ENVIRONMENTAL SITE AUDIT
OF
CALMAR INCORPORATED

Prepared for:

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BCLA Project Number 87-488

May, 1989

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Hazardous Waste/Asbestos

This report is based on the assumption that the client represents to the best of its knowledge, records, and investigations, it has disclosed to BCL the existence of all hazardous wastes or toxic substances (including, but not limited to, asbestos) located at or near the project site(s).

The information contained in this report has received appropriate technical review and approval. The conclusions and recommendations presented represent professional judgements and are based upon the findings from the investigation identified in the report and the interpretation of such data based on our experience and background. This acknowledgement is made in lieu of all warranties, either expressed or implied.

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1.0 INTRODUCTION

1.1 Objectives

The objective of this audit of Calmar Inc. (Calmar) is to evaluate areas of environmental concern identified by the California Regional Water Quality Control Board - Los Angeles Region. Other functions of this audit are to identify other potential sources of groundwater contamination, not only on-site, but also in the vicinity of Calmar.

The findings of this audit will form the basis for further investigations.

1.2 Site Location

The Calmar Inc. site, which is approximately 6.6 acres in area, is located in the City of Industry (Los Angeles County), California. It occupies the western corner of Turnbull Canyon Road and Proctor Avenue (see Figure 1-1). The occupant and address of the subject site is:

Calmar Incorporated
333 South Turnbull Canyon Road
City of Industry, CA 91749

The northeast boundary of Calmar is Proctor Avenue, the southeast boundary is Turnbull Canyon Road. The properties to the northwest and southwest are occupied by industrial buildings. Surrounding land use is discussed further in Section 5.0 Figure 1-2 shows the vicinity of Calmar.

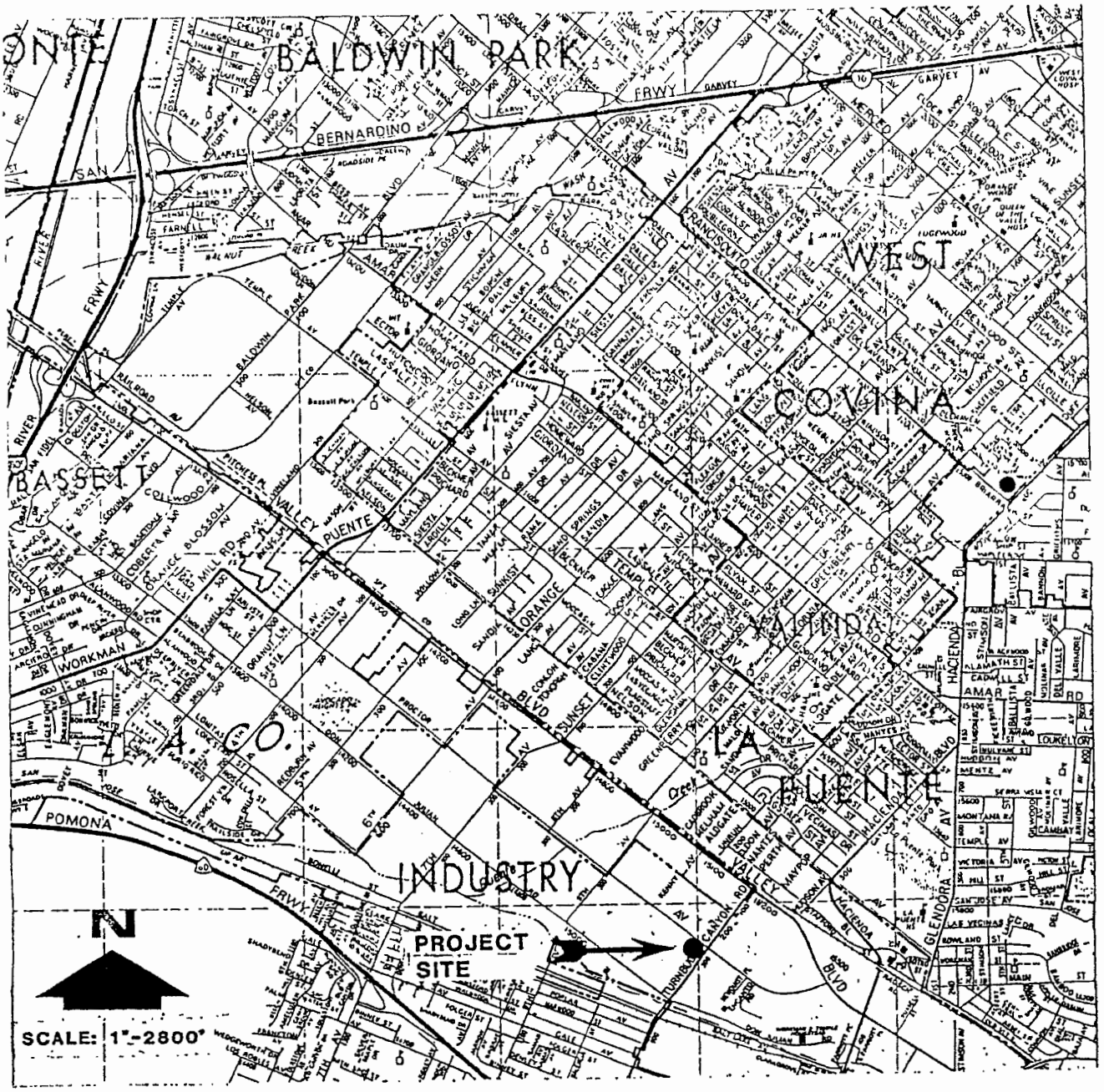
1.3 Background

The Calmar facility was built on this site in 1962. The property prior to that time was undeveloped. On an adjoining property, the Futura building, shown in Figure 1-2, was built about the same time. Calmar had previously owned the property where the Acorn Engineering site is today. The Acorn site was undeveloped until 1976, when Acorn purchased the property.

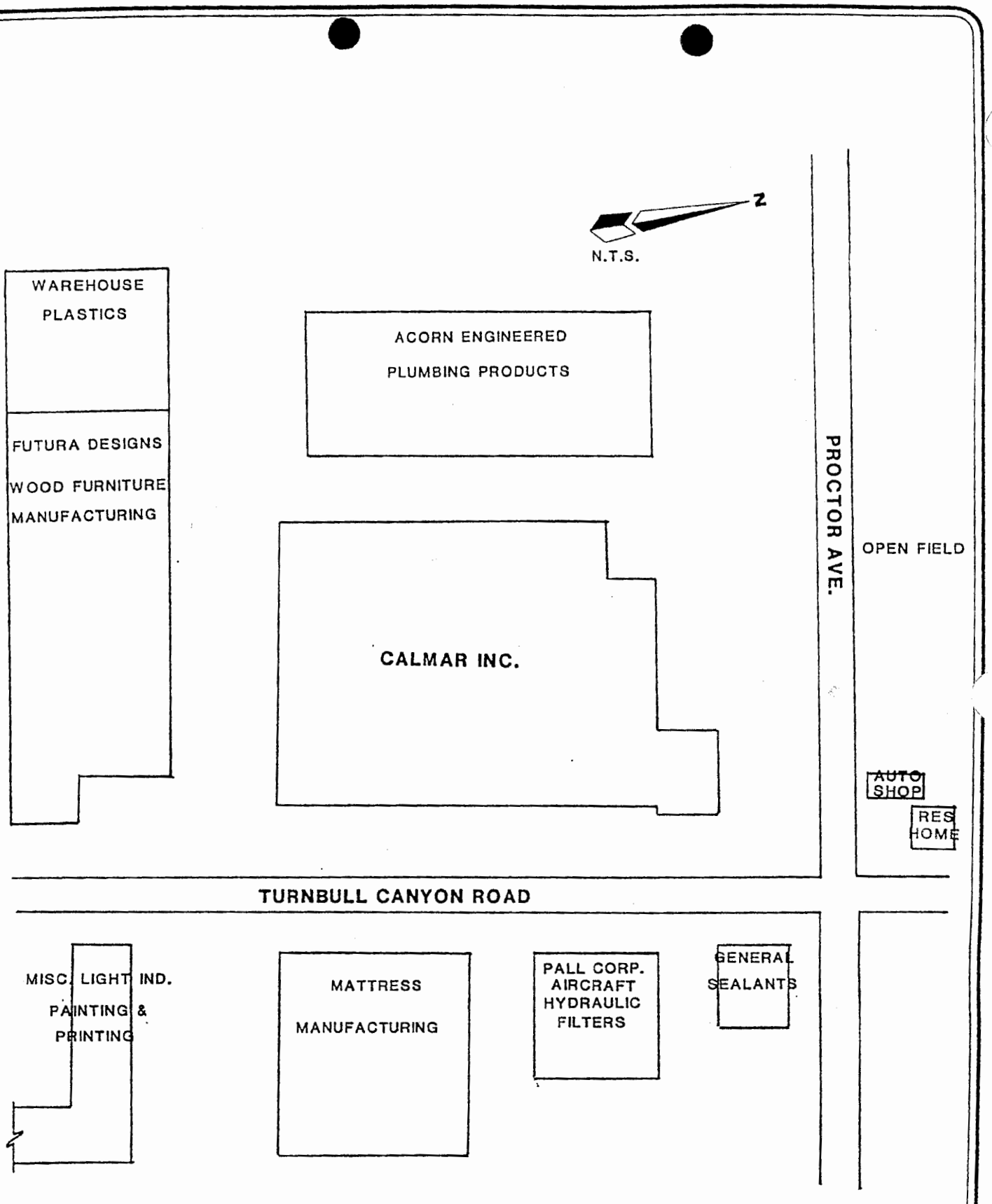
Calmar has always manufactured the same type of product in basically the same fashion, which is the injection molding of plastic dispenser pumps for liquid consumer products such as lotions and sprays.

In building and adding to the Calmar facility, two geotechnical reports have been generated. These reports are included in Appendix A. These reports were reviewed in the preparation of Section 2.2.1.

In June of 1987, the California Regional Water Quality Control Board - Los Angeles Region (CRWQCB) requested that a site study assessment be performed at Calmar, specifically in the Waste Storage, Compressor/Chiller/Cooler Area and the Utility Trench Outlet Area. A Preliminary Environmental Assessment was performed by BCL Associates, Inc. (BCLA) in response to the CRWQCB request. The report describing this Preliminary Environmental Assessment was published in October, 1988, and is on file at the CRWQCB office. Because of the presence of low levels of chlorinated solvent contamination with no identified sources, further study was requested by the CRWQCB.



BCL	Source: THOMAS BROTHERS	Title: SITE LOCATION MAP	1-1



BCL	Source: BCL ASSOCIATES, INC.	Title: LAND USE ADJACENT TO CALMAR INC.	1-2

During a meeting on March 15, 1989 with Mr. Philip Chandler (CRWQCB), BCLA, and Mr. Arthur Fine (Counsel for Calmar), it was decided that future investigations should be based on a thorough audit of existing information regarding the Calmar facility and surrounding land.

This report presents the findings of a recently completed audit in the following order. Section 2.0 is the record of the site inspection conducted by BCLA. The site inspection identified areas with a potential to impact the quality of the groundwater underlying the site.

Section 3.0 is the record of the review of Agency files and published lists containing information related to hazardous material use or waste management. This information assisted in the identification of potential contaminant source points near Calmar, violations and agency action. The information obtained in this fashion is useful in determining the record of regulatory compliance of a site such as Calmar as well as identifiying off-site sources of chemical contaminants which may impact the subject site.

Agency research documented six CERCLIS listed sites and six Cortese listed sites within one half mile of Calmar. There are seven reported leaking underground storage tanks within one half mile of Calmar. Of these seven, five of the leaking underground storage tanks reportedly involved solvents.

The groundwater underlying the majority of the City of Industry is on the EPA's National Priorities List, because of the presence of trichloroethene, perchloroethene and trichloroethane in drinking water wells.

Due to the widespread solvent contamination of the groundwater underlying the City of Industry and Calmar, a hydrogeologic study was performed. This study, presented in Section 4.0, examined regional hydrogeology and includes a discussion of the hydrogeology specific to Calmar.

Historic Aerial photographs and topographic maps showing the area surrounding Calmar were examined for indications of the presence of hazardous materials or the disposal of hazardous waste. These studies are documented in Sections 5.0 and 6.0.

Section 7.0 credits the bound references cited in the formation of this report.

2.0 SITE INSPECTION

On April 19 and on April 24, 1989, BCLA inspected the Calmar facility. On both occasions, BCLA was assisted by Mr. Duane Pefley of Calmar.

The Calmar building is about 112,000 square feet in area, situated on approximately 6.5 acres. The majority of the lot is either occupied by the building or paved with asphalt or concrete. Planted areas fronting roads are mounded within raised curbs. The building itself rests on a raised concrete foundation about 3 feet above surrounding grade.

The studies conducted during the 1988 Preliminary Environmental Assessment addressed areas located outside the building, previously identified by the CRWQCB. Further study is indicated to define the extent of low-level chlorinated solvents (i.e., TCE, PCE and TCA) in the Waste Storage Area and along the Futura/Calmar fenceline. The drainage area around the northwest utility trench outlet has not been addressed by soil sampling. The interior features (clarifier and utility trenches) remain areas of concern until shown to be otherwise.

Calmar has prepared a Hazard Communication Business Plan. Within this Plan is an inventory of Hazardous Materials received at Calmar. This inventory and a map showing storage locations are included in Appendix C. A Waste Stream Analysis is included in Table 1.

The purpose of the site inspection was to identify areas with a potential to impact the quality of the groundwater underlying the site. From the inspection, the following were identified as areas of concern:

Utility Trenches and Outlets

Calmar has approximately 44 injection molding machines. Polypropylene, high-density polyethylene and general purpose styrene plastic beads which provide bulk material to mold the manufactured products are held in silos on the west side of the building. See Figure 2-1 for a flow chart diagram of the molding process. Formerly, industrial solvents (acetone and MEK) were used in the assembly process. Rigid vinyl was the material of construction for the spray pumps made by Calmar until 1968. This material required acetone to bond certain parts of the pump. From 1968 until 1984 many of the pumps were constructed of ABS plastic which required methyl ethyl ketone (MEK) to bond.

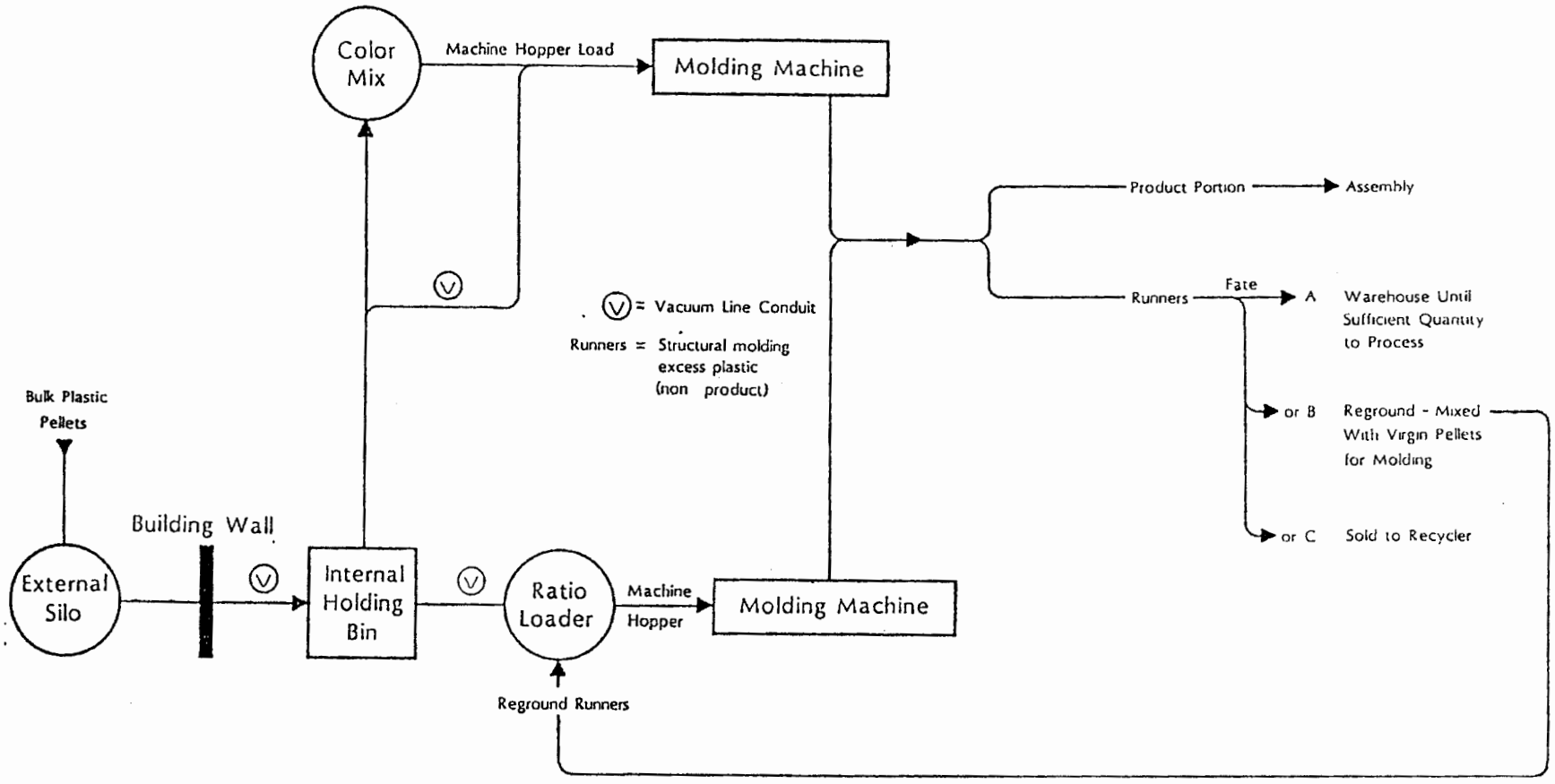
In 1979, ultrasonic bonding began in assembly. Since 1984, only ultrasonically bonded and snap-together assembly have been used at Calmar. Isopropyl alcohol is used as an lubricant for some facets of assembly. No solvents are currently used in assembly.

The molding area is underlain by a network of subslab-level utility trenches. See Figure 2-2. These trenches are covered by steel plates, and range in width from 30 inches to 36 inches. The depth of these concrete-lined trenches ranges from 15 to 38 inches. Liquid may enter the trenches through spillage of containers, water line leaks or molding machine hydraulic line failure. The utility trenches are sloped to drain excess liquid from within the plant to the three trench outlets shown in Figure 2-3. Absorbent blankets have been installed in the outlets. The areas effected by drainage from the outlets show evidence of staining. The drained liquid may have impacted underlying soils.

TABLE 1

Waste Stream Analysis

Type of Waste	
Sanitary restroom and sink wastewater	Sanitary sewer
Industrial parts, sink wastewater	Clarifier - sewer (in accordance with Sanitation Department permit)
Non-Hazardous solid refuse	Dumpster pick-up
Waste oils and solvents	Recycled off-site
Parts washers (containerized solvent)	Exchange/recycled by vendor
Solid plastic waste	98% recycled in manufacturing process 2% dumpster pick-up
Isopropyl alcohol used in assembly	Recycled
Hydraulic oils for molding machines	Internal recycling until unfilterable then reclaimed
Soluble cutting oils (machine shop)	Drummed for disposal



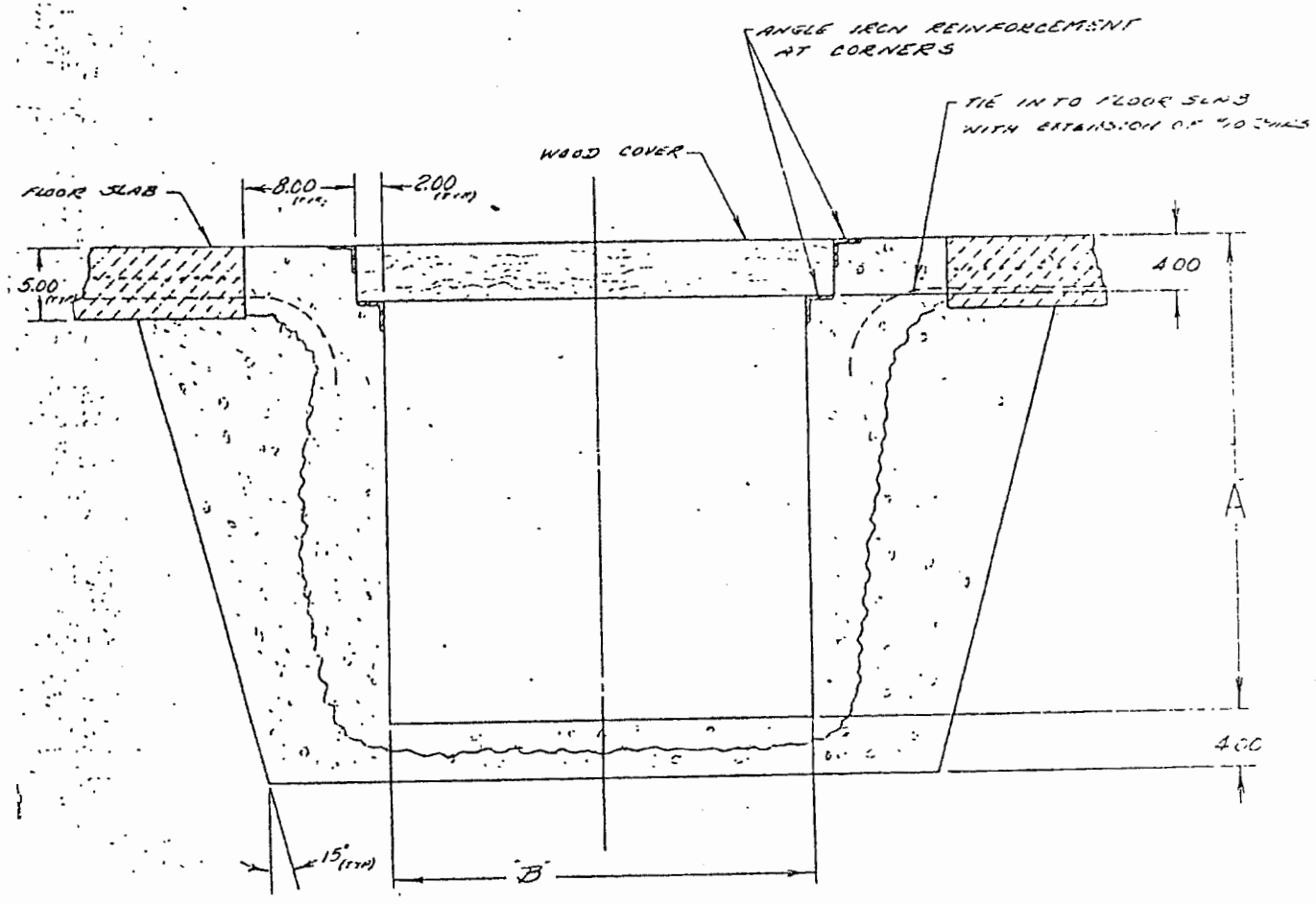
98% of plastic stock is sold as final product or recycled, 2% is waste.

BCL

Source: BCL ASSOCIATES, INC.

Title: PLASTIC USE FLOW DIAGRAM

2-1



"A" DIMENSION	"B" DIMENSION
DEPTH RANGING FROM 15" TO 38"	TRANSVERSE GUTTER WIDTH 36" ALL OTHERS 30"

BCL	Source: CALMAR, INC.	Title: TRENCH DETAIL	2-2

Clarifier

A three-stage clarifier is located centrally within the plant. The clarifier is 3 feet wide, 4 feet below slab level and is 10 feet 10 inches in length. Figure 2-2 shows the location of the clarifier and Figure 2-4 shows construction details. The clarifier was installed during construction of the original portion of the plant (1962-1963). It receives wastewater from an industrial washing machine (used to clean plastic parts), a floor sink and wall-mounted sink. It drains to a pipe which runs through the utility trench to the industrial sewer.

This clarifier is permitted by Los Angles County Sanitation District Permit No. 1593, Account No. 149705. No citations are known to have been issued to this unit. Laboratory analyses of the supernatant liquid and the sludge during the Preliminary Environmental Assessment of Calmar (October, 1988) showed levels of chlorinated solvents.

Waste Storage Area

This area encompasses the asphalt-paved western corner of the property. A roofed concrete-floored and bermed area with sloped ramp for forklift access has been established to store drums of waste solvents and oil products. The asphalt paving within the boundaries of this area is deteriorated.

Previous Waste Storage Area

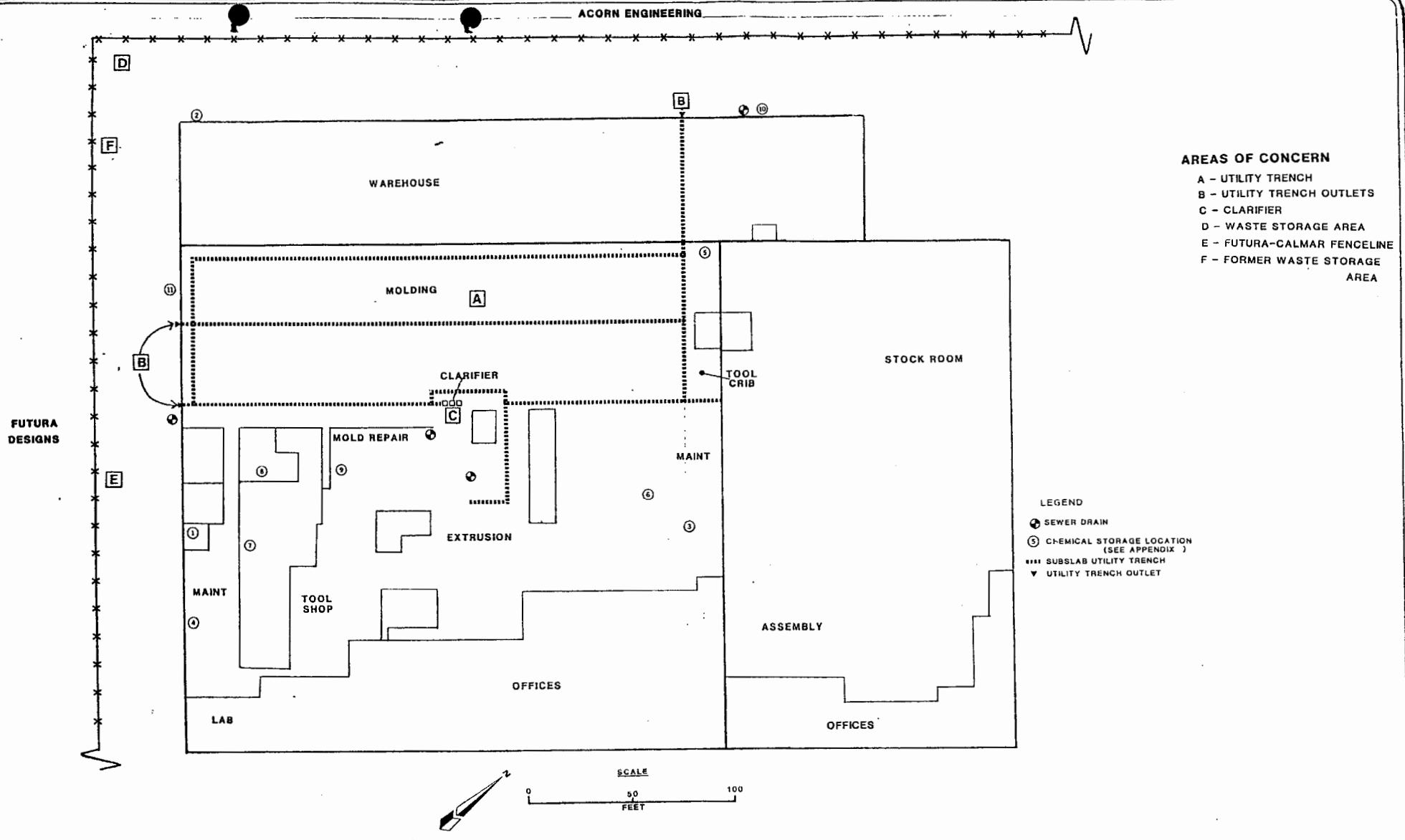
Between the truck access land and the fence separating the Calmar and Futura properties, extending from the current asphalt of the Waste Storage Area toward Turnbull Canyon Road about 75 feet, is the area which was formerly used for waste storage.

Vertically stocked drums were observed in a 1963 aerial photograph in this area.

An aboveground 500-gallon waste hydraulic oil tank was situated in this area between 1963 and 1983. This waste oil was pumped out by City of Industry Disposal. This service was discontinued when BKK landfill ceased to accept liquid waste in 1983, and the waste hydraulic oil tank was removed. Since that time, Calmar's waste oil has been drummed and recycled. An aboveground hydraulic oil tank is also situated in this area. Portions of this area have been paved with concrete since waste storage activities have ceased.

Futura/Calmar Fenceline

This area, now entirely paved with concrete, was exposed soil for many years of Calmar's operation. Spillage from the former waste storage area and from leaks from the two utility trench outlets located on that side of the building may have come in contact with the exposed soil. This area is currently being used for drum storage of soil and water from environmental borings as well as stored drums of various oils. Figure 2-3 shows the location of all these identified areas.



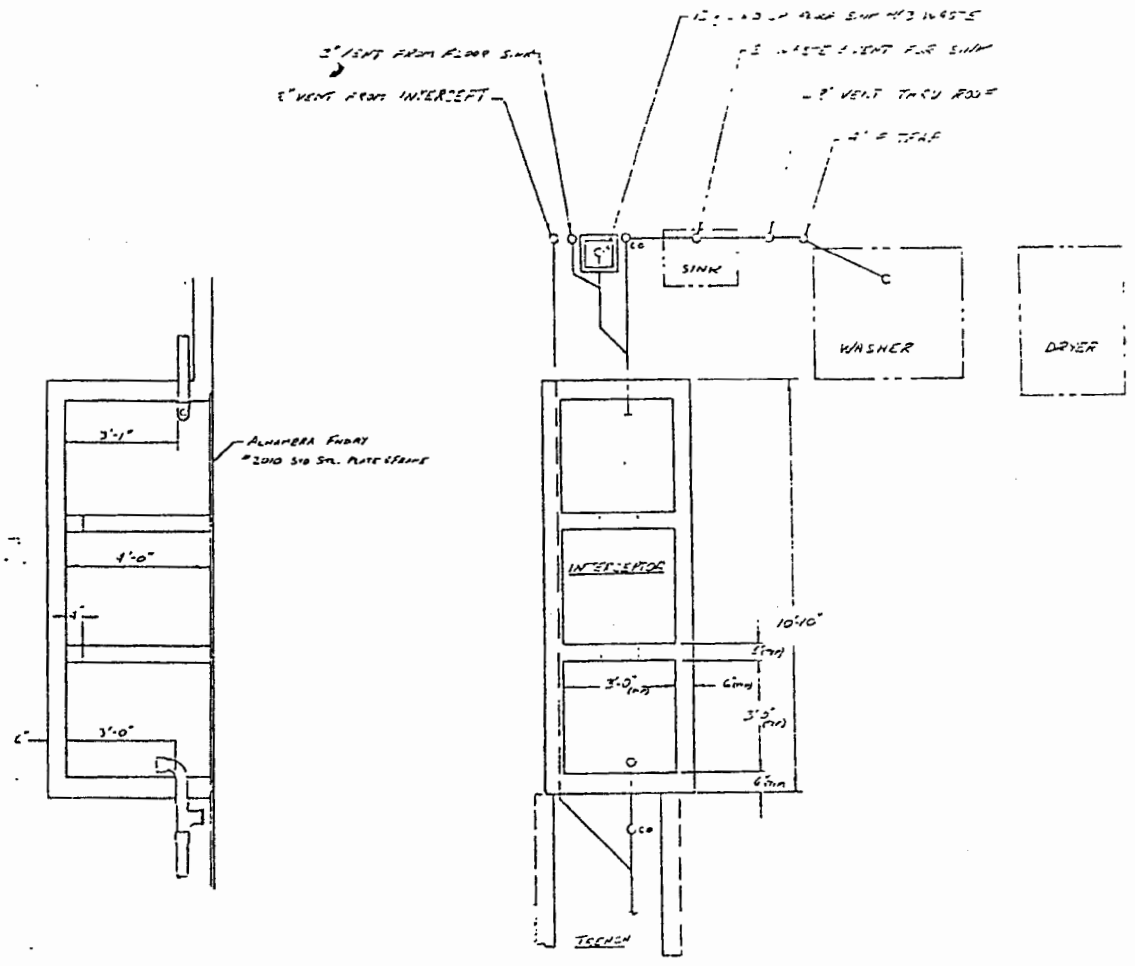
BCL

Source: BCL ASSOCIATES, INC.

