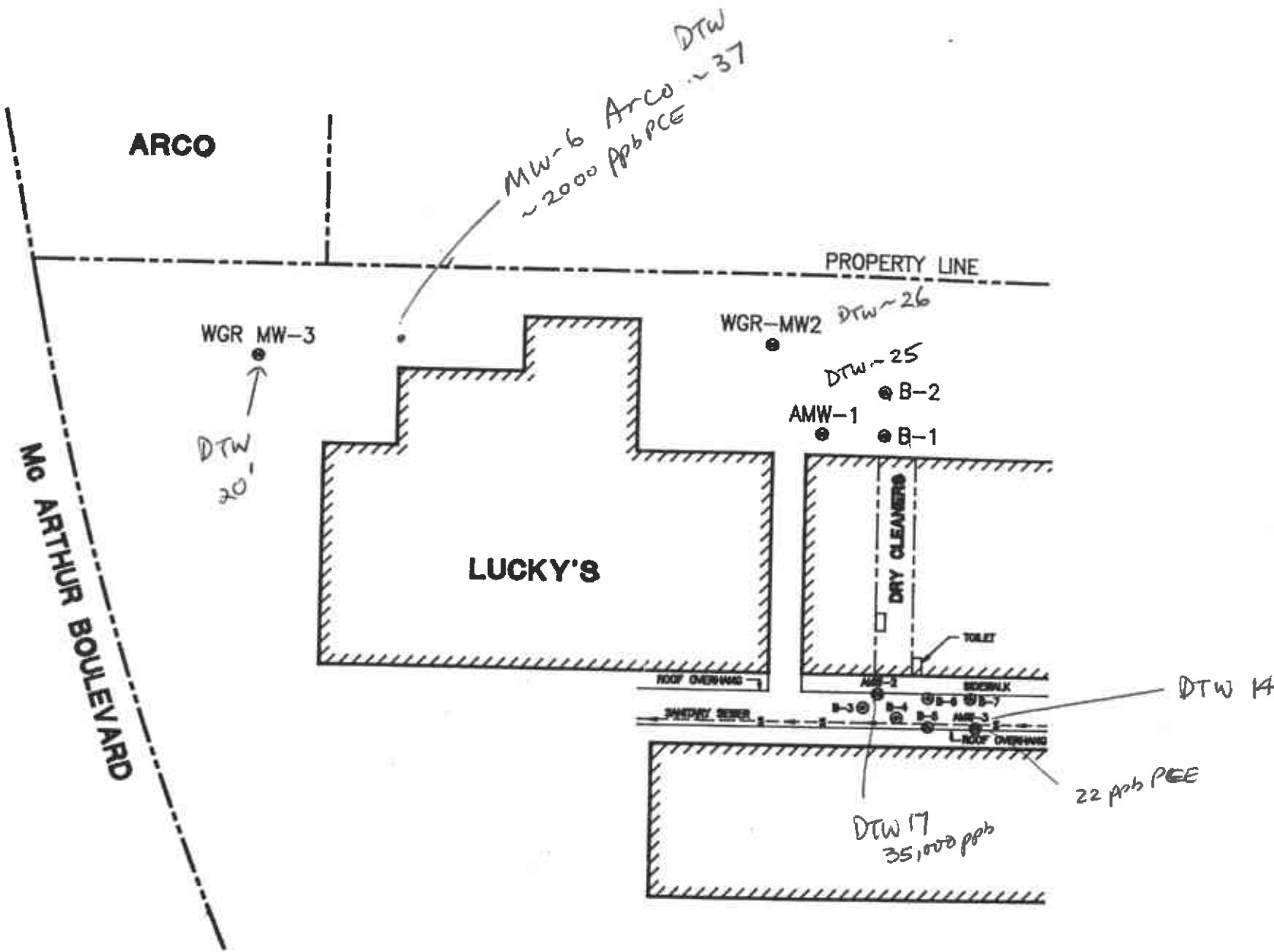
**BENCHMARK**


CUT SQUARE IN CURB RETURN AT THE SOUTHEAST CORNER OF 107th AVE AND McARTHUR BLVD.

ELEV = 55.172' MSL (USGS 1929)  
TO OBTAIN ELEVATION PER CITY DATUM,  
SUBTRACT 300 FEET FROM USGS ELEVATION.

**LEGEND**

- ⊙ AUGEAS SOIL BORING
- ⊕ AMW-2 AUGEAS MONITORING WELL
- ⊙ WGR-MW2 WESTERN GEOLOGIC RESOURCES MONITORING WELL
- ⊕ MW-3 APPLIED GEOSYSTEMS MONITORING WELL



 <b>AUGEAS</b> CORPORATION HALF MOON BAY	<b>SITE AND BORING LOCATION PLAN</b>	
	FOOTHILL SQUARE SHOPPING CENTER OAKLAND ALAMEDA, CA	
	December 12, 1994	Figure 2

**BENCHMARK**

CUT SQUARE IN CURB RETURN AT THE SOUTHEAST CORNER OF 107th AVE AND McARTHUR BLVD.

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TO OBTAIN ELEVATION PER CITY DATUM,  
SUBTRACT 300 FEET FROM USGS ELEVATION.

**NOTE**

ALL ELEVATIONS ARE AT MARK AT TOP OF PVC CASING.

