WELL 116A CONVERSION WORK PLAN

Offsite, Downgradient Shared Well Area
401 and 405 National Avenue
Mountain View, California

Prepared at the request of:

Vishay GSI, Inc.
Wendell, North Carolina

SUMCO Phoenix Corporation
Phoenix, Arizona

Schlumberger Technology Corporation
Sugar Land, Texas

Prepared by:

Amec Foster Wheeler Environment & Infrastructure, Inc.
180 Grand Avenue, Suite 1100
Oakland, California 94612

January 2016

Project No. 0014860015.03S.CC/03V.CC

January 15, 2016

Project 0014860015

Ms. Alana Lee
Project Manager
Superfund Program SFD 7-3
U.S. Environmental Protection Agency
Region IX
75 Hawthorne Street
San Francisco, California 94105

Subject: Well 116A Conversion Work Plan
401 and 405 National Avenue
Mountain View, California

Dear Ms. Lee:

This Well 116A Conversion Work Plan (work plan) is submitted by Amec Foster Wheeler Environment & Infrastructure, Inc. (Amec Foster Wheeler), on behalf of Vishay GSI Inc. (Vishay) and SUMCO Phoenix Corporation (SUMCO), in compliance with Section XV.D of the Administrative Order for Remedial Design and Remedial Action, Docket No. 91-4 (the Order). This work plan to convert monitoring well 116A into an extraction well was prepared in response to direction received from the United States Environmental Protection Agency (EPA) in May 2014 to optimize and accelerate groundwater cleanup actions within the MEW study area.

If you have any questions regarding this work plan, please contact either of the undersigned.

Sincerely yours,
Amec Foster Wheeler Environment & Infrastructure, Inc.

Harold C. Rush
Associate Engineering Professional
Direct Tel.: (510) 663-4234
E-mail: harold.rush@amecfw.com

Greg Stemler, PG 9028
Senior Geologist
Direct Tel.: (510) 663-4191
E-mail: greg.stemler@amecfw.com

hcr/gs//smm
\\Oad-fs1\doc_safe\1000s\1486.ALL\4000\Well 116A Conv WP_011516\01 Text\cvrltr.docx

Enclosure

Amec Foster Wheeler Environment & Infrastructure, Inc.
180 Grand Avenue, Suite 1100
Oakland, California 94612
USA
Tel (510) 663-4100
Fax (510) 663-4141
amecfw.com

TABLE OF CONTENTS

Page

1.0 INTRODUCTION 1
1.1 PURPOSE AND OBJECTIVES 1

2.0 BACKGROUND 2
2.1 SITE SETTING 2
2.2 GEOLOGY AND HYDROGEOLOGY 2
2.3 REGULATORY CONTEXT 3

3.0 CONVERSION OF 116A TO AN EXTRACTION WELL 3
3.1 PRE-FIELD ACTIVITIES 3
3.1.1 Health and Safety Plan 3
3.1.2 Permitting and Access 4
3.1.3 Utility Location and Borehole Clearance 4
3.2 NEW EXTRACTION WELL INSTALLATION 4
3.3 NEW EXTRACTION WELL DEVELOPMENT 4
3.4 HYDRAULIC TESTING 5
3.4.1 Step Test 5
3.4.2 Constant Rate Pumping Test 6
3.4.3 Data Analysis 6
3.4.4 Groundwater Sampling and Analysis 7
3.5 WASTE MANAGEMENT 8
3.6 REPORTING 8
3.7 SCHEDULE 9

4.0 REFERENCES 9

FIGURES

Figure 1 Site Location Map
Figure 2 Site Plan
Figure 3 Extraction Well 116A Construction Details

APPENDIX

Appendix A Monitoring Well 116A (boring log, construction details)

WELL 116A CONVERSION WORK PLAN
Offsite, Downgradient Shared Well Area
401 and 405 National Avenue
Mountain View, California

1.0 INTRODUCTION

This work plan for the conversion of monitoring well 116A to an extraction well (work plan) is submitted by Amec Foster Wheeler Environment & Infrastructure, Inc. (Amec Foster Wheeler) on behalf of Vishay GSI Inc. (Vishay), SUMCO Phoenix Corporation (SUMCO) and Fairchild/Schlumberger Technology Corporation (STC).

The Site is located within the Middlefield-Ellis-Whisman (MEW) Study Area in Mountain View, California (Figure 1). For purposes of this work plan, the Site consists of the shared well area downgradient of the former 401 and 405 National Avenue properties. The work plan describes work within the Site.

Previous investigations performed at 401 National Avenue and 405 National Avenue indicate that groundwater beneath these areas is impacted by chlorinated volatile organic compounds (CVOCs), primarily trichloroethene (TCE). In response, Vishay, SUMCO and STC have been performing remedial activities at 401 National Avenue and 405 National Avenue since 1998, and operation of the groundwater remedy is ongoing. Groundwater beneath the Site is impacted by CVOCs in concentrations greater than cleanup goals described in the Record of Decision (EPA, 1989). The existing groundwater remedy for the area between the former buildings at 401 and 405 National Avenue extending north towards extraction wells GSF-1A, GSF-1B1 and GSF-1B2, (corresponding to the portion of the groundwater plume for which Vishay/Sumco and STC share responsibility, i.e. the shared well area) consists of a groundwater extraction and treatment system (GWTS) that includes three extraction wells (the treatment system also treats groundwater from five wells related to the 405 National Avenue site groundwater remedy (SIL-15A, EX-1, EX-2, EX-3 and EX-4)).

Concentrations of TCE in excess of 33,000 µg/L have been detected in monitoring well 116A for all annual sampling events from 2007 to 2014. Vishay, SUMCO and STC propose in this work plan to optimize and accelerate groundwater cleanup actions in the zone of elevated CVOC concentrations around monitoring well 116A by converting well 116A into an extraction well and conveying the extracted groundwater to the GWTS. This work plan describes activities necessary to convert well 116A into an extraction well.

1.1 PURPOSE AND OBJECTIVES

The objective of the scope of work presented in this work plan is to convert existing monitoring well 116A into an extraction well. This objective will be accomplished by:

- Demolishing existing monitoring well by overdrilling;
- Constructing a new extraction well in the overdrilled boring; and
- Performing hydraulic testing at the new extraction well;

A work plan to relocate the existing GWTS was submitted to EPA on October 5, 2015 on behalf of the current owner of the former 401 National Avenue, 616-620 National Avenue and 626-630 National Avenue properties, all of which are being combined as part of ongoing property redevelopment into a new property referred to as 600 National Avenue. The new extraction well at 116A will be connected to the relocated GWTS and operated to facilitate