RO-402

AC Transit

Alameda Contra Costa Transit District

Suzanne Patton, P.E.
Environmental Engineer
(510) 577-8869
July 29, 2003

Ms. eva chu
Alameda County Health Division
Division of Environmental Protection
Department of Environmental Health
1131 Harbor Bay Parkway, Second Floor
Alameda, CA 94502

Dear Ms. chu:

Subject: Subsurface Investigation Workplan
AC Transit, 1177 47th Street, Emeryville

AC Transit hereby submits the enclosed Workplan for Supplemental Subsurface Investigation for the AC Transit facility located at 1177 47th Street in Emeryville (Enclosure 1). This workplan was prepared by our consultant, Cameron-Cole, LLC. It presents the scope of work to further define the lateral and vertical extent of groundwater contaminants at the site and it addresses the comments made in your June 16, 2003, letter.

If you have any questions or comments regarding the proposed work, please call me at (510) 577-8869.

Sincerely,

Suzanne Patton

Suzanne Patton, P.E.
Environmental Engineer

Enclosures
Workplan for the Supplemental Subsurface Investigation at the AC Transit 1177 47th Street Facility, Emeryville, CA, Cameron-Cole LLC, July 2003

WORKPLAN
FOR SUPPLEMENTAL SUBSURFACE INVESTIGATION AT THE AC TRANSIT 1177 47TH STREET FACILITY EMERYVILLE CALIFORNIA

Prepared For:
Ms. Suzanne Patton
AC Transit-Environmental
10626 E. 14th Street
Oakland, California 94603

Prepared By:
Cameron-Cole LLC
101 West Atlantic Blvd.
Alameda, California 94501

July 2003

Brad Wright, RG, CHG 6276
Principal Hydrogeologist
West Coast Regional Manager

STATE OF CALIFORNIA
REGISTERED GEOLOGIST
BRADLEY D. WRIGHT
6276
REGISTERED GEOLOGIST

CAMERON-COLE

Introduction

On behalf of AC Transit, Cameron-Cole has prepared this workplan to further define the lateral and vertical extent of groundwater contaminants at the AC Transit facility located at 1177 47th Street in Emeryville, California (the site). The results of most recent subsurface investigation (conducted in February 2003) were reported to Alameda County Environmental Health Services (ACEHS) in the *Subsurface Investigation Report*, May 2003. In a June 16, 2003 letter to AC Transit, ACEHS approved the recommendations presented in the May 2003 report which included the installation of additional grab groundwater borings to further define the extent of stoddard solvent and total petroleum hydrocarbons (TPH) detected west of the Tire Shop (Figure 1). ACEHS also requested: 1) that shallow soil borings be advanced adjacent to the storm drain that runs under Doyle Street, and 2) that soil borings be advanced onsite, in the approximate center of the known plume, for purposes of better delineating the vertical extent of contaminants.

Background

During third quarter 2002 routine groundwater monitoring, a seven-foot free phase layer was measured in monitor well MW-13. The free phase layer was determined to be hydraulic oil and the source was from a hydraulic lift located in the Tire Building. The hydraulic lift was taken out of service and all lines were drained. Analytical results and field observations of grab groundwater samples collected during the February 2003 investigation showed that free phase hydraulic oil had migrated approximately 50 feet downgradient of MW-13. Concentrations of TPH in groundwater 20 feet away from MW-13 and at a similar potentiometric surface elevation (cross-gradient), were reported at 34,000 parts per billion (ppb) and below reporting limits at 85 feet and 135 feet cross-gradient of MW-13. Stoddard solvent was detected in groundwater in the borings installed 85 feet and 135 feet cross-gradient of MW-13.

Scope of Work

The proposed location of four borings to further define the extent of TPH and stoddard solvent downgradient of the site are shown on Figure 1 (SB-7 through SB-10). Based on the concentrations detected in borings SB-1 through SB-4, installed during the February 2003 investigation, and the known groundwater flow direction, grab groundwater samples will be collected from first encountered groundwater in soil borings SB-7 through SB-10. Laboratory analysis of these samples will be used to further define the extent of TPH and stoddard solvent.