**LEGEND**

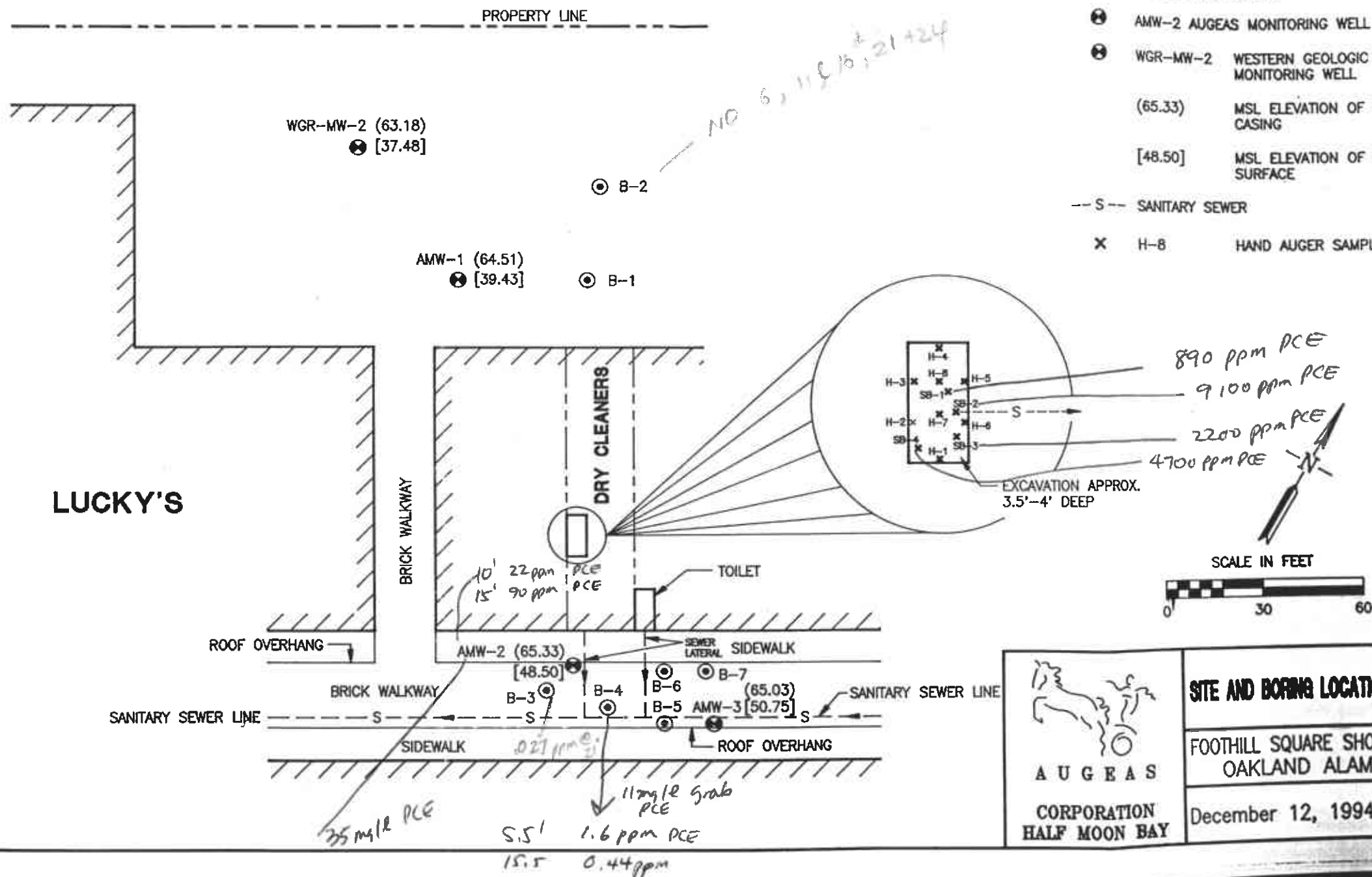
- ⊙ AUGIAS SOIL BORING
- ⊕ AMW-2 AUGIAS MONITORING WELL
- ⊕ WGR-MW-2 WESTERN GEOLOGIC RESOURCES MONITORING WELL
- (65.33) MSL ELEVATION OF TOP OF PVC CASING
- [48.50] MSL ELEVATION OF GROUNDWATER SURFACE
- S- SANITARY SEWER
- X H-8 HAND AUGER SAMPLE

Needs:

- ① Additional GW MV. thru either borings + Hydro pump or SV survey etal
- ② Additional permanent wells to define GW contn. hydraulic
- ③ Determine connection of any w/ Arco property
- ④ Investigate along sanitary sewer.
- ⑤ C.A.P.

Do not agree that the extent of GW is confined to area of "Proposed Soil Excavation."

- ① Soil excavation is OK @ 1 ppm the 1 ppm cleanup level.
- ② Recommend field screening w/ PID calibrated w/a PCE std. to determine extent of remediation
- ③ Sple # should be approx 1/200 sq feet for sidewalks + floor



	<b>SITE AND BORING LOCATION PLAN DETAIL</b>	
	FOOTHILL SQUARE SHOPPING CENTER OAKLAND ALAMEDA, CA	
	December 12, 1994	Figure 3



**BENCHMARK**

CUT SQUARE IN CURB RETURN AT THE SOUTHEAST CORNER OF 107th AVE AND McARTHUR BLVD.