9

Title: AREAS OF CONCERN AS IDENTIFIED IN SITE AUDIT

2-3



BCL	Source: CALMAR, INC.	Title: CLARIFIER CONSTRUCTION DETAIL	2-4

3.0 AGENCY RESEARCH

The following agencies may have information related to hazardous material or waste management at a site. Research of these agencies files and published lists can assist in the identification of potential contaminant source points, violations and agency action. The information obtained in this fashion is useful in determining the record of regulatory compliance of a site such as Calmar as well as identifying off-site sources of chemical contamination which may impact the subject site. A discussion of these findings may be found at the end of this section.

3.1 United States Environmental Protection Agency (EPA)

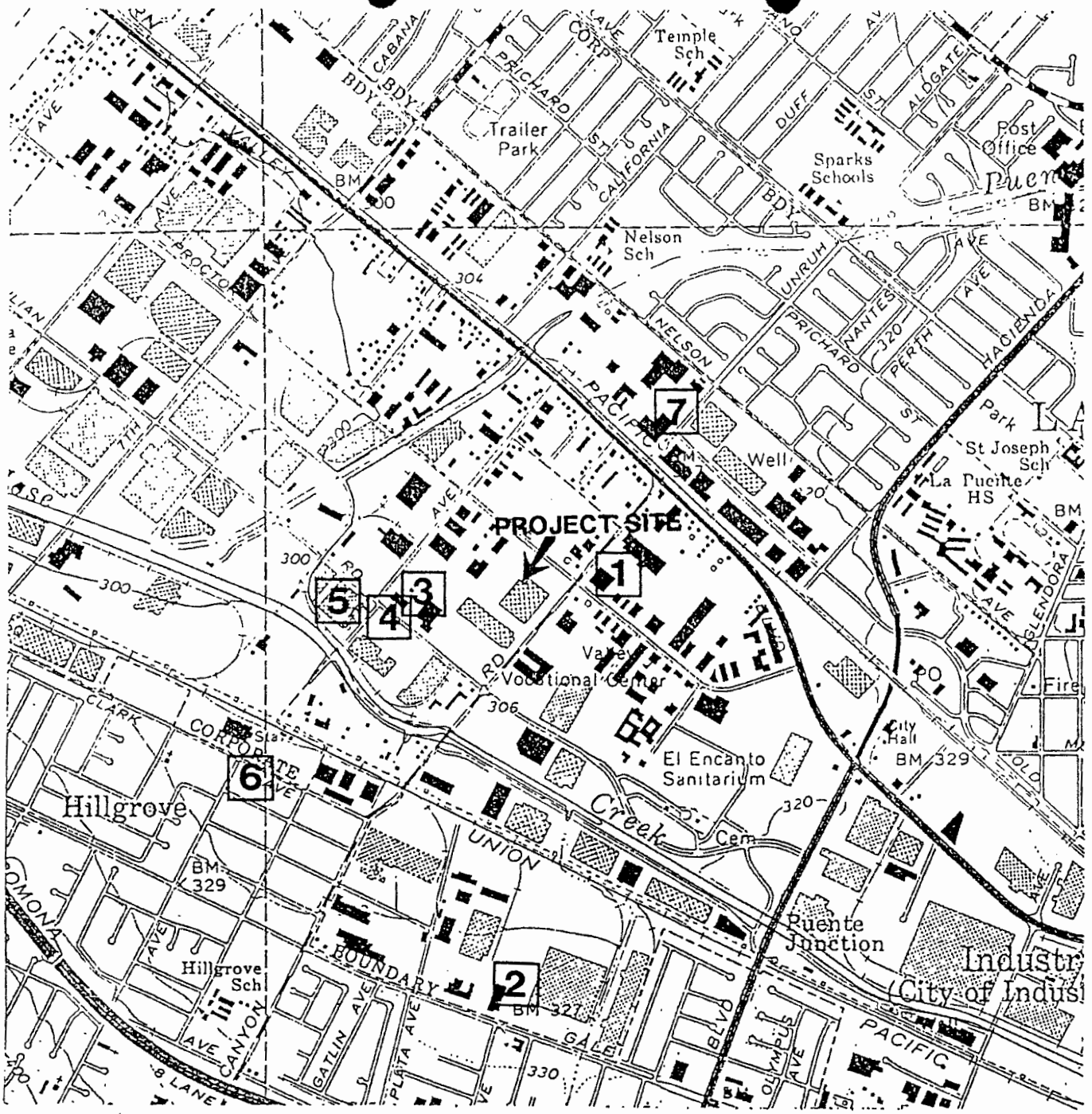
BCLA reviewed the EPA's List 8 (L8) Report for reference to sites in the vicinity of Calmar, which may be under investigation or remedial action by the EPA. The L8 Report is part of the Superfund database (CERCLIS), which contains potential hazardous waste sites that have been brought to the attention of the EPA. The EPA does not, however, guarantee that their database contains all potential hazardous waste sites that exist.

There were seven sites found in the L8 Report within a one-mile area of Calmar. These sites are shown on Figure 3-1 and listed in Table 2.

Further information regarding the Calmar, Inc. site was specifically requested from the EPA on 9/22/88. The reply from the EPA dated 9/27/88 states, "The requested information does not exist in our files and, therefore, we are unable to comply with your request".

3.2 California Department of Health Services (CDHS) Expenditure Plan for the Hazardous Substance Cleanup Bond Act of 1984 January, 1989 (Bond Act)

A search was made of the CDHS Expenditure Plan for the Hazardous Substance Cleanup Bond Act to determine if Calmar or any nearby properties were on the CDHS site lists. The Expenditure Plan identifies hazardous waste sites currently targeted for cleanup by: 1) the responsible parties (RPs), and 2) the CDHS or the EPA. The Plan is divided into five categories. Category 1 contains sites where the RPs have voluntarily entered into enforceable cleanup agreements and where the CDHS is providing only oversight and guidance. Category 2 contains uncharacterized sites where identified RPs have failed to respond to cleanup notices and proposed agreements issued by the CDHS. Category 2 also includes sites where the CDHS has been unable to identify any RPs (also known as orphan sites). Category 3 contains Category 2 sites that have been fully characterized. Category 4 includes National Priority List (NPL) sites. This list consists of sites where the negotiations, agreements and enforcement activity regarding these sites are managed by the federal Environmental Protection Agency (EPA). Category 5 contains other known sites. The CDHS has compiled listings of other known hazardous waste sites which have not been categorized pursuant to state law (AB129). BCLA did find reference to one Category 4 Listing within one mile of Calmar, the San Gabriel Groundwater Basin 4 (SGGWB4). Quoting from the NPL Site Cleanup Workplan:



BCL	Source: US GEOLOGICAL SURVEY BALDWIN PARK QUADRANGLE	Title: CERCLIS SITES	3-

TABLE 2

CERCLIS SITES

Sites Located on Figure 3-1

Number	Site Name and Address	NFA Flag	Event Type	Start Date	Completion Date
1.	Benchmark Technology 200 S. Turnbull Canyon Rd. Industry, CA 91749	NFA(1)	DS 1(2) PA 1(3)		3/01/86 12/01/87
2.	Challenge-Cook Bros. 15421 E. Gale Ave. Industry, CA 91745		DS 1 PA 1	 8/01/84	8/01/80 5/01/85
3.	Dubois Chemical Division of Chemed Corp. 15010 Don Julian Rd. Industry, CA 91749	NFA	DS 1 PA 1		10/01/85 12/01/87
4.	Gary Safe Company 330 9th Avenue Industry, CA 91749	NFA	DS 1 PA 1		3/01/85 10/01/86
5.	W. R. Grace/Chemed Corp. 9th & Don Julian Rd. Industry, CA 91746		DS 1 PA 1		11/01/79 4/01/80
6.	Hill Brothers Chem Co. 15017 E. Clark Ave. Industry, CA 91745		DS 1 PA 1		3/01/85 12/01/86
7.	Screwcorp - Unruh Facility 135 N. Unruh Ave. Industry, CA 91744	NFA	DS 1 PA 1		3/01/85 12/01/86

(1) NFA=No Further Action. This classification indicates one of the following has occurred:

A. The preliminary assessment investigation found no information indicating that hazardous substances/wastes were ever used/produced.

B. The preliminary assessment indicated that hazardous substances/wastes were used/produced at low volumes or concentrations that would have minimal impact on public health or the environment.

C. The preliminary assessment indicates that all hazardous substance contamination has been effectively mitigated.

(2) DS 1 = Discovery Phase I

(3) PA 1 = Preliminary Assessment I

In the SGGWB4, the contaminated ground water plume is approximately 1 mile long and 1 mile wide. It runs along the axis of the San Jose Creek, in the City of Industry. It lies primarily beneath the City of Industry. The ground water in this region has been contaminated with trichloroethylene (TCE), perchloroethylene (PCE) and carbon tetrachloride (CTC).

There are 275 public water supply wells in the San Gabriel Valley Basin. To date, 70 of these wells have been contaminated with TCE, PCE, and/or CTC at levels which exceed federal maximum contaminant levels (MCLs) and State action levels.

Please see Appendix B for the workplan as presented in the 1989 Bond Act.

3.3 SARA Title III

California Environmental Affairs Agency (EAA), Emergency Planning and Community Right-to-Know Regarding Extremely Hazardous Substances

The Emergency Planning and Community Right-to-Know Hazardous Materials Law, known as SARA Title III from 1986, requires statewide and local emergency planning and public "right-to-know" for handling extremely hazardous substances. The Environmental Affairs Agency of the State of California was established in July of 1988 as part of an effort to integrate hazardous substances data from federal, state, and local government regulatory agencies. Companies meeting criteria established by federal SARA Title III, Section 313 must file forms with this office describing the amount and type of hazardous materials released. The EPA provides the following disclaimer.

1. Data has been entered 'as is' except for obvious errors such as incorrect county.
2. In some cases, duplicate or triplicate chemical data has been submitted. Unless manually caught, (the) data was entered.
3. In some cases, companies filed Form R's but claimed no chemicals. Company data was entered.
4. In some cases companies filed that had Standard Industrial Categories (SIC) Codes outside of the required range of 2000-3999. Their data was entered.
5. No verification was made that chemicals reported were on the Section 313 list. All chemical data was entered.

Nineteen companies on the SARA Title III list were found within one mile of Calmar. These companies are listed in Table 3.

3.4 California Division of Oil and Gas (CDOG)

BCLA reviewed DOG Map No. W1-5 for evidence of oil wells in the vicinity of Calmar. One well, Exxon "Handorf", was located approximately 2,500 feet southwest of Calmar. This well was drilled in 1950 to a depth of 7,337 feet. Exxon "Handorf" is classified as having been abandoned, being a dry hole.

TABLE 3

SARA TITLE III
Standard Industrial Category Sites

Site Name and Address	SIC Code	Substance(s)
Aerosol Service Company, Inc. 425 S. Ninth Avenue Industry, CA 91746	2844	Methylene Chloride
Applied Solar Energy 15251 E. Don Julian Road Industry, CA 91745	3674	Ammonia, acetone, sulfuric acid, trichloroethylene, nitric acid, hydrogen fluoride, hydrochloric acid
Benchmark, Inc. 200 S. Turnbull Canyon Road Industry, CA 91745	3671	Sodium sulfate (solution), phosphoric acid, copper, sulfuric acid, chlorine, hydrochloric acid, sodium' hydroxide (solution
A&E Plastics 14505 Proctor Avenue Industry, CA 91746	3079	Further information not documented
DuBois Chemicals 15010 E. Don Julian Road Industry, CA 91746	2841	Glycol ethers, sodium hydroxide (solution), phosphoric acid
GNB Incorporation 14500 Nelson Avenue Industry, CA 91749	3691	Lead compounds, sulfuric acid
Hexcel Corporation 140 N. Orange Avenue Industry, CA 91744	3499	Acetone, chlorinated flurocarbon (Freon 113), tetrachloroethylene
Hill Brothers Chemical Company 15017 E. Clark Avenue Industry, CA 91745	2819	Ammonium hydroxide, phosphoric acid, hydrochloric acid, ammonia, sulfuric acid, sodium hydroxide (solution), chlorine
Hysol Electronic Chemicals Div. Dexter Corp. P.O. Box 1282 15051 E. Don Julian Road Industry, CA 91749	3087	Glycol ethers, nitric acid, barium compounds
Industrial Chemical Products/ West, Inc. 15378 Proctor Avenue Industry, CA 91745	2899	Sodium hydroxide (solution), phosphoric acid

TABLE 3 (continued)

SARA Title III Sites

Site Name and Address	SIC Code	Substances(s)
Lucas Western, Inc. Applied Technology Division 14724 E. Proctor Avenue Industry, CA 91744	3471	Sodium hydroxide (solution), methanol, 1,1,1-Trichloroethane
Macklanburg - Duncan Co. of California, Inc. 15257 E. Proctor Avenue Industry, CA 91745	2891	Methyl ethyl ketone, 1,1,1-Trichloroethane, toluene, acetone
Maclin Company 420 S. Sixth Avenue Industry, CA 91746	3041	BIS(2-Ethylhexyl)phthalate
Oakite Products 544 S. Sixth Avenue Industry, CA 91744	2841	Sodium hydroxide (solution), nitric acid, phosphoric acid, glycol ethers.
Quemetco, Inc. 720 S. Seventh Avenue Industry, CA 91745	3341	Lead compounds, arsenic compounds, sulfuric acid
Sunset Fireplace Fixtures, Inc. 14940 Don Julian Road Industry, CA 91744	3499	Tetrachloroethylene
Vlasic Foods, Inc. 125 N. Orange Avenue Industry, CA 91744	2033	Ammonia
Witco-Richardson Battery Parts Division 14755 E. Salt Lake Avenue Industry, CA 91744	3089	Lead compounds
VSI Screwcorp 13001 E. Temple Avenue Industry, CA 91746	3452	Sodium hydroxide (solution), 1,1,1-Trichloroethane, sodium cyanide, sodium hypochlorite, hydrochloric acid, nitric acid

3.5 Cortese List

Hazardous Waste and Substances Sites List September, 1988 (Cortese List)

The Cortese List is a compilation of data received by the Office of Permit Assistance (OPA), within the Office of Planning and Research (OPR), from the State Water Resources Control Board (WRCB), the California Waste Management Board (CWMB) and the State Department of Health Services (DHS).

The sites named on this list fall into one of the following categories according to the OPR:

1. All hazardous waste facilities subject to corrective action.
2. All land designated as hazardous waste property or border zone property.
3. Information received by DHS regarding hazardous waste disposals on public land.
4. All sites included in the Abandoned Site Assessment Program (ASPIS).
5. All public drinking water wells which contain detectable levels of organic contaminants and which are subject to water analysis.
6. All underground storage tanks for which an unauthorized release report is filed.
7. All solid waste disposal facilities from which there is a migration of hazardous waste.
8. All cease and desist orders which concern the discharge of wastes which are hazardous materials.

There were nine sites on the Cortese List within a one-mile radius of the project site. Diane Edwards, Information Officer at the WRCB, provided information to augment the Cortese List. This information includes: type of chemical released, reported date of leak, lead agency, and project status. The nine listed sites are shown in Table 4. See Figure 3-2 for approximate locations of these sites.

3.6 California Department of Health Services (CDHS) - Toxic Substances Control Division, Sacramento

BCLA contacted CDHS regarding Challenge-Cook Brothers, Inc. and Quemetco, Inc. which were shown on the Cortese List without notation. Pam Melavic of the Site Evaluation Program at CDHS provided information on Challenge-Cook Brothers and Quemetco, Inc. This information follows. The abbreviations used in this section are verbatim reproductions from CDHS information.

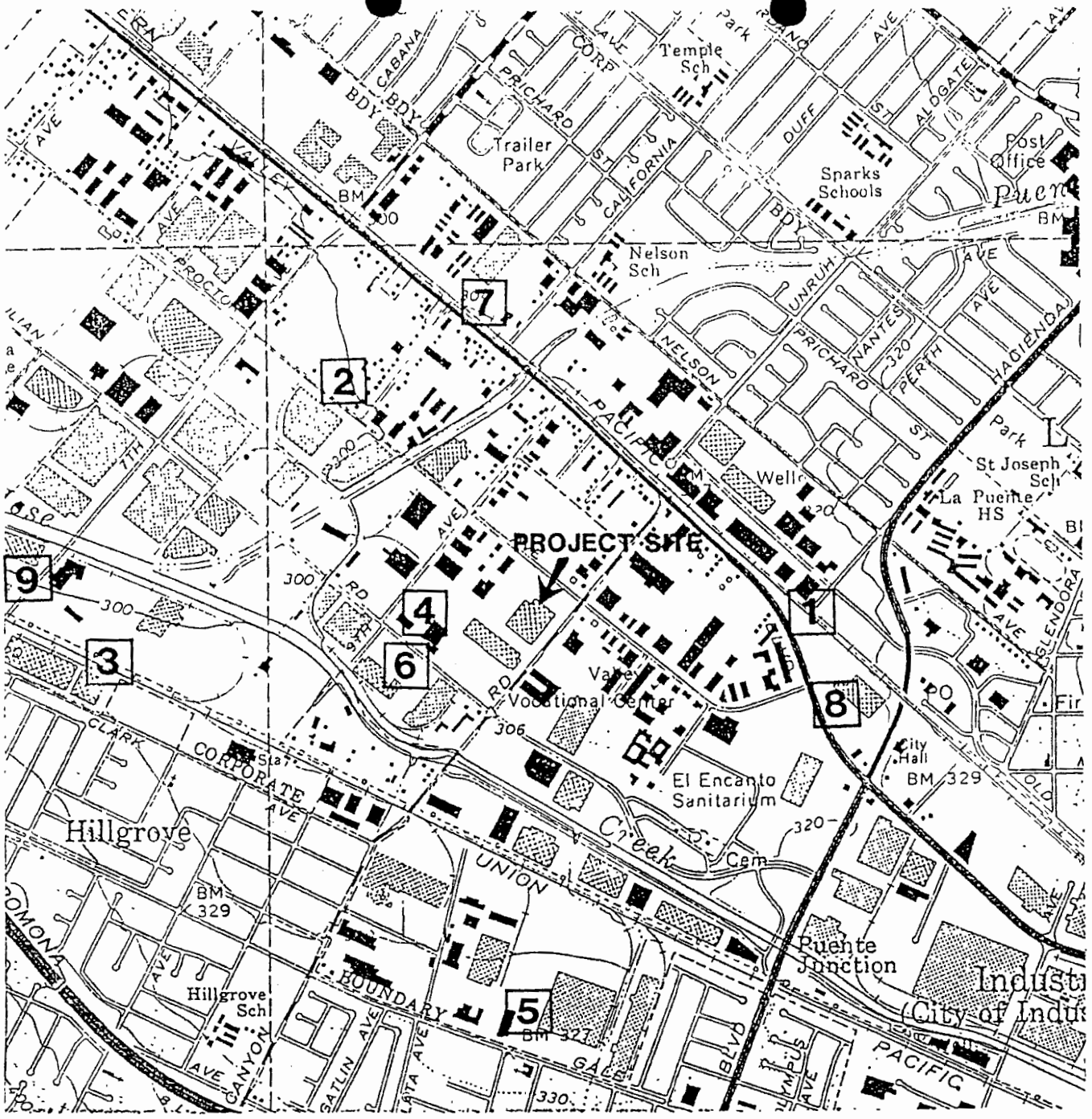
Challenge-Cook Brothers
15421 E. Gale Avenue
Industry, CA 91745
Fund source: 3012 RCRA Action status: Pending status 4/84
Facility status: active Current ownership: private Operator: private
Operational method: storage-drums; storage-tank below
Disposal: on-site, off-site Commencement date (Y): 1967
Hzd waste character: liquid, sludge Hzd waste type: unspecf solvent mix, waste/mixed oil, paint sludge

3.6 (continued)
Challenge-Cook Brothers (continued)

Date	Action	Comments
9/26/83	Facility identified EPA ID Number	ID from ERRIS CAD008240459
4/84	Preliminary Assessment	Yr. of Oper: 1967-present, 1000 gallon U/G tank was used for storage in the past, but was phased out. Possibly because of leakage.
	Records search	Source act: design, mfg/paint, construct, and transp wquip.
	Submit to EPA	
9/87	Reported for Prop 65	
11/20/87	Site screening done	Pending status - may be possible underground tank leakage. On CERCLIS. No zip code on Prop 65 list, should be 91745.
1/88	On Cortese List	

Quemetco Inc.
720 South 7th Avenue
Industry, CA 91745
Fund source: site evaluation program Action status: pending status 6/22/87
Facility status: active Operational method: surface impoundment
Hzd waste characteristic: liquid Hzd waste type: acid solution with metals

Date	Action	Comments
2/19/82	Facility identified Preliminary assessment	Anonymous phone tip Suspected battery acid dumping on-site
4/7/82	Facility drive-by Investigation	Observed liquid in unlined pool on-site. Investigation performed by Orange County ASP
4/12/82	Final strategy	Site referred: to HWMB/ENF-LA
6/22/87	Enforcement (other)	EPA is lead agency. SLS is following the case
	Site screening done	
9/87	Reported for Prop 65	
1/88	On Cortese List	



BCL	Source: US GEOLOGICAL SURVEY BALDWIN PARK QUADRANGLE	Title: SITES ON CORTESE LIST	3-2

TABLE 4

Sites on Cortese List
See Figure 3-2 for Site Location

Figure Location	
1	Hudson Paint Corp./ Universal Paint Corp. 111 Hudson Avenue Industry, CA 91744 Substance leak was solvents. Last update - 4/6/88. Groundwater case. Site investigation in progress. No remedial action to date.
2	Western Gear Corp. 14724 E. Proctor Industry, CA 91744 Solvent leak reported 10/23/84. Update - 6/15/88. Groundwater case. Under investigation. No remedial action to date.
3	Richardson Battery-Parts 14755 E. Salt Lake Industry, CA 91746 Substance was miscellaneous motor vehicle fuels. Reported 5/6/86. Last update - 6/10/88. Groundwater case. Investigation in progress.
4	DuBois Chemical 15010 Don Julian Road Industry, CA 91746 Solvents. Date reported - 8/1/86. Last update - 4/15/88. Groundwater case. Investigation in progress.
5	Challenge-Cook Brothers, Inc. 15421 E. Gale Avenue Industry, CA 91746 Substance was not reported. Date - 11/29/83. Last update - 4/22/88. Case type is unknown. Status shows signed off. Remedial action deemed unnecessary or completed.
6	Hysol Electronics 15051 E. Don Julian Road Industry, CA 91746 Source: WRCB Problem: tank leak Solvent leak. Reported - 12/17/87. Last update - 7/7/88. Case type - undetermined. Investigation in progress. Lead agency - undetermined.

TABLE 4 (continued)

Sites on Cortese List

Figure Location	
7	Hertz-Penske Truck Leasing, Inc. 14804 E. Valley Blvd. Industry, CA 91746 Source: WRCB Problem: tank leak Substance leaked was diesel, 24,000 gallons. Date reported - 8/28/87. Last update - 7/7/88. Groundwater case. Cleanup in progress. Lead agency - Los Angeles Regional Water Quality Control Board (LARWQC
8	Mobil Station #11-E34 15580 E. Valley Blvd. Industry, CA 91744 Source: WRCB Problem: tank leak Substance released was waste oil. Date reported - 6/16/86. Last update - 4/6/88. Groundwater case. Investigation in progress. Lead agency - LARWQCB
9	Quemetco, Inc. 720 South 7th Avenue Industry, CA 91745 Source: DHS Problem: Possible battery acid Dumping on site. See DHS section for further information.

3.7 California Waste Management Board (CWMB)

BCLA reviewed the CWMB's Solid Waste Information System (SWIS) to locate active landfills, transfer stations, or inactive landfills within one mile of the project site. According to the report dated 1/19/89, there are no active or inactive landfills within the above range. There is one active transfer station, and the information follows:

Facility Data
SWIS: 19-AA-0400 Category: Transfer
Name: Road Division #116
Location: 14959 East Proctor Avenue
Place: La Puente, CA
Section: 6 Township: 2-S Range: 10-W B&M: San Bernardino

Operator and Land Owner Data
Name: Mr. Don Eliason
Title: Highway Engineering Specialist
Phone: (213) 226-8294
Company: Los Angeles County Public Works Dept.
Address: 1540 Alcazar Street
Place: Los Angeles, CA 90033

Facility Characteristics

Permit Status: Permitted
Operational Status: Active
Operator Type: County
Land Owner Type: County
Types Wastes Received: Construction/Demo/Leaves/Clippings
Tons-Per-Day: 1
Permit Date: 03/30/1982
Closure Year: UNKN

This site is shown on Figure 3-3.

3.8 California Regional Water Quality Control Board - Los Angeles Region (CRWQCB)

The CRWQCB prints a regularly updated list of Reported Underground Tank Leaks and pertinent codes. Eight locations in the City of Industry section are within a one-mile radius of the project site as shown in Table 5. The locations of these sites are shown on Figure 3-4.

3.9 South Coast Air Quality Management District (SCAQMD)

BCLA contacted Diane Cotto, Public Advisor at the SCAQMD, regarding permit/violation information on Calmar and selected neighboring businesses. Ms. Cotto told BCLA that the permit/violation information on Calmar was unavailable under SCAQMD's Cycle 16-Permit to Operate Transferred. Calmar has a temporary permit to operate under proration.

The information provided by the SCAQMD on the other businesses follows. Ms. Cotto also said that there were no notices of violation for any of the following businesses. The abbreviations in these listings are verbatim from the information provided by SCAQMD.

3.9 SCAQMD (continued)

DuBois Chemical Co.
Division of Chemed Corp.
15010 E. Don Julian Road
Industry, CA 91743

SCAQMD Description	No. of Permits in Category/Comment
Baghouse, basic dry filt	2
Chems., misc. organ., blending	4 - 1 inactive
Sets & clean comp., blending	9 - 2 inactive
Boiler, Com G-0 PS-200	3 - 1 inactive
Mixing tank	5 - permit to operate no permit to construct
Mixer	1 - change of ownership, inactive
Mix kettle and agitator	1 - alterations
Kettle agitator	1 - alterations
Kettle hopper	1 - alterations
Slurry blending system	1 - permit to operate, no permit to construct
Cleaning compound manufac.	1 - alterations
Meth chloride storage #14	1 - permit to construct

E.W. Smith Chem Co.
15020 E. Proctor Avenue
Industry, CA 91746

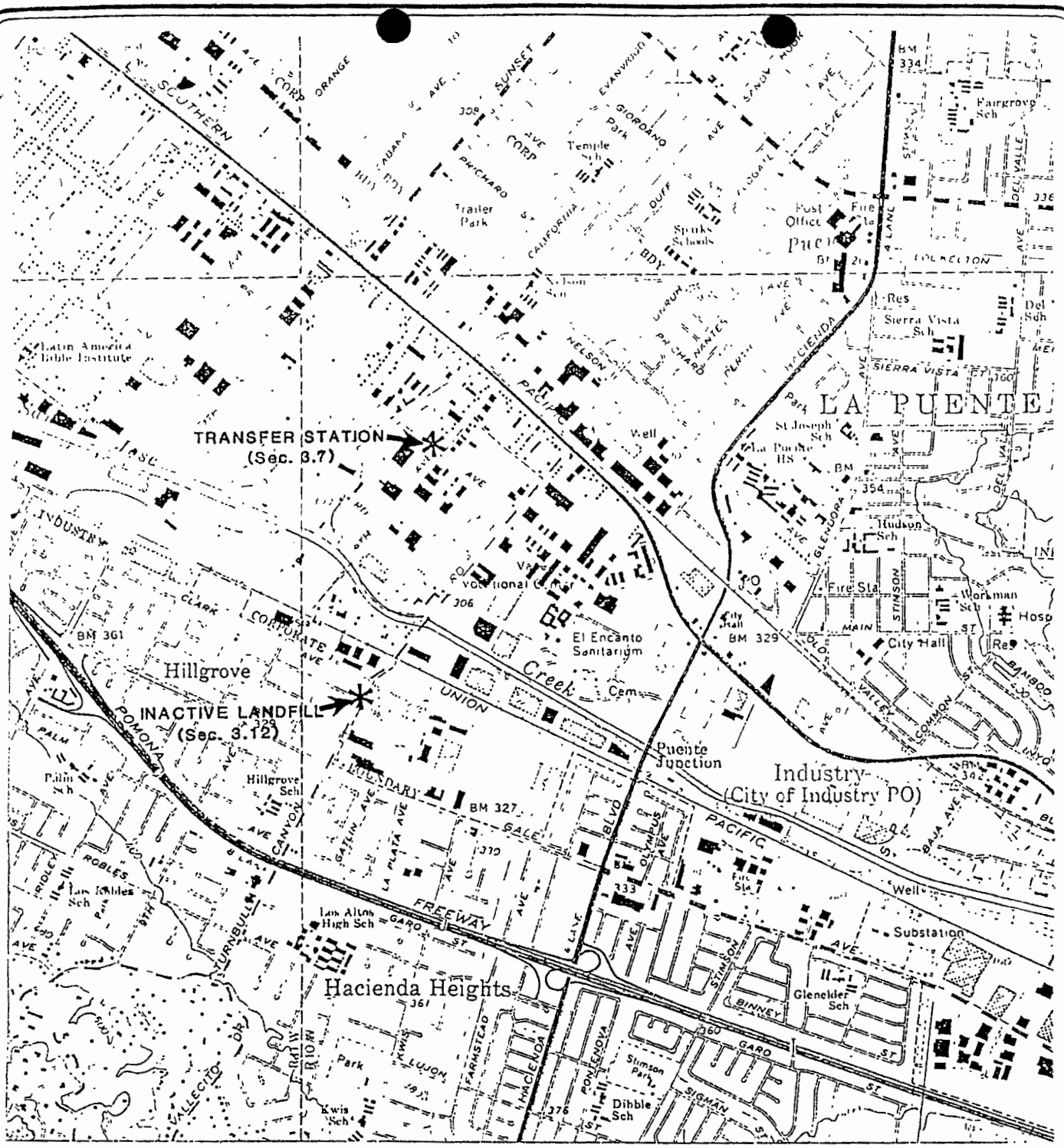
Dets & clean comps, blending	3
Waste water treatment	1
Chems., misc., inorg., blending	3
Chems., misc., inorg., storage	1
Gasoline fueling equipment	1
Shiffer	1 - permit to operate

Industrial Chem Prod./West, Inc.
15378 Proctor Avenue
Industry, CA 91745

Dets & clean comps, blending	3
Baghouse, basic, dry filt	1

Futura Designs Inc.
Futura Furniture Ind., Inc.
425 S. Turnbull Canyon Road
Industry, CA 91745