As requested by ACEHS, a revised cross-section of lithologic material encountered during site investigations and locations and construction details of subsurface storm water conveyance pipes was prepared and is provided as Figure 2. As seen on the cross-section, the 24-inch conveyance pipes located near the Tire Building and within Doyle Street are installed to a depth of 5.5-feet below grade. The storm water conveyance pipe's installation depth is well above groundwater levels recorded during quarterly groundwater monitoring events. As shown on Figure 1, two soil borings (SB-11 and SB-12) will be installed in the vicinity of the Doyle Street storm water conveyance pipe. These borings will be advanced to approximately one-foot below the reported pipe installation depth and a soil sample will be collected and analyzed for TPH. The pipe depth is well above groundwater levels, therefore no grab groundwater samples will be collected from these borings.

Two soil borings (SB-13 and SB-14) are proposed to be installed within the known plume boundaries for purposes of collecting data to better define the connectiveness of the sand layer encountered at a depth of approximately 25-feet and the vertical extent of TPH. Depth discrete soil and grab groundwater samples will be collected for laboratory analysis.

Prior to initiating subsurface sample collection, the following activities will be performed:

- The site specific Health and Safety Plan will be updated in accordance with California Occupational Health and Safety Administration requirements.
- Underground Service Alert (USA) will be notified of impending activities. Additionally, a professional underground utility locator will clear each boring location.

- Schedule drilling contractors.
- Required permits will be obtained from City of Emeryville and Alameda County Public Works Agency (ACPWA).

At each boring location a continuous soil core will be collected during drilling, selected soil intervals may be submitted for laboratory analysis. Additionally, the soil core will be logged by an onsite geologist in accordance with the Unified Soil Classification System.

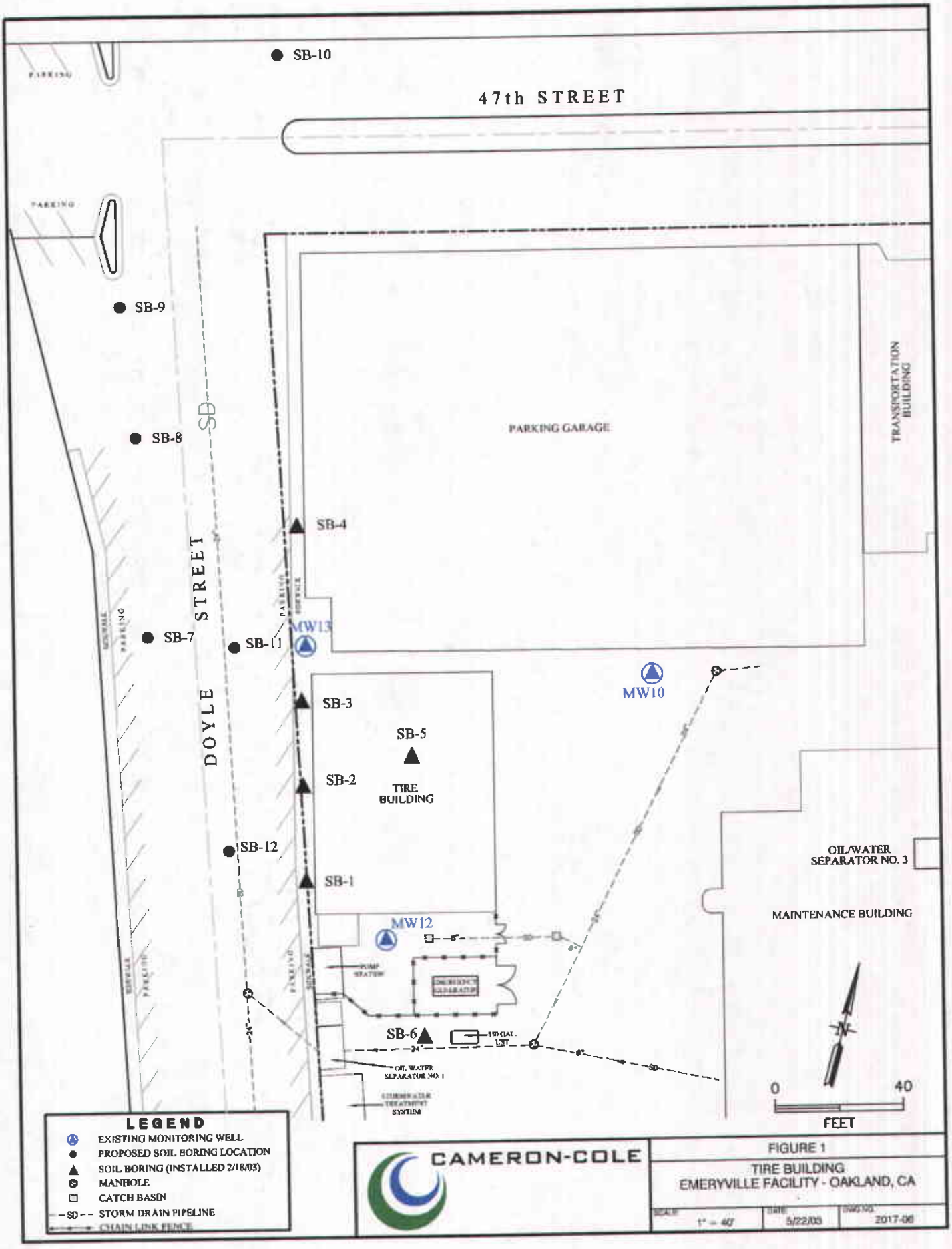
If evidence of free phase product is observed in a soil boring, a temporary slotted PVC casing will be installed in the boring and the groundwater/product level will be allowed to stabilize over a few hours. An electronic oil/water interface probe will be used to measure the free phase product thickness accumulated in the temporary PVC casing. If there is no evidence of free phase product observed during boring installation, a grab groundwater sample will be collected for laboratory analysis of dissolved concentrations of TPH. Soil cuttings and water generated during boring installation will be placed in appropriate containers for storage and disposal in accordance with local, state and federal regulations.

