

September 4, 1998
GZA File No. 15453.00

Mr. Jack Miano
Department of Environmental Protection
Northeast Regional Office
205A Lowell Street
Wilmington, Massachusetts 01887



RE: Proposed Additional Response Actions
784 Memorial Drive
Cambridge, Massachusetts 02138
DEP RTN 3-1959

320 Needham Street
Newton Upper Falls
Massachusetts
02464-1594
617-969-0050
FAX 617-965-7769
<http://www.gza.net>

Dear Mr. Miano:

GZA GeoEnvironmental, Inc. (GZA), on behalf of the Polaroid Corporation, has prepared this scope of work for additional soil and groundwater exploration at the 784 Memorial Drive parcel in Cambridge, Massachusetts. These plans were discussed at the meeting of August 18, 1998 at the Massachusetts Department of Environmental Protection (DEP) Northeast Regional Office in Wilmington.

We note that there were plans to perform metals testing in soils as part of the soil management plan during site construction. Since construction has been delayed, we will proceed with the testing plan in advance of construction. This plan addresses the Department of Environmental Protection's (DEP) concerns regarding metals in soil as stated in your Request for Information (RFI) dated August 12, 1998.

The scope of work detailed below will follow DEP Standard References for each task.

Soil Exploration

Borings will be conducted at the approximate locations shown on attached Figure 1 (1935 Sanborn map) and Figure 2 (1900 Sanborn map). Borings B-1 to B-10 are based primarily on the 1935 and 1900 Sanborn maps showing the Dover Stamping Company facility and type of operation at each building. The Sanborn maps were included in Appendix H of the GZA Phase I Initial Site Investigation Report of June 1994. Figure 3 shows the explorations conducted to date in this area. The proposed borings will be field located based on the mapped distance from an origin established by the projection of the center of Chestnut Street and Florence Street. Table 1 shows each boring and the rationale for its location.

A Subsidiary of GZA
GeoEnvironmental
Technologies, Inc.

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Other borings (B-11 to B-15) were located as described in Table 1, in the area of former drain lines exiting Polaroid Buildings 1, 2, 3 and 8 (which contained small laboratories). The locations of these borings are shown on Figure 4.

Continuous split spoon soil samples will be collected to the top of the watertable (approximately 8 feet below ground surface). The resulting samples will be composited into 2 samples representing depth ranges of 0 to 3 feet and 3 feet to the watertable. These composite samples will be tested for RCRA 8 metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium and silver) and zinc, tin and nickel. The three additional metals (zinc, tin and nickel) have been added due to past site operations by the Dover Stamping Company including galvanizing and tinning.

Groundwater Exploration

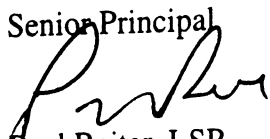
A PVC monitoring well will be installed in proposed borings B-2 and B-10 at the former Dover Stamping area, B-11 at Building 2 and B-13 near Building 8. The proposed monitoring wells are shown on Figures 1, 2 and 4. At each of these wells groundwater will be collected through a 0.45 micron filter and tested for dissolved metals. The metals analyzed will include: RCRA 8 metals (arsenic, barium, cadmium, lead, mercury, selenium and silver) and zinc, tin and nickel. Monitoring wells will not be installed at all of the borings since dissolved RCRA metals in groundwater were analyzed by H&A¹ at HA-1 through HA-6 in July 1994. HA-3 through HA-6 are located in the former Dover Stamping Company area as shown on Figure 3. The H&A results showed only low concentrations (below applicable reportable concentrations) of barium and chromium in this area (see attached Appendix A).

For any questions or discussion regarding this plan, please contact the undersigned at 617-630-6207.

Very truly yours,

GZA GEOENVIRONMENTAL, INC.


Lawrence Feldman
Senior Principal


Paul Reiter, LSP
Consultant

¹ Haley & Aldrich, Inc., "Report on Environmental Site Evaluation Update, Former Polaroid Facility, 772 to 796 Memorial Drive, Cambridge, Massachusetts", November 1997



Attachments: Table 1: Boring / Monitoring Well Location Rational
Figure 1: Proposed Borings and Monitoring Wells, Former Dover
Stamping Area Showing 1935 Sanborn Map
Figure 2: Proposed Borings and Monitoring Wells, Former Dover
Stamping Area Showing 1900 Sanborn Map
Figure 3: Exploration Location Plan, Former Dover Stamping Co.
Area
Figure 4: Proposed Borings and Monitoring Wells, Former Polaroid
Building 1,2 ,3 and 8 Area
Appendix A: Past Analyses for Dissolved Metals in Groundwater

cc: Mr. James Harrison, Polaroid Corporation
Mr. Robert Dickey, Spaulding & Slye
Ms. Maureen Hill Collins, Haley & Aldrich, Inc.

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TABLE 1: PROPOSED BORING LOCATION RATIONAL

Boring	Location Rational
Former Dover Stamping Co. Area	
B-1	incinerator, 1935 Sanborn map
B-2	tinning building, 1935 Sanborn map
B-3	pickling building, 1935 Sanborn map
B-4	galvanizing shop, 1900 Sanborn map, potential residential development
B-5	potential residential development
B-6	galvanizing shop, 1935 Sanborn map
B-7	potential residential development
B-8	japanning shop 1900 Sanborn map, potential residential development
B-9	japan storage building, 1900 Sanborn map
B-10	potential residential development
Polaroid Buildings 1, 2, 3 and 8 Area	
B-11	Building 3, near former concrete trench drain
B-12	Building 2, near former sewer drain
B-13	just outside Building 8, near former sewer drain
B-14	just outside Building 1, near existing sewer drain
B-15	Building 1 area general coverage

Notes:

- 1) Soils will be analyzed for 11 metals including: RCRA 8 metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium and silver), and zinc, tin and nickel

LEGEND:



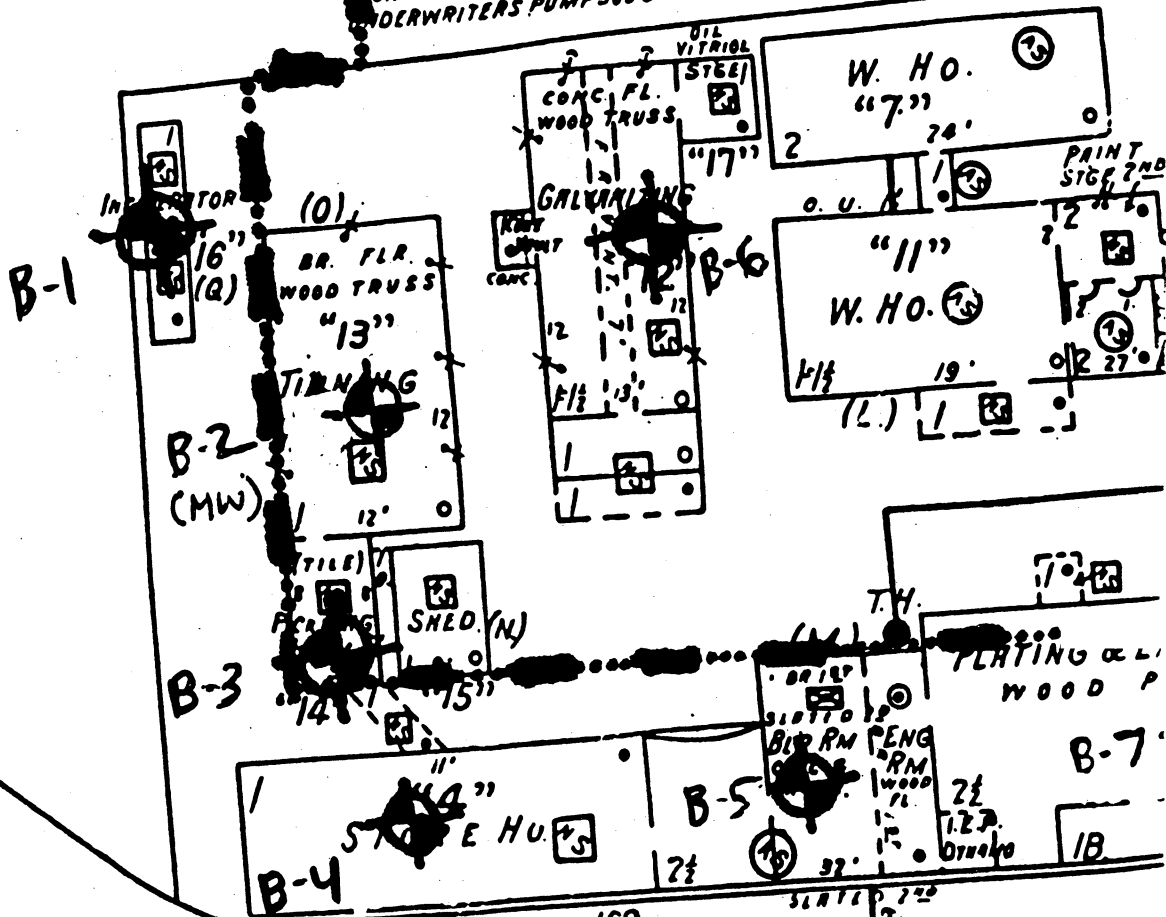
PROPOSED BORINGS
(MW) = PROPOSED MONITORING WELL

B-1

PROPOSED PARKING STRUCTURE

DOVER STAMPING
MFRS OF SHEET METAL

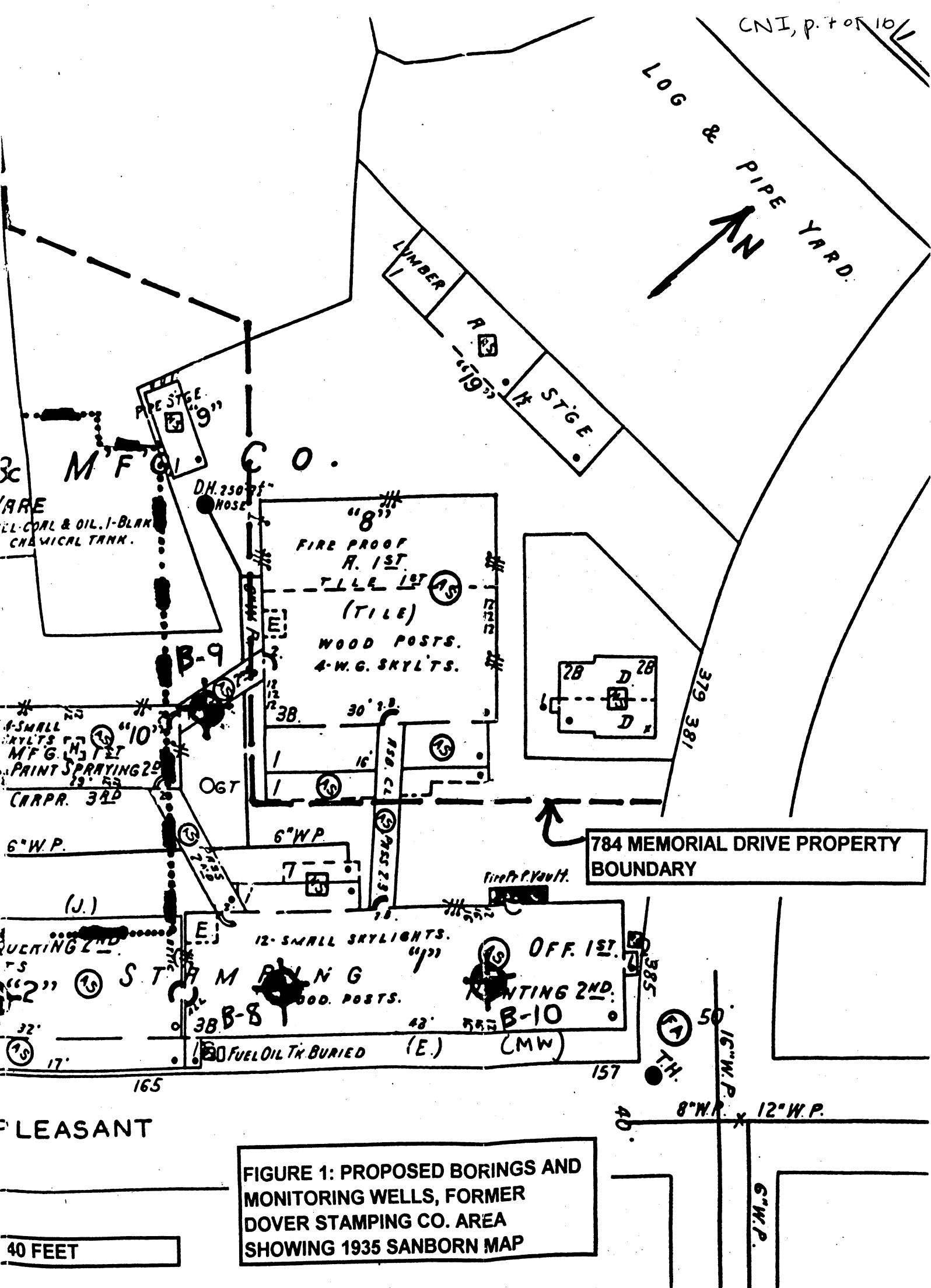
WHT WATCHMAN APPD CLOCK HEAT STERN POWER STEAM & ELEC. I.E.P.
UNDERWRITERS PUMP 500 G.P.M. SMALL HOSE CONNS TO SPRINKLERS 30 GA