Booth or spray enclosure	2 - 1 inactive



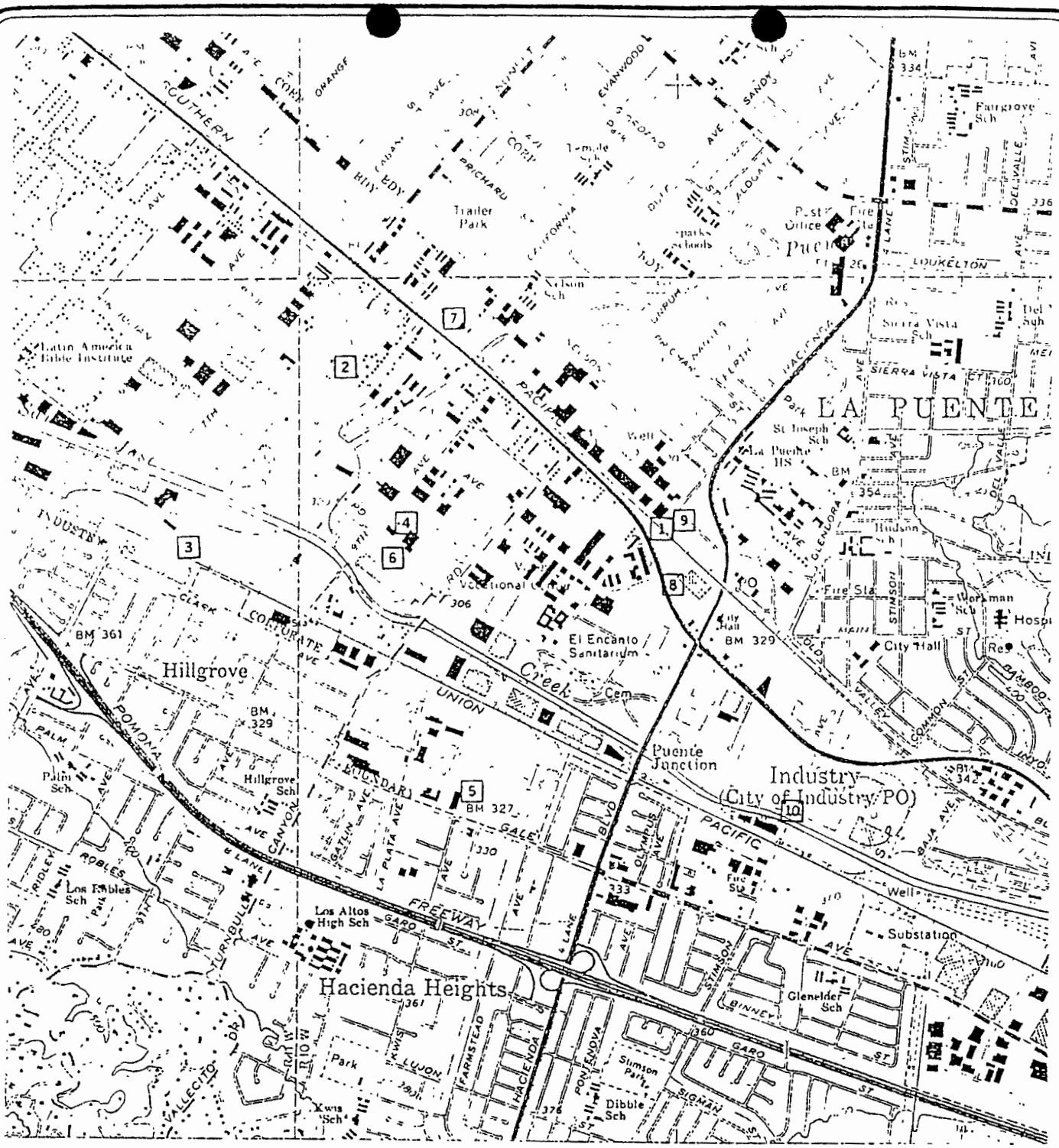
BCL	Source: U.S. GEOLOGICAL SURVEY - BALDWIN PARK QUADRANGLE	Title: LANDFILL & TRANSFER STATION SITES (SECTIONS 3.7 & 3.12)	3-3

TABLE 5

Reported Underground Tank Leaks

Site Name and Address	Case Type	Status	Substance
DuBois Chemical [4] 15010 Don Julian Road Industry, CA 91746	Groundwater	Site investigation in progress (I)	Solvents
Hysol Electronics [6] 15051 Don Julian Road Industry, CA 91746	Undetermined	I	Solvents
Universal Paint Corp. [1] 111 Hudson Avenue Industry, CA 91744	Groundwater	I	Solvents
Los Angeles County [9] Facilities Mgmt. Dept. 150 Hudson Avenue N. Industry, CA 90004	Groundwater	I	Nothing listed
Western Gear Corp. [2] 14724 Proctor Avenue E. Industry, CA 91744	Groundwater	I	Solvents
Richardson Battery [3] 14755 Salt Lake Ave. E. Industry, CA 91746	Groundwater	I	Misc. motor vehicle fuel
Southern Pacific [10] City of Industry 650 Stimson Avenue Industry, CA 91746	Soil	Remedial action alternative evaluation in progress	Misc. motor vehicle fuel
Hertz-Penske Truck [7] Leasing, Inc. 14804 Valley Blvd. Industry, CA 91746	Groundwater	Remedial action (cleanup) in progress	Diesel, perchloroethylene
Challenge-Cook Bros. [5] 15421 Gale Avenue Industry, CA 91746	Undetermined	Signed off, remedial action completed or deemed unnecessary	No substance listed
Mobil Station #11-E34 [8] 15580 Valley Blvd. Industry, CA 91744	Groundwater	I	Waste oil

NOTE: The number in brackets ([ ]) following the site corresponds with the site's location on Figure 3-4.



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SCALE

0 1 MILE

BCL	Source: U.S. GEOLOGICAL SURVEY - BALDWIN PARK QUADRANGLE	Title: REPORTED UNDERGROUND TANK LEAKS	3-4

3.10 Sanitation District of Los Angeles County (SDLAC)

Mr. Leon Directo, Supervising Civil Engineer at SDLAC, provided the following information regarding Calmar's discharge permit. The discharge permitting program began in 1973. Calmar's discharge permit, No. 1593 is dated March 27, 1974. This permit is included in Appendix D.

Calmar is a Class III discharger. This is a SDLAC classification for companies which discharge less than 10,000 gallons per day of non-critical waste. Calmar is permitted to discharge 3,174 gallons per day, with no reporting requirements. There have been no discharge violations recorded for Calmar at SDLAC. Calmar is considered to be an 'insignificant discharger'.

3.11 Los Angeles County Agricultural Commissioner

On April 25, 1989, BCLA spoke to Dennis Vinopal, Supervising Agricultural Inspector about the farming done on and around the project site. Mr. Vinopal told BCLA that none of the records in the department go back that far, but that the type of farming done in the area was usually "dry" farming of barley or oats. This type of farming did not require the use of many chemicals because the crops were too short-lived (no more than three or four months) for insects to become a problem.

3.12 Los Angeles County Engineer - Under Project Planning and Pollution Control Division

The Countryside Plan Water and Waste Water Element Index of Solid Waste and Liquid Industrial Waste Disposal Sites for 630 Series Coordinate Base Maps by the County of Los Angeles, Department of County Engineer, Project Planning and Pollution Control Division (June, 1973) revealed an inactive, unknown waste class landfill at Marwood Drive and Turnbull Canyon Road, City of Industry. There was no further information regarding this site. See Figure 3-3 for the location of this site.

3.13 County of Los Angeles Department of Health Services (LADHS)

BCLA requested information from the Public Health Investigation section of LADHS on Calmar. The information received by BCLA included Health Department Plant Survey forms, which Calmar passed satisfactorily.

Further documentation included the record of an employee's exposure to oil mist during a grinding process. This was resolved in 1969. Also, in 1964, there were four reports of contact dermatitis "supposedly caused by handling an acetone solution". A study was made of the mixed solvent vapor in the work environment. The vapor was within acceptable concentrations. A letter in the file from the Division of Occupational Health, dated 1/20/65, made recommendations for employee personal hygiene.

3.14 County of Los Angeles - Department of Building and Safety

On March 20, 1989, BCLA examined building permits on file for Calmar at the County of Los Angeles, Department of Building and Safety in La Puente, California.

The file on 333 Turnbull Canyon Road begins with a permit for construction in 1962 to the owner (Drackett). In later permits, the owner was listed as Calmar, Inc. In 1987, a permit was given to build an office expansion. In 1988, a permit was given to enlarge the building and add a cooling tower pad.

3.15 Discussion of Agency Research

The area within a one-mile radius of Calmar is densely populated with probable industrial users of hazardous materials. Narrowing the scope of this discussion to sites within one half mile of Calmar, the following observations may be made. There are many chemical using industries within one half mile of Calmar including the 19 companies listed in SARA Title III and the 7 companies whose processes are permitted by SCAQMD. It was beyond the scope of this project to evaluate the chemical release potential of these companies.

Several chemical releases to the environment, of varying magnitude, have been documented by regulatory agencies within one half mile of Calmar. There are six CERCLIS listed sites (Benchmark, DuBois Chemical, Gary Safe Company, W.R. Grace/Chemed Crop, Hill Brothers Chemical Co., and Screwcrop-Unruh Facility), and six Cortese List sites (Hudson Paint Corp., Western Gear Corp., DuBois Chemical, Hysol Electronics, Hertz-Penske Truck Leasing and Mobil Station #11-E34) within the half mile circle.

The CERCLIS and Cortese listed sites are potential to probable chemical release points. Other release points include seven reported leaking underground storage tanks at: Universal Paint Corp., Western Gear Corp., DuBois Chemical, Hysol Electronics, Hertz-Penske Truck Leasing, Mobil Station #11-E34, and the Los Angeles County Facilities Management Department facility. Of these seven leaking underground tanks, five were reported to involve solvents.

Approximately one half mile south of Calmar is an inactive landfill of undetermined size and classification. This landfill is a point of potential environmental risk.

The groundwater basin underlying the City of Industry has been listed as a National Priority by the EPA due to the concentrations of industrial solvents (TCE, PCE, TCA) found in drinking water wells. Other areas identified in the area searched that have a low potential of environmental risk to groundwater include: a solid waste low volume transfer station operated by the Los Angeles County Public Works Department, and an abandoned oil well, Exxon "Handorf". Information gathered from Regulatory Agencies to date have reported no violations by Calmar.

4.0 HYDROGEOLOGY

4.1 Regional Hydrogeology

The following sections describe the regional physiography, setting, and stratigraphy of the area encompassing the Calmar project site. Structures which affect groundwater movement are also discussed. Information presented in these sections was primarily compiled from relevant, available geologic and hydrogeologic literature (CDWR, 1966; CLADPW, 1987), and from information obtained during previous studies at the project site (BCLA, 1988).

4.1.1 Physiography

The Calmar facility is located in the southern portion of the San Gabriel Valley, which is located in eastern Los Angeles County, approximately 25 miles from the Pacific Ocean. The San Gabriel Valley System is comprised of about 167 square miles of groundwater-bearing valley land, 46 square miles of nonwater-bearing hill land, and 275 square miles of nonwater-bearing mountain land. The total groundwater storage capacity of the San Gabriel Valley Groundwater Basin is estimated to be 9.5 million acre-feet.

The San Gabriel Valley is a broad piedmont plain that slopes downward from the base of the San Gabriel Mountains to the Whittier Narrows, the lowest point of the area. The average slope of the valley floor is approximately 65 feet per mile.

The San Gabriel Valley is bounded on the north by the San Gabriel Mountains, which consist of steep, rocky ridges broken by numerous irregular canyons. The elevation of the mountains vary from approximately 900 feet along the base, to a maximum of more than 10,000 feet above mean sea level (msl). The San Gabriel Mountains are essentially nonwater-bearing igneous and metamorphic rock. The mountains provide runoff from precipitation and the bulk of alluvial debris to the valley below.

The Whittier Narrows is located between the Merced and Puente Hills. The Rio Hondo and San Gabriel River Systems drain through the Whittier Narrows after crossing the valley from north to south.

South of the San Gabriel Valley, the Repetto, Merced, Puente, and San Jose Hills form a system of low rolling hills which rise about 500 feet from the valley floor to separate the valley from the coastal plain. These hills are broken only at Whittier Narrows by a 1.5 mile wide floodplain. The hills form a crescent shape around the valley. These low hills were formed primarily by the folding of sedimentary and volcanic rocks ranging in age from Tertiary to Quaternary. These hills also contribute runoff and some alluvial debris to the valley areas.

Puente Valley, which is situated between the Puente and San Jose Hills, is considered to be part of the San Gabriel Valley. Puente Valley and the San Gabriel Valley are in direct hydraulic continuity (CDWR, 1966).

4.1.2 Regional Setting

The portion of the San Gabriel Valley that contains the principal groundwater-bearing deposits underlying the valley floor is called the San Gabriel Valley Groundwater Basin. The boundaries of the basin are: the Raymond Fault on the northwest; the line of contact between alluvium and bedrock of the San Gabriel Mountains on the north; the bedrock high between San Dimas and La Verne on the east; and the line of contact between alluvium and bedrock of the low hills on the southern periphery of the basin. Puente Valley, which is situated between the Puente and San Jose Hills, is considered to be part of the San Gabriel Valley since it is in direct hydraulic continuity with the valley (CDWR, 1966).

The San Gabriel Valley Groundwater Basin is a subsurface reservoir that provides groundwater to wells drilled in the area. It is a structural basin of permeable alluvial deposits, underlain and surrounded by relatively impermeable rock. Alluvial deposits which fill the valley are mainly Quaternary in age.

The thickness of water-bearing deposits averages from 900 to 1,000 feet over most of the center of the basin, and about 800 feet in Whittier Narrows. Near the eastern and western ends of the basin, the average thickness of permeable material is about 400 feet. Near Puente Valley, the average thickness of permeable materials is less than 200 feet. The stratigraphic sequence of water-bearing formations or units, their lithology and approximate thickness are shown on Figure 4-1.

4.1.3 Stratigraphy

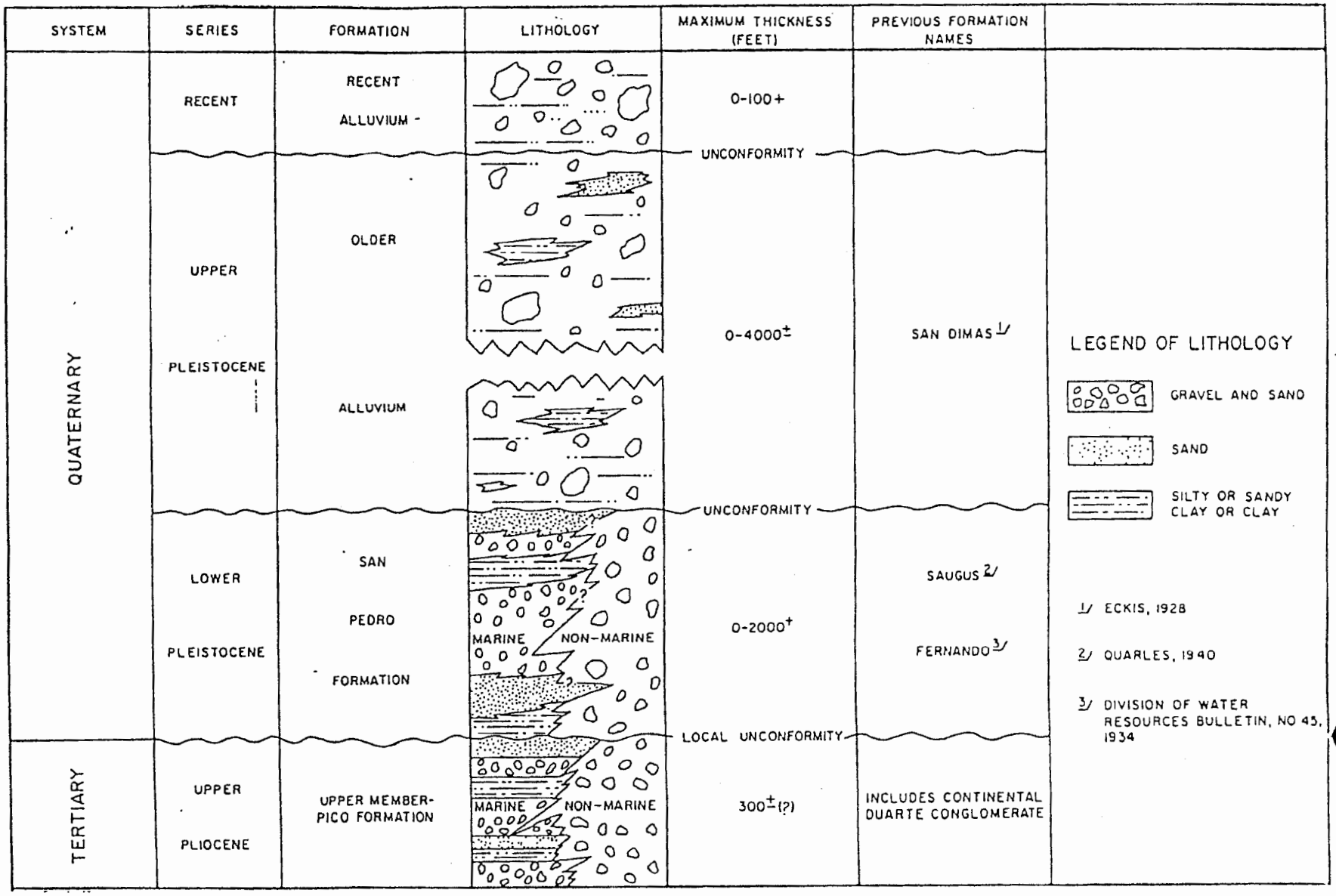
Nonwater-Bearing Formations

Formations are classified as "nonwater-bearing" if wells drilled into these formations produce relatively limited quantities of groundwater (5-15 gpm), compared to wells drilled into water-bearing which produce significant quantities of groundwater (100-4,600 gpm). Nonwater-bearing sedimentary formations surrounding the San Gabriel Valley Groundwater Basin have relatively small interstices between the grains which are often unconnected, or poorly connected, and which generally transmit no or very small quantities of groundwater.

In the San Gabriel Valley, the basement complex, the Glendora Volcanics, and most of the sedimentary Tertiary formations are considered to be nonwater-bearing (CDWR, 1966). Each of these formations will be discussed in order of deposition.

Basement Complex

The basement is pre-Cretaceous crystalline and metamorphic rocks comprising the main mass of the San Gabriel Mountains and outcropping the northeast portions of the San Jose and Puente Hills. The basement complex in contains numerous faults and fractures, many of which contain water. The basement complex is locally capable of producing 5 to 50 gpm during a wet season (CDWR, 1966).



BCL

Source: CDWR, 1966

Title: STRATIGRAPHIC COLUMN OF WATER BEARING SEQUENCE, SAN GABRIEL VALLEY

4-1

Glendora Volcanics

The Glendora Volcanics are Miocene in age. These volcanics are exposed in the foothills of the San Gabriel Mountains near Glendora. Similar volcanic rocks have also been found in the South Hills and in the northeast end of the San Jose Hills (CDWR, 1966).

Tertiary Sedimentary Units

Tertiary sedimentary units identified in the San Gabriel Valley are the Punchbowl, Topanga, Puente, Repetto, and Pico Formations. These units range in age from Miocene to Pliocene. With the exception of the Punchbowl Formation, these Tertiary formations are found underlying and flanking the unconsolidated alluvial sediments that constitute the groundwater basin (CDWR, 1966).

a. Tertiary Punchbowl Formation

The Tertiary Punchbowl Formation is a continental deposit of Miocene age which occupies a structural trough within the San Jacinto fault system. It is composed of interbedded shale, sandstone, and conglomerate members, some of which are permeable. However, this formation is not considered to be part of the water-bearing series because of its isolated position (CDWR, 1966).

b. Tertiary Topanga and Puente Formations

The Tertiary Topanga and Puente Formations are marine deposits of middle and upper Miocene age, respectively. These formations consist of interbedded siltstones, sandstones, conglomerate, and shale. They outcrop in places along the base of the San Gabriel Mountains and in the South Hills, and constitute a major part of the low hills which form the basin boundary on the east, south, and west. The Puente Formation does yield some water locally which is used for domestic purposes and for limited irrigation. No wells in the basin are known to produce fresh water from the Topanga Formation.

c. Tertiary Repetto Formation

The Tertiary Repetto Formation overlies the Topanga and Puente Formations in parts of the Repetto, Merced, Puente, and San Jose Hills. The sedimentary beds that form the Repetto Formation were laid down during early Pliocene time in the last and most extensive of the seas that invaded the San Gabriel Valley toward the end of the Tertiary period. A typical section of the Repetto Formation is generally 2,000 feet thick and consists of micaceous siltstone with subordinate layers of sandstone and conglomerate. Other outcrops of the Repetto Formation can be observed in the western extension of the Puente and San Jose Hills. Although the Repetto Formation is generally nonwater-bearing, some sandstone and conglomerate members of the formation are permeable, capable of yielding 5 to 60 gpm (CDWR, 1966).

d. Tertiary Pico Formation

The Tertiary Pico Formation was deposited in shallow water during the late Pliocene Epoch as the sea receded from the area which now constitutes the San Gabriel Valley. The formation outcrops in the Repetto, Merced, Puente, and San Jose Hills. It unconformably overlies the lower Pliocene Repetto Formation. Small isolated outcrops of the Pico Formation are also exposed low on the south flank of the San Gabriel Mountains, north of the Sante Fe Dam.

The Tertiary Pico Formation is divided into lower and upper members. The lower member is nonwater-bearing and consists of greenish-gray micaceous siltstone and fine to coarse light gray feldspathic sandstone interbedded with claystone and shale (CDWR, 1966). The upper water-bearing member is discussed with water-bearing formations (Section 4.1.3).

4.1.4 Water-Bearing Formations

The principal water-bearing formations of the San Gabriel Valley are unconsolidated and semiconsolidated nonmarine sediments of Recent and Pleistocene age. Of lesser importance are marine sediments of probable Pleistocene age, and marine sediments of late Pliocene age. Water-bearing formations in the San Gabriel Valley were derived primarily from the San Gabriel Mountains. The formations extend to a maximum depth of over 4,000 feet. The thickness of alluvial deposits resulted from sedimentation combined with uplift in the mountains and subsidence in the valley.

Water-bearing sediments forming this groundwater basin vary in size depending on locality, but generally grade from coarse gravel and boulders, close to the mountain front, to fine- and medium-grained sand containing a larger amount of silt and clay, as the distance from the mountains increases. These formations have relatively large and interconnected interstices between the particles in which groundwater can be stored and through which the stored water is readily transmitted to water wells (CDWR, 1966).

The following paragraphs describe the water-bearing formations in the order that the formations were deposited.

Tertiary Pico Formation

The upper member of the Tertiary Pico Formation consists of semiconsolidated alluvial marine deposits of sand, silt, and clay interbedded with marine gravels. Beds of sand and gravel or sand which vary from 20 to 100 feet in thickness are separated by beds of micaceous clay and silt. The Pico Formation is capable of yielding groundwater in the vicinity of Whittier Narrows. This formation contains little or no groundwater in the Repetto, Merced, and Puente Hills where it outcrops (CDWR, 1966).

Quaternary Deposits

Quaternary deposits which constitute the San Gabriel Valley Groundwater Basin fill material are divided into the following three categories: the lower Pleistocene San Pedro Formation; the older alluvium; and Recent alluvium. These alluvial deposits were laid down during the Pleistocene and Recent Epochs. These deposits consist of a complex interfingering sequence of clay, silty and sandy clay, sand and gravel (CDWR, 1966).

a. San Pedro Formation

The San Pedro Formation is exposed in the Repetto and Merced Hills and overlies the water-bearing Pico Formation in the area north of Whittier Narrows. This formation is lower Pleistocene in age, and is marine in origin. It may grade into a continental facies in the central and northern part of the basin. The San Pedro Formation outcrops in the Repetto and Merced Hills and has been encountered in wells drilled just north of Whittier Narrows. In the Repetto and Merced Hills, the San Pedro Formation consists predominantly of coarse sand and gravel members, with interbedded medium- and fine-grained sands and dark gray massive silts, some of which contain faunal remains. These beds occupy a synclinal depression that trends southwest and slopes gently downward in the southwesterly direction. The maximum thickness of this formation is approximately 2,000 feet (CDWR, 1966).

b. Older Alluvium

The older alluvium, including terrace deposits, constitutes the main valley fill material and is exposed around the margins of the entire San Gabriel Valley. These deposits are considered to be late Pleistocene in age. This formation outcrops at the surface and occurs as dissected alluvial fans, and locally as isolated low hills or ridges that stand above the general level of Recent deposits around them. Older alluvium occurs around the northern margins of the San Gabriel Valley as erosional remnants or terraces along the foothills of the San Gabriel Mountains, and as locally merging alluvial fans which overlie Tertiary sediments on the San Jose, Puente, Repetto, and Merced Hills. It is exposed on the surface over much of Puente Valley. In the central and north-central part of the valley, the older alluvium is covered by Recent alluvium carried down from the mountains by the Rio Hondo and San Gabriel River system.

The heterogeneous nature of the older alluvium and the presence of weathered soil horizons are indicative of periods of restricted sedimentation, during which weathering of surface deposits occurred. Older alluvial deposits consist of unsorted yellowish to reddish-brown, angular to subrounded continental debris, derived from surrounding highlands. Material in these deposits range in size from silt to boulders over two feet in diameter. The percentage of clay in older alluvium material varies throughout the valley.

Generally, the sediments underlying the Rio Hondo and San Gabriel River system and the alluvial fan built up by this system contain less clay than older alluvium in other parts of the valley. Older alluvium in the Puente Valley, which was derived largely from older sedimentary beds, contains more clay than in the San Gabriel Valley proper.

Older alluvium near the mouth of the San Gabriel River, in the northern part of the valley, extends to a depth of about 300 feet. Just north of the Workman Hill fault extension, older alluvium extended to a depth of about 4,100 feet (CDWR, 1966).

c. Transition Zone Deposits

Transition zone deposits, which were derived from reworked Older and Recent alluvium, cannot be positively classified as either older or Recent. In the northeastern portion of the San Gabriel Valley, a transition zone approximately two miles wide extends from San Dimas to Baldwin Park contains alluvial deposits which possess characteristics of both the older and Recent alluvium. The thickness of the transition zone deposits is limited. These deposits thin and merge laterally into older alluvium flanking San Jose Hills to the southeast, and into the Recent deposits along Little Dalton and Big Dalton Washes to the southwest. The maximum known thickness of these deposits is 26 feet. Transition zone deposits comprise a very small percentage of the water-bearing series. The vertical permeability of these deposits allows rapid percolation of water to the underlying groundwater basin (CDWR, 1966).

d. Recent Alluvium

The Recent alluvium blankets the center of the valley floor, and the transition zone deposits that lie along Dalton Wash, San Dimas Wash, and Walnut Creek in the eastern part of the basins. Recent alluvium overlies the older alluvium in the central part of the valley. These deposits are also found in streambeds, and as alluvial fans overlying older sediments along the floor or the San Gabriel Mountains.

Recent alluvium deposits were primarily derived from basement complex materials which forms the mountains to the north, with minor contributions from Tertiary marine sediments and volcanic rocks which outcrop in the marginal hill areas surrounding the basin. Recent deposits are restricted to narrow, ribbon-like bands blanketing the active stream channels in many parts of the southeastern, eastern, and western areas of the San Gabriel Valley. To the north, the Recent debris is much more widespread and mantles the entire central and north-central portions of the valley floor, narrowing to the south where the alluvial fan, formed by the Rio Hondo and San Gabriel River system passes through Whittier Narrows.

Recent alluvium consists predominantly of coarse boulders, gravels, and sands, light-gray to buff in color. The thickness of these deposits ranges from a few inches, to about 100 feet near Whittier Narrows. Throughout the rest of the basin, the thickest portions of Recent alluvium are found along the San Gabriel River Channel and its adjacent floodplains. Laterally, away from the river, the Recent alluvium deposits gradually thin and feather out at the contact with older exposed sediments.

The Recent alluvium favorably absorbs, transmits, and yields water. However, most of these deposits lie above the historic high groundwater table (CDWR, 1966).

4.1.5 Structures Affecting Groundwater Movement

Structural features which can affect groundwater movement include valleys or topographic highs formed by folding or faulting, faults, anticlines, or synclines. The major topographic features in the San Gabriel Valley (the San Gabriel Mountains, the San Gabriel Valley, and the Repetto, Merced, Puente, and San Jose Hills) are major structural features which regionally affect groundwater movement. In addition to these major structures, three other low structural features formed by folding or faulting are also present in the San Gabriel Valley (CDWR, 1966).

San Gabriel Mountains

The San Gabriel Mountains were formed by the uplift of several fault blocks along essentially parallel lines during late Pleistocene and Recent times. The east-west trending mountains are bounded on the north by the San Andreas fault system, and on the south by the Sierra Madre fault system. The mountains are cut longitudinally by the San Gabriel fault zone which extends nearly the entire length of the range, generally following the east and west forks of the San Gabriel River. The San Gabriel fault zone divides the mountains into front and back ranges. The front range lies between the San Gabriel Valley on the south, and the east and west forks of the San Gabriel River on the north. The back range extends northward from the east and west forks of the San Gabriel River to the San Andreas fault, which marks the northern boundary of the mountains. The front range contributes direct runoff to the San Gabriel Valley Groundwater Basin. The back range contributes runoff to the valley via the San Gabriel River which cuts through the front range on its way to the valley (CDWR, 1966).

San Gabriel Valley

The San Gabriel Valley is a sediment-filled downdropped block which constitutes the groundwater reservoir of the area. The Sierra Madre fault system extends along the north side of the valley. This fault system impedes subsurface flow of groundwater into the valley from the alluvial fill of canyons along the mountain front, causing a groundwater cascade in the vicinity of San Gabriel and San Dimas Canyons. The fault system is responsible for the extensive alluvial deposits found on the south side of the bedrock-alluvium contact.

Smaller structural features that affect groundwater movement in the San Gabriel Valley include the South Hill, and two low bedrock outcrops lying north of the Lone Hill-Way Hill fault. These features divert groundwater flow around them (CDWR, 1966).

Repetto, Merced, Puente and San Jose Hills

These structures, which border the San Gabriel Valley, are geographically situated such that major surface outflow and subsurface outflow from the valley must pass through Whittier Narrows (CDWR, 1966).

Whittier Narrows

Subsurface outflow in the San Gabriel Valley Groundwater Basin passes through Whittier Narrows. Structurally, the narrows was originally formed as a northeast-trending syncline, lying between the Puente Hills on the east and the Repetto and Merced Hills on the west. Three northeast-trending faults have been delineated in the narrows area. However, these faults do not restrict the flow of groundwater from the valley (CDWR, 1966).

Faults

All of the major structural features surrounding the valley have been subjected to faulting at one time or another. Several subsurface faults have been delineated in the valley.

The effects of the San Gabriel fault zone on the San Gabriel Mountains was discussed in subsection discussing the San Gabriel Mountains earlier in Section 4.1.5. The fault zone varies from about 1/4 mile to two miles in width. It appears to be an effective barrier to groundwater flow between the back and front ranges of the mountains, because of gouge formed by faulting of basement rock, and because of clays developed from weathering of fractured rock found in the fault zone itself.

The Sierra Madre Fault System trends generally east-west along the southern base of the San Gabriel Mountains. This system consists of several distinct faults traceable along the mountain front. These faults are cut by numerous transverse faults. In some areas, groundwater flows in the upper 50 feet of alluvium not cut by faulting. The faults do impede groundwater flow below a depth of 50 feet which results in groundwater cascading across the faults into the valley.