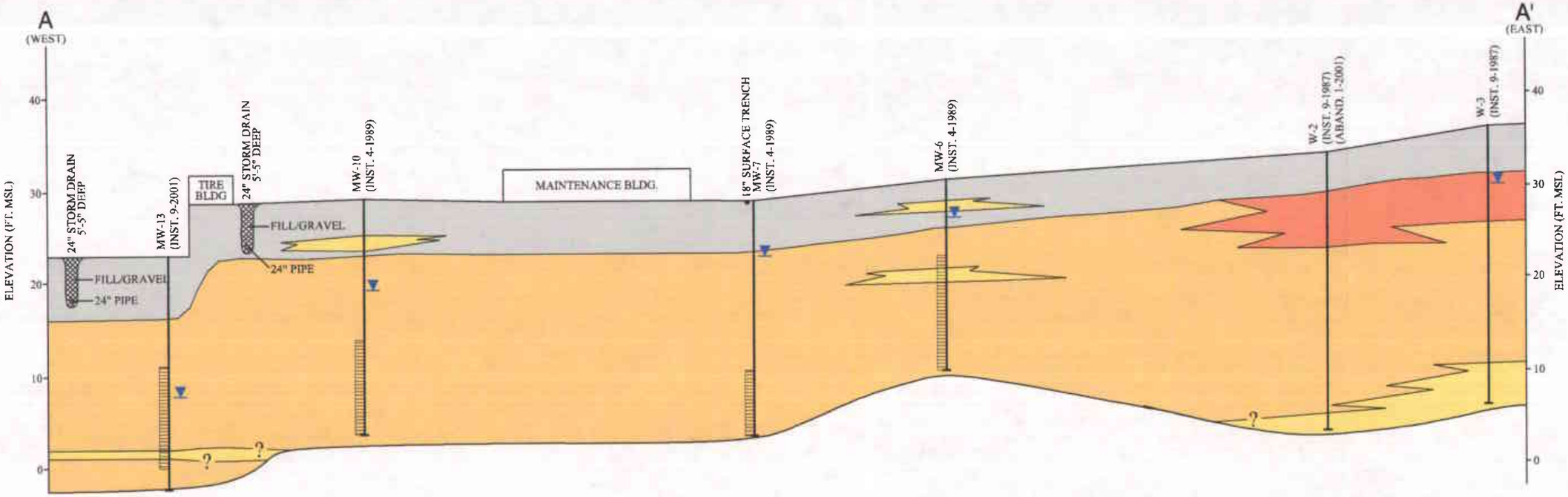
If determined appropriate after completing review of data collected during the soil boring investigation, additional monitor wells may be installed. The wells will be constructed with two-inch diameter PVC casing. The screen interval will not exceed 15-feet of vertical length. To insure interception of floating hydrocarbons, the screen will extend approximately two feet above first encountered groundwater. The sand filter-pack will be installed with tremie pipe from the bottom up and will extend approximately 1.5 feet above the screened interval. A one-foot thick bentonite bridge will be established on top of the filter-pack and the remaining annular space will be sealed with a mix of cement with 5% bentonite. Wells will be protected with a traffic rated vault box set to grade and locking cap. The top of casing elevation of the new monitor wells will be surveyed relative to existing monitor wells. Prior to sample collection, the new monitor wells will be developed by surging the screened interval to promote flow through the filterpack and purging of approximately ten casing volumes of groundwater.