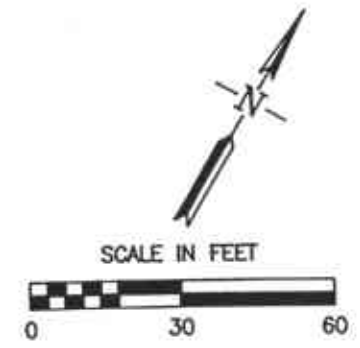
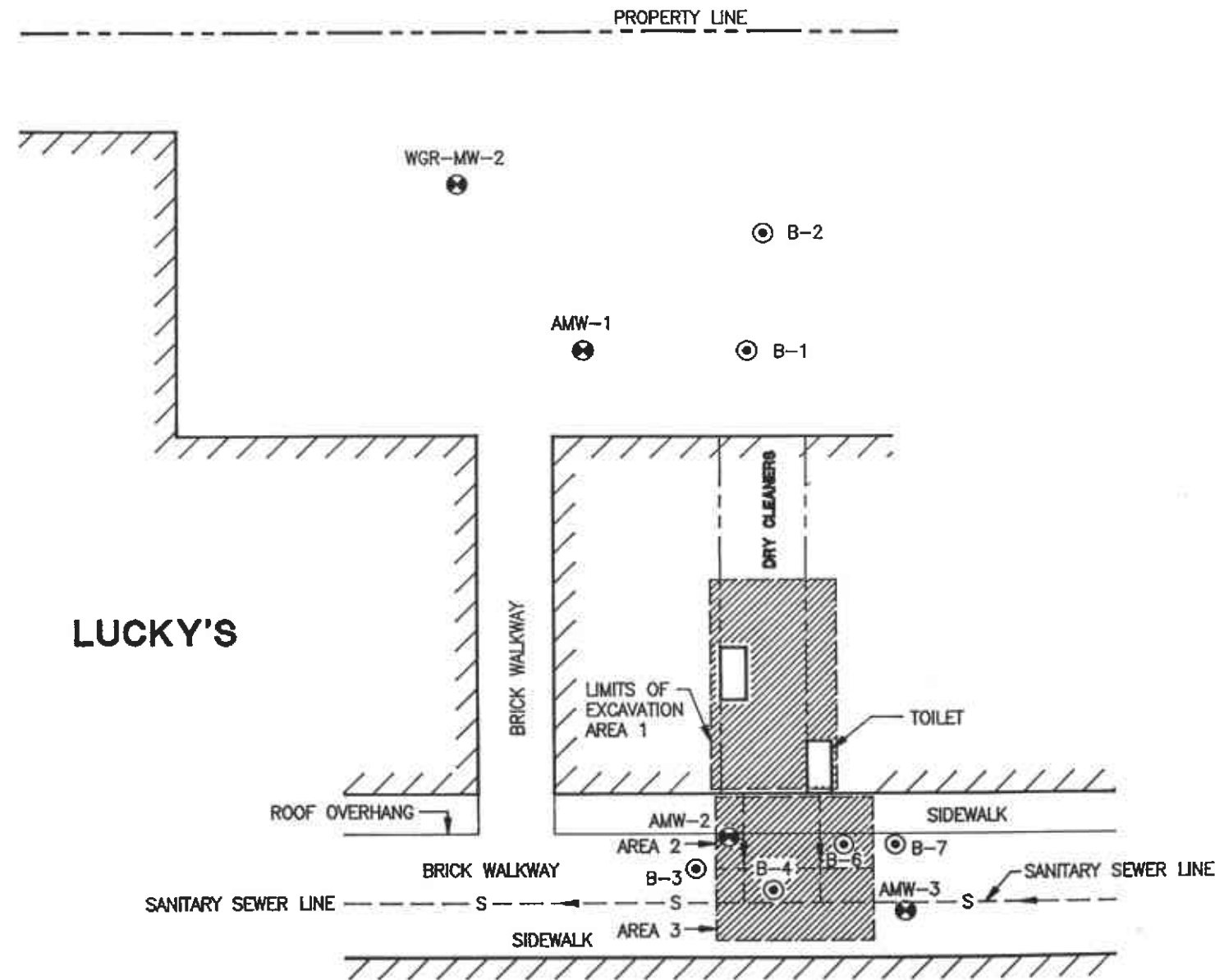
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- ⊙ AUGIAS SOIL BORING
- ⊕ AMW-2 AUGIAS MONITORING WELL
- ⊕ WGR-MW-2 WESTERN GEOLOGIC RESOURCES MONITORING WELL
- S- SANITARY SEWER
- X H-8 HAND AUGER SAMPLE



 <b>AUGIAS</b> CORPORATION HALF MOON BAY	<b>PROPOSED SOIL EXCAVATION AREAS</b>	
	FOOTHILL SQUARE SHOPPING CENTER OAKLAND ALAMEDA, CA	
	December 12, 1994	Figure 4



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**Young's Cleaners, Foothill Square, Oakland, California**

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depth of 6 feet. Soil samples will be collected during excavation activities to verify the lateral and vertical extent of soil contamination.

The volumes generated from the excavation areas are as follows:

- Area 1 - 670 cubic yards ✓
- Area 2 - 270 cubic yards ✓
- Area 3 - 135 cubic yards ✓

TOTAL = 975 cubic yards

Excavated soils will be stockpiled at the rear of the shopping center until sample results are evaluated. The soils will be covered with plastic sheeting until disposal options are evaluated. Based upon the concentrations in the stockpiled soils, an appropriate disposal facility for the soils will be selected. Augeas estimates that approximately 975 cubic yards of soil will need to be removed.

The excavation will be covered with plastic sheeting, until soil sample results are received and evaluated. The excavation will be backfilled to grade, when appropriate, with clean gravel.

### **3.0 SOIL SAMPLING PROGRAM**

Upon completion of excavation operations, soil samples will be collected from all the side walls and the bottom of the pit. Additional samples will be collected as necessary to verify soil conditions. Based upon the excavation dimensions described above, we anticipate that a minimum of 20 soil samples will need to be collected when the excavation is completed.

Samples will be obtained using a hand-sampler equipped with a six-inch stainless steel sample tube. Once the tube is extracted from the drive sampler, the ends will be covered with Teflon™ tape and secured with plastic tube end caps and taped. All samples will be labeled and placed in a cooled ice chest kept at 4 degrees Celsius.

All equipment which will come in contact with the soil will be decontaminated prior to sampling. The equipment will be scrubbed in a solution of Alconox™ detergent and tap water. It will then be rinsed in tap water and then in de-ionized water prior to sampling. Water used for equipment cleaning will be contained in 55-gallon drums and stored on site for disposal.