The Raymond Fault forms the northwestern basin boundary from a point northwest of South Pasadena eastward to Sawpit Canyon in the San Gabriel Mountains. The fault impedes groundwater movement southward from the Raymond Groundwater Basin into the San Gabriel Valley Groundwater Basin. Although the fault generally impedes groundwater flow, the fault becomes more permeable at some locations.

The Lone Hill-Way Hill Fault extends in a northeast direction along the south side of Lone and Way Hills. This fault displaces the water-bearing series such that water level differences as high as 150 feet on either side of this fault has occurred. Subsurface flow in this area is mainly to the southeast, parallel to these faults.

The Workman Hill Fault Extension trends northwest into the valley from the Puente Hills northeast of Whittier Narrows. This fault extension does not appear to affect the movement of groundwater.

The Walnut Creek Fault trends northeast in alluvium northwest of the San Jose Hills. A few groundwater level differences across the fault have been observed (CDWR, 1966).

4.1.6 Hydrogeologic Parameters

The specific yield and transmissibility of alluvial deposits vary throughout the San Gabriel Valley Groundwater Basin. The average specific yield in the eastern end of the basin is approximately 8 percent. In the center, near the more permeable portion of the basin, the average specific yield is about 14 percent. In the western end of the basin, the average yield is about 9 percent. The average specific yield near the Calmar site is estimated to be approximately 7 percent.

The average transmissibility of the center of the basin is estimated to be about 2,240 acre-feet per year per foot of width. At Whittier Narrows, near the southwestern edge of the basin, the average transmissibility is about 670 acre-feet per year per foot of width.

Average transmissibilities in the western and eastern portions of the basin are about 170 and 100 acre-feet per year per foot of width, respectively. Transmissibility varies laterally in the basin, with larger values occurring in the north-south direction, than in the east-west direction.

Aquifer tests were conducted at various locations in the valley during the 1960's. Data from these tests yielded storage coefficients ranging between 6.0x10-5 to 1.1x10-2; permeabilities ranging between 512 to 4,900 gallons per day per square foot (gpd/ft2); and transmissibilities ranging between 42,000 to 875,000 gallons per day per foot (gpd/ft) (CDWR, 1966). Recent aquifer tests performed near the Calmar project site estimated local hydraulic conductivity values ranging between 15 to 160 gpd/ft2, and transmissivity values ranging between 1,400 to 15,000 gpd/ft (WWC, 1987).

4.1.7 Groundwater Elevation and Flow Direction

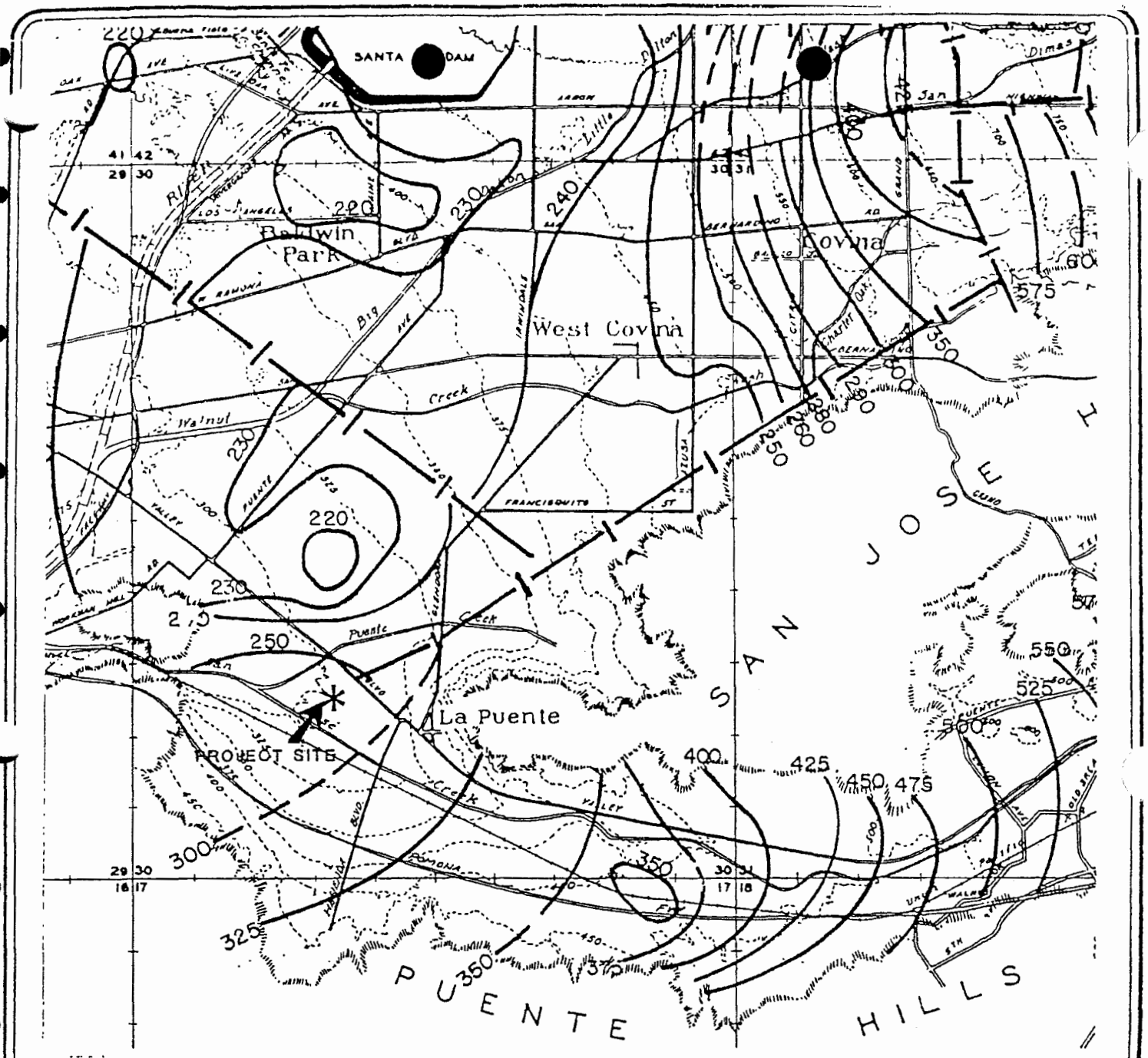
Historically, groundwater levels in the basin have varied due to droughts, groundwater extraction, and exportation of wastewater. A review of historic groundwater contour maps indicated the following. At the end of dry periods in 1933 and 1966, the groundwater elevation near the Calmar site was approximately 270 feet msl, and 280 feet msl, respectively (CDWR, 1966).

Groundwater elevations and flow directions for 1987 are shown on Figure 4-2. According to the figure, the 1987 elevation of groundwater near the Calmar project site was approximately 270 feet msl (CLADWP, 1987).

The direction of groundwater flow has historically been toward the northwest (CDWR, 1966). Based on groundwater contours on Figure 4-2, the regional hydraulic gradient near the Calmar project site was estimated to be 0.009 feet per foot toward the northwest. A recent field investigation performed at the Calmar project site also concluded that the direction of groundwater flow is toward the north (BCLA, 1988).

4.1.8 Subsurface Inflow

Groundwater moves into the San Gabriel Valley from the Raymond Groundwater Basin, across the Raymond Fault on the northeast, and from the Chino Groundwater Basin on the east. Some subsurface inflow also takes place from the San Gabriel Mountains on the north (CDWR, 1966).



BCL	Source: COUNTY OF LOS ANGELES DEPARTMENT OF PUBLIC WORKS	Title: SAN GABRIEL VALLEY GROUNDWATER CONTOURS FOR FALL 1987	4-2

4.2 Site Hydrogeology

The following sections described geologic and groundwater conditions observed at the project site. Information presented in these sections was derived from site-specific data (boring logs, well logs, water level measurements) recently collected at the project site.

4.2.1 Site Geology

Lithologies penetrated at groundwater monitoring well locations, MW-1, MW-2, and MW-3, and at piezometer locations P-1, P-2, and P-3, are illustrated on Figure 4-3. Based on a comparison of the lithologies encountered at the project site with regional stratigraphy described in Section 4.1.3, it appears that the project site is underlain primarily by Recent alluvial material. It is possible that the borings drilled at this site may also have encountered the underlying, heterogeneous older alluvial deposits. The cross section shown on Figure 4-3 illustrates that the lithology beneath the project site consists of a complex, variable sequence of alluvial materials. In general, the upper 13 feet of section consists of low plasticity clays (CL), which are underlain by variable thicknesses of silty or sandy materials.

4.2.2 Groundwater Movement Under the Site

The depth to groundwater was measured at three well and three piezometer locations shown on Figure 4-3. Groundwater elevations estimated from these measurements are summarized on Table 6. The groundwater elevation data appear to indicate that groundwater is moving in a northerly direction under the project site (Figure 4-4).

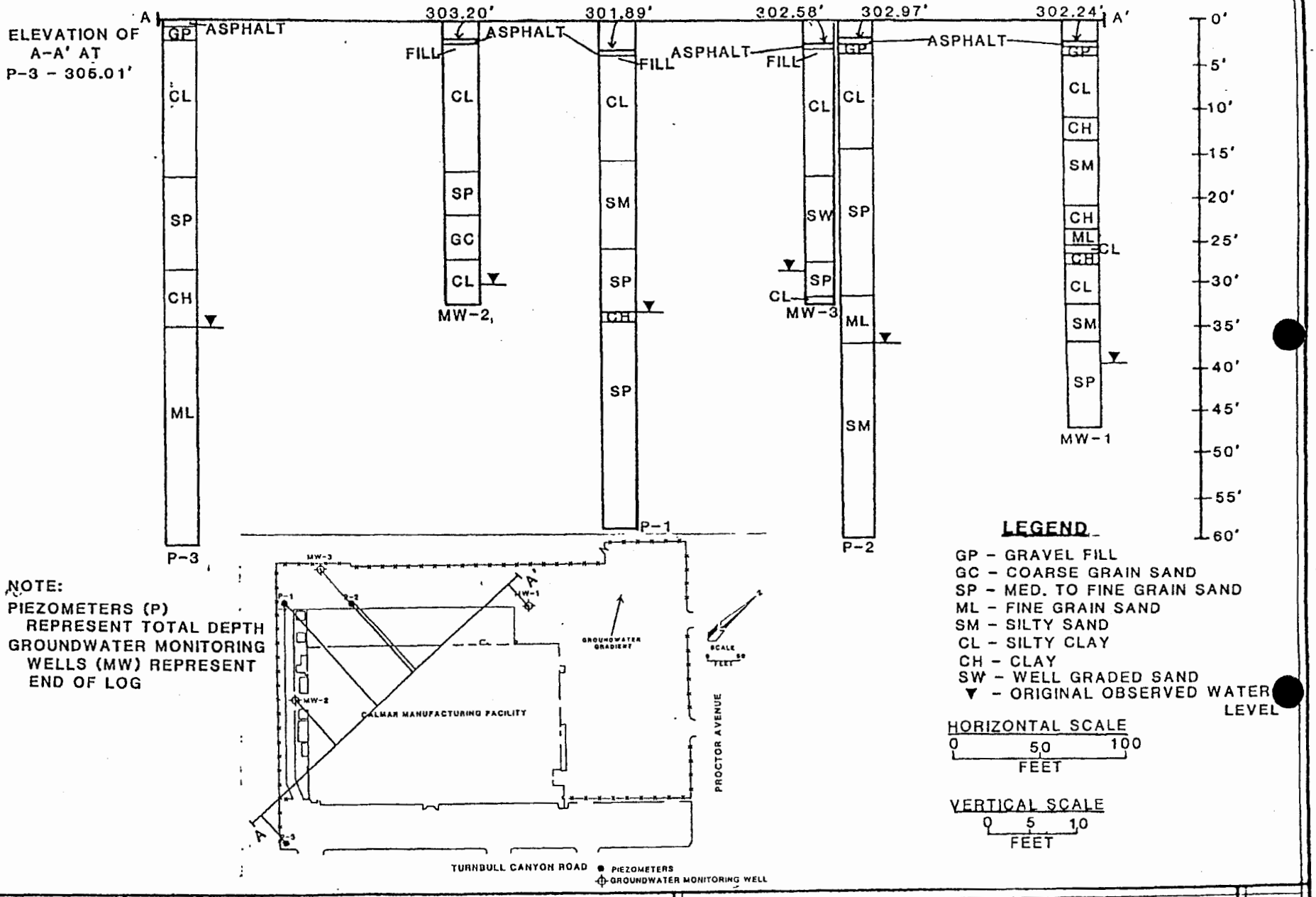
The groundwater level contours illustrated on Figure 4-5 were estimated by interpolating groundwater elevations between the measured elevations at each well and piezometer location. The contours were used to estimate the groundwater gradient at the project site. Based on the March 29, 1989 groundwater measurements, the groundwater gradient at the site is estimated to be 0.004 feet per feet.

TABLE 6

Groundwater Elevations Measured March 29, 1989

Location[1]	Elevation Top of Casing (feet msl)	Average Depth to Water[2] Below Top of Casing (feet)	Groundwater Elevation (feet)
P3	305.01	36.59	268.42
MW-2	303.20	35.14	268.06
P-1	301.89	34.06	267.83
MW-3	302.58	35.01	267.57
P-2	302.97	35.41	267.56
MW-1	302.24	35.84	266.40

[1]The average land elevation near the project site is approximately 300 feet msl (USGS, 1966).
[2]Average value from first round of measurements.



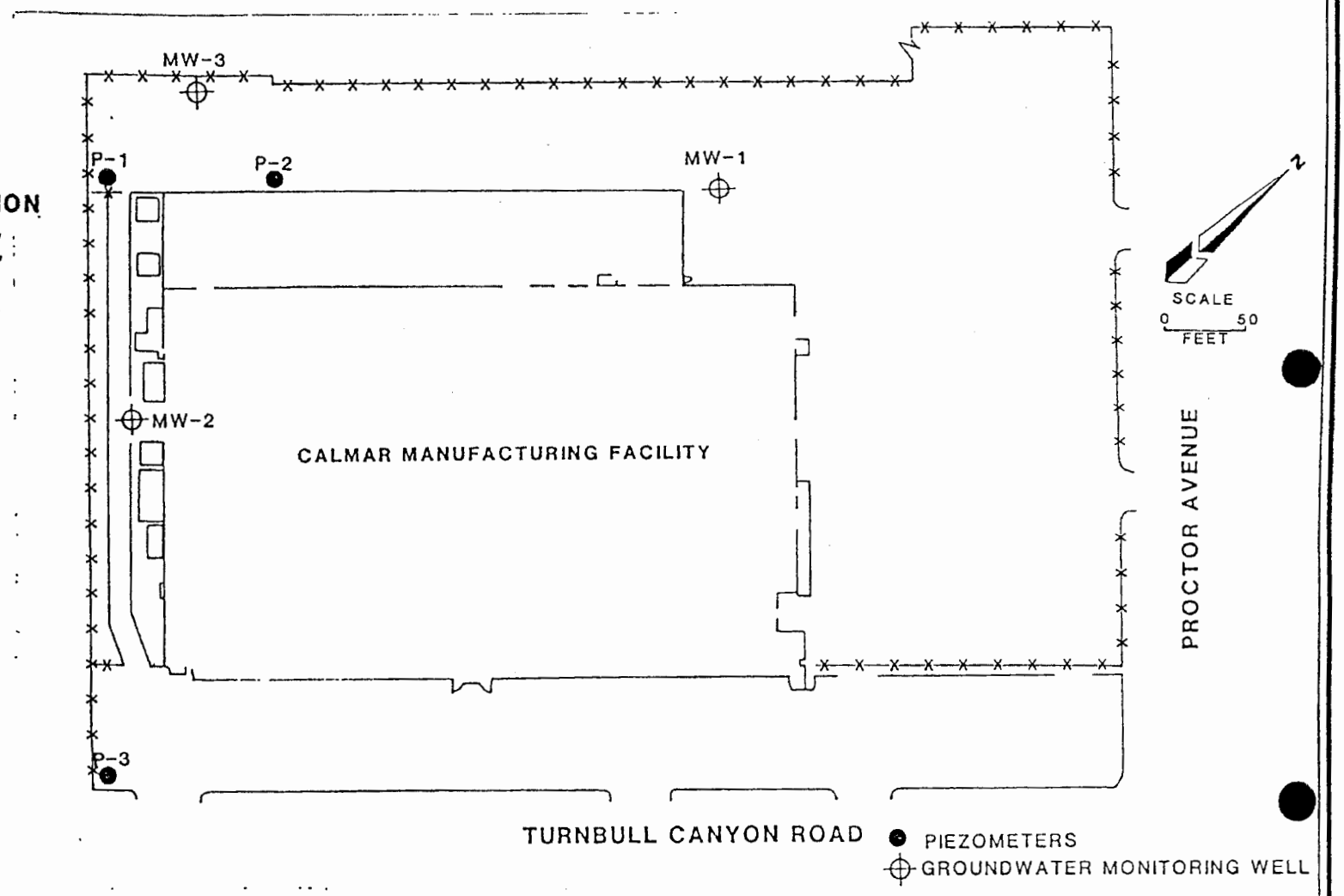
BCL

Source: BCL ASSOCIATES, INC.

Title: PROJECTED GEOLOGIC CROSS SECTION OF THE CALMAR PROJECT SITE

4-3

WELL	ELEVATION
MW-1	302.24'
MW-2	303.20'
MW-3	302.58'
P-1	301.89'
P-2	302.97'
P-3	305.01'

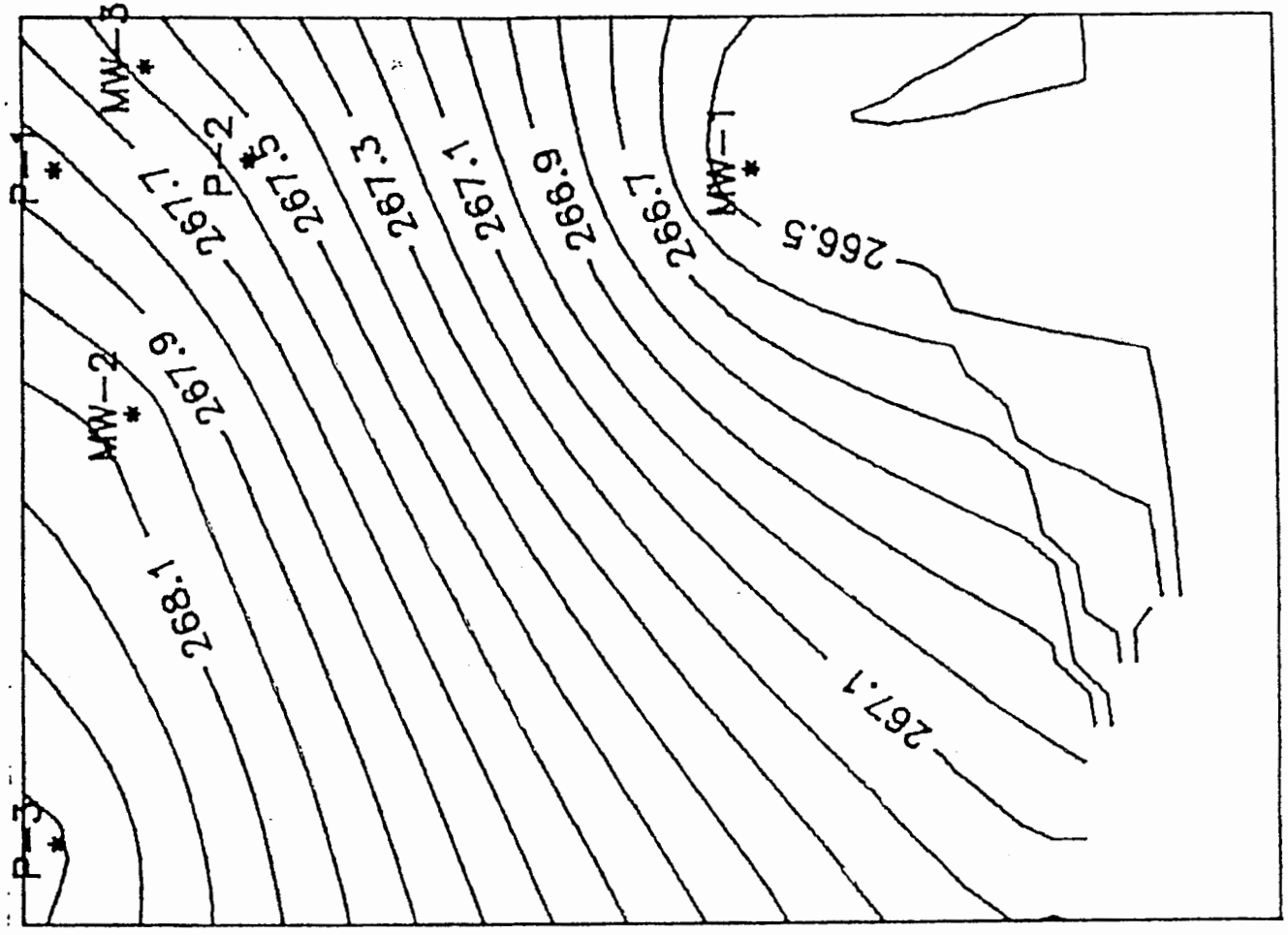


BCL

Source: BCL ASSOCIATES, INC.

Title: PIEZOMETER & MONITORING WELL LOCATIONS & ELEVATIONS

4-4



BCL	Source: BCL ASSOCIATES, INC.	Title: GROUNDWATER LEVEL CONTOURS 3/29/89	4-5

4.3 Surface Water

The stream systems in the San Gabriel Valley consist of two major streams, the Rio Hondo and San Gabriel Rivers, and their tributaries. The headwaters of these streams are located in the San Gabriel Mountains, from which a major portion of their flow is derived. The rivers and their tributaries which traverse the valley floor have a common exit from the valley at Whittier Narrows, a narrow gap in the low hills flanking the southern portion of the basin. Most of the natural surface outflow from the San Gabriel Valley passes through Whittier Narrows. Small amounts of natural surface outflow pass through two low gaps in the Repetto Hills, south of Monterey Park, and minor amounts of the outflow pass over the eastern portion of the basin boundary near La Verne.

Most natural surface inflow to the valley originates from the tributary San Gabriel Mountains, although significant amounts originate from the Raymond Basin; Walnut Creek, which is near San Dimas; and San Jose Creek, which is located just south of the Calmar project site.

The San Gabriel River drains about 77 percent of the San Gabriel Mountains that are tributary to the San Gabriel Valley. From its mouth near Azusa, the San Gabriel River traverses the San Gabriel Valley in a southwesterly direction, passes through Whittier Narrows, and extends southerly across the coastal plain to the Pacific Ocean near Seal Beach.

Within the San Gabriel Valley, Fish Canyon, Rogers Canyon, Big Dalton, Little Dalton, San Dimas, Walnut, and San Jose Creeks are tributaries to the San Gabriel River. The headwaters of these creeks are in the San Gabriel River (CDWR, 1966).

The Calmar project site is located just east of the confluence of Puente and San Jose Creek. Near the project site, these creeks primarily flow in a westerly direction (CLADPW, 1987).

Stream channels in the San Gabriel Valley are relatively well defined, although historically they have braided and meandered. In the past, most streams had some sort of improvement that sometimes amounted to no more than a trash dike. Farmers had numerous diversions on the streams for irrigation and water conversation. Phreatophytes were abundant in the stream channels and along their banks. During the summer, most streams were dry. However, due to rising water, the Rio Hondo and San Gabriel Rivers have perennial flow at Whittier Narrows.

By 1965, flood flow in most major stream channels was controlled by flood control reservoirs. With the exception of the San Gabriel River above Santa Fe Dam and most of the San Jose Wash which flows through the San Gabriel Valley, stream channels were improved (CDWR, 1966).

The "map" west side of the Calmar site and the south parking lot area drain toward Turnbull Canyon Road. The runoff from the north and east sides of Calmar drains toward Proctor Avenue.

4.4 Climate

The San Gabriel Valley is in a region of both semi-arid and Mediterranean climate. Intermittent rain during winter months and rainless summer months is common. Approximately 77 percent of annual precipitation occurs during December through March. Seasonal precipitation varies from periods of above-normal rainfall to periods of long, persistent droughts. Precipitation generally occurs in the Gabriel Mountains, although snow is common at higher elevations.

Precipitation, which is affected primarily by ground surface elevation, varies within the San Gabriel Valley. For example, during a base period, the average seasonal precipitation on the frontal area of the San Gabriel Mountains was about 27 inches. During that same period, the average seasonal precipitation in the valley was about 18 inches.

Temperatures are usually moderate in the valley areas, with little fluctuation in extremes. The average annual temperature of the San Gabriel Valley is about 62 degrees Fahrenheit. Temperatures in the valley rarely drop below freezing, although plant killing frosts occur in late fall and winter in the higher mountain elevations (CDWR, 1966).

5.0 AERIAL PHOTOGRAPH REVIEW

Spence Collection, UCLA

Historic aerial photographs showing the area surrounding the Calmar site were examined for evidence of possible ponding of liquids, above ground structures, ground surface disruption, above ground objects or debris or other evidence of land use. Particular attention was given to activities which, in our opinion, could indicate on-site use or disposal of hazardous waste.

Fairchild Collection, Whittier College

On March 20, 1989, BCLA visited the Fairchild Collection of Historic Aerial Photographs at Whittier College to view specific photos of the project site. The photos viewed were from 1946 and 1954. They both showed the block that the project site presently occupies under cultivation. There are structures which may be from buildings on the project site property south of Proctor Avenue and west of Turnbull Canyon Road.

In neither 1946 or 1954 was there much evidence of industrial development near the present Calmar site. In 1954 there were housing tracts, either completed or under construction south of where the present day Pomona Freeway exists and north of Valley Blvd. The Workman and Temple Homestead and the Union Pacific Railroad tracks and the Southern Pacific Railroad tracks are visible in both sets of photos.

4-16-63 Aerial Photo Review

The lower portion of the photograph is predominently cultivated farmland or vacant with dwellings and multiple outbuildings. Both the Calmar and Futura buildings are present in their current locations west of Turnbull Canyon Road. They are surrounded by vacant land to the north, west, and south. Directly west of the Calmar property is a large gravel pile, overgrown with weeds extending the length of the building. Across Turnbull Canyon Road from Calmar is a recently cultivated field. In the lower one third of the photograph, San Jose Creek cuts farmland from the west to the east. To the northwest of the creek's intersection with Turnbull Canyon Road, there is a large cluster of farm buildings.

Directly across Turnbull Canyon from the Futura plant is a short concrete pipe or channel re-routing what appears on both photograph and USGS map (Figure 6-1) as a small stream channel trending east to west.

In the middle of the southeast quarter of the photo, there are three water wells, just north of the Union Pacific Railroad tracks. Located on the southwestern property corner of Calmar is a stack of drums approximately 25 in number, all stacked vertically. There are also two covered storage areas attached to the south wall of the facility. The area between Calmar and Futura appears to be roughly paved. There are no vehicles in the area.

9-22-67 Aerial Photo Review

This photo is bounded by the Challenge-Cook Bros. manufacturing plant to the south, the intersection of Turnbull Canyon Road and San Jose Creek to the west, Valley Blvd. to the north, and Hacienda Blvd. to the east.

The land surrounding the Calmar and Futura buildings is undeveloped but cultivated. There is a large weed covered gravel pile to the west of the Calmar property. San Jose Creek cuts the photograph in half from the east to west and is concrete lined. Turnbull Canyon Road has been improved. There are small industrial buildings to the northeast of where the creek cuts under Turnbull Canyon Road. There is a stream channel with mature vegetation running northeast from Turnbull Canyon Road away from the Calmar and Futura buildings.

South of the Calmar building, there is a paved parking area with vehicles present. There are two covered storage areas attached to the south side of the building. There is no evidence of drum storage in this photo.

To the northeast of Calmar on the southeastern corner of Turnbull Canyon Road and Valley Blvd., the identified government warehouse has rows of what appears to be about 100 vertically stacked drums along it southern property line. These drums are not apparent in either earlier or later photos.

8-20-69 Aerial Photo Review

This photograph is bounded by property north of the 60 Freeway to the south, Hacienda Blvd. to the east, Turnbull Canyon Road to the west, and Puente Creek to the north.

San Jose Creek divides the photograph in half from east to west. All the land adjacent to the Calmar and Futura properties is undeveloped and vacant with a large gravel pile overgrown to the west of the Calmar property.

The area south of the Calmar Building has two covered sheds attached to the structure as well as three large pellet-storage silos centered on the south wall. There is little increase in the amount of small industrial buildings around the Calmar area since the 9/22/67 aerial photo.

6.0 TOPOGRAPHIC MAP REVIEW AND SURROUNDING LAND USE

A review was performed of historic U.S. Geological Survey Topographic Maps. These maps are updated periodically from aerial photographs. Although they do not show all features as do photographs, topographic maps label key features for identification purposes. They are an excellent source for tracking change in a given area since they give a constant perspective and record both permanent and transitory major features.

1953 Revision (Figure 6-1)

The block bounded by Turnbull Canyon Road and 9th Avenue between Proctor Avenue and Don Julian Road is mostly unoccupied. One building, possibly a residence is situated at the intersection of Proctor and Turnbull Canyon Road. Few large buildings are located in the San Jose and Puente Creek valleys, the area is mostly undeveloped.

A grouping of buildings is evident at the east corner of Hudson Avenue and the South Pacific railway. The buildings have been identified as a large walnut packing house.

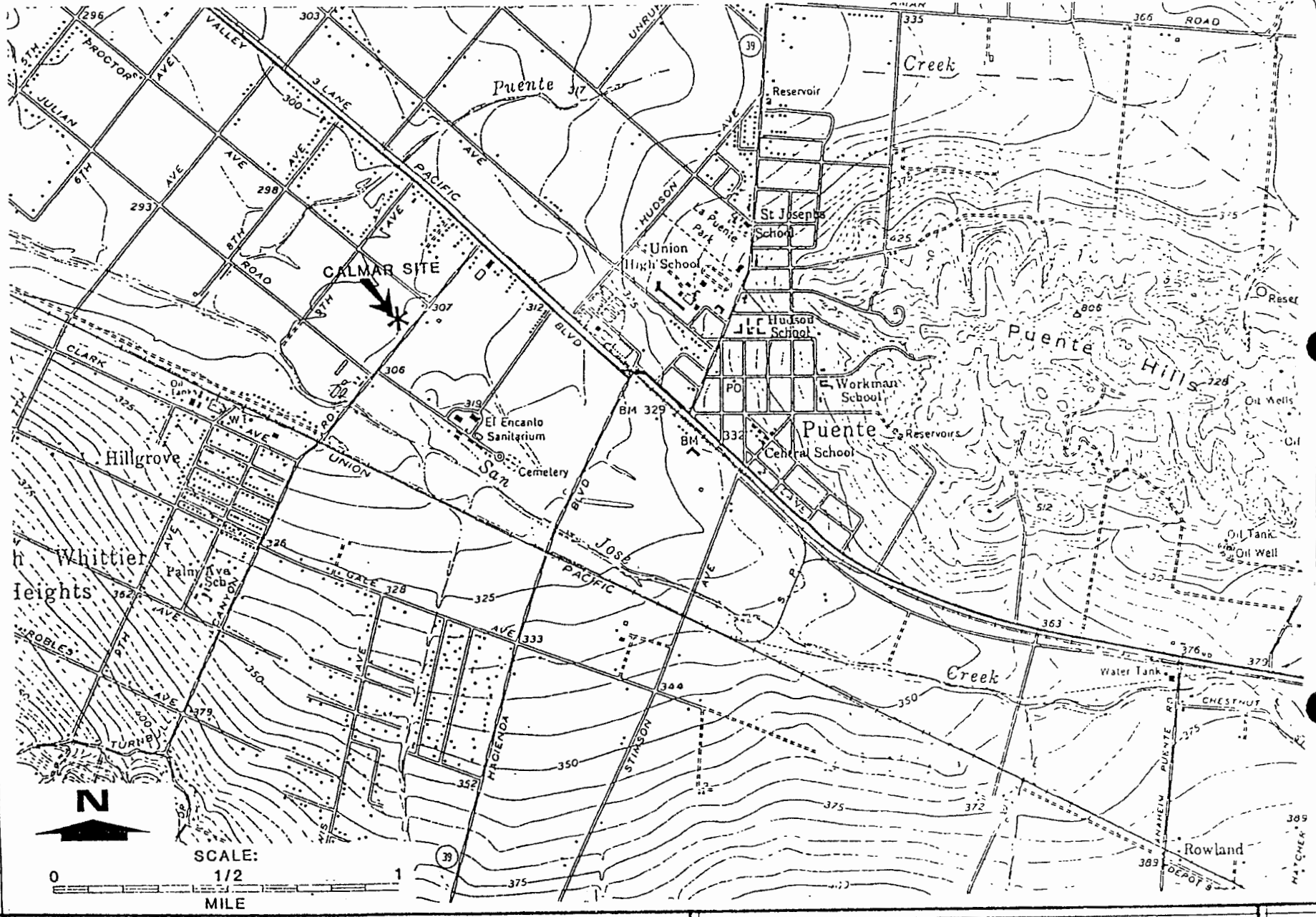
Southwest of the Calmar site is a notation for oil tanks. This is the probable location of the Exxon "Handorf" oil well.