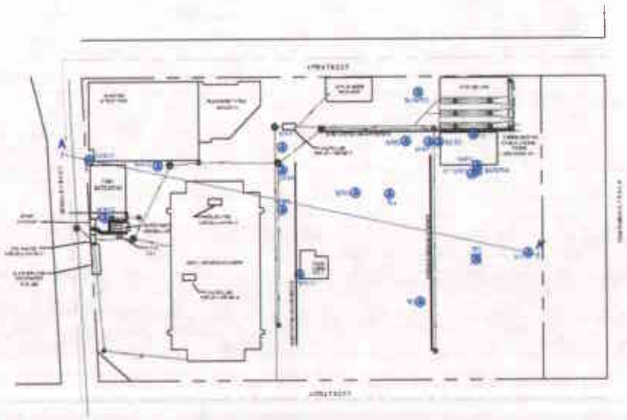
Soil and groundwater samples collected for laboratory analysis will be submitted to a California certified laboratory under chain-of-custody documentation. The samples will be analyzed for extractable and purgeable TPH using United States Environmental Protection Agency (USEPA) Method 8015 modified with silica gel cleanup.

Reporting

Soil boring logs, monitor well logs and the laboratory results will be incorporated into the site's quarterly monitoring report. The report will include a description of the field activities, a site map denoting boring locations and summary table of laboratory analytical results. The results of the investigation will present the known extent of the TPH in soil and groundwater. If warranted, recommendations for additional data collection or remedial options will be proposed. Copies of laboratory analytical reports and soil boring logs will be provided as an appendix. The report will be reviewed and stamped by a California registered geologist.


SB-10
47th STREET
PARKING
SB-9
SB-8
SD
DOYLE STREET
PARKING GARAGE
TRANSPORTATION BUILDING
SB-4
SB-7
SB-11
MW13
MW10
SB-3
SB-5
SB-2
TIRE BUILDING
SB-12
SB-1
MW12
OIL/WATER SEPARATOR NO. 3
MAINTENANCE BUILDING
SB-6
0
40
FEET
LEGEND
EXISTING MONITORING WELL
PROPOSED SOIL BORING LOCATION
SOIL BORING (INSTALLED 2/18/03)
MANHOLE
CATCH BASIN
STORM DRAIN PIPELINE
CHAIN LINK FENCE
CAMERON-COLE
FIGURE 1
TIRE BUILDING
EMERYVILLE FACILITY - OAKLAND, CA
1" = 40'
5/22/03
2017-06





SECTION LOCATION KEY

LEGEND

- FILL
- CLAY - CL/CH
- SILT - ML
- SAND/GRAVEL - SM, SP, SW, GM, GP
- GROUNDWATER LEVEL (10/20/02)
- MONITORING WELL SCREEN INTERVAL