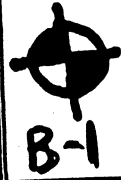
6"WP
8"WP
FLORENCE 8"WP

6"WP
CHEST

● DH.
SCALE: 1 IN



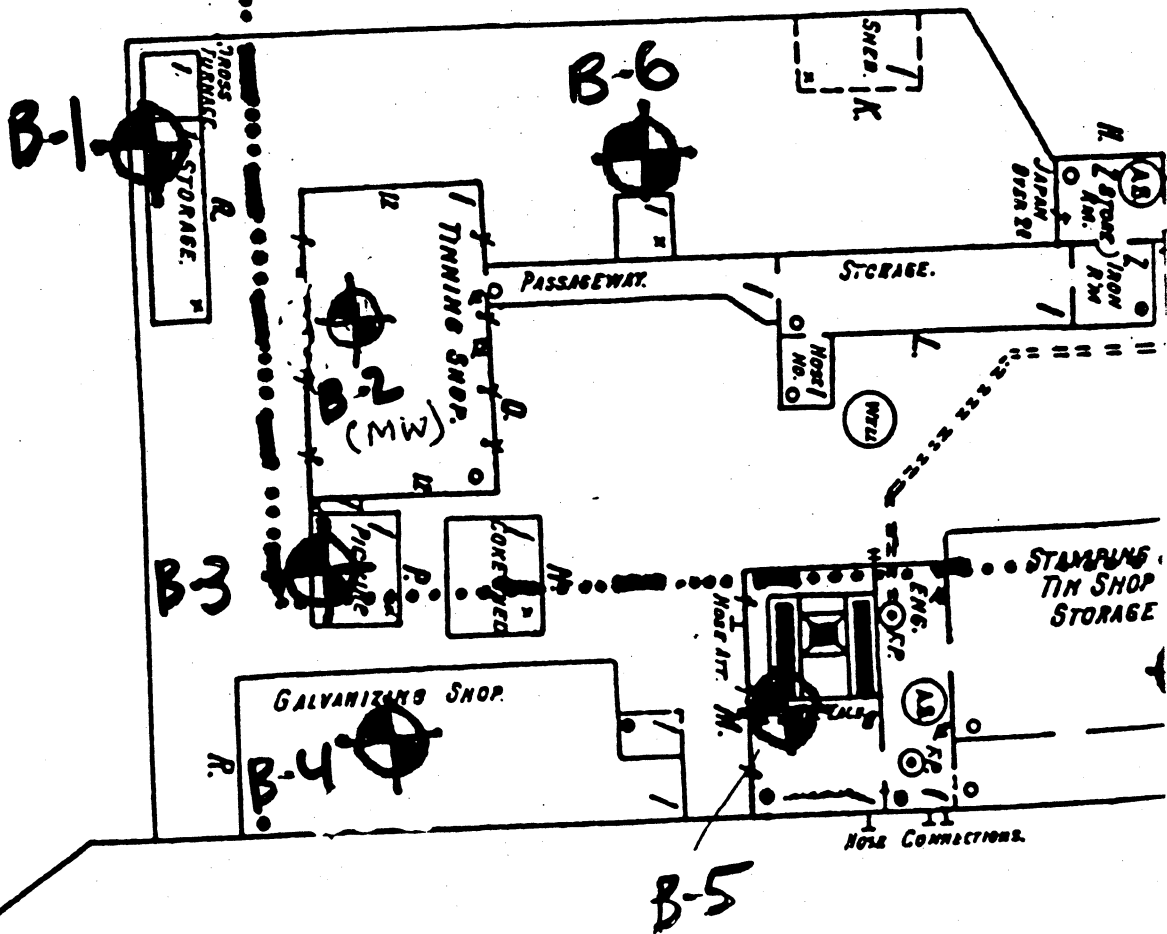
LEGEND:



PROPOSED BORINGS
(MW) = PROPOSED MONITORING WELL

PROPOSED PARKING STRUCTURE

OF BRICK STORE HO.
SUPPLY - BLAKE DUPLEX PUMP (14"x7"x12").
29 SUPPLY - CITY WATER WORKS.
OUTSIDE HOSE ATTACHMENTS - FIRE PAIL.