Southeast of the intersection of Turnbull Canyon Road and Valley Boulevard is a building which has been identified as a government warehouse. This building is still in existence (1989).

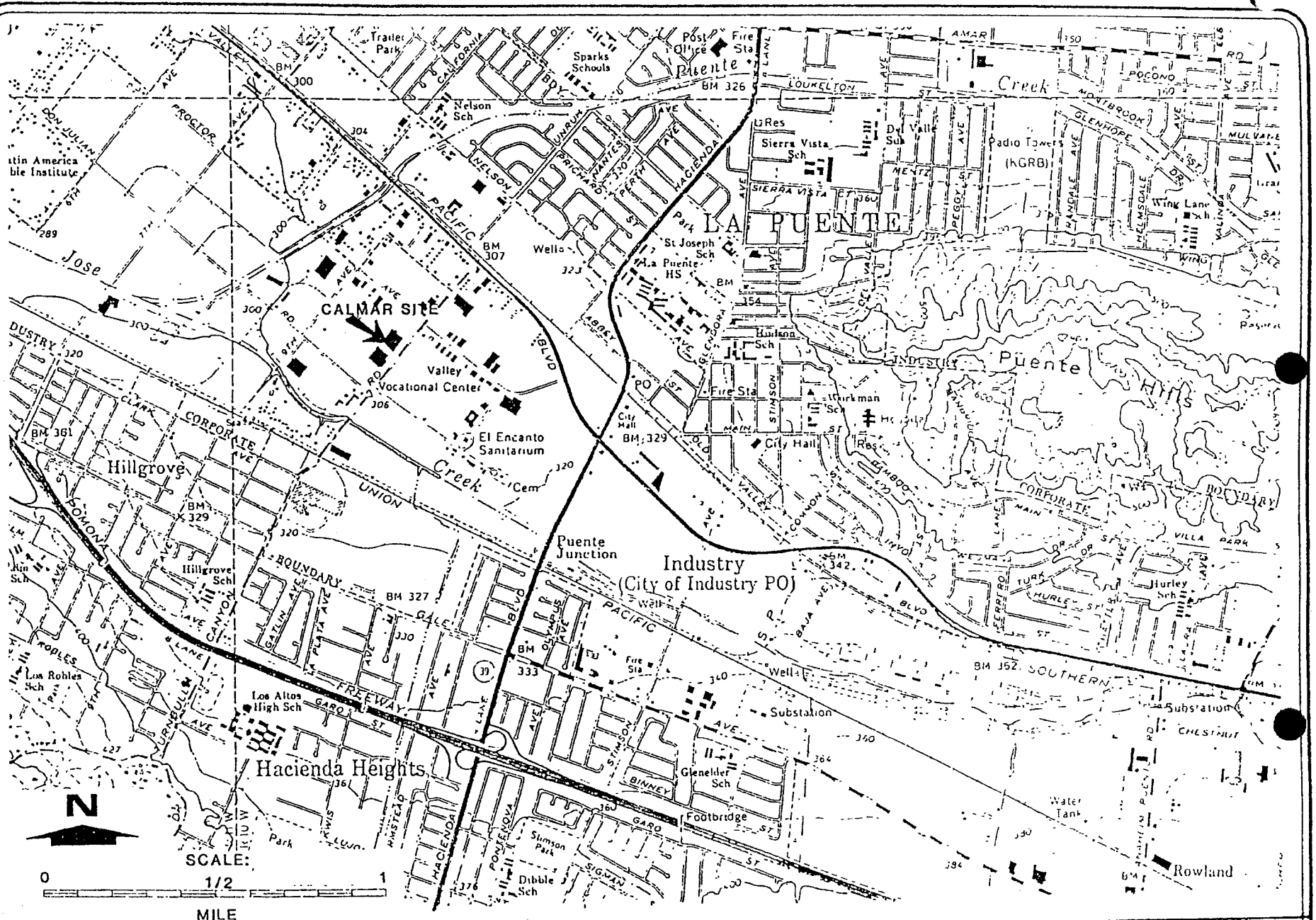
1966 Revision (Figure 6-2)

The Calmar, Benchmark and Futura buildings are now in evidence. The walnut packing house and oil tanks have been deleted from this revision.

Portions of the San Jose and Puente Creeks have been graded into earthern channels.



BCL	Source: U.S. GEOLOGICAL SURVEY, TOPOGRAPHIC MAP *1953 revision*	Title: CALMAR SITE & SURROUNDING AREA	6-1



BCL

Source: U.S. GEOLOGICAL SURVEY TOPOGRAPHIC MAP
1966 revision

Title:
CALMAR SITE & SURROUNDING AREA

6-2

The Pomona Freeway (60) appears in this revision as does what appears to be an extensive railway switching and siding complex between Hacienda Boulevard and Anaheim Puente Road to the west and east and Valley Boulevard to the north, and San Jose Creek to the south.

The block to the southeast of the Calmar site has the notation of Valley Vocational Center. Several buildings are in evidence in this block. Although the area north of Valley Boulevard and south of San Jose Creek has been sub-divided to a great extent compared to the 1953 revision, the area between San Jose Creek and Valley Boulevard is mostly undeveloped.

1972 Revision (Figure 6-3)

Many large buildings appear in this revision throughout the San Jose Creek Valley. Futura, Calmar and Benchmark all show building additions. San Jose Creek is concrete-channeled in this revision.

1981 Revision (Figure 6-4)

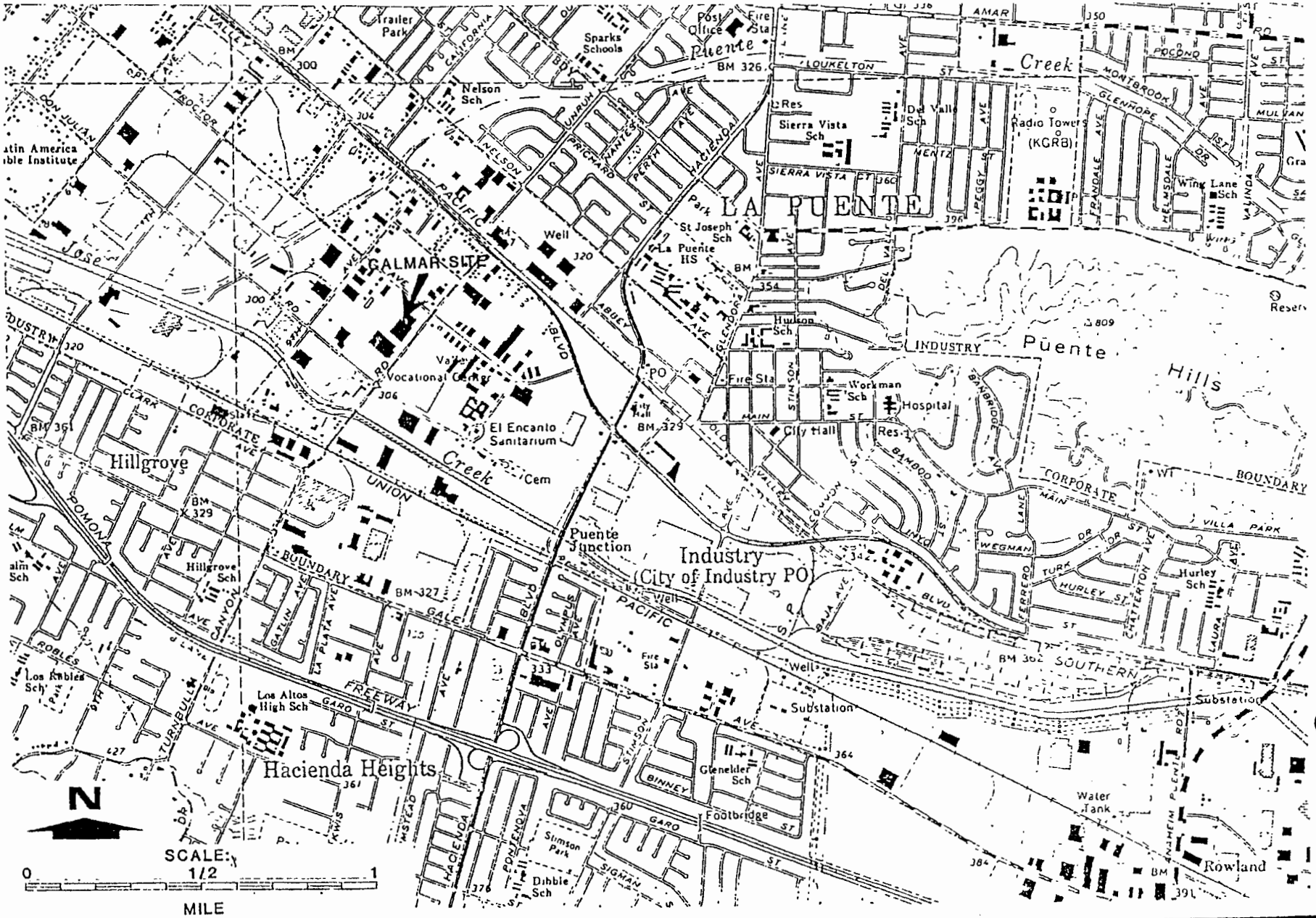
Both the Futura and Calmar buildings show additions. The block labeled Valley Vocational Center shows extensive building development. The San Jose Creek Valley appears to be nearly fully developed in large industrial buildings.

Surrounding Land Use

Figure 6-5 is a zoning map issued by the City of Industry. The majority of the San Juan Creek valley is zoned industrial. Plate 1 is a figure prepared by Calmar showing the names and approximate locations of businesses in the vicinity upgradient of Calmar.

The California Regional Water Quality Control Board - Los Angeles Region (CRWQCB) has issued a Tentative Cleanup and Abatement Order (No. 88-137) to Benchmark Technology which is located at 200 S. Turnbull Canyon Road. The Acorn Engineering site which is adjacent to the Calmar facility is also under study by the CRWQCB. Cleanup and Abatement Order No 88-136 has been issued to Acorn. This order has been petitioned for review.

The businesses located upgradient include metal finishing, electronics assembly, manufacturing of various types, metal fabrication, and vocational schools that teach skills that are used in all the foregoing. There are several chemical storage/manufacturers in the immediate neighborhood with stacked drums visible from public roads.

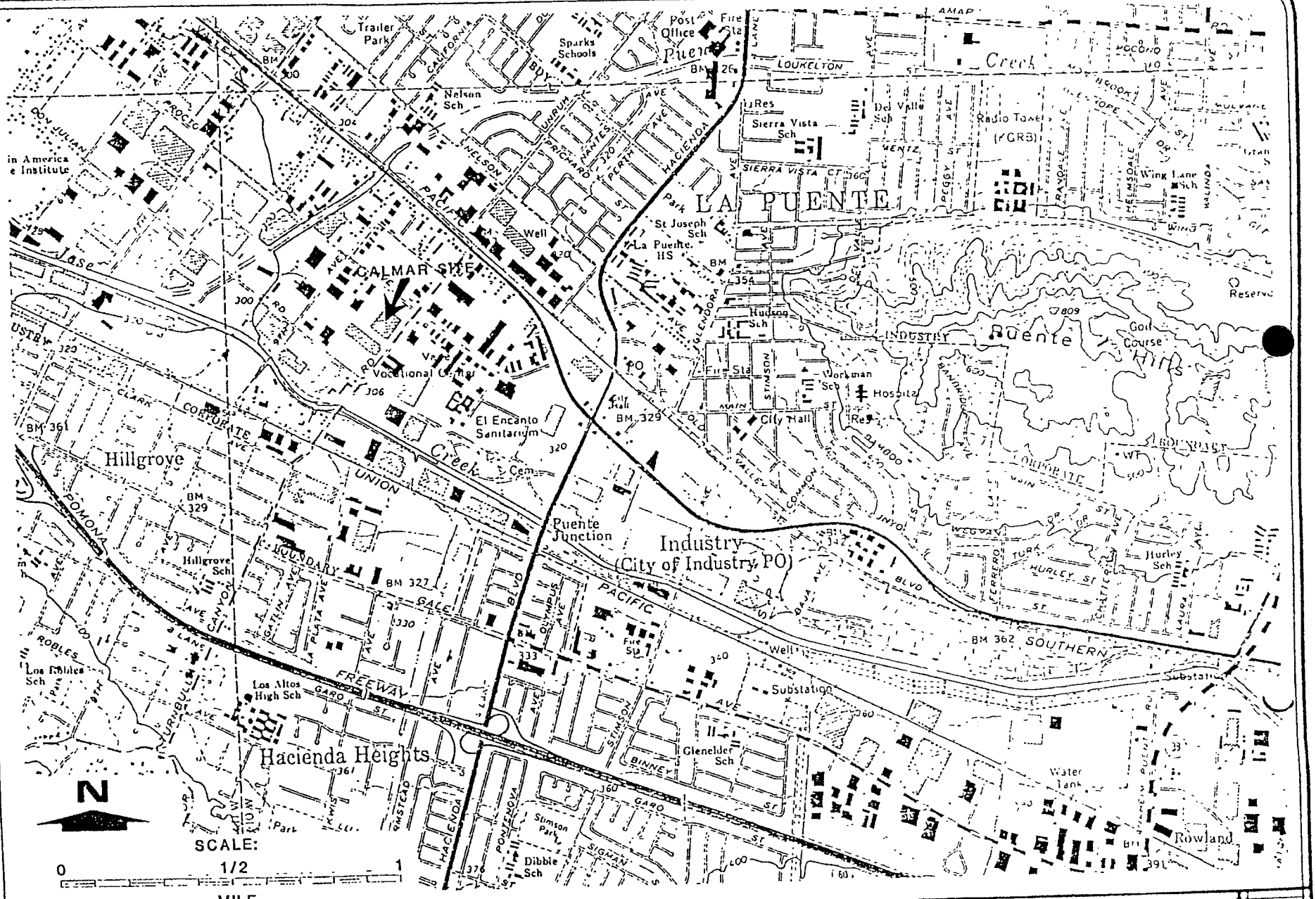


BCL

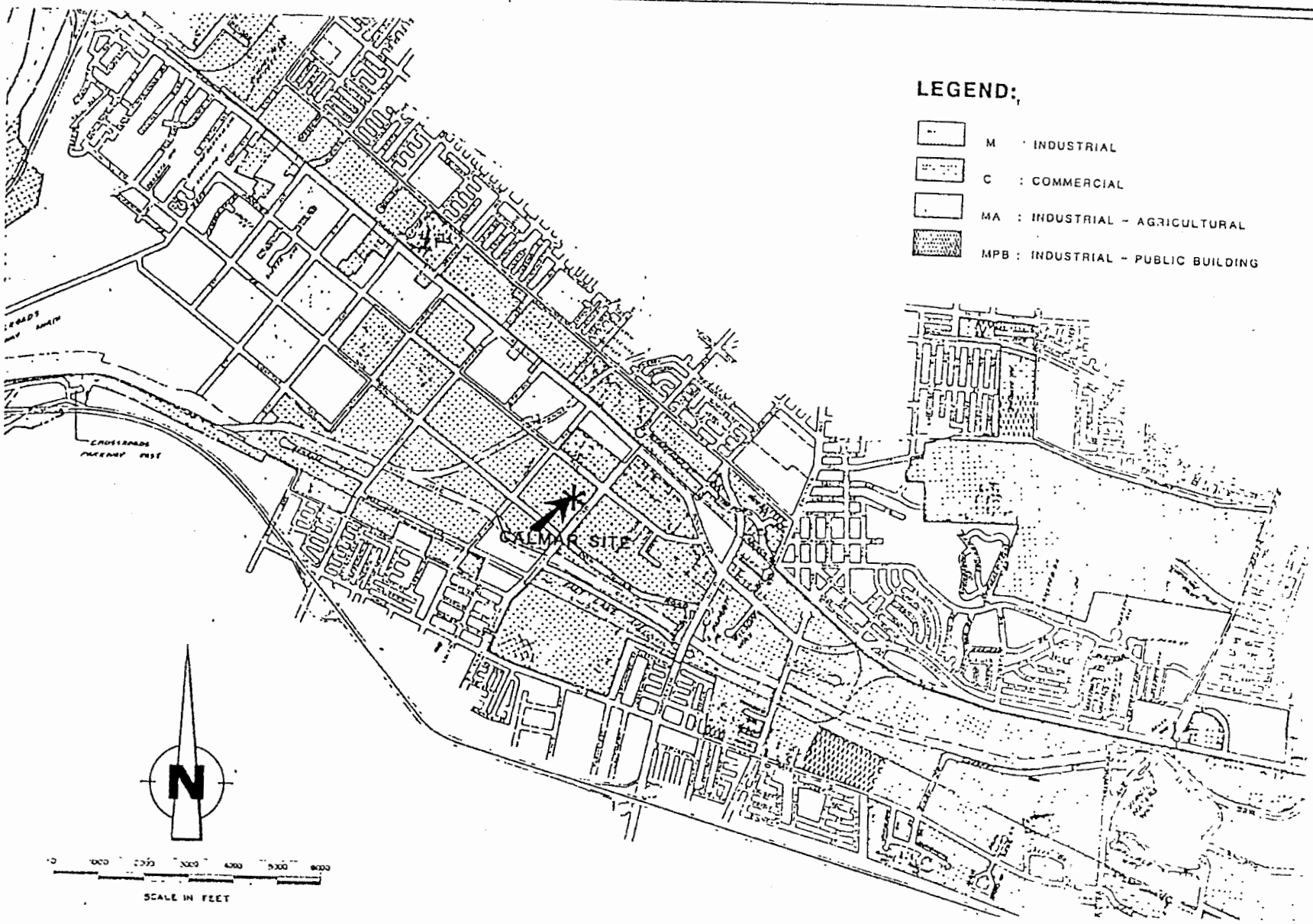
Source: U.S. GEOLOGICAL SURVEY
TOPOGRAPHIC MAP
1972 revision

Title:
CALMAR SITE & SURROUNDING AREA

6-3



BCL	Source: U.S. GEOLOGICAL SURVEY TOPOGRAPHIC MAP *1981 revision*	Title: CALMAR SITE & SURROUNDING AREA	6-4



BCL

Source: CITY of INDUSTRY
ZONING MAP, *revised 10-87*

Title:
CALMAR SITE & SURROUNDING AREA

6-5

7.0 REFERENCES

Reference Abbreviation List

CDWR:	California Department of Water Resources
CLADPW:	County of Los Angeles Department of Public Works
USGS:	U.S. Geological Survey
WWC:	Woodward-Clyde Consultants

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8.0 CONCLUSIONS

This report presents the findings of an Environmental Site Audit in which an agency review, regional hydrology studies, aerial photograph reviews, topographic map reviews, surrounding land use reviews, and a site inspection were conducted.

Previous studies conducted by BCLA on the Calmar site addressed the Waste Storage area, Compressor/Chiller/Cooler area, and Utility Outlet area. Data from the studies of these areas have been examined and low levels of chlorinated solvents in the soil were found, with no identified sources. The Central Region Water Quality Control Board subsequently requested further studies.

This Environmental Site Audit of Calmar Incorporated is, in BCL Associates' professional opinion, a sufficient basis for the preparation of a Work Plan to further assess the Calmar Incorporated site.

APPENDIX A

Geotechnical Reports

FOUNDATION INVESTIGATION
CALMAR DIVISION STRUCTURE
TURNBULL CANYON ROAD
CITY OF INDUSTRY
APRIL 24, 1962

GENERAL

The purpose of this investigation was to determine the characteristics of the subsurface soils on the site so that safe and economical building foundations could be designed. A single story dock high tilt-up building is planned for construction.

The building site is located near the intersection of Procter Avenue and Turnbull Canyon Road. The property is level and presently supports a cultivated groth of wheat and oats. The prevailing geology of the area is quarternary alluvium that has been deposited in a broad plain between the San Jose and Puente Hills.

Five exploratory borings were drilled and their approximate locations are shown on the attached sketch. The logs of borings are also included in this report. The borings were taken to depths of between 30 and 35 feet. A caisson type drilling rig with an 18 inch rotary bucket was used to advance the bore holes. Undisturbed samples were obtained for laboratory testing by forcing a 2½ inch diameter split barrel sampler into the soil. In-place dry densities and moisture contents of the samples were determined and are recorded on the attached boring logs. Represent-

ative grain size accumulation curves, direct shear curves, and consolidation-pressure curves are also included in this report.

RESULTS AND RECOMMENDATIONS

A perched water table was encountered in all borings except Boring 5 at 29 feet. No water was seen in Boring 5. The subsoils were generally fine grained and ranged from medium compact sands to soft silty clays. The soft material was below 15 feet. The upper 1 foot of silty clay was loose and beneath this was found a moderately stiff mottled clay-silt mixture. The soils became denser and sandier with increases in depth until softer soils were found at about 15 feet.

No evidences of artifical fill were seen in the exploratory borings and at elevations above the water table the boring walls stood well during drilling.

Consolidation-pressure studies of the upper clay-silt material showed it to be expansive in the presence of water. Direct shear tests performed on the same samples indicated a considerable loss of strength when saturated. Because of this and because the surface soils are loose it is recommended that foundations be carried beneath the upper stratum.

It is recommended that concrete-cast-in-place belled caissons be used to transmit building loads to the stronger underlying soils. Such caissons should obtain bearing at adepth of 8 feet below the existing ground surface. The caisson bells should extend no deeper than 8 feet. For caisson bells so placed a bearing pressure of 2000 pounds per square foot is recommended. No bearing pressure increases are recommended for increases in caisson bell diameter. This value may be increased by 1/3 for temporary overtuing forces. In computing foundation loads the weight of the caisson may be neglected.

Prior to placing the fill for the floor slab the building area should be stripped of vegetation. The upper 1 foot should then be scarified, watered as required and compacted to 90% of maximum dry density. All fill material should be predominately granular and non-expansive and should be compacted to 90% of maximum dry density.

A coefficient of friction of 0.4 may be used between the concrete floor slab and the fill provided suitable material is used. For such material a passive resistance equivalent to a fluid having a density of 250 pounds per cubic foot may be used.

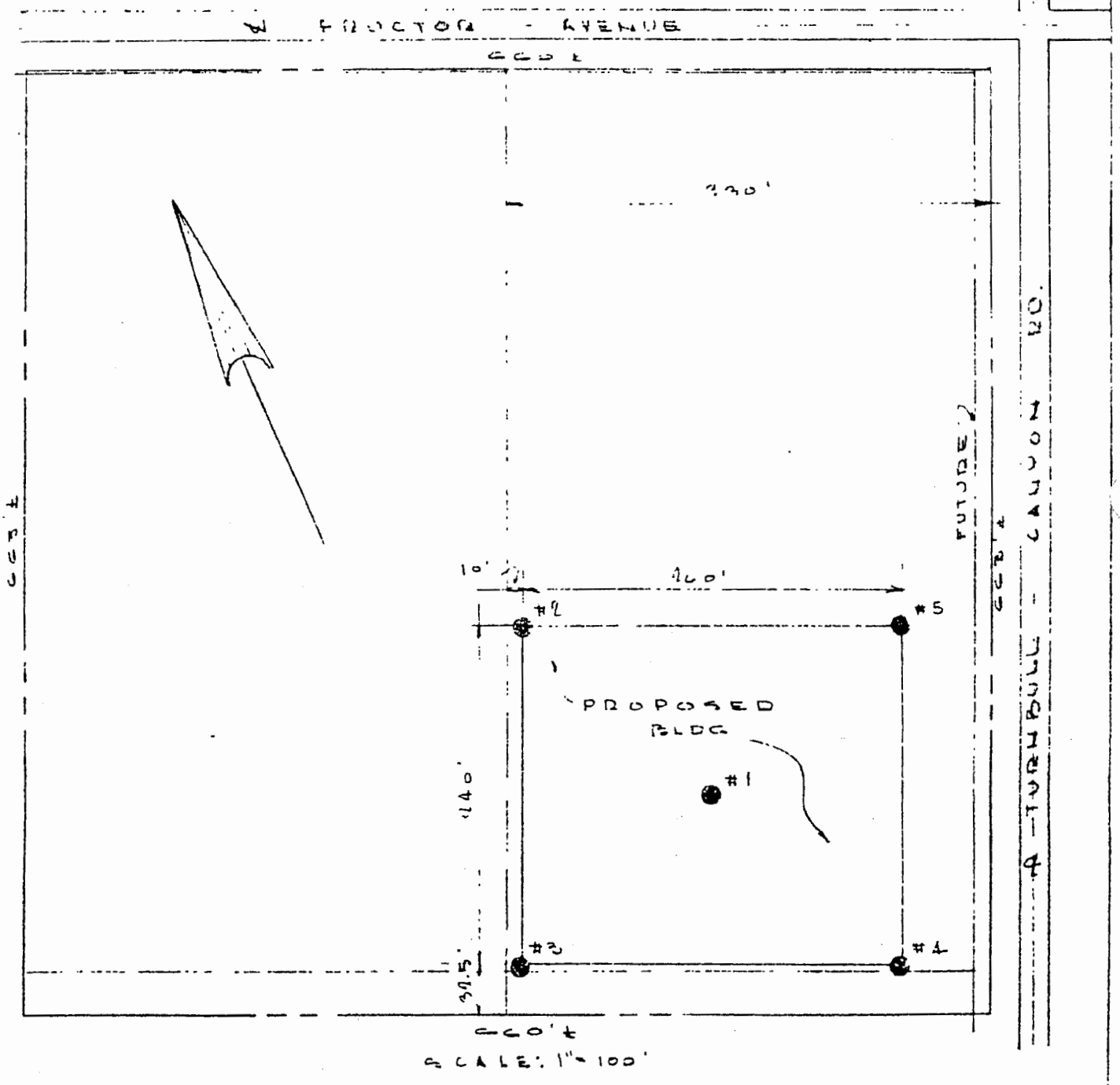
The recommendations contained herein are our opinions based on field and laboratory tests together with engineering judgement

and applied soil mechanics principles. Areas not covered by our borings are considered to be consistant with those tested and if conditions other than those noted in this report are discovered during construction this office should be notified so that proper adjustments can be made.

Respectfully submitted,

SLADDEN ENGINEERING

Jerome H. Fadden CE



● APPROX. LOCATION OF TEST BORINGS.