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Young's Cleaners, Foothill Square, Oakland, California

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#### 4.0 CHEMICAL ANALYSIS TESTING

Soil samples will be sent to an approved State of California certified analytical laboratory for chemical testing of discrete samples. A Chain-of-Custody record initiated by the field personnel will accompany the samples to the analytical laboratory.

The following chemical analysis protocol was chosen based upon the results of previous investigations. The following table presents the chemical analysis methods and laboratory detection limits to be used.

Analysis	Analytical Method	Detection Limit
Chlorinated Volatile Hydrocarbons (CVH)	EPA Method 8010	10 µg/kg

#### 5.0 SOIL HANDLING AND DISPOSAL

Excavated soils will be stockpiled and covered with 6 mil thick plastic sheeting. Stockpile soil sampling will be performed to further characterize soil chemistry.

Samples will be collected from the interior areas of each stockpile. One discrete sample will be obtained for each 20 cubic yards of stockpiled soil. These samples will be analyzed for CVH and other chemicals required by the disposal facility. The soil sample results will be used to evaluate disposal options.

#### 6.0 HEALTH AND SAFETY REQUIREMENTS

A site health and safety plan will be prepared by Augeas to address the chemicals of concern. This plan will include provisions for the following:

- Personnel protective equipment
- Chemical exposure levels
- Emergency procedures for accidents or injuries
- Nearest hospital location (directions and map)

A representative from Augeas will communicate the essential components of this plan to personnel working onsite who may be exposed to the chemicals of concern.



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Young's Cleaners, Foothill Square, Oakland, California

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## 7.0 REPORT PREPARATION

Upon completion of the work described in this workplan, a final report will be prepared by Augeas Corporation. This report will include a compilation of the methods, results, conclusions and recommendations. We anticipate that this report will be completed within 4 within to 6 weeks following collection of soil samples.

A final site map will be prepared to accurately show the perimeter of the excavation, sample locations, property boundaries and features. The report will also include the results obtained from the hand auger borings. The approximate locations of the soil stockpiles will also be shown on this map.

Table 1

## Summary of Soil Analytical Results

Young's Cleaners  
10700 MacArthur Boulevard  
Oakland, CA

(all results expressed in  $\mu\text{g}/\text{Kg}$  except where noted)

Sample Identification	Sample Matrix	Sample Date	Analysis Date	Gasoline <sup>(1)</sup>	Stoddard Solvent <sup>(2)</sup>	Tetra-Chloroethene (PCE) <sup>(3)</sup>	Benzene <sup>(4)</sup>	Toluene <sup>(4)</sup>	Ethyl-Benzene <sup>(4)</sup>	Xylenes <sup>(5)</sup>
B-2 - 6'	Soil	9-12-94	9-16-94	ND	ND	ND	ND	6	ND	ND
B-2 - 11'	Soil	9-12-94	9-16-94	ND	ND	ND	ND	ND	ND	ND
B-2 - 16'	Soil	9-12-94	9-16-94	ND	ND	ND	ND	ND	ND	ND
B-2 - 21'	Soil	9-12-94	9-16-94	ND	ND	ND	ND	ND	ND	ND
B-2 - 24'	Soil	9-12-94	9-19-94	ND	ND	ND	ND	ND	ND	ND
B-3 - 6'	Soil	10-7-94	10-13-94	NA	ND	15	ND	ND	ND	ND
B-3 - 13'	Soil	10-7-94	10-13-94	NA	ND	ND	ND	ND	ND	ND
B-3 - 16'	Soil	10-7-94	10-13-94	NA	ND	12	ND	ND	ND	ND
B-3 - 21'	Soil	10-7-94	10-13-94	NA	ND	27	ND	ND	ND	ND
B-4 - 5.5'	Soil	10-7-94	10-13-94	NA	ND	1,600	ND	7 mg/Kg	ND	ND
B-4 - 11'	Soil	10-7-94	10-13-94	NA	ND	70	ND	ND	ND	ND
B-4 - 16'	Soil	10-7-94	10-13-94	NA	ND	100	ND	10 mg/Kg	ND	ND
B-4 - 21'	Soil	10-7-94	10-13-94	NA	ND	30	ND	ND	ND	ND
B-5 - 6'	Soil	11-3-94	11-10-94	NA	NA	1600	NA	NA	NA	NA
B5 - 10.5'	Soil	11-3-94	11-9-94	NA	NA	450	NA	NA	NA	NA
B5 - 15.5'	Soil	11-3-94	11-9-94	NA	NA	440	NA	NA	NA	NA
B5 - 20.5'	Soil	11-3-94	11-9-94	NA	NA	ND	NA	NA	NA	NA
B5 - 25.5'	Soil	11-3-94	11-10-94	NA	NA	ND	NA	NA	NA	NA

Continued

(1): Gasoline by EPA method 8015/5030. Sample Quantification Limit (SQL) of 0.5 mg/Kg.

(2): Stoddard Solvent by EPA method 8015 modified. SQL of 1.0 mg/Kg.

(3): Tetrachloroethene by EPA SW-846 methods 5030 /8010. SQL of 5  $\mu\text{g}/\text{Kg}$ .

(4): By method 8020. SQL of 5  $\mu\text{g}/\text{Kg}$ .

(5): By method 8020. SQL of 10  $\mu\text{g}/\text{Kg}$ .

ND: Not detected at the Sample Quantification Limit.

NA: Not analyzed for this parameter.