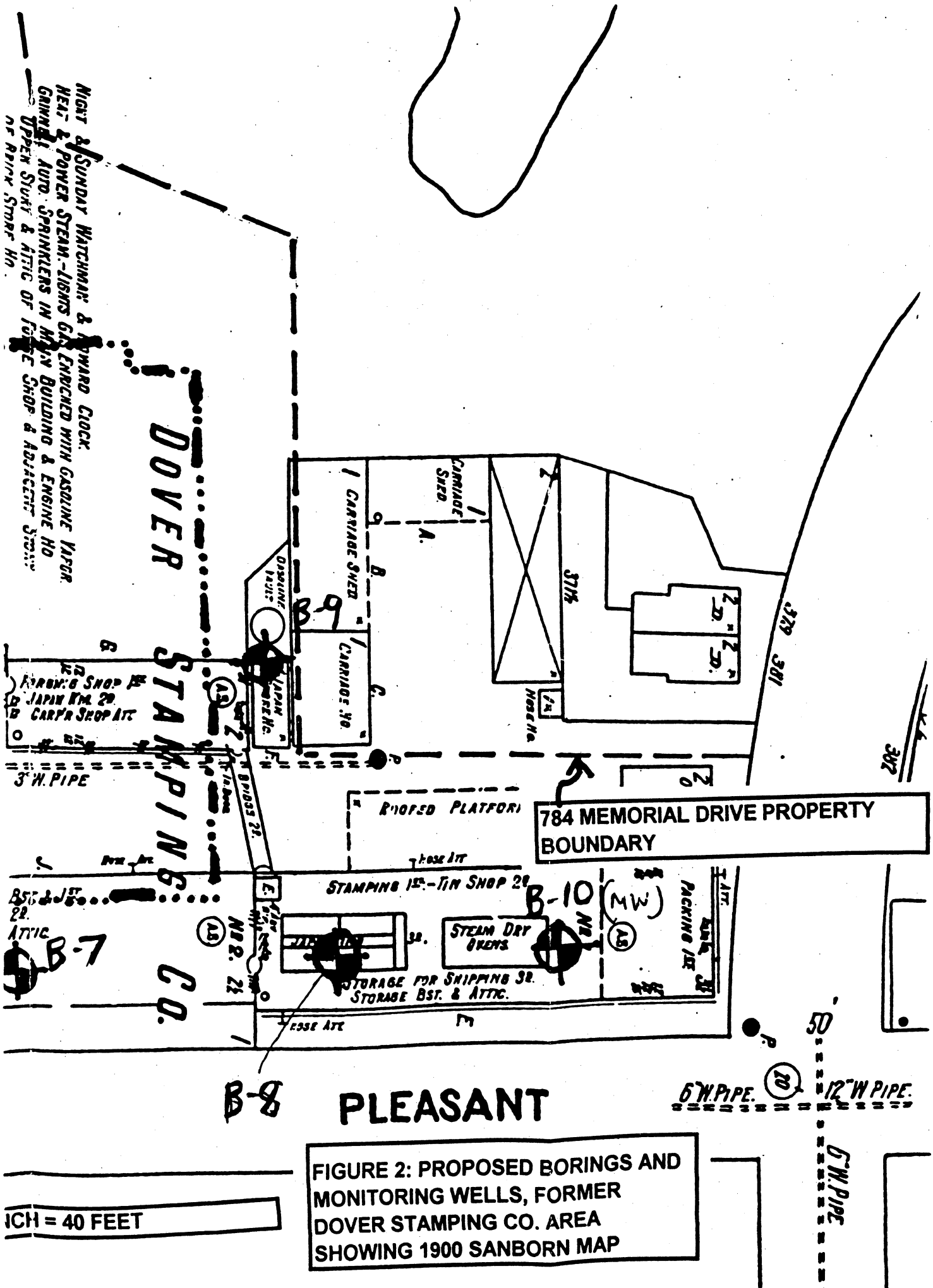


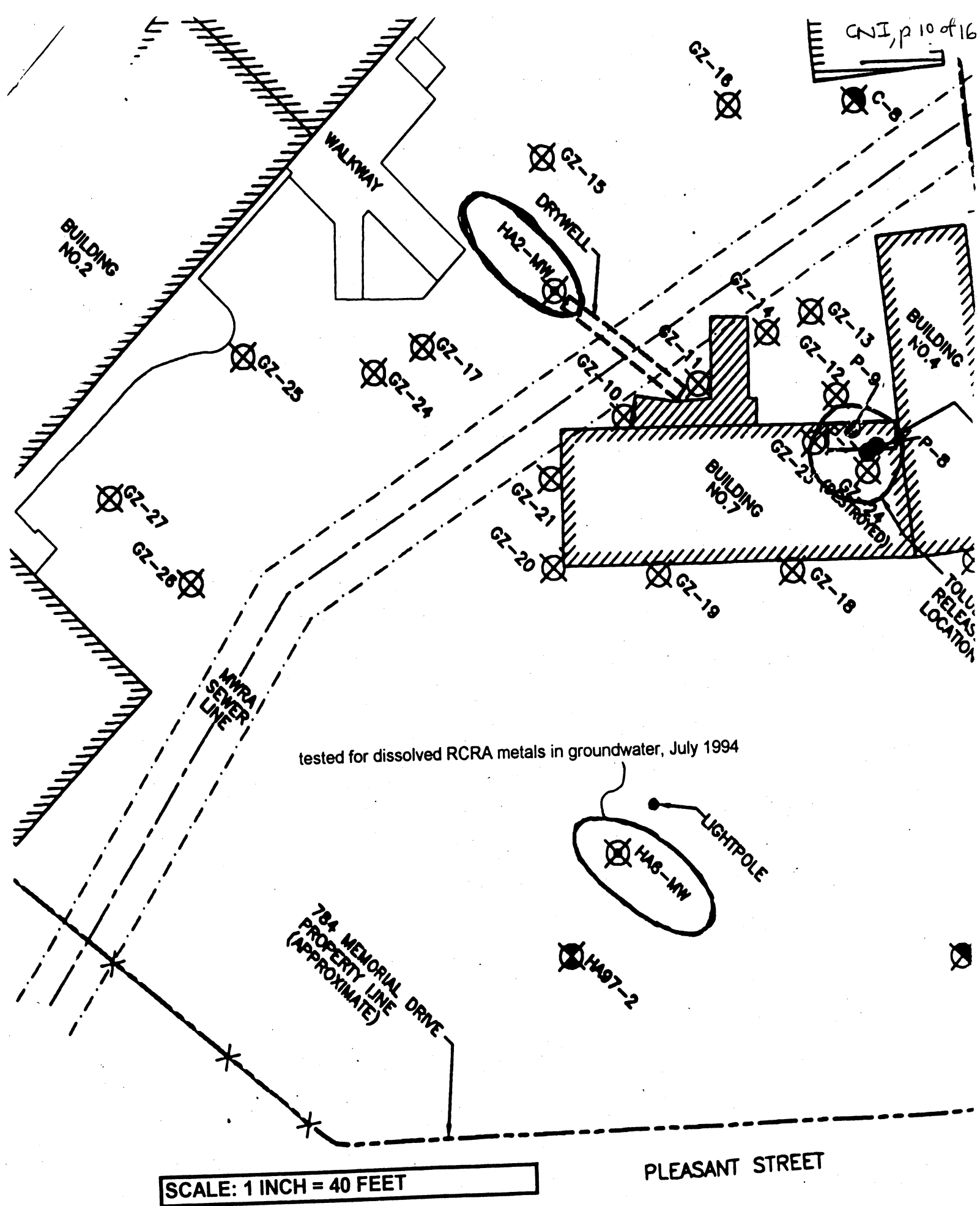
6" W. PIPE

CRESTNUT

SCALE: 1" = 1'

2





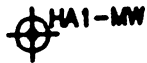
NOTES:

- 1) Base map from Figure 2 in H&A report "Environmental Site Evaluation Update, Former Polaroid Facility", Nov. 1997

LEGEND:



HA97-1 GEOTECHNICAL BORINGS PERFORMED BY CARR-DEE CORP. ON 18 AND 19 JUNE 1997, MONITORED BY HALEY & ALDRICH, INC.