SLADDEN ENGINEERING DATE: 4-24-92 FILE: 444-2048

BORING LOG

BORING NO. 1

PROJECT Calmar DATE 4-24-62

SOIL CLASSIFICATION (TYPE, COLOR & CONSISTENCY)	DEPTH FEET	LEGEND	SAMPLE NO.	DRY DENSITY LBS/CU.FT.	MOISTURE CONTENT
Black, Loose, Silty Clay	0				
Black, Medium Stiff, Clay-Silt			1	96	19
Mottled					
Grey	5				
Brown, Medium Stiff, Fine Sandy Clay					
Brown, Medium Stiff, Clayey Fine Sand					
Dark Brown, Sandy Clay, Medium Stiff					
Brown, Medium Stiff, Silty Clay	10		2	107	[illegible]
Brown, Medium Compact, Silty Fine Sand					
Trace of Gravel					
Brown, Soft, Silty Clay	15		3	79	[illegible]
Brown, Medium Compact, Fine Sand					
Dark Brown, Soft, Silt	20				
Black, Soft, Clay					
Brown, Soft, Clay-Silt	25				
Tan, Medium Compact, Fine to Med. Sand					
Grey, Medium Compact, Silty Sand					
Trace of Clay	30		4	107	[illegible]
Brown, Moist					
Wet					
Water	35				

[illegible] PROJECT NO. [illegible]

BORING LOG

BORING NO. 2

PROJECT Calmar

DATE 4-24-62

SOIL CLASSIFICATION (TYPE COLOR & CONSISTENCY)	DEPTH FEET	LEGEND	SAMPLE NO.	DRY DENSITY LBS/CU FT	MOISTURE CONTENT
Black, Loose, Silty Clay	0				
Grey, Medium Stiff, Clay-Silt Mottled					
	5		1	109	18
Brown, Medium Compact, Clayey Fine Sand					
Black, Silty Clay, Medium Stiff					
Grey, Mottled	10				
Brown, Medium Compact, Silty Fine Sand			2	102	[illegible]
Brown, Soft, Sandy Silt	15				
Brown, Soft, Silt					
Tan, Medium Compact, Fine Sand					
Grey, Soft, Clayey Silt	20		3	79	[illegible]
Black, Soft, Clay					
Brown, Medium Stiff, Silty Clay	25				
Brown-Grey, Medium Compact, Silty Sand					
Blue, Medium Stiff, Silty Clay	30				
	35				

LADDEN ENGINEERING

PROJECT NO. [illegible]

BORING LOG

BORING NO 8

PROJECT Calmar

DATE 4-24-62

SOIL CLASSIFICATION TYPE COLOR & CONSISTENCY	DEPTH IN FEET	LEGEND	SAMPLE NO.	DRY DENSITY LBS/CU FT	MOISTURE CONTENT %
Black, Loose, Silty Clay	0		1		18
Black-Grey, Medium Stiff, Silty Clay Mottled	5				
Brown, Medium Compact, Clayey Fine Sand			2	104	20
Dark Brown, Medium Stiff, Clay-Silt	10				
Brown, Medium Compact, Fine Sandy Silt					
Brown, Medium Compact, Silty Fine Sand					
Brown, Medium Compact, Fine to Med. Sand Trace of Gravel	15				
Brown, Medium Compact, Fine Sand					
Brown, Loose, Silt					
Brown, Medium Compact, Med. Sand					
Brown, Loose, Silt	20				
Tan, Medium Compact, Medium Sand					
Trace of Gravel					
Moist	25		3	103	21
Wet					
Water					
	30				

PROJECT NO

BORING LOG

BORING NO. 4

PROJECT Calmar

DATE 4-24-62

SOIL CLASSIFICATION (TYPE COLOR & CONSISTENCY)	DEPTH FEET	LEGEND	SAMPLE NO.	DRY DENSITY LBS/CFT	MOISTURE CONTENT
Black, Loose, Silty Clay	0				
Grey, Medium Stiff, Clay-Silt Mottled			1	104	17
Brown, Medium Stiff, Sandy Clay	5				
Brown, Medium Stiff, Silty Clay					
Brown, Medium Compact, Clayey F. Sand					
Brown, Medium Compact, Silty Fine Sand	10				
Brown, Soft, Sandy Silt					
Brown, Medium Stiff, Clayey Silt	15		2	94	[illegible]
Brown, Medium Compact, Silty Sand					
Grey, Soft, Clayey Silt	20				
Black, Soft, Clay			3		[illegible]
Grey-Brown, Medium Compact, Silty Med. Sand	25				
Blue, Medium Stiff, Silty Clay	30		4	78	[illegible]
	35				

SLADDEN ENGINEERING

PROJECT NO. [illegible]

BORING LOG

BORING NO 5

PROJECT Calmar

DATE 4-24-82

SOIL CLASSIFICATION (TYPE CLR & CONSISTENCY)	DEPTH FEET	LEGEND	SAMPLE NO	DRY DENSITY LBS/CU FT	MOISTURE CONTENT %
Black, Loose, Silty Clay	0				
Black-Grey, Med. Stiff, Clay-Silt Mottled					
Grey, Medium Compact, F. Sandy Clay	5				
Dark Brown, Medium Stiff, Silty Clay			1	108	19
Grey, Medium Stiff, Clay-Silt					
Brown, Med. Compact, Clayey Fine Sand	10				
Brown, Medium Compact, Silty Fine Sand					
Brown, Medium Compact, Sand and Trace of Gravel	15				
Brown-Grey, Soft, Silty Clay					
	20		2	78	[illegible]
Tan, Med. Compact, Coarse Sand					
Black, Soft, Silty Clay					
Brown, Med. Stiff, Clay-Silt					
Tan, Med. Compact, Fine Sandy Silt					
Dark Brown, Soft, Clay-Silt					
Brown, Med. Compact, Fine Sandy Silt	30				
	35				

SCHNABEL ENGINEERING

PROJECT NO. 644-2048

GRAIN SIZE MM
ACCUMULATION CURVE

DATE: 4-24-62

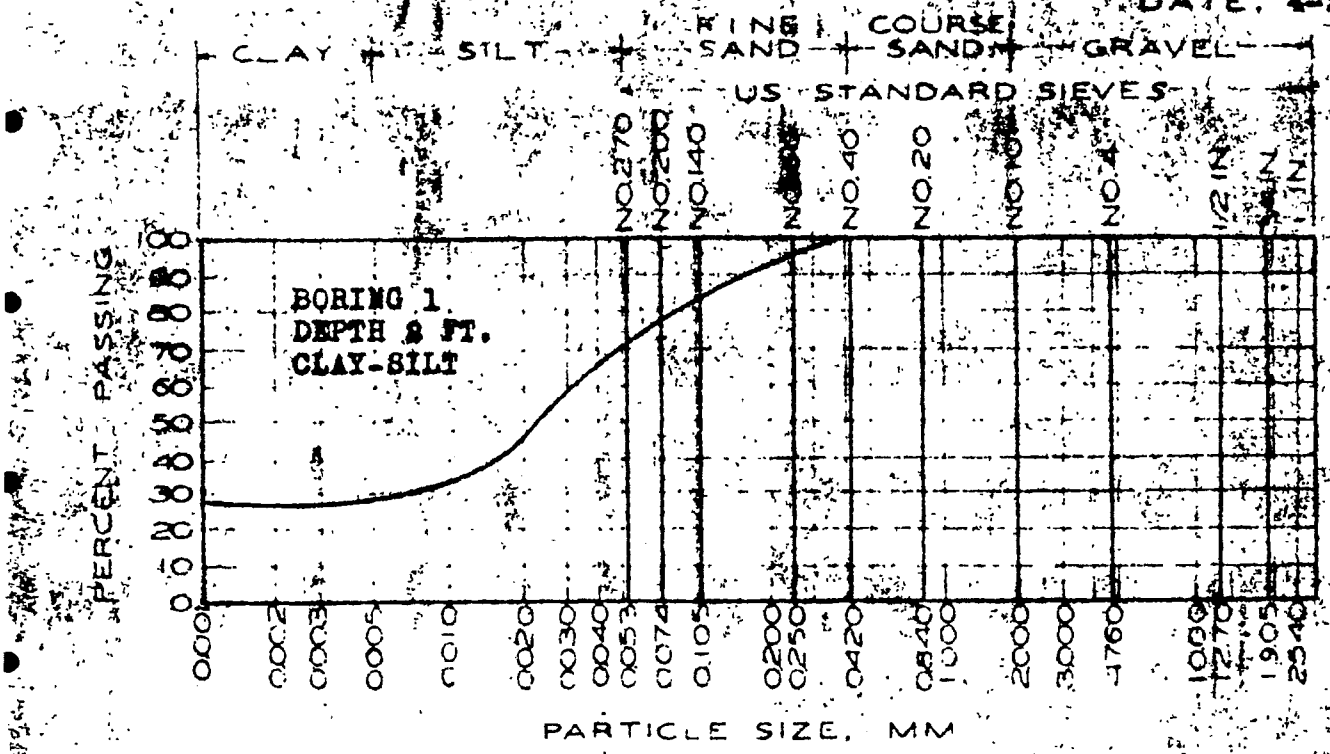


FIGURE 1

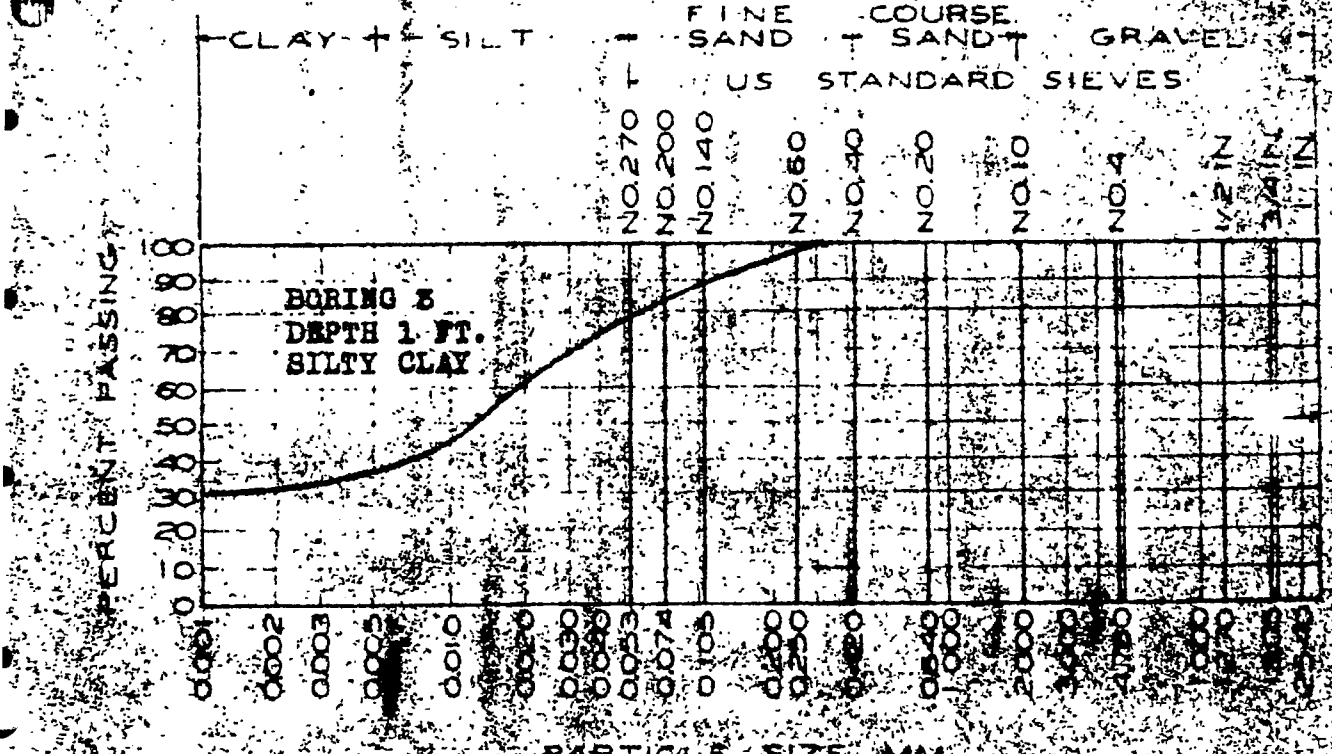


FIGURE 2

SLADDEN ENGINEERING

PROJECT NO 44-004

GRAIN SIZE, MM
ACCUMULATION CURVE

DATE: 4-24-82

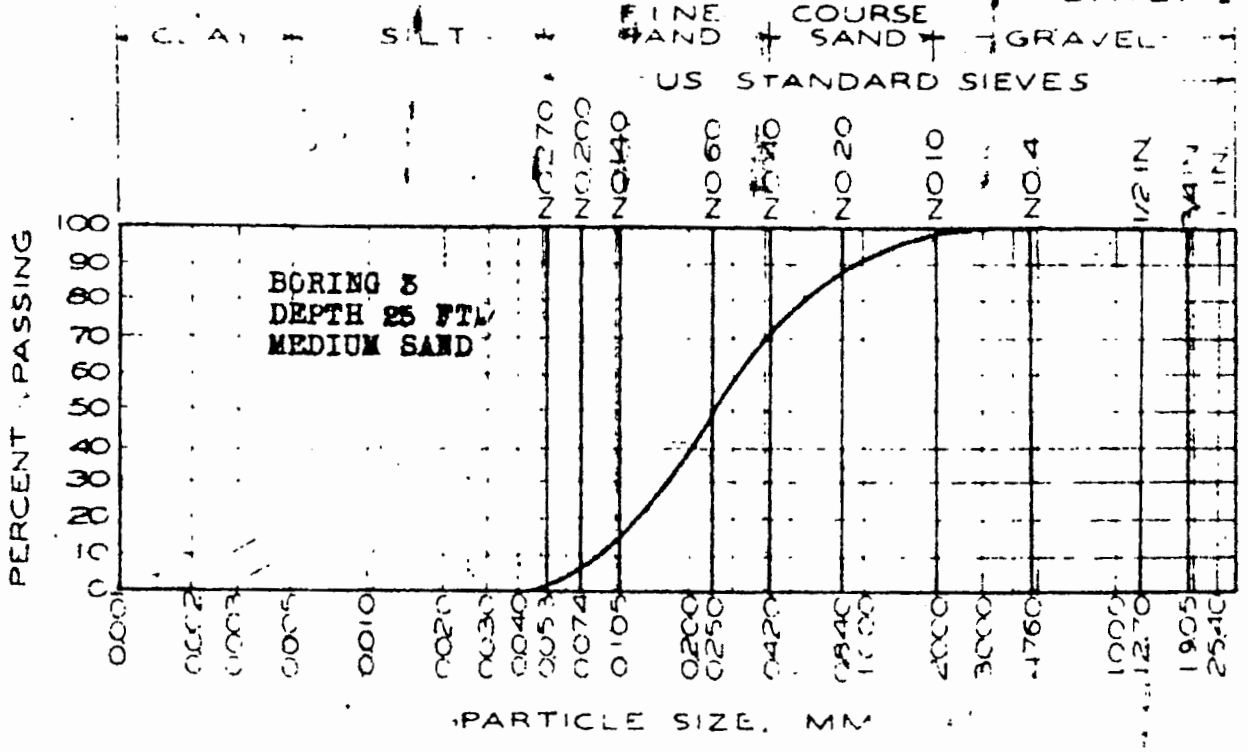


FIGURE 1

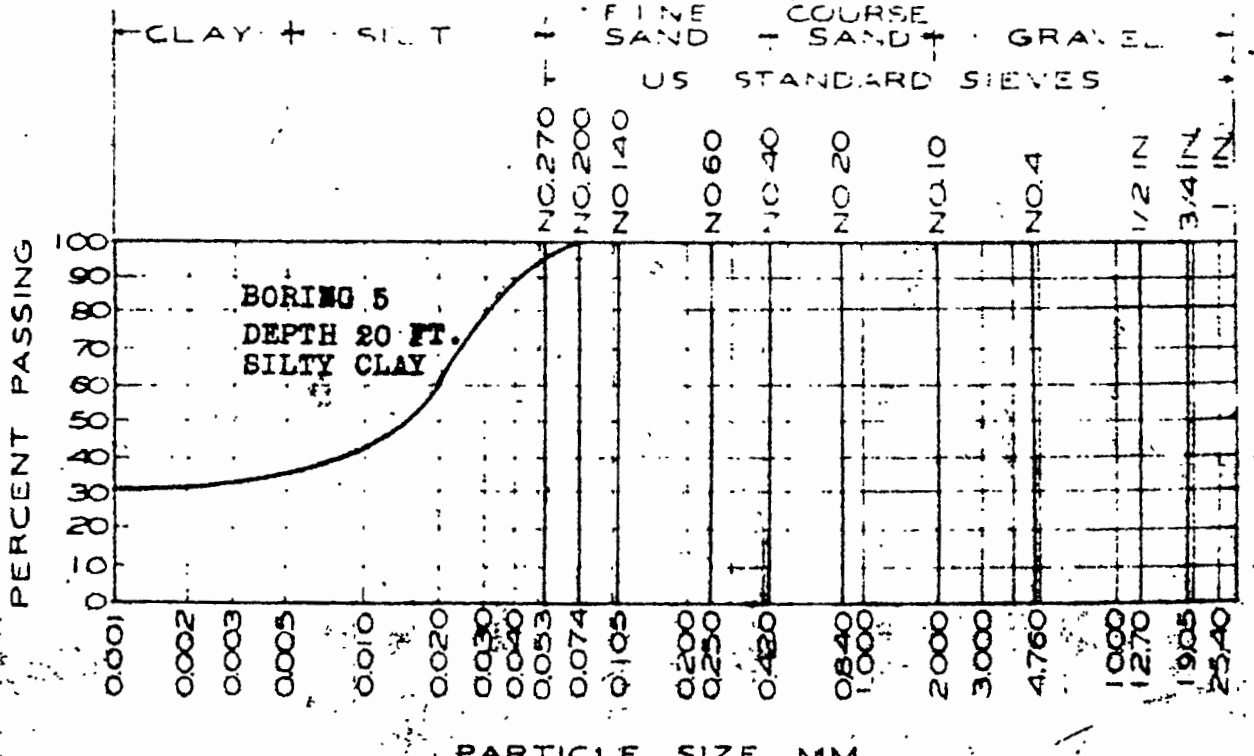
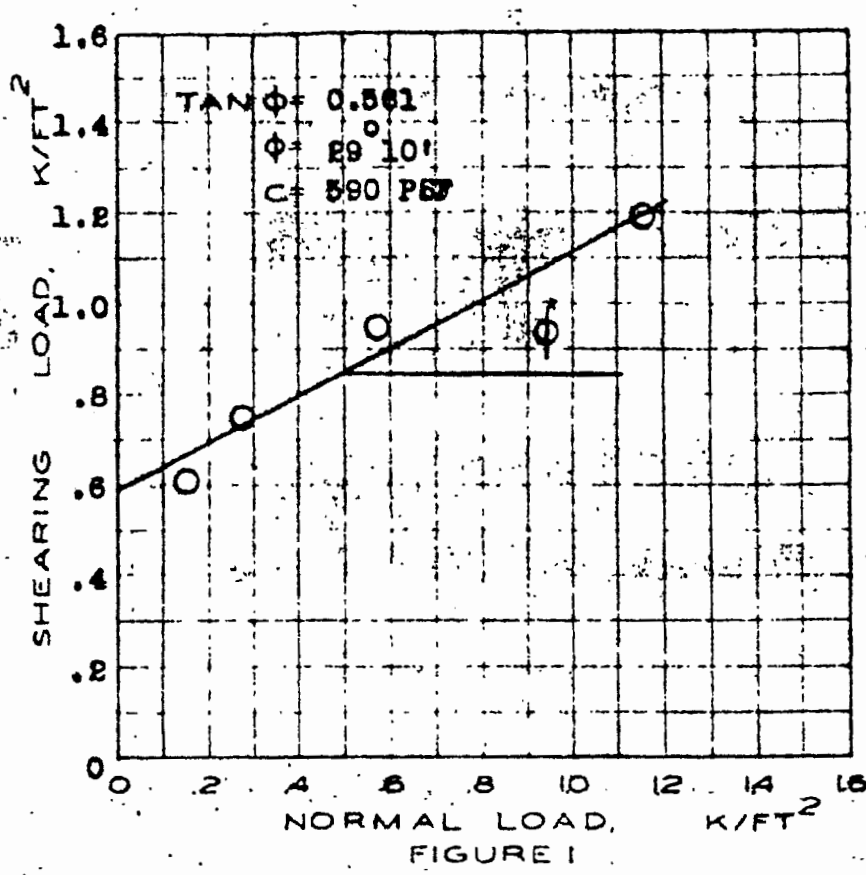


FIGURE 2

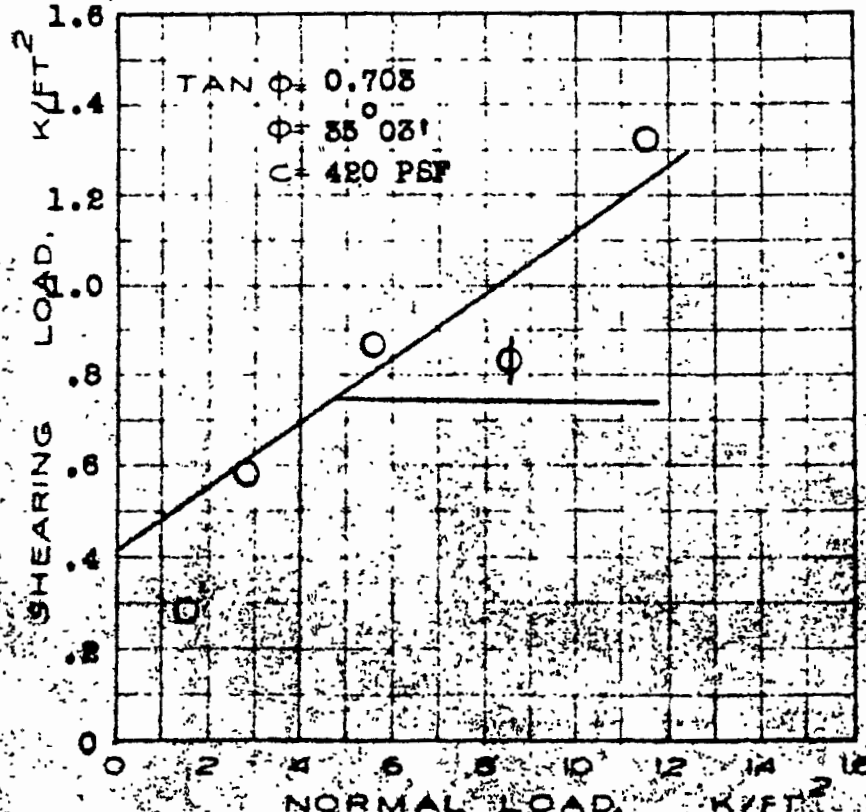
DIRECT SHEAR TESTS

DATE: 4-24-62



BORING NO. 2
SAMPLE NO. 5
DEPTH 20 FT.

FIGURE 1



BORING NO. 4
SAMPLE NO. 2
DEPTH 15 FT.

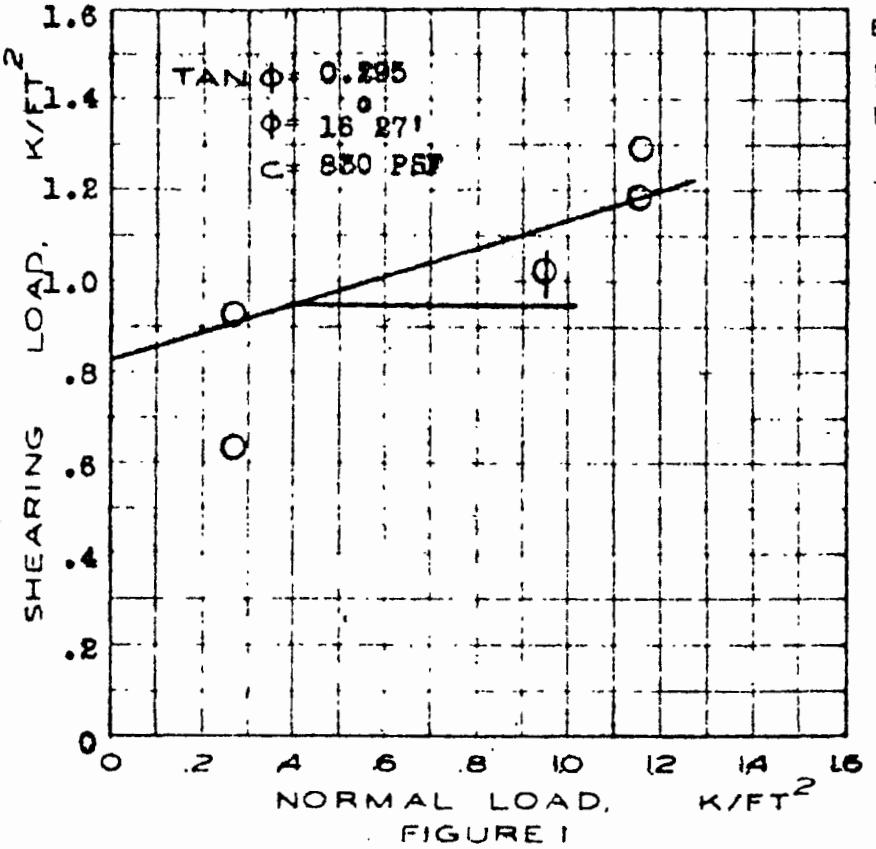
FIGURE 2

SLADDEN ENGINEERING

PROJECT NO. 444-2048

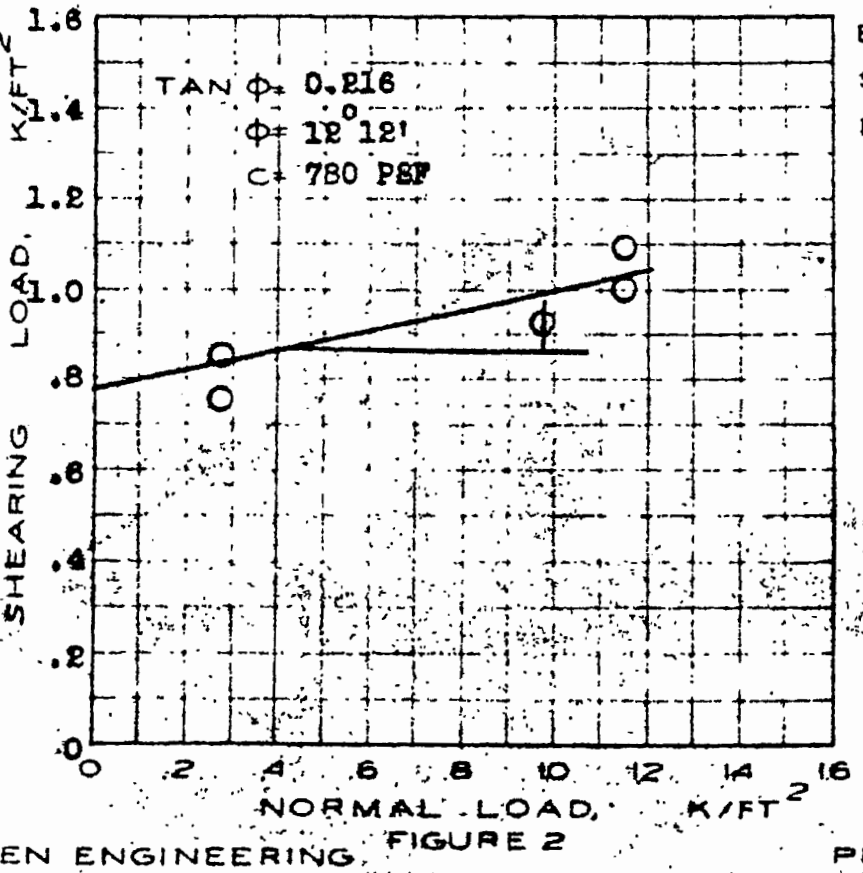
DIRECT SHEAR TESTS

DATE 4-24-62



BORING NO. 4
SAMPLE NO. 1
DEPTH 5 FT.

FIGURE 1

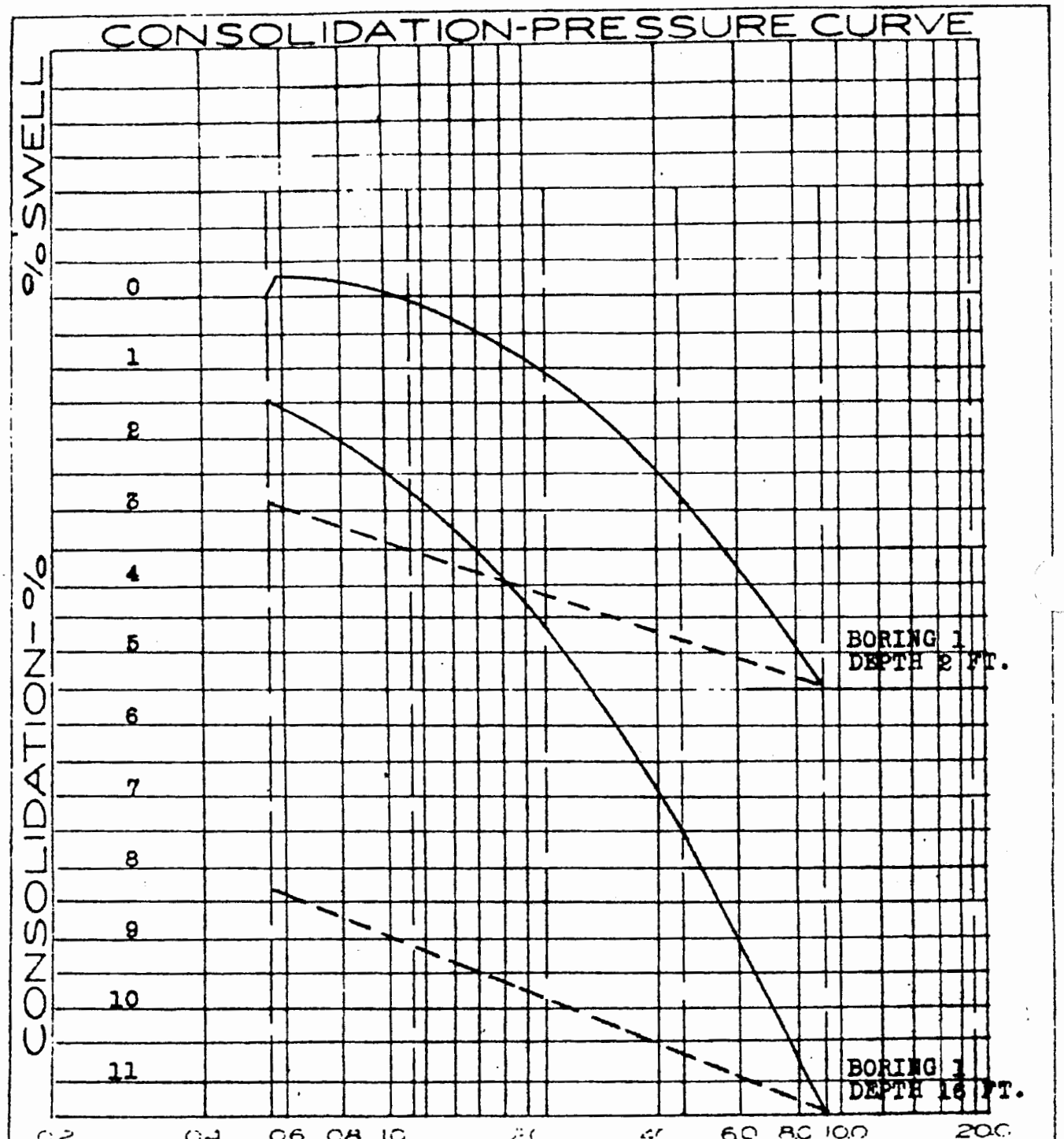


BORING NO. 4
SAMPLE NO 4
DEPTH 30 FT.

FIGURE 2

BORING 1
DEPTH 2 & 16 FT.

DATE 4-24-62



NOTE: SAMPLES SATURATED @ EQUIV. BEARING LOAD OF 575 P.S.F.

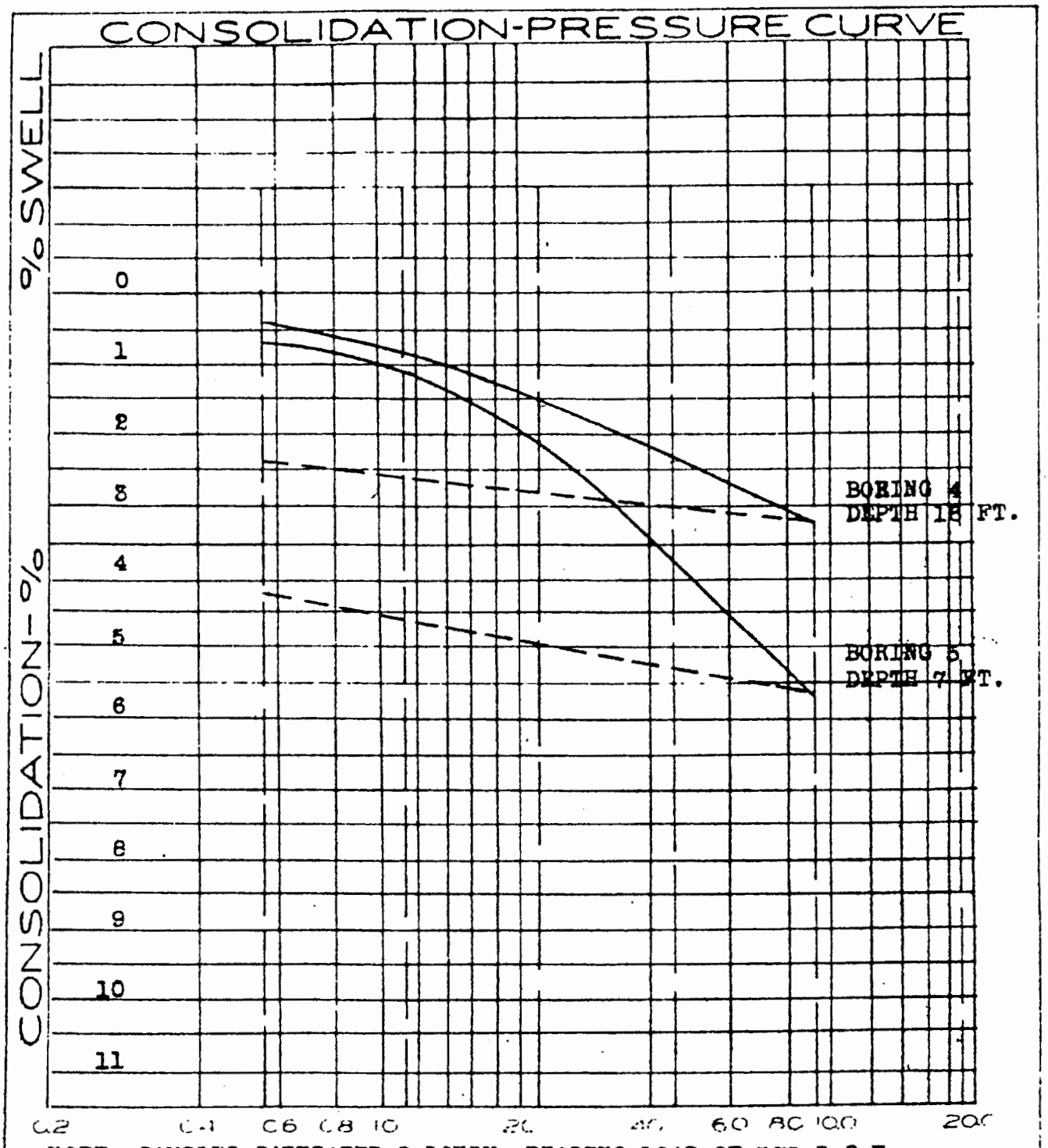
NORMAL LOAD
KIPS PER SQ FT

SLAUSON ENGINEERING

PROJECT NO 444-2048

BORING 4 & 5
DEPTH 16 & 7 FT.