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(all results expressed in  $\mu\text{g}/\text{Kg}$  except where noted)

Sample Identification	Sample Matrix	Sample Date	Analysis Date	Gasoline <sup>(1)</sup>	Stoddard Solvent <sup>(2)</sup>	Tetra-Chloroethene (PCE) <sup>(3)</sup>	Benzene <sup>(4)</sup>	Toluene <sup>(4)</sup>	Ethyl-Benzene <sup>(4)</sup>	Xylenes <sup>(5)</sup>
B6 - 10.5'	Soil	11-3-94	11-10-94	NA	NA	5000	NA	NA	NA	NA
B6 - 15'	Soil	11-3-94	11-10-94	NA	NA	590	NA	NA	NA	NA
B6 - 20.5'	Soil	11-3-94	11-10-94	NA	NA	ND	NA	NA	NA	NA
B6 - 25.5'	Soil	11-3-94	11-10-94	NA	NA	ND	NA	NA	NA	NA
B7 - 10.5'	Soil	11-30-94	11-30-94	NA	NA	38	NA	NA	NA	NA
B7 - 15.5'	Soil	11-30-94	11-30-94	NA	NA	60	NA	NA	NA	NA
B7 - 20.5'	Soil	11-30-94	11-30-94	NA	NA	ND	NA	NA	NA	NA
B7 - 25.5'	Soil	11-30-94	11-30-94	NA	NA	ND	NA	NA	NA	NA
AMW-1-4'	Soil	9-12-94	9-15-94	ND	ND	ND	ND	ND	ND	ND
AMW-1-6'	Soil	9-12-94	9-15-94	ND	ND	ND	ND	ND	ND	ND
AMW-1-11'	Soil	9-12-94	9-15-94	ND	ND	ND	ND	ND	ND	ND
AMW-1-16'	Soil	9-12-94	9-15-94	ND	ND	ND	ND	6	ND	18
AMW-1-21'	Soil	9-12-94	9-15-94	ND	ND	ND	ND	6	ND	ND
AMW-1-26'	Soil	9-12-94	9-15-94	ND	ND	ND	ND	ND	ND	ND
AMW-1-31'	Soil	9-12-94	9-15-94	ND	ND	ND	ND	ND	ND	ND
AMW-1-34'	Soil	9-12-94	9-15-94	ND	ND	ND	ND	ND	ND	ND
AMW-2-10'	Soil	9-30-94	10-6-94	NA	ND	22,000	ND	ND	ND	ND
AMW-2-15'	Soil	9-30-94	10-6-94	NA	ND	90,000	ND	ND	ND	ND
AMW-2-20'	Soil	9-30-94	10-6-94	NA	ND	400	ND	ND	ND	ND
AMW-2-25'	Soil	9-30-94	10-6-94	NA	ND	30	ND	ND	ND	ND

(1): Gasoline by EPA method 8015/5030. Sample Quantification Limit (SQL) of 0.5 mg/Kg.

(2): Stoddard Solvent by EPA method 8015 modified SQL of 1.0 mg/Kg.

(3): Tetrachloroethene by EPA SW-846 methods 5030 /8010. SQL of 5  $\mu\text{g}/\text{Kg}$ .(4): By method 8020. SQL of 5  $\mu\text{g}/\text{Kg}$ .(5): By method 8020. SQL of 10  $\mu\text{g}/\text{Kg}$ .

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AMW-3-5.5'	Soil	11-18-94	11-21-94	NA	NA	6	NA	NA	NA	NA
AMW-3-10'	Soil	11-18-94	11-21-94	NA	NA	390	NA	NA	NA	NA
AMW-3-15.5'	Soil	11-18-94	11-21-94	NA	NA	59	NA	NA	NA	NA
AMW-3-20.5'	Soil	11-18-94	11-21-94	NA	NA	820	NA	NA	NA	NA
AMW-3-25.5'	Soil	11-18-94	11-21-94	NA	NA	1400	NA	NA	NA	NA

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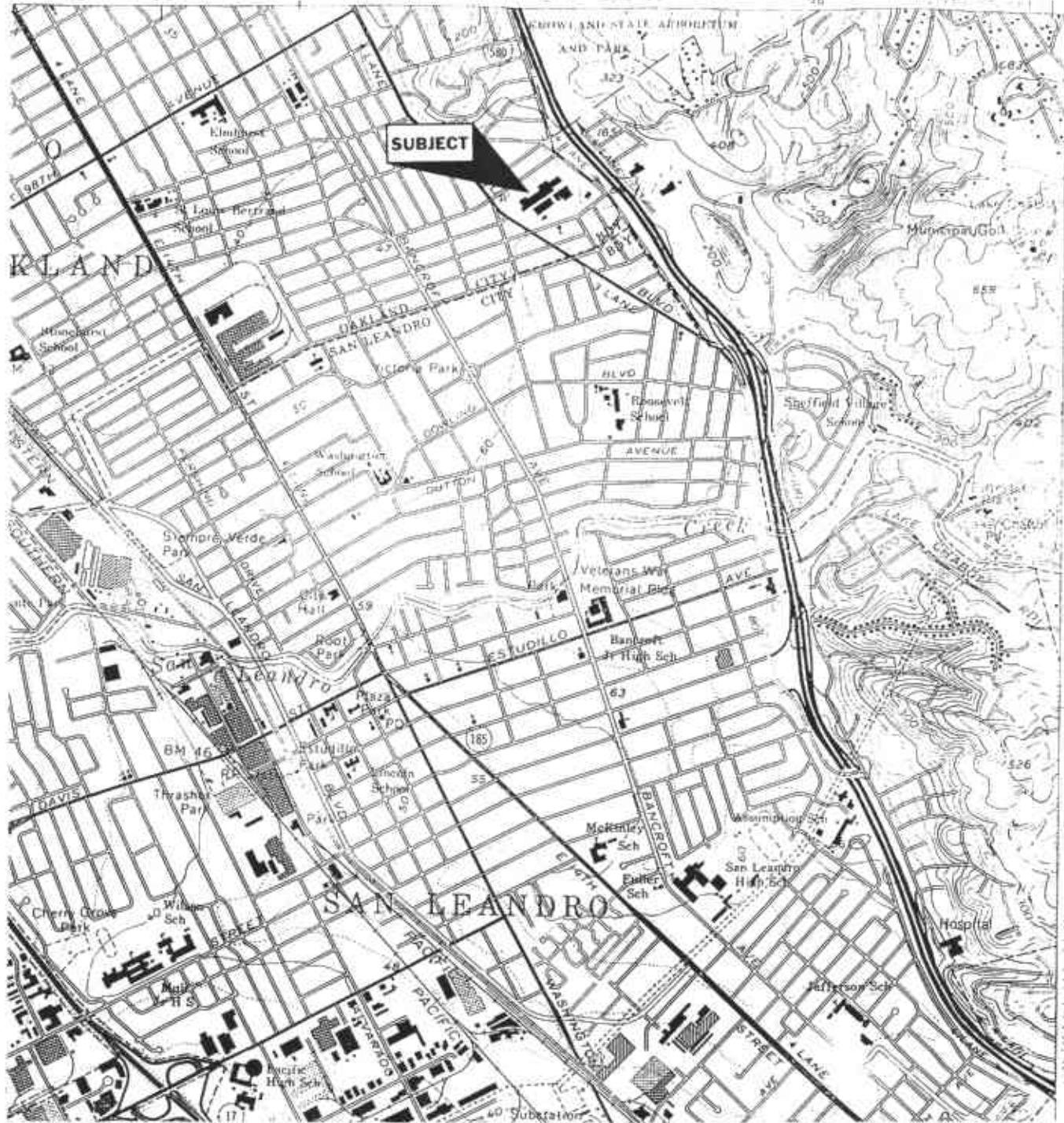
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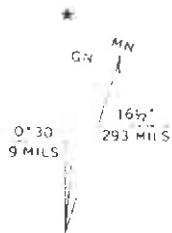
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SCALE 1:24,000