0 60
FEET

	BY	DATE
DRAWN	CJJ	6/25/03
CHECKED		
APPROVED		
APPROVED		
APPROVED		

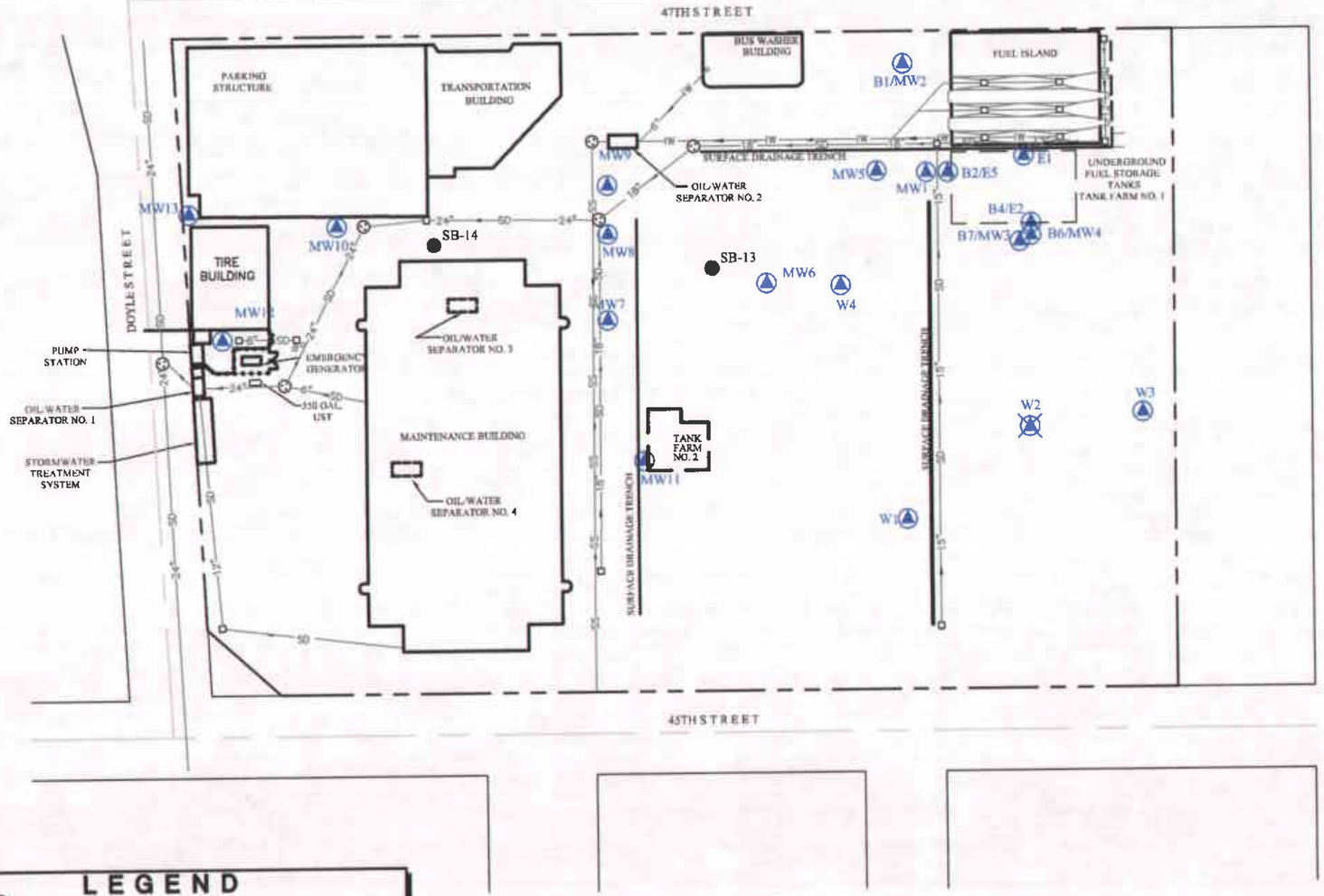
CAMERON-COLE

FIGURE 2

GEOLOGIC CROSS SECTION A - A'
AC TRANSIT, 1177 47th STREET - EMERYVILLE, CA

SCALE: AS NOTED

DWG. NO.: 2015-11



LEGEND

- MANHOLE
- CATCH BASIN
- MONITORING WELL
- ABANDONED MONITORING WELL
- PROPOSED SOIL BORING
- SD — STORM DRAIN PIPELINE
- SS — SANITARY SEWER PIPELINE
- IW — INDUSTRIAL WASTE PIPELINE
- CHAIN LINK FENCE

BY	DATE
DRAWN: WRB	7/22/03
CHECKED	
APPROVED	
APPROVED	
APPROVED	

CAMERON-COLE

EMERYVILLE FACILITY - OAKLAND, CALIFORNIA

FIGURE 3
AC TRANSIT - MONITORING WELL LOCATION MAP

SCALE: 1" = 100'

DWG. NO.: 2015-14