DATE 4-24-62



NOTE: SAMPLES SATURATED @ EQUIV. BEARING LOAD OF 575 P.S.F.

NORMAL LOAD
KIPS PER SQ FT

SUBSOIL ENGINEERING

PROJECT NO 444-2048

Soils Investigation

Proposed Office Building

Calmar, Inc.

333 South Turnbull Canyon Road

City of Industry, California

August 30, 1988

File: 444-8145

— Prepared By —

Sladden Engineering

6782 STANTON AVE., SUITE E
BUENA PARK, CA 90621

(213) 864-4121 (714) 523-0952

Soils Investigation

Proposed Office Building

Calmar, Inc.

333 South Turnbull Canyon Road

City of Industry, California

August 30, 1988

File: 444-8145

General

The purpose of this investigation was to determine the characteristics of the subsurface soils on the site so that safe and economical building foundations can be designed. A two story office building having a foot-print area of about 5,000 square feet has been planned for construction. The proposed building floor slab will be constructed at or near the level of the existing grade. Maximum column loads are not expected to exceed 100 kips with wall loads on the order of 2.5 to 4.0 kips per lineal foot.

Two exploratory borings were drilled to depths of 20.0 feet for this investigation. The approximate boring locations are shown on the attached sketch. A caisson-type drilling rig with a 20-inch diameter rotary bucket was used to advanced the test holes. Undisturbed and bulk samples of the subsurface soils were obtained for laboratory testing. Undisturbed samples were obtained by forcing a 2½-inch diameter split barrel sampler lined with brass rings into the soil.

Field dry densities and moisture contents of the samples were determined and are recorded on the attached boring logs. The soils were logged in

the field and their classifications checked in the laboratory by mechanical analyses. Representative grain-size accumulation curves are attached to this report. The shear strength and compressibility of the subsurface soils were determined by laboratory tests. These results are shown graphically on the attached direct shear and consolidation-pressure curves. An expansion index test was performed on a sample of the upper soil in accordance with UBC Standard No. 29-2. The soluble sulfate concentration of the upper soil was also determined.

Site Location and Conditions

The area tested is located at the existing facility on the southwest corner of the intersection of Turnbull Canyon Road and Proctor Avenue in the City of Industry. The areal topography and lot's surface are generally level. The parcel has been developed and a large concrete tilt-up building occupies much of the site. The proposed new building will be constructed adjacent to this existing structure at its northeast corner. Most of the proposed building area is surfaced with A.C. and used for automobile parking. Some landscaped areas exist within the proposed new building area.

Discussion and Recommendations

Soil Conditions

At the test hole locations from 3.0 to 3.5 inches of A.C. over from 2.0 to 3.0 inches of base are present. Deeper pavement sections may exist in other areas. The underlying subgrade soils are medium stiff lean clays.

An expansion index test of the upper material showed an expansion index of 99 with a high expansion potential. The deeper natural soils are medium stiff lean clays, clayey and sandy silts. Beneath 15.0 feet these materials become wetter and softer. The test hole walls stood well during our field work and no ground or perched water was encountered in this investigation. Prior test borings on the property drilled for the existing facility had encountered ground water at a depth of 29.0 feet. Cross-sections of the on-site soils are shown on the attached Boring Logs.

General Foundation Design

The near surface subgrade soils are expansive and vary as to consistency and moisture content. Within the proposed planter areas the upper materials are loose. It is therefore recommended that these loose upper soils be recompacted to provide adequate slab support and that the proposed building be supported on spread footings obtain bearing in the firm underlying natural soils. Because of the expansive nature and varying consistency of the upper soils it will be necessary to install footings somewhat deeper than normal and provide some select material beneath the floor slabs. Design criteria for expansive soil should be utilized.

Site Preparation and Earthwork

The construction area should first be stripped of all A.C. and concrete curbs or gutters and this material hauled from the site. The base material existing beneath the removed A.C. pavements should be stockpiled for later use as select material beneath the proposed building floor slab.

Care should be taken during this stockpiling operation to assure the base material is not contaminated or mixed with the underlying on-site soil.

Within and around any existing planter areas within the proposed building area the upper on-site soils should be removed. The depth of this over excavation should include at least the upper 2.5 feet of on-site material and should extend 3.0 feet beneath the bottoms of the proposed floor slabs. Within other portions of the proposed building area at least the upper 12 inches of existing subgrade soil should be removed. Any soft or wet material remaining at the bottoms of the excavation should also be removed.

It should be noted that some areas of soft wet soil may be found during the work especially if grading or footing installation were schedule during or shortly after the rainy season. Such wet conditions would result in cost overruns and construction delays and could necessitate the installation of a 12 to 18 inch layer of 3/4 inch gravel to stabilize subgrade or bearing soils.

The bases of the excavations should be scarified to a depth of 6 inches, brought to 2% to 4% above optimum moisture content and compacted to at least 90% of maximum dry density. The excavated soils, cleaned of all foreign material, should then be replaced in 6 inch layers, brought to 2% to 4% over optimum moisture content and compacted to at least 90% of maximum dry density.

Imported material should be an approved, non-expansive and predominantly granular soil type having an E.I. of less than 30 and it too should be compacted to 90% of maximum dry density. At least 12 inches of such high quality soil should be placed as subbase elevation within the proposed building area. The on-site base material uncontaminated by clayey soil may be incorporated into this 12 inch layer of slab subgrade material. To avoid delays during construction samples of any proposed imported soil should be furnished the soils engineer at least 48 hours prior to their intended use to allow for testing and evaluation.

Limits of compaction should be established in the field prior to construction. All wall, footing and utility trench backfills should be compacted to at least 90% of maximum dry density. As the on-site clayey soils are difficult to compact, espcially in confined areas, it may prove economical to use higher quality imported sandy soil for such backfill.

Spread Footings

If the above recommendations are followed, spread footings obtaining bearing in the firm underlying soils, may be used to support the building. Exterior footings should obtain bearing at a minimum depth of 42 inches beneath the exterior finished grade. Interior footings should extend at least 42 inches beneath the bottom of the floor slab. Isolated square or rectangular footings so placed may be designed using an allowable bearing value of 2000 pounds per square foot. Continuous footings, having the same embedments, may be assigned a bearing value of 1500 pounds per square

foot. Continuous footings should be provided with horizontal reinforcement consisting of at least four No. 4 bars - two placed at the top of the footing and two at the bottom. No bearing value increases are recommended for increases in footing widths or depths and the bearing values may be increased by 1/3 to resist wind, seismic or other short time loadings. The on-site soils are expansive and subject to volume changes with changes in moisture content. Care should be taken to see that bearing soils are not allowed to become saturated from planting area sprinklers or ponding of rain water. Drainage from the building area should be rapid and complete.

Lateral Loads

A coefficient of friction of 0.30 may be assumed between the slabs on grade, the footings and the underlying soils. The passive resistance of compacted soils adjacent to footings will be equivalent to those pressures exerted by a fluid having a density of 250 pounds per cubic foot up to a maximum value of 2000 pounds per square foot. Active earth pressures against any level, drained and non-surcharged cantilevered retaining wall free to deflect at the top will be equivalent to those pressures exerted by a fluid having a density of 45 pounds per cubic foot. If walls are restrained at the top from lateral movement this value should be increased by 20 pounds per cubic foot.

Floor Slabs

The on-site soils are expansive. A 12 inch layer of approved non-expansive

material has been recommended beneath the floor slab. The existing base material uncontaminated by on-site soil is satisfactory for such use. In the building area where moisture-sensitive floor covering will be installed or dampness of the floor slab is undesired a moisture-proof membrane should be provided beneath the floor slab. This membrane should be lapped and sealed and covered with a 2.0 inch layer of rolled and moistened sand. Floor slabs should be designed for both construction and operational loads using a modulus of subgrade reaction of 125 pounds per square inch per inch. Care should be taken during construction to see that construction equipment loads are properly distributed so that slab design stresses are not exceeded. Floor slabs should have a minium thickness of 4.0 inches and be provided No. 3 bars placed on 30 inch centers and running in each direction.

Pavements

Based on tested soil parameters, an 'R' value of 15 has been used for pavement design. Using an 'R' value of 15 and a traffic index of 4.0 in automobile traffic areas, 5.0 for automobile and light truck driveways and 5.5 for any heavier truck traffic the following flexible pavement sections are recommended:

T.I.	Thickness A.C. Inches	Thickness Base Inches
4.0	3.0	5.0
5.0	3.0	7.0
5.5	4.0	8.0

If concrete pavements are subjected to truck traffic areas they should have a minimum thickness of 5.5 inches and be underlain by a 4-inch layer of base material. No reinforcement is required, however, construction or weakened plane joints should be provided on no more than 15 foot centers to control cracking.

Concrete walkways should be underlain by at least 6.0 inches of non-expansive import soil or 4.0 inches of the existing base material. Just prior to placing such concrete the upper 18 inches of subgrade soil should be brought to 2% to 4% above its optimum moisture content.

Aggregate base should conform to the requirements for Class 2 aggregate base in Section 26 of Caltrans Standard Specifications, January, 1975. Asphaltic concrete should conform to Section 39 of the Caltrans Standard Specifications and should be type B, ½-inch maximum size and medium graded. The recommended sections should be provided a uniformly compacted subgrade and precise control of thickness and elevations during placement. Drainage from paved areas should be rapid and complete. It should be noted that the sections recommended above are minimum sections and as heavily loaded vehicles may cross automobile parking areas, thicker pavement sections may be desired at these locations.

Soluble Sulfates

The tested soluble sulfate concentration of the subgrade soil is 0.0136%. This concentration if within the limit allowed to Type II cement and Type V cement will not be required.

Conclusion

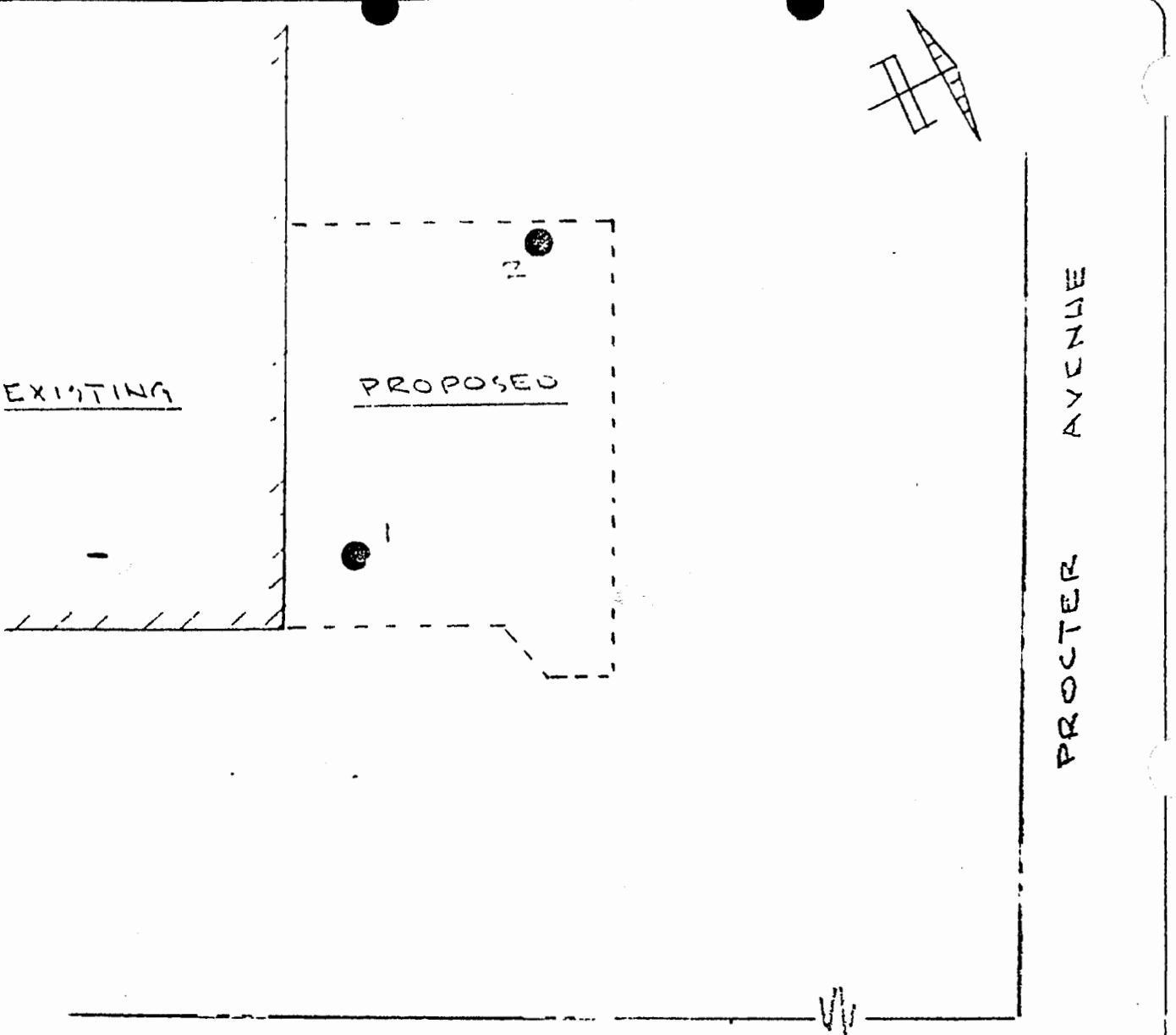
The above are our opinion and engineering judgments based on field and laboratory soil tests and applied soil mechanics principles. Areas not covered by our borings are assumed to be consistent with those tested. As the site soil conditions vary and field adjustments may be required to compensate for these variables, the use and validity of these recommendations are contingent upon a representative of Sladden Engineering being present during grading. If others are employed to perform any soil testing this office should be advised prior to such testing so that our required site inspections and indemnification may be coordinated. All conditions and recommendations contained herein should either be confirmed or modified as required in a report based on the results of laboratory and field tests and inspections during site grading.

Respectfully submitted,

Sladden Engineering

Jerome H. Fadden GE 303 Exp. 12-31-88

JHF:az



LOCATION PLAN
SCALE: 1" = 30'

● APPROX. LOCATIONS - TEST BORINGS

FILE: 111 8147

Sladden Engineering

BORING LOG

BORING NO 1

PROJECT: Conger - City of Industry

DATE: 8-30-88

SOIL CLASSIFICATION (TYPE COLOR & CONSISTENCY)	DEPTH-FEET	LEGEND	SAMPLE NO.	DRY DENSITY LBS/CU FT	MOISTURE CONTENT - %
3½" A.C.; 2"Base	0				
Lean Clay, Brown, Med. Soft Med. Stiff					
Dk. Brown			1	109	21
	5				
			2	101	19
Clayey Silt, Brown, Med. Compact	10				
Sandy Silt, Brown, Med. Compact Trace of Clay					
	15				
Wetter Lean Clay, Brown, Med. Soft			3	99	25
	20				

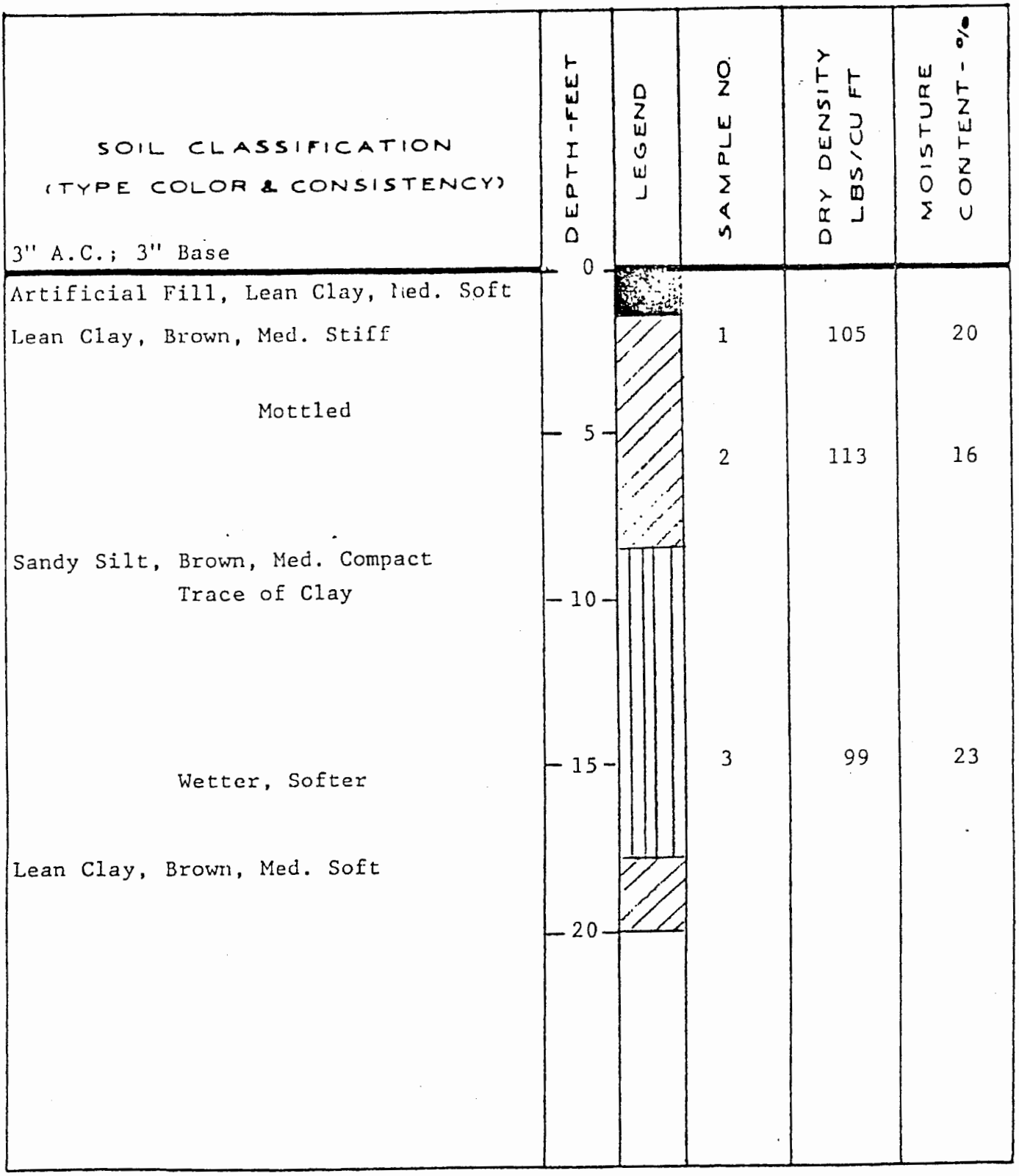
Sladden Engineering

BORING LOG

BORING NO 2

PROJECT: Conger - City of Industry

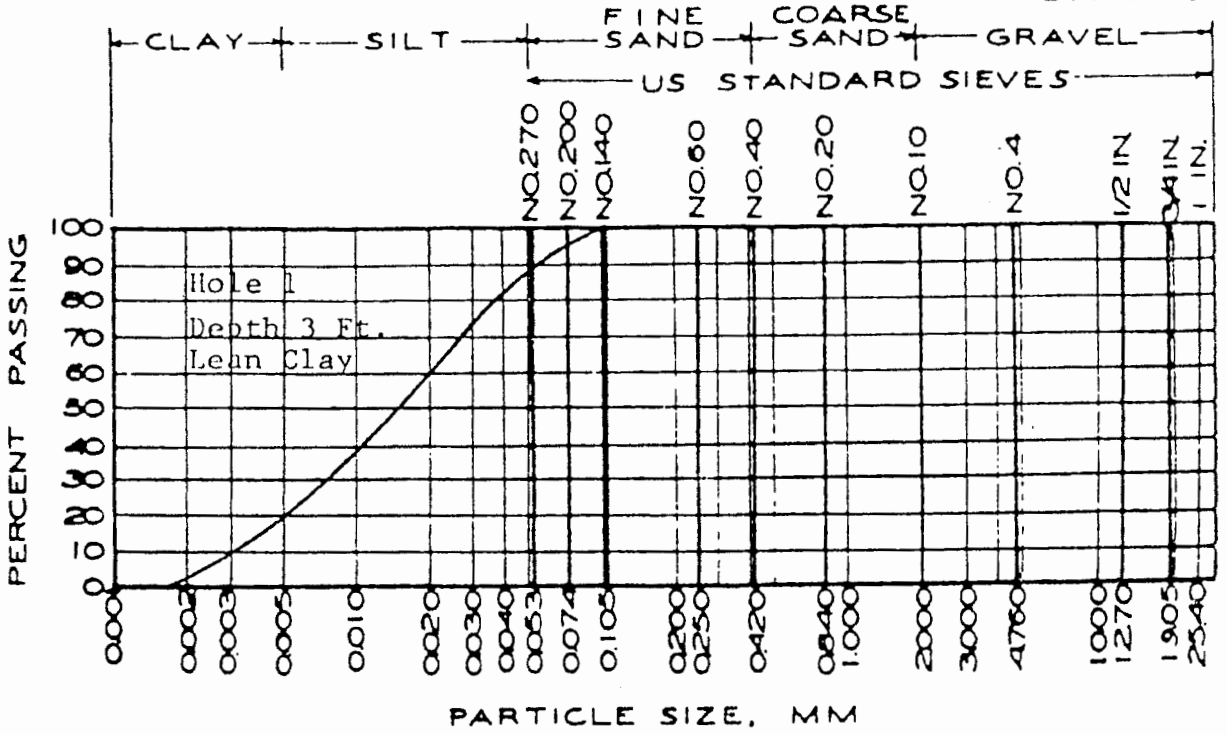
DATE: 8-30-88

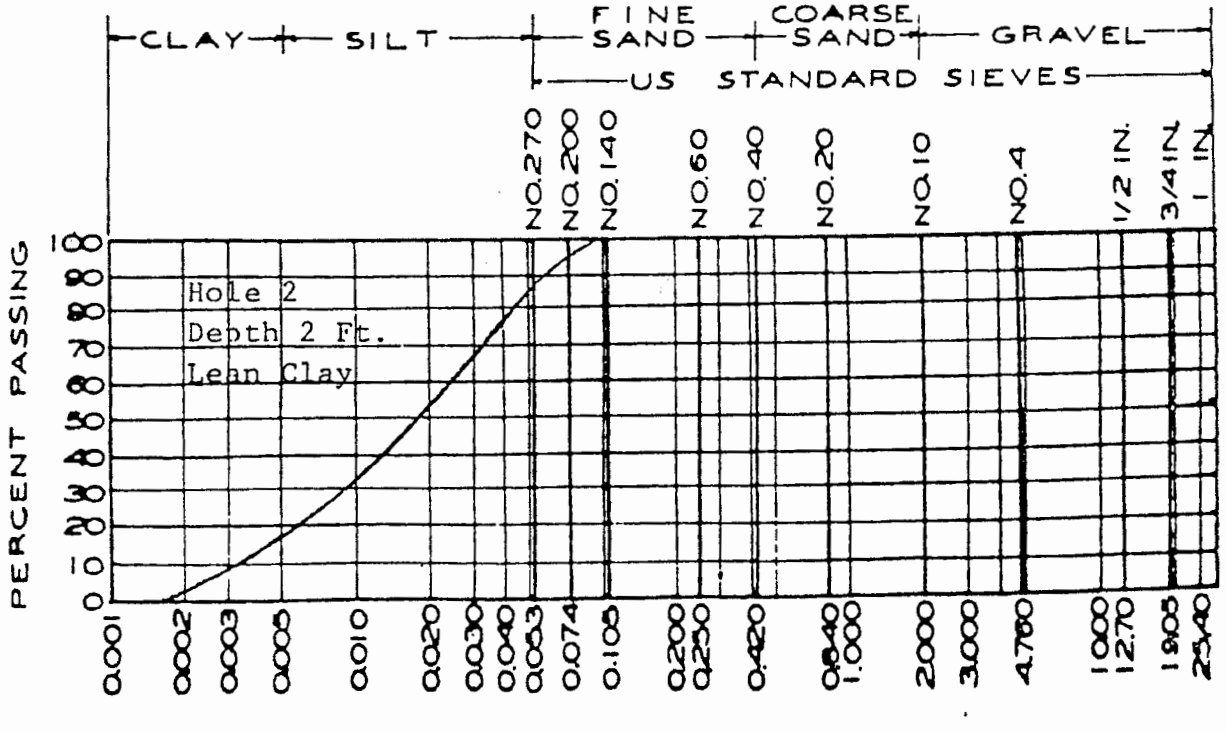


Sladden Engineering

GRAIN SIZE, MM
ACCUMULATION CURVE

DATE: 8-30-88

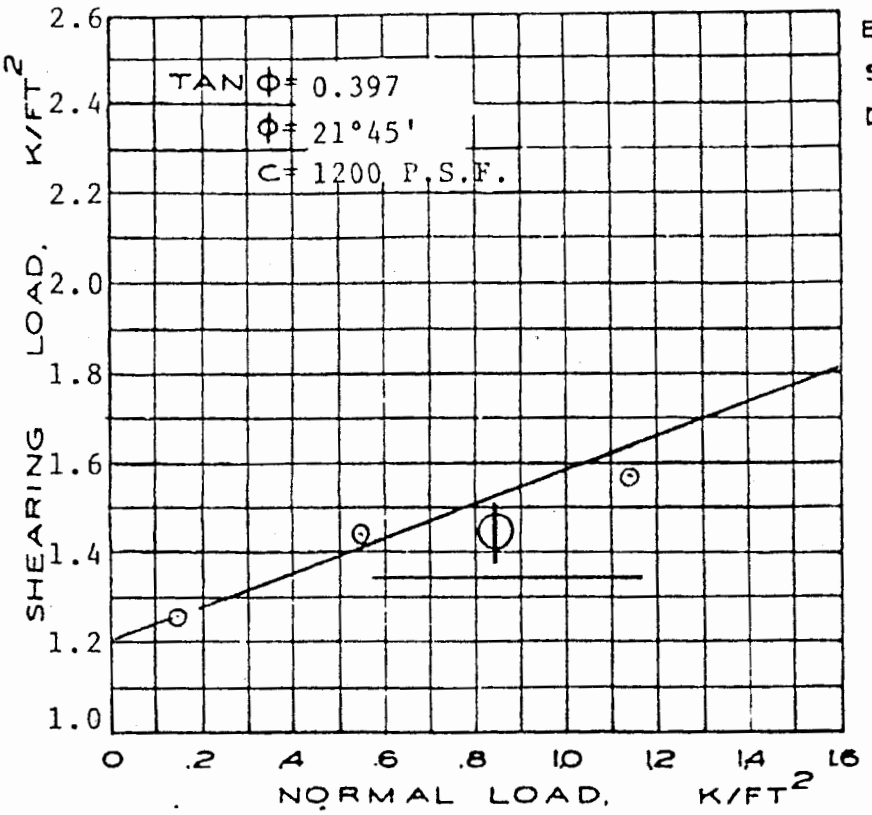




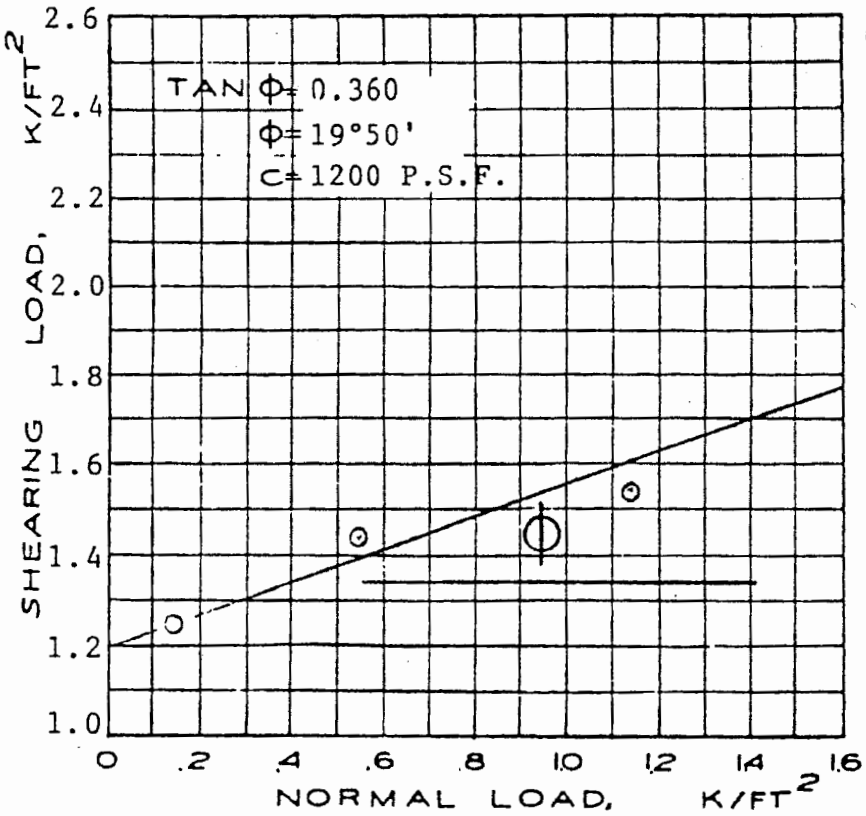
Sladden Engineering

DIRECT SHEAR TESTS

DATE: 8-30-88



BORING NO. 1
SAMPLE NO. 1
DEPTH 3 Ft.

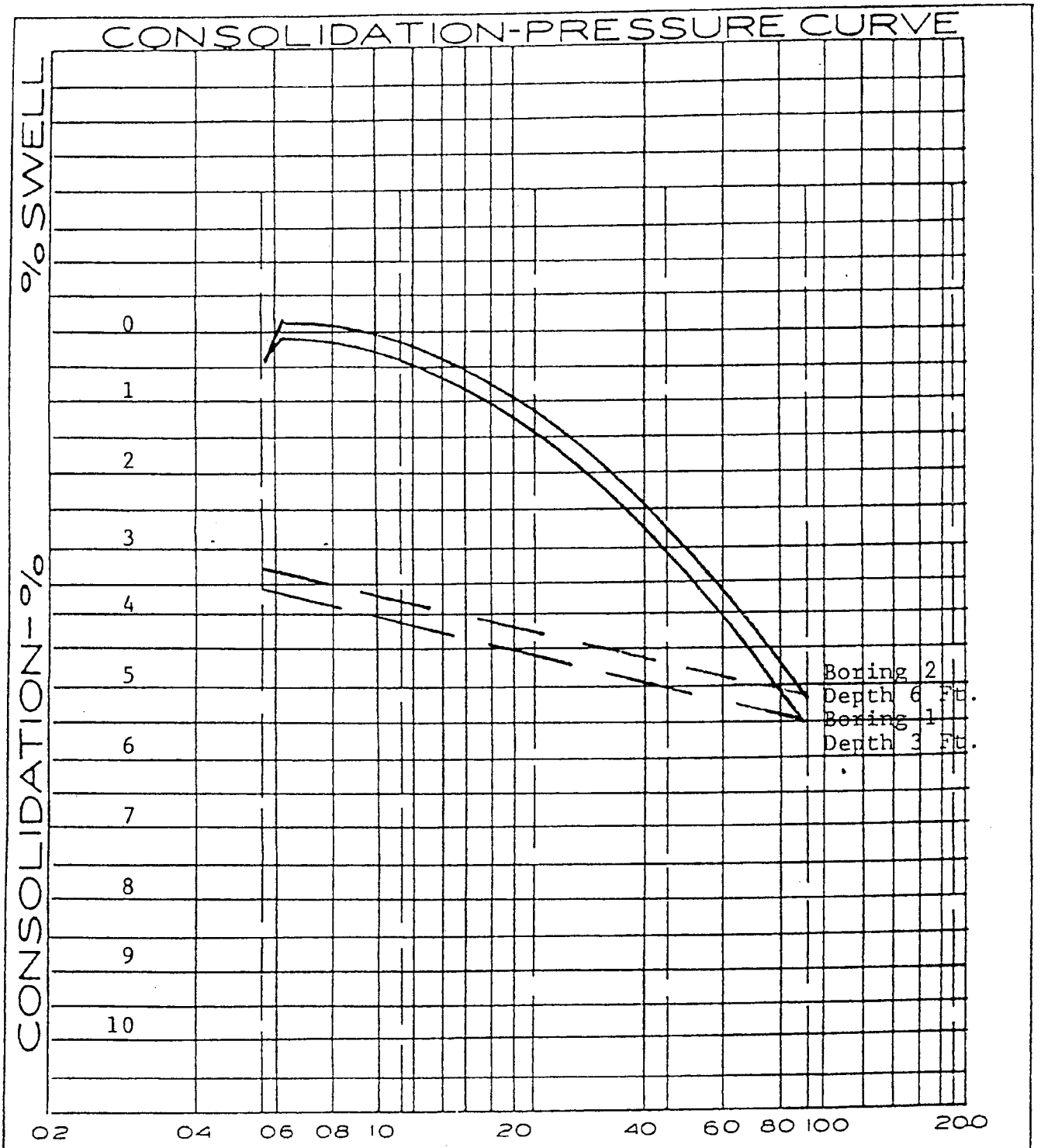


BORING NO. 2
SAMPLE NO. 1
DEPTH 2 Ft.

Slodden Engineering

BORING NO 1 & 2 DATE 8-30-88

DEPTH 3 & 6 Ft.



Note: Samples Saturated @ Equiv. Bearing Load of 575 P.S.F.

NORMAL LOAD
KIPS PER SQ FT

Sladden Engineering

APPENDIX B

NPL Site Cleanup Workplan

NPL SITE CLEANUP WORKPLAN

SAN GABRIEL GROUND WATER BASIN 4

Site Information

Location and Type of Site
La Puente Area
La Puente, CA 91744
Los Angeles

The San Gabriel Ground Water Basin (SGGWB) is an area of approximately 195 square miles, occupying most of the northeastern quadrant of Los Angeles County. Its boundaries are the Whittier Narrows to the southwest within the Cities of Pico Rivera, Montebello, Monterey Park, La Puente and Hacienda Heights; the Raymond fault on the northwest within the Cities of Arcadia, Monrovia and San Marino, the line of contact between the alluvium and the bedrock of the San Gabriel Mountains on the north, north of the Cities of Duarte, Azusa and Glendora; and the San Jose Hills on the east within the Cities of San Dimas, LaVerne and Pomona. The Basin is divided into four areas delineated by the locations of the major contaminated ground water plumes. Each individual area is listed on the EPA National Priorities List (NPL) or Superfund list. The ground water migrates at a rate of about 50 to 1,000 feet per year. The actual areas may have been extended from those delineated. The SGGWB is a drinking water source for an estimated 700,000 - 1,000,000 residents of about 34 incorporated cities and unincorporated areas. In the SGGWB 4, the contaminated ground water plume is approximately 1 mile long and 1 mile wide. It runs along the axis of the San Jose Creek, in the City of Industry. It lies primarily beneath the City of Industry. The ground water in this region has been contaminated with trichloroethylene (TCE), perchloroethylene (PCE) and carbon tetrachloride (CTC).

Description of Hazardous Wastes
There are 275 public water supply wells in the San Gabriel Valley Basin. To date, 70 of these wells have been contaminated with TCE, PCE, and/or CTC at levels which exceed federal maximum contaminant levels (MCLs) and State action levels.

Threat to Public Health and Environment
The ground water represents over 90 percent of the water supply in the San Gabriel Valley Basin. Migration of contaminants through the ground water presents a possible exposure pathway. In addition, vapors from ground water contaminants pose a potential inhalation pathway. All wells which have shown contaminants above State or federal drinking water standards have been closed. There is no known exposure above the State or federal drinking water standards for operating wells at this time

Site Status

Status of Site Activity
A treatment system is proposed to be implemented at the Suburban Water System's Bartolo Well Field, north of Whittier. The contamination at the Bartolo Well Field is contributed to by the migration of contaminated ground water from SGGWB 1, 2 and 4.

A cooperative agreement between EPA and the Upper San Gabriel Valley Municipal Water District concerning technical assistance and community relations activity during the RI/FS was signed in September 1985.

Projected Revenue Sources
This site has been included on the NPL; therefore, federal funding will be available to cover 100 percent of the RI/FS costs and 90 percent of the cost of final cleanup. The state's share is approximately $2,500,000 for the San Gabriel Ground Water Basin Area 4.

Project Budget and Cash Flow Estimates

The cost estimates shown below reflect only the State's share (ten percent) of site cleanup. All activities will be funded from Bond sale proceeds to the extent that federal Superfund or responsible party funding is not available.

Task Group	Projected State Costs	Estimated Completion
Site Characterization		
Enforcement Order		N/A
Remedial Investigation/ Feasibility Study		Dec. 1996
Remedial Action Plan/ Record of Decision		Jan. 1999
Remedial Action	$ 2,500,000	
Design		Aug. 2003
Implementation		Feb. 2008
Certification		Feb. 2010
Cost Recovery and/or Operation and Maintenance		
Cost Recovery		Jan. 2008
Operation and Maintenance		20+ years
TOTAL PROJECT COSTS	$ 2,500,000	

THE DEGREE OF HEALTH HAZARD POSED BY CHEMICAL CONTAMINATION OF A SITE DEPENDS ON THE CONCENTRATION OF THE MATERIAL PRESENT AND THE DURATION OF EXPOSURE. DHS POLICY IS TO EVALUATE ALL LISTED HAZARDOUS SUBSTANCE RELEASE SITES FOR THE NEED TO TAKE ACTION TO ABATE ANY ACUTE PUBLIC HEALTH OR ENVIRONMENTAL THREATS POSED BY A SITE. THEREFORE, THE THREATS DESCRIBED IN THIS DOCUMENT GENERALLY REPRESENT THE POTENTIAL IMPACT OF LONG-TERM EXPOSURE TO SPECIFIC HAZARDOUS SUBSTANCES IF: 1) THE SITE IS NOT ABATED, 2) THE SUBSTANCES MIGRATE OFFSITE, AND 3) THE SUBSTANCES AT SOME POINT COME INTO CONTACT WITH HUMAN OR ENVIRONMENTAL RECEPTORS.

APPENDIX C

Chemical Inventory and Storage Locations

3.0 Hazardous Materials Inventory:

C.A.S.NO.	Calmar No.	Common Name	Chemical Name	Max.Qty Stored	Loc.
31075-24-8	New	Chemquest 201	Algaecide	10	5
N/A	New	Chemquest 203	Algaecide	10	5
600510	1029	Vectra oil #4	Pet. Hydrocarbon	135 gal.	4
N/A	1033	Ridge Dk.Cut.Oil	Pet. Cut. Oil	5 gal.	4
9664-93-9	New	Unitrex 6701	Sulfuric A. Sol.	120 gal.	10.11
N/A	1035	Silicone Fluid	Dimethylpoly-siloxanes	110 gal.	6
78953	1187	MEK	Methylethyl-ketone	55 gal.	1
8032-32-4	1190	Stoddard Solvent	Hydrocarbon Sol.	55 gal.	1
67-63-0	1321	Logostat	Isopropyl Alc.	275 gal.	6
P-5065	1342	Chlorothene SM Solvent	1,1,1-Trichloro-ethane	110 gal.	1
67630	1332	Isopropanal	Isopropanal	330 gal.	1
111-46-6 64742-52-70	1458	310 Soluble oil	Diethylene Gly.5% Severely Solvent Treated Oil 95%	55 gal.	7
7632-00-0	1333	Omni Gard	Algaecide	55 gal.	5
N.L.	N.L.	MPO-10	Hydrocarbon	55 gal.	4
N.L.	N.L.	GD 600	Hydrocarbon	110 gal.	4
N.L.	N.L.	Sullube 32	Hydrocarbon	110 gal.	4
N.L.	N.L.	M&M Honing Oil	Hydrocarbon	60 gal.	7
72623-87-1 72623-85-9	1483	Hyd. Oil ISO 68	Parafin B.Petro oil.	750 gal.	4
N.L.	N.L.	D.T.E. Oil M.H.	Hydrocarbon	55 gal.	4
N.L. 7664-93-9	N.L.	Vacuoline oil 1405	Hydrocarbon	55 gal.	7
107-21-1	1492	02353 Texaco Anti-freeze coolant	Anti-freeze	80 gal.	5
816-28-2	1496	600 W cyl. oil	Pet. Hydrocarbon & additives	5 gal.	1
Part #6617	1653	Safety clean	Mineral spirits	60 gal.	6,8,9
waste	mix	Used oil		350 gal.	2
waste	mix	solvent		110 gal.	2
waste	dirty	Trichloroethane		55 gal.	2

Calmar MANUFACTURING OPERATING PROCEDURE	Document Number 6220-050-0012-89	Rev. No. 1 Page ___ of ___
Title/Description (i.e., mold No., machine No., action, etc.) Hazard Communication Business Plan	Product Type General Department Mfg.	Orig. Issure Date 4/4/89 Rev. Date. Reformated	Prepared by DBP Revised by DBP Approved by ___

3.0 Hazardous Materials Inventory:

C.A.S.NO.	Calmar No.	Common Name	Chemical Name	Max.Qty Stored	Loc.
waste	mix	waste water		165 gal.	2
waste	dirty	alcohol/water		110 gal.	2
waste	mix	oily rags		500 gal.	2

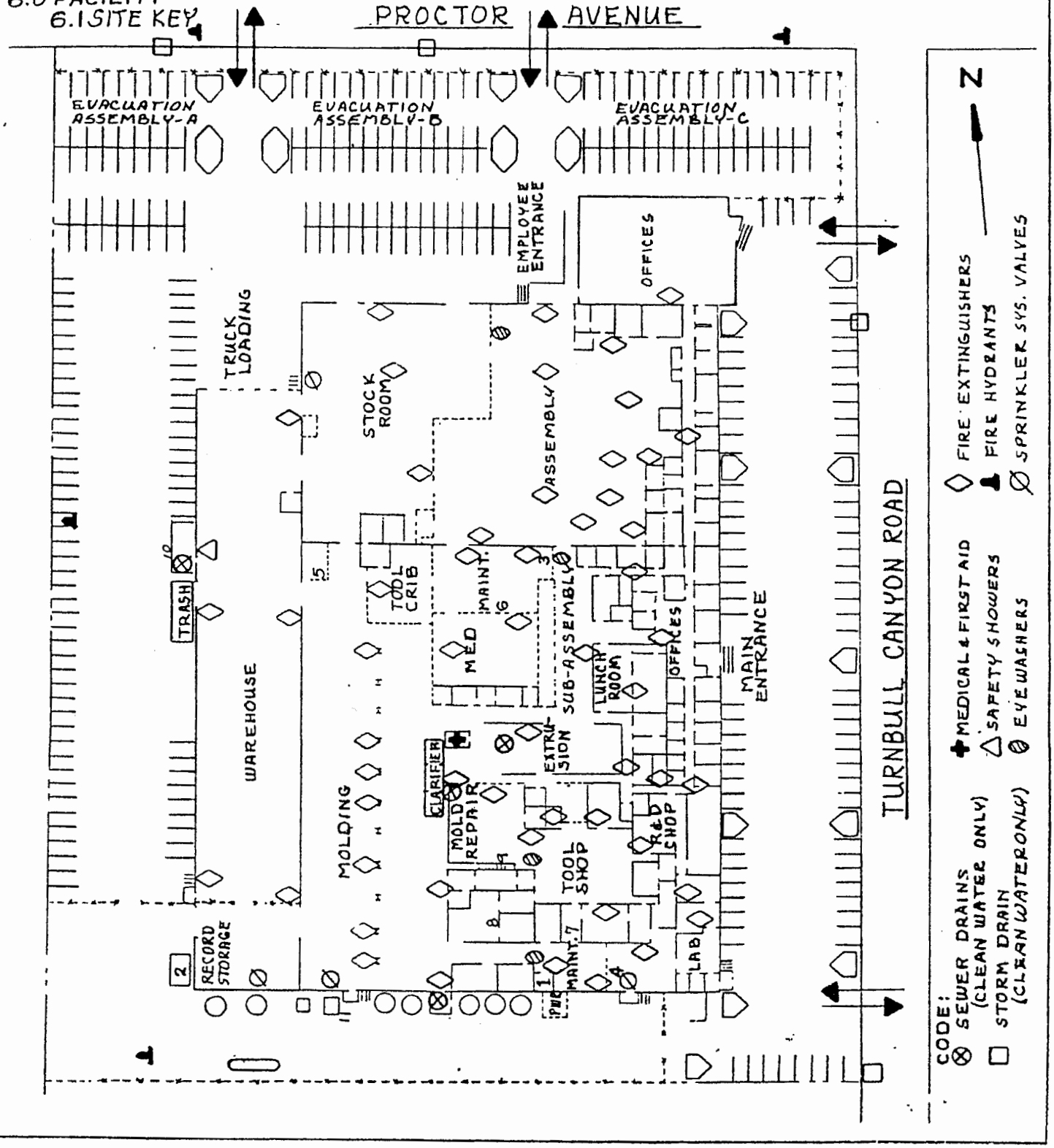
Calmar

MANUFACTURING OPERATING PROCEDURE

Document Number	Rev. No.
6220-050-0012-89	1
	Page ___ of ___

Title/Description (i.e., mold No., machine No., action, etc.)	Product Type	Orig. Issure Date	Prepared by
Hazard Communication Bussiness Plan	General Department Mfg.	4/4/89 Rev. Date. Reformated	DBP Revised by DBP Approved by

6.0 FACILITY
6.1 SITE KEY



APPENDIX D

Wastewater Discharge Permit

PPLICATION NO.

E 35793

EXISTING INDUSTRY
PERMIT FOR INDUSTRIAL WASTEWATER DISCHARGE
SANITATION DISTRICTS OF LOS ANGELES COUNTY
2020 Beverly Blvd., Los Angeles, Calif. 90057
John D. Parkhurst, Chief Engineer and General Manager

PERMIT NO. 1593

INDUSTRY, Calif.* 3 / 27 / 74 (MO. DAY YR.)

APPLICATION IS HEREBY MADE BY* CALMAR DIVISION, DIAMOND INTERNATIONAL CORPORATION (PRINT) (FIRM NAME) A

3 (Mailing Address) 333 Turnbull Canyon Road (STREET) COS Industry, California (CITY) (STATE) 91749 (ZIP) E

7 Owner (OWNER, TENANT, ETC.) G of the property located at

9 (Street) 333 Turnbull Canyon Road (PRINT) 111 (City) Industry, Calif (Zip) 91749 (ADDRESS OF PROPERTY PRODUCING WASTEWATER DISCHARGE)

Assessors Map Book No.* 8208 Page No.* 014 Parcel No.* 020 003 & 004 K
(LEGAL ADDRESS OF PROPERTY PRODUCING WASTEWATER DISCHARGE)

tfall "A" as shown on Drwg #SK-99 on Turnbull Cny. Rd. approx. 600' South of Procter Avenue
PRINT (LOCATION OF POINT OF WASTEWATER DISCHARGE TO SEWERAGE SYSTEM)
for a Permit for Industrial Wastewater Discharge to the sewerage system.

3 Type of Industry* Misc. Plastic Products (GENERAL DESCRIPTION) M. 17 30 79 (FEDERAL SIC NOS.) Q

Number of Employees (Full Time)* 550 (Part Time)* -0- S

21 Raw Materials Used* Polypropylene-Polyethylene-Styrene-Celcon-ABS-Stainless Steel Wire & Balls U
(GENERAL DESCRIPTION – ADD ADDITIONAL SHEETS AS NEEDED)

oducts Produced Plastic Sprayers - Dispensers & Safety Closures
(GENERAL DESCRIPTION – ADD ADDITIONAL SHEETS AS NEEDED)

tewater Producing Operations (1) Evaporative Cooling Towers, (2) Parts Washer, (3) Chlorinated Cool Bath
(FULL DESCRIPTION – ADD ADDITIONAL SHEETS AS NEEDED)

31 Time of Discharge – 24 hrs AM/PM to _____ AM/PM, (WORKING DAY – CROSS OUT AM OR PM) Days per Week* M T W Th F Sa Su (CIRCLE DAYS)

Wastewater Flow Rate* average 2950 + Domestic (see attached) AA (Gallons Per Day)

Constituents of Wastewater Discharge see attached
(GENERAL DESCRIPTION – ATTACH CHEMICAL ANALYSES RESULTS TO THIS APPLICATION)

Person in company responsible for industrial wastewater discharge:

41 Andrew H. Anderson (PRINT) (NAME) Plant Engineer (POSITION) 213-330-3161 (TELEPHONE NUMBER) BB

I affirm that all information furnished is true and correct and that the applicant will comply with the conditions stated on the back of this permit form.

Date March 27, 1974

Signature for Applicant C. Allen Hickman (COMPANY ADMINISTRATIVE OFFICIAL) (NAME) C. Allen Hickman, Vice-President, Manufacturing (POSITION)

Approved by City or County Official
Approved For Wastewater Discharge Into City Sewer
Date
For Dept. of County Engineers CITY OF INDUSTRY
E. J. Epperson, City Engineer
ity of
Name Clement N. Colvik 4-12-74
Date
Position checked – [signature]

Approved by Sanitation Districts of Los Angeles County
Date 5-7-74
John D. Parkhurst, Chief Engineer and General Manager
by John E. Eason
Position IND. WASTE ENGR.

Note: A permit fee may be required by the local City or County Agency.
This form when properly signed shall be a valid permit unless suspended or revoked.

RETURN THIS COPY TO APPLICANT WHEN APPROVED

COUNTY SANITATION DISTRICTS
OF
LOS ANGELES COUNTY

2020 BEVERLY BOULEVARD
LOS ANGELES, CALIFORNIA 90057

JOHN D. PARKHURST
CHIEF ENGINEER AND GENERAL MANAGER

TELEPHONE
(213) 484-1370

May 7, 1974

City of Industry
255 N. Hacienda Blvd.
Industry, California 91744

File: 15-00.05-00/74

Attention: E.J. Epperson

Subject: Industrial Wastewater Discharge Permit No. 1593
Calmar Division, Diamond Int'l, Corp.
333 Turnbull Canyon Road
Industry, Ca. 91749

Dear Mr. Epperson:

Enclosed are four (4) approved sets of plans and copies of the approved Industrial Wastewater Discharge Permit for the proposed industrial waste discharge from subject company. Plans consist of:

* 1. Calmar Division, Diamond Int'l. Corp. drawing nos. SK-99 and SK-100, rain & wastewater facility plan, parts washer & sewer interceptor details.

2. Letter dated March 27, 1974.

Approval of the plans and permit is contingent upon continuing compliance with all applicable Ordinance requirements, /___/ upon corrections shown in red on the drawings, /___/ upon the following specific requirements:

Very truly yours,

John D. Parkhurst
Chief Engineer and
General Manager

By Jay G. Kremer/ASR
Jay G. Kremer
Head, Industrial Waste Section

JGK:ACR:se
cc: Calmar Division, Diamond Int'l. Corp.
333 Turnbull Canyon Road
Industry, Ca. 91749
Attn: Andrew H. Anderson

Encls. *

DIAMOND INTERNATIONAL CORPORATION

CALMAR DIVISION
333 SOUTH TURNBULL CANYON RD
CITY OF INDUSTRY CALIF 91749
213 · 330 3161

March 27, 1974

Mr. John D. Parkhurst
Chief Engineer & General Manager
Sanitation Districts of Los Angeles County
2020 Beverly Boulevard
Los Angeles, California 90057

Dear Mr. Parkhurst:

Enclosed are three applications for industrial wastewater discharge permits covering the three outfalls involved in our facility at 333 Turnbull Canyon Rd., Industry, Calif. In support of these applications, I submitt the following additional data:

1. Drawing #SK-99 showing plot plan, rainwater disposal, and on site sewerage system.
2. Drawing #SK-100 showing interceptor details.
3. Flow and characteristic data on our three industrial waste sources.
4. Water usage data based upon our water purveyor billing invoices.
5. Other liquid waste material disposal data based on City of Industry billing invoices.
6. Critical parameter report from for outfall "A" sampled at outfall of interceptor. Note: Outfalls "B" & "C" are totally domestic in nature.

If you have any further questions or if I can be of any assistance, please contact me at 213-330-3161.

Yours very truly,

Andy Anderson
Plant Engineer

AA/pah

enclosure

COOLING TOWER BLEED (INDUSTRIAL WASTE SOURCE #1)

Equipment:

Wood slat & concrete basin 140 ton tower (south)

Baltimore Air Coil, Model E-120, 120 ton tower (west)

Flow Characteristics: Consistent flow during hours of operation - 24 hours per day - five to seven days per week - 300 days per year.

Flow Rates:

South tower (140 ton) Rate Flow - 1.071 GPM

Daily Flow - 1,543 gallons

North tower (120 ton) Flow Rate - .625 GPM

Daily Flow - 900 gallons

Nature of Waste: City water as treated with Skasol water treatment. Basic chemical used - Skasol #451 tower and condenser treatment alkaline nature non acid. Maintained at 1.5 to 2 PMM level of PO_4 tracer. Monitored daily by in house personnel and monthly by Skasol Field Engineer.

Note: Treatment Source - Skasol Incorporated of Southern California, 967 North Vignes Avenue, Los Angeles, California

PARTS WASHER (INDUSTRIAL WASTE SOURCE #2)

Equipments: Troy Launderite, Model #60, Industrial Washer

Flow Characteristics: Intermittent usage - averaging 5.916 loads per day - peak usage 48 loads/day

Flow Rates: (Average)

Water - 76 gallons x 5.916 loads = 450 gallons/day

Soap - .02083 gal/load x 5.916 loads = .123 gallons/day

Flow Rate: (Peak)

Water - 76 gallons x 48 loads/day = 3,648 gal/day

76 gallons x 3 loads/hr = 228 gal/hr.

Soap - .02083 gallons x 48 loads/day = 1 gal/day

.02083 gallons x 3 loads/hr = .06 gal/hr.

Nature of Waste: City water as mixed with #7184 Farbest Universal Cleaner (Liquid Soap)

Mix Ratio - 38 gallons with 1/3 cup soap (wash cycle)
38 gallons with trace residual soap (rinse cycle)

Note: Soap Source: Farbest Corporation, 6715 McKinley Avenue Los Angeles, California 90001

EXTRUSION BATHS (INDUSTRIAL WASTE SOURCE #3)

Equipment:

Cooling trough = 9" x 4" x99' = 2.25 cu ft x 7.4805 = 16.8 gal.

Pump tank = 2' x 30" x 8"= 3.33 cu ft x 7.4805 = 24.9 gal.

Sizing tank(6')= 12" x 9" x 6'= 4.5 cu ft x 7.4805 = 33.7 gal.

Sizing tank(12')=12" x 9" x 12'=9 cu ft x 7.4805 = 67.3 gal.

Gallonage: (3) Cooling troughs @ 16.8 gal = 50.4 gal.

(2) 12' sizing tanks @ 67.3 gal=134.6

(1) 6' sizing tank @ 33.7 gal = 33.7

(3) Pump tanks @ 24.9 gal = 74.7

Total gallon Cap. 293.4

Flow Characteristic: dumped once per week

Nature of Waste: City water with addition of Sani-chlor Pool Chlorine at 30 PPM level - active ingredient: sodium hypochlorite

LIQUID WASTE MATERIALS OTHER THAN

INDUSTRIAL PROCESS WASTEWATER

Quantities of Waste: 21 pickups @ approx 200 gal each
1973 waste (annual) - 4,200 gallons

Nature of Waste: Hydraulic oil - drained from machines

Cutting oils - Tool Room Machinery

Stoddard Solvent - Cleaning of machinery and tooling

Method of Disposal: Collected in waste tank

Picked-up by: City of Industry Disposal Co.
P.O. Box 3366, Industry, Ca.

Disposal Point: BKK Disposal Company
2210 Azusa Ave., W. Covina, Ca.

Source: Disposal invoices from City of Industry

WATER USAGE
CALMAR DIVISION - DIAMOND INTERNATIONAL CORPORATION

Month Ending	Connection #05899 New Building, Usage (100 Cu.Ft.)		Connection #03956 Old Building, Usage (100 Cu.Ft.)		Total	
1/17/72	42		377		419	
2/18/72	77		532		609	
3/20/72	99		497		596	
4/19/72	101		489		590	
5/19/72	99		461		560	
6/16/72	73		381		454	
7/17/72	115		412		527	
8/18/72	139		583		722	
9/19/72	116		563		679	
10/19/72	128		561		689	
11/20/72	130		501		631	
12/19/72	52		434		486	
1972 Total Usage	1,171	(875M Gal)	5,791	(4,333M Gal)	6,962	(5,208M Gal)
Average Monthly Usage	96	(72M Gal)	484	(362M Gal)	580	(434M Gal)
1/19/73	75		433		508	
2/21/73	124		627		751	
3/19/73	96		489		585	
4/19/73	140		628		768	
5/21/73	143		501		644	
6/19/73	132		538		670	
7/19/73	185		679		8 864	
8/20/73	268		688		956	
9/19/73	93		590		683	
10/18/73	99		563		662	
11/29/73	102		548		650	
12/19/73	85		489		574	
1973 Total Usage	1,542	(1,153M Gal)	6,773	(5,067M Gal)	8,315	(6,220M Gal)
Average Monthly Usage	129	(96M Gal)	564	(422M Gal)	69	(518M Gal)
1972-1973 Total Usage	2,713	(2,029M Gal)	12,564	(9,399M Gal)	15,277	(11,428M Gal)
Average Yearly Usage	1,356	(1,015M Gal)	6,282	(4,699M Gal)	7,638	(5,714M Gal)
Average Monthly Usage	113	(85M Gal)	524	(392M Gal)	637	(477M Gal)

Source: Water bills from Vallecito Water Company
100 Cu. Ft. to Gallons x (748.05)

The Mogul Corporation

Enviroservice Programs

ANALYTICAL REPORT

Company: Calmar Division
Diamond International Corp.
Address: 333 S. Turnbull Cyn Rd.
City, State and Zip: City of Industry, Cal. 91749
Attention: Mr. Andy Anderson

SIC Number: 3079
Laboratory Reference No: 1229
Date Collected: 3-13-74
Date Received: 3-13-74
Date Analyzed: Available upon request

PARAMETERS & UNITS	SAMPLES						
Ref. #:	1229						
Sample Type	effluent						
Chemical Oxygen Demand, mg/l	6.						
Suspended Solids mg/l 103-105° C.	4.						
pH, Units	9.0						
Fluoride, mg/l	0.89						
Oil & Grease (Hexane Extract) mg/l	1.						
Phenols mg/l	<0.01						
NOTE: The analytical data reported represents the condition of the sample as submitted to our laboratory.							

1109-11523-6/73-4M

Signature Allen Diff
Laboratory Manager

SANITATION DISTRICTS OF LOS ANGELES COUNTY
INDUSTRIAL WASTEWATER
CRITICAL PARAMETER REPORT FORM

Ident. Code	PARAMETER 1/	2/	QUANTITY VALUES	Ident. Code	PARAMETER 1/	2/	QUANTITY VALUES
A	Flow (Total)	A	2950 gals/day	V	Manganese - Total		mg/l
B	Flow (Peak)		constant gals/min.	W	Mercury - Total		mg/l
C	COD	A	6.0 mg/l	X	Molybdenum - Total		mg/l
D	SS (Suspended Solids)	A	4.0 mg/l	Y	Nickel - Total		mg/l
E	pH	A	9.0 Units	Z	Selenium - Total		mg/l
F	Total Dissolved Solids		mg/l	AA	Silver - Total		mg/l
G	Ammonia (N)		mg/l	BB	Sodium - Total		mg/l
H	Sulfide		absent mg/l	CC	Thallium - Total		mg/l
I	Cyanide		absent mg/l	DD	Tin - Total		mg/l
J	Fluoride	A	.89 mg/l	EE	Titanium - Total		mg/l
K	Aluminum - Total		mg/l	FF	Zinc - Total		mg/l
L	Antimony - Total		mg/l	GG	Oil & Grease (Hexane Extract)	A	1.0 mg/l
M	Arsenic - Total		mg/l	HH	Phenols	A	< 0.01 mg/l
N	Beryllium - Total		mg/l	II	Surfactants (MBAS)		mg/l
O	Boron - Total		mg/l	JJ	Chlorinated Hydrocarbons (except pesticides)		absent mg/l
P	Cadmium - Total		mg/l				
Q	Chromium - Total		absent mg/l	KK	Pesticides (Chlor. Hycarb.)		mg/l
R	Cobalt - Total		mg/l	LL	Radioactivity (Alpha, Beta & Gamma)		pCi/l
S	Copper - Total		mg/l	MM	Temperature	A	68 Degrees °F
T	Iron - Total		mg/l	NN	Color		Units
U	Lead - Total		absent mg/l	OO	Thiosulfate (S)		mg/l

	NON-CRITICAL PARAMETERS (Report When Available)				OTHER PARAMETERS (Report When Requested)		
PP	Calcium		mg/l	A1			
QQ	Magnesium		mg/l	A2			
RR	Potassium		mg/l	A3			
SS	Barium		mg/l	A4			
TT	Nitrate		mg/l	A5			
UU	Chloride		mg/l	A6			
VV	Bromide		mg/l	A7			
WW	Sulfate		mg/l	A8			
XX	Phosphorus-Ortho		mg/l	A9			

NOTES:

1/ Report all critical parameters required by the Sanitation Districts and any other critical parameter known to be present in the wastewater. Those parameters required by the Districts but *known to be absent* from the wastewater may be reported by placing the word absent in the appropriate space.

2/ If values are obtained by measurements or analyses write A in this column. Analysis values must be determined, using representative 24-hour composite samples, by a State Certified or Districts Approved Laboratory. If values are obtained by estimate, write E in this column. *Estimated values are acceptable for new plants only.*

(Print) Mogul Corporation - Western Division - 967 Vignes Street
Name and Address of Laboratory Performing Analyses and Flow Measurements Los Angeles, California

(Print) Calmar Division, Diamond International
Name of Company Having Wastewater Discharge SIC Number(s)

(Print) 333 Turnbull Canyon Road, City of Industry, Ca 91749
Address of Wastewater Discharge

(Print) in Turnbull Canyon Road, approx 600' south or Procter Avenue
Additional Location Data (Data above should be for only *one* discharge point to the sewerage system)

Statement of Accuracy of Data

I hereby affirm that the above data comprise a true and correct representation of the wastewater discharged from the stated discharge point.

Date: 3/28/74 Location: Industry, California 91749

C. Allen Hickman C. Allen Hickman, Vice-President, Mfg.
Division/Administrative Officer of Company with Wastewater Discharge)