SAN LEANDRO, CALIF.

NW 4 HAYWARD 15 QUADRANGLE  
N3737 5—W12207 5/7 5

1959  
PHOTOREVISED 1980  
DMA 1559 II NW—SERIES V895



QUADRANGLE LOCATION

**AUGEAS  
CORPORATION**

**Figure 1- Site Location Map**  
10700 MacArthur Boulevard, Oakland, CA

jf  
09/16/93



**BENCHMARK**

CUT SQUARE IN CURB RETURN AT THE SOUTHEAST CORNER OF 107th AVE AND McARTHUR BLVD.

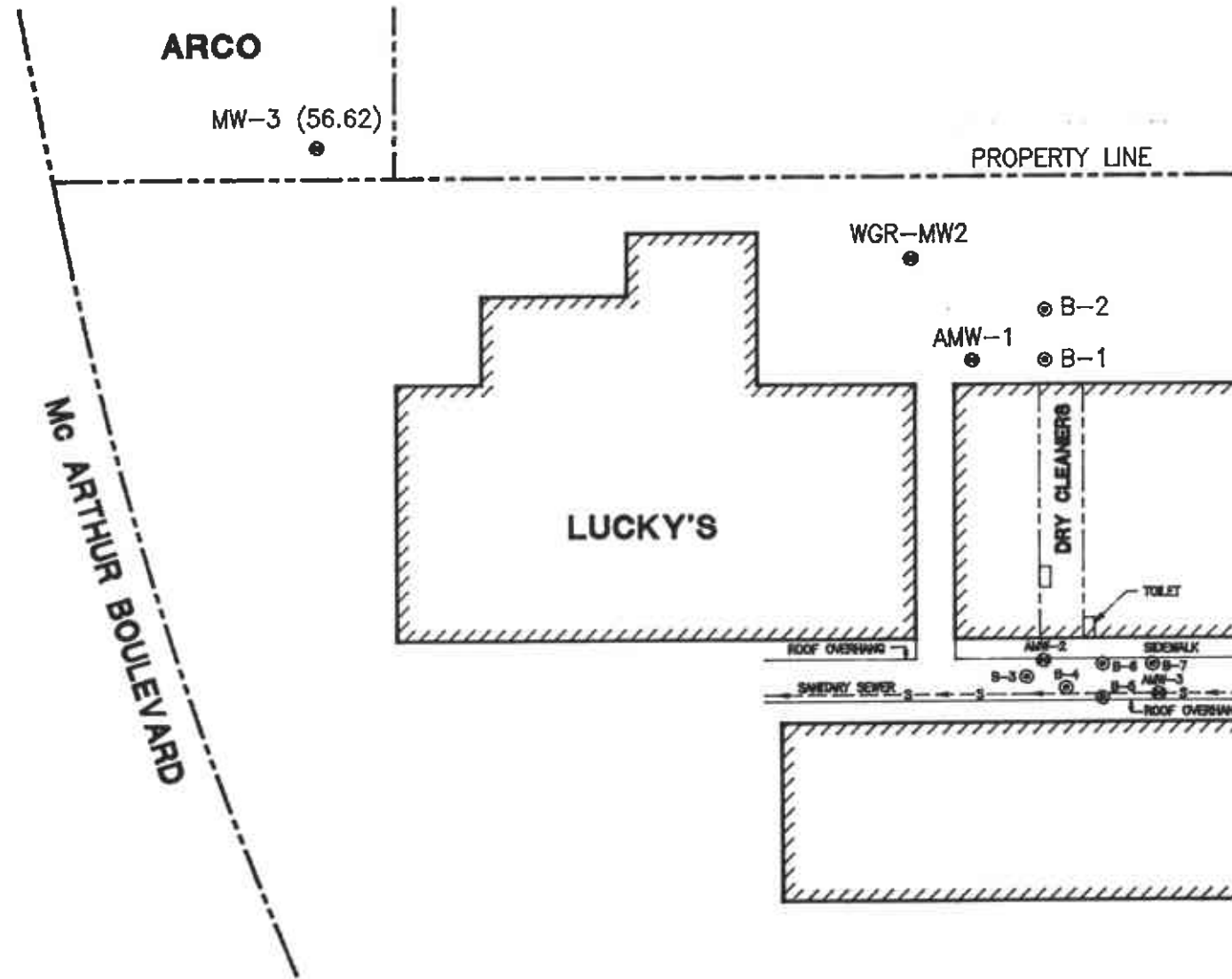
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**LEGEND**

- ⊙ AUGEAS SOIL BORING
- ⊕ AMW-2 AUGEAS MONITORING WELL
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- ⊕ MW-3 APPLIED GEOSYSTEMS MONITORING WELL
- (56.62) MSL ELEVATION OF TOP OF PVC CASING



 <b>AUGEAS</b> CORPORATION HALF MOON BAY	<b>SITE AND BORING LOCATION PLAN</b>	
	FOOTHILL SQUARE SHOPPING CENTER OAKLAND ALAMEDA, CA	
	December 9, 1994	Figure 2

**BENCHMARK**

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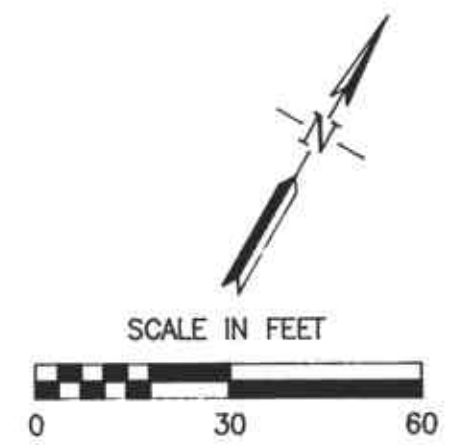
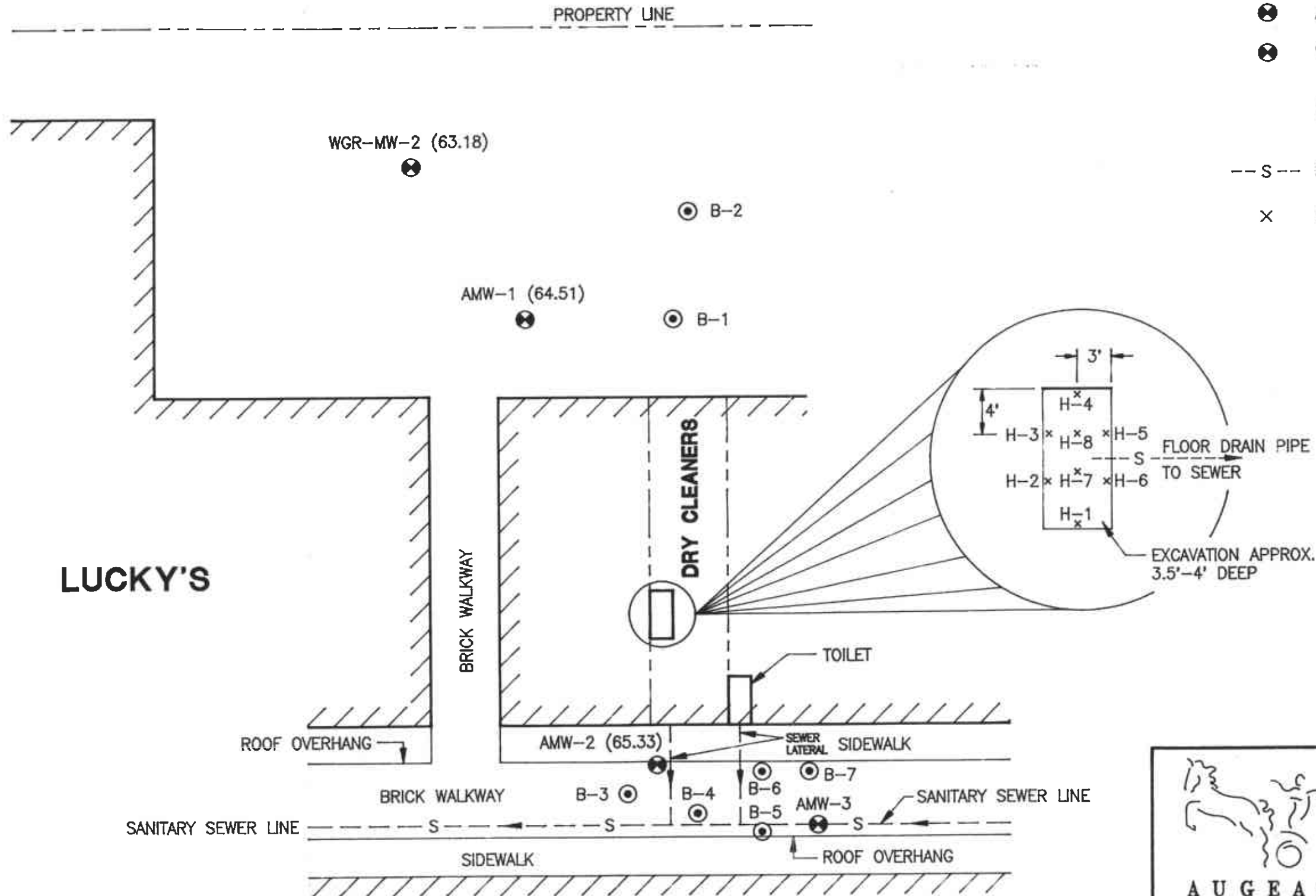
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- x H-8 HAND AUGER SAMPLE



 <b>AUGER CORPORATION</b> HALF MOON BAY	<b>SITE AND BORING LOCATION PLAN DETAIL</b>	
	FOOTHILL SQUARE SHOPPING CENTER OAKLAND ALAMEDA, CA	
	December 9, 1994	Figure 3

**BENCHMARK**

CUT SQUARE IN CURB RETURN AT THE SOUTHEAST CORNER OF 107th AVE AND McARTHUR BLVD.

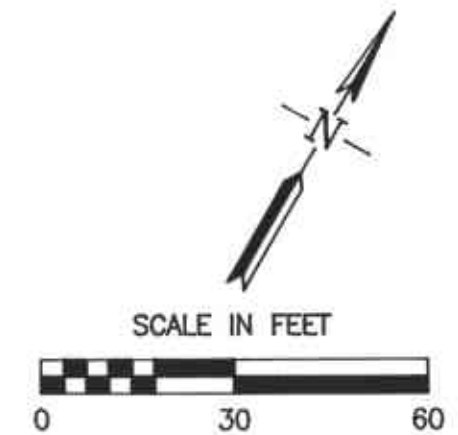
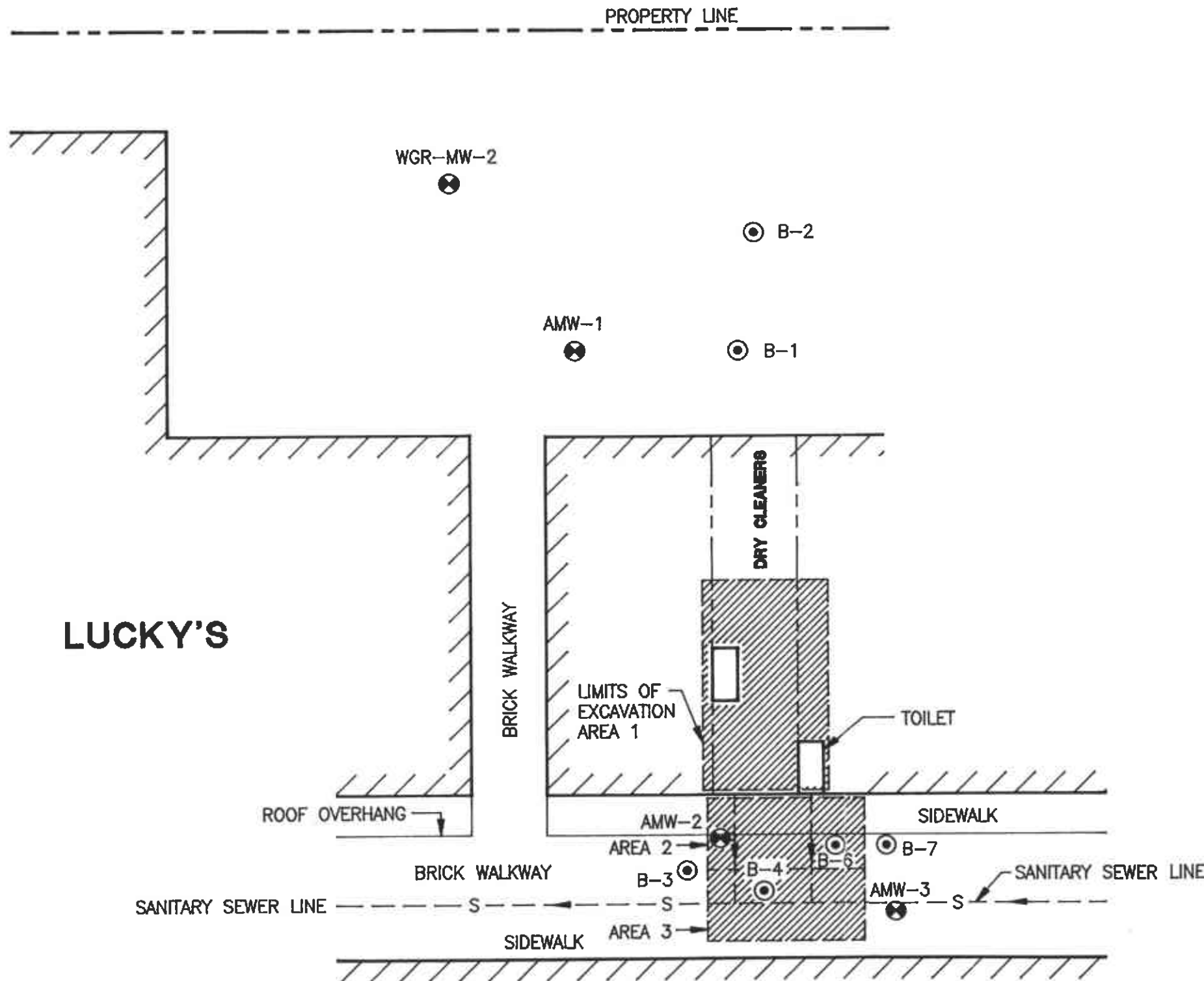
ELEV = 55.172' MSL (USGS 1929)  
TO OBTAIN ELEVATION PER CITY DATUM,  
SUBTRACT 300 FEET FROM USGS ELEVATION.


**NOTE**

ALL ELEVATIONS ARE AT MARK AT TOP OF PVC CASING.

**LEGEND**

- ⊙ AUGEAS SOIL BORING
- ⊗ AMW-2 AUGEAS MONITORING WELL
- ⊗ WGR-MW-2 WESTERN GEOLOGIC RESOURCES MONITORING WELL
- S -- SANITARY SEWER
- X H-8 HAND AUGER SAMPLE



 <b>A U G E A S</b> CORPORATION HALF MOON BAY	<b>PROPOSED SOIL EXCAVATION AREAS</b>	
	FOOTHILL SQUARE SHOPPING CENTER OAKLAND ALAMEDA, CA	
	December 12, 1994	Figure 4