HA1-MW BORINGS PERFORMED BY NEW HAMPSHIRE BORING ON 14 AND 15 JULY 1994, MONITORED BY HALEY & ALDRICH, INC. MW INDICATES MONITORING WELL INSTALLED



GZ-1 BORINGS PERFORMED BY GZA DRILLING, INC. ON 28 APRIL 89 THRU 18 DECEMBER 89



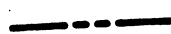
C-5 BORING C-1 THRU C-9 INSTALLED BY CARR-DEE CORP. ON 23 DECEMBER 93 AND OBSERVED BY GZA PERSONNEL



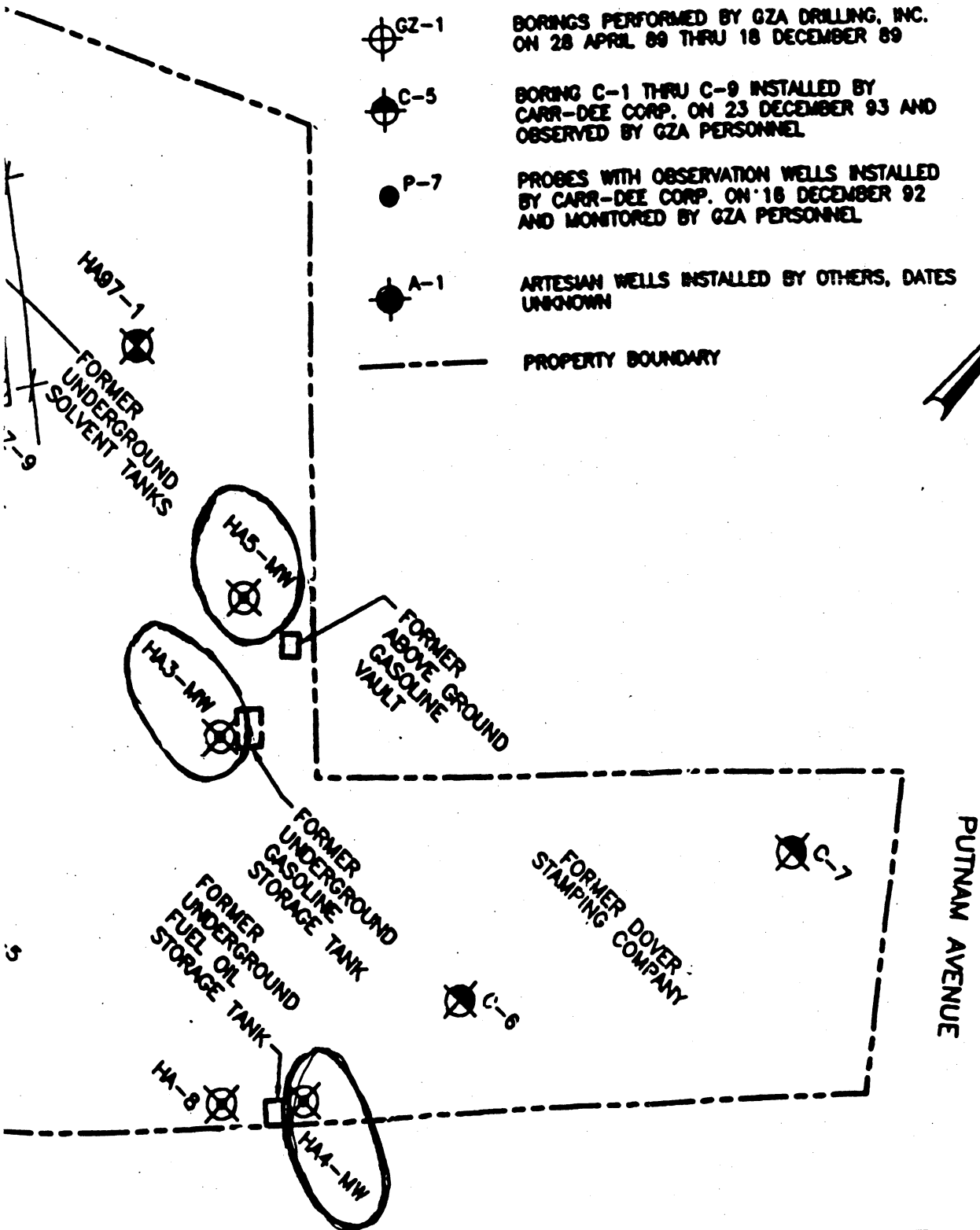
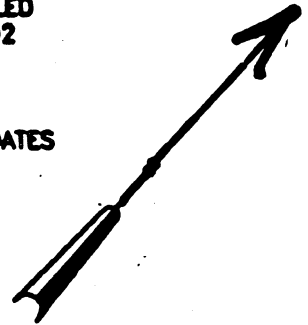
P-7 PROBES WITH OBSERVATION WELLS INSTALLED BY CARR-DEE CORP. ON 18 DECEMBER 92 AND MONITORED BY GZA PERSONNEL



A-1 ARTESIAN WELLS INSTALLED BY OTHERS, DATES UNKNOWN



PROPERTY BOUNDARY



**FIGURE 3: EXPLORATION LOCATION PLAN,
FORMER DOVER STAMPING CO. AREA**

CNI, p. 12 of 16

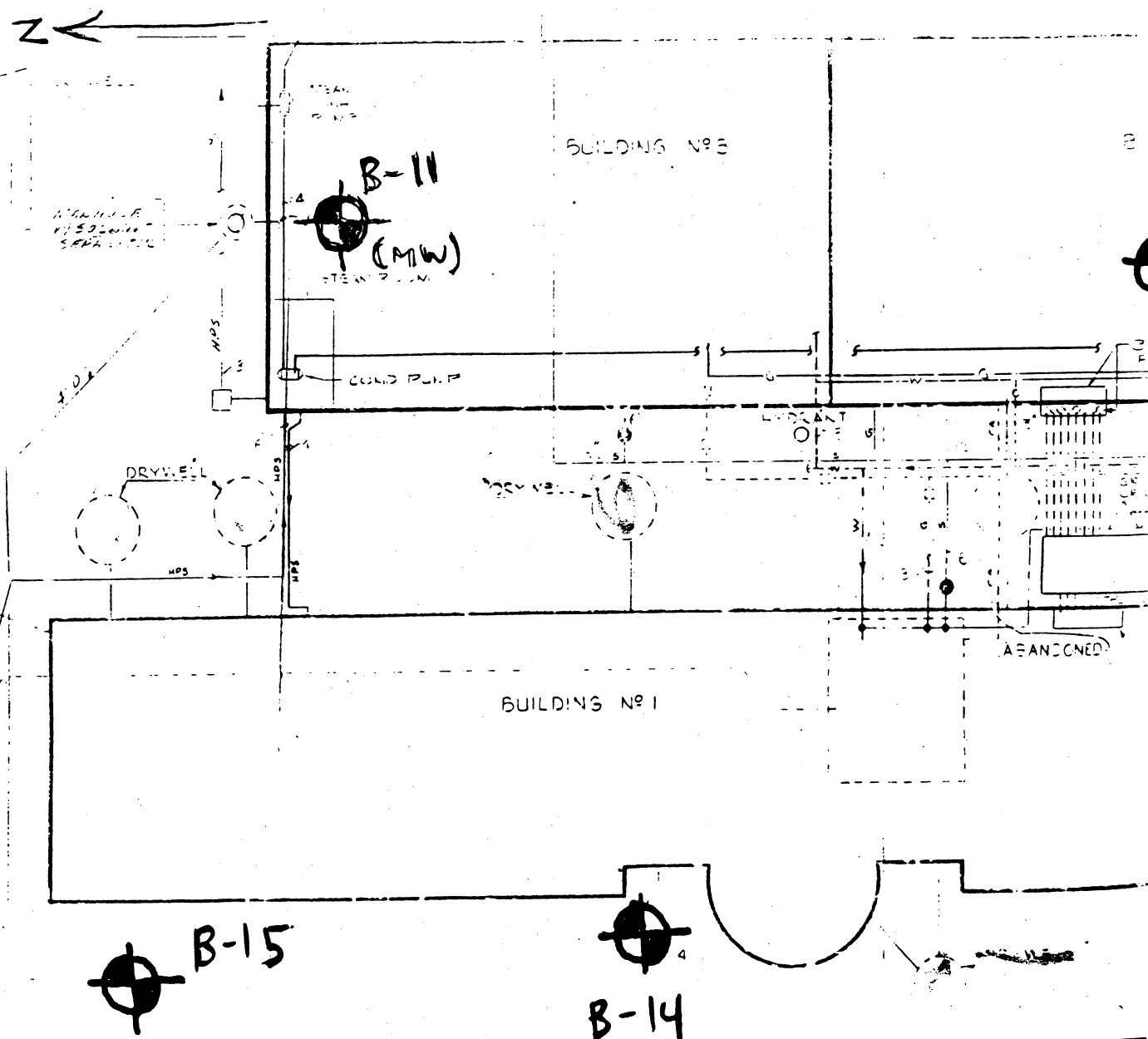


PROPOSED BORINGS
(MW) = PROPOSED MONITORING WELL

B-11

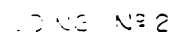
- " SITUT OFF VALVE
 HYDRANT
 MDC SEWER
 DRY WELL
 ()
 [] STEAM MANHOLE
 S SPRINKLER MAIN
 W CITY WATER
 G GAS
 HPS HIGH PRESSURE STEAM
 CA COMPRESSED AIR
 ---●--- CHAIN LINK FENCE
 D BUILDING DRAIN
 () GAS METER
 ---●--- GAS COCK (STOP VALVE)
 (W) FIRE ALARM & SIGNALS
 FPGS
 SP... SUBPUMP CONTROL W/...

1) Base map from Polaroid Corp. 3/3/67 Plan in Appendix B of GZA Phase I Initial Site Investigation, June 1994



SC

1 NORTH STREET, LONDON, E.C. 4



B-12

FIGURE 4: PROPOSED BORINGS AND MONITORING WELLS, FORMER POLAROID BUILDING 1,2, 3 AND 8 AREA

SCALE: 1 INCH = 30 FEET

TABLE III
SUMMARY OF GROUNDWATER QUALITY DATA
POLAROID
784 MEMORIAL DRIVE
CAMBRIDGE, MASSACHUSETTS

SAMPLE DESIGNATION	HA1-MW	HA2-MW	HA3-MW	HA4-MW	HA5-MW	HA6-MW	HA7-MW	Method 1 (GW-2/GW-3)
SAMPLING DATE	19-July-94	19-July-94	19-July-94	19-July-94	19-July-94	19-July-94	19-July-94	Concentration
VOLATILE ORGANIC COMPOUNDS (ppb)	ND	ND	ND	ND	ND	ND	ND	.
<i>DISSOLVED</i> TOTAL METALS (ppb)								
arsenic	ND	16	ND	ND	ND	ND	NT	400
barium	660	300	34	ND	100	120	NT	100* 30,000
chromium	ND	ND	29	23	27	20	NT	2,000
TOTAL PETROLEUM HYDROCARBONS (ppm)	1.2	2.4	ND	ND	1.7	1.6	ND	50

NOTES AND ABBREVIATIONS:

1. ND: compound not detected above reporting limit.
2. NT: compound not analyzed for.
3. This table includes only those compounds detected during the indicated sampling dates.
4. Lower of GW2 or GW3 standard is provided in last column.
5. *: reportable concentration (RCGW-2).

AJB002A:1132713.wq1



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

CN I, p. 15 of 16
BWSC-102B

Release Tracking Number

3 - 1959

RELEASE LOG FORM ATTACHMENT

E. LOG/RELEASE LOCATION INFORMATION: (complete if using only BWSC-102B)

City/Town: Cambridge

Date: 9-14-98

Time: 11:00

☒ AM ☐ PM

Release Address: 784 Memorial Drive

Use of Attachment (check one):

☐ Field (I) ☒ Field (C&E) ☐ Field (F)
☐ Announced ☒ Unannounced

☐ Attachment Page(s): of:

F. ADDITIONAL DESCRIPTION

Compliance Inspection

On September 14, 1998, a Compliance Inspection was conducted at the site. Personnel on-site at the time of the Compliance Inspection included, Mr. Paul Reiter, LSP, Mr. Paul Sampson, Vice President for Spaulding & Slye, and Mr. James Harrison, Environmental Manager for Polaroid. During the Compliance Inspection, a drill rig was drilling soil borings in the former location of the Dover Stamping Company. Three borings were installed prior to the Compliance Inspection. A large rig was installing footings for an addition to the existing Polaroid headquarters building. The property was partially paved with asphalt and unpaved in the areas where Polaroid buildings demolished early in 1998 were formerly located. Building demolition rubble was present at the ground surface in the former building areas. A site walkover was conducted and the proposed locations of the borings and groundwater monitoring wells for additional field work were observed and discussed. The locations of old groundwater monitoring wells, installed during earlier environmental investigations, were inspected. Paul Reiter indicated that several old groundwater monitoring wells would be re-developed and sampled, if possible. The locations of dry wells at the property were also inspected. No evidence of the dry wells could be observed at the ground surface.

Groundwater from existing groundwater monitoring well C-2 (located near a drywell) will be analyzed for metals. In addition to a proposed list of metals analytes, groundwater from two new groundwater monitoring wells in the area of the former Dover Stamping Company buildings will be analyzed for copper. Groundwater from HA-6 (located near the former Dover Stamping Company metals forging operation) will be analyzed for copper only.

A dry well is located east of Building 1. Existing groundwater monitoring well C-3 was located near this dry well. Monitoring well C-3 could not be located during a site walkover. Paul Reiter indicated that he would try to locate the well. If well C-3 is found, it will be redeveloped and sampled for metals. If well C-3 can not be found, a soil boring will be drilled in this area.

The proposed locations and purposes of borings B-11, B-12, B-13, B-14 and B-15 were discussed. Specifically, B-11 will be a soil boring only, B-12 will be completed as a groundwater monitoring well, B-13 will be located at a former dry well near the location of monitoring well GZ-27, B-14 will be moved to a dry well immediately south of the Polaroid front entrance, and, B-15 will be moved to a drywell at the north end of the Polaroid building.

A boring will be drilled at the location of HA-2 to evaluate: a petroleum odor noted during the drilling of boring HA-2, an elevated TPH level in soil (3,500 mg/kg) and TPH in groundwater (2.4 mg/l).

Two dry wells located between Polaroid buildings 1 and 2 are in areas where there are high densities of electric lines and other utility lines. Boring B-12, located in the footprint of the former building 2 location is relatively close to this area.

A solvent separator manhole is present east of the northern end of the Polaroid building. According to James Harrison, this manhole appears to be filled with water. Polaroid plans to have the water and any sediment in this solvent separator unit vacuumed, characterized and removed.

G. DEP ASSIGNMENT: (complete if using BWSC-102A and 102B or BWSC-102B only)

Preparer of RLFA (please print): JACK MIANO

Signature: Jack Miano

Staff Lead Assigned (if different from preparer): Not assigned

☒ Check here if the Release or Threat of Release is unassigned.

☐ Check here if this RLFA records a change in staff lead.

1. Drywells are located at the property at the northern end of building 1, between buildings 1 and 3, and , in front of building 1. Sediment in drywells at the property and soil below the drywell bottoms should be sampled for metals. Groundwater at or immediately downgradient of the drywells should be sampled for metals.
2. The 1950 Sanborn map of the property indicates the presence of a brass, bronze and aluminum foundry at the former Dover Stamping Company. Brass is a copper and zinc alloy. Bronze is a copper and tin alloy. The Department recommends that groundwater samples be analyzed for copper. There are MCP Reportable Concentrations and Ambient Water Quality Criteria for copper. Soil management plans should address copper if it is present at elevated levels.
3. A TPH level of 3,500 mg/kg was measured in boring HA-2 at 5 feet. H&A indicates that this TPH level may be due to the presence of asphalt fragments in the fill. However, the boring log for HA-2 indicates that a petroleum odor was noted at approximately 8 feet to 10 feet. Borings HA-1, HA-6 and HA-7 also contained asphalt in the fill but no petroleum odor was noted in the boring logs. Therefore, the asphalt fragments in boring HA-2 may not be the cause of the petroleum odor or the elevated TPH levels in soil. In addition, a level of petroleum (2.4 mg/l) exceeding the GW-2 standard was present at this well. The source of this petroleum release was not determined. It is possible that higher levels of petroleum are present in soil at/near this location. The Department recommends that the petroleum present at HA-2 be identified and that the extent of the petroleum contamination be determined.
4. TPH was present in groundwater in 1994 at HA1 (1.2), HA2 (2.4), HA5 (1.7) and HA6 (1.6 mg/l.). Given the proposed development for the property and the current MCP GW2 groundwater standard of 1.0 mg/l for TPH, the Department recommends that the type and extent of TPH in groundwater be evaluated. TPH in groundwater should be assessed using VPH/EPH laboratory methods. Based on the results of this evaluation, the potential for petroleum vapors to enter occupied on the property should be evaluated.
5. The Department recommends that soil samples from borings B-2, B-4, B-6, B-10, B-11, B-12 and the location of HA-2 be sampled for the presence of asbestos. The asbestos soil samples should be collected from depths of 0 to 5 feet below the ground surface (approximate depth of fill material at the property). This request is based on the possibility that asbestos building materials may have been released to the soil when the Dover Stamping Company buildings were demolished. Sampling the soil for asbestos would address the expressed concerns of the neighborhood citizens. The results of the sampling should be considered in the development of a soil management plan to be used during the development of the property.

1998 SEP 22 P 4:15
OFFICE OF THE CITY CLERK
CAMBRIDGE, MASSACHUSETTS

To: The Honorable, the City Councillors

From: The Co-Chairs of the Cambridgeport Neighborhood Initiative (CNI): Daphne Abeel, Gordie Fellman, Stash Horowitz, Anastasia Leotsakos, Laurie Taymor-Berry, Elie Yarden, Maureen Van Stryp

Date: Sept. 23, 1998 - for Council meeting Sept. 28

Re: Polaroid Corp./Spaulding & Slye agreeing to test for eleven heavy metals & asbestos at 784 Memorial Drive, after DEP and CNI involvement.

CNI, p. 1 of 16, for 9-28-98

1. Subsequent to letters from the state Dept. of Environmental Protection (DEP) to Polaroid Corp. on July 15, 1998 and on August 12, 1998, the former a "notice of audit" of prior cleanups of hazardous waste on the site, the latter a "request for information" about any studies, memoranda or knowledge about prior hazardous wastes on the site (in the Council packets of July 24 and Sept 14 respectively), Polaroid Corp. agreed to test for heavy metals and also for asbestos in soil samples from new and former borings & dry wells, as indicated in the attached letter, sent by GZA on behalf of Polaroid to the DEP, dated Sept 4, 1998.

2. Also included, for your information, is the report & recommendations resulting from an "unannounced compliance visit" on Sept. 14 by the DEP to the site. Five major issues & recommendations ensued, including additional testing for copper (a 12th metal), TPH (total petroleum hydrocarbons) in areas where previous tested levels exceed groundwater standards, and 7 recommended locations for asbestos sampling & testing (see attached)

3. The Board of Zoning Appeal (BZA) meeting of Sept 24, which was to have heard an appeal of ISD's (Inspectional Services Dept) issuance of ~~to~~ building permits for a 600-car garage and a 10,000 sf addition, has been now scheduled to hear this abutter appeal sometime in early October, due to a death in the family of a board member, since it is a continued case.

4. CDD, its traffic consultant Rizzo Assoc, the CNI, Traffic & Parking, Spaulding & Slye & its traffic consultant Vanasse & Associates, will restart meetings on possible traffic mitigations for this project, in late October, after Rizzo et al. measure signal time changes initiated in cooperation with the MDC. CDD still awaits Spaulding & Slye's response to its request for a PTDM MOU, (memorandum of understanding)

1998 SEP 23 P 4:57
OFFICE OF THE CITY CLERK
CAMBRIDGE, MASSACHUSETTS

Consent Communication #69

6/15

A communication was received from the Co-Chairs of the Cambridgeport Neighborhood Initiative (CNI), transmitting a memorandum regarding Polaroid Corporation/Spaulding & Slye's agreement to test for eleven heavy metals and asbestos at 784 Memorial Drive.

In City Council September 28, 1998

PLACED ON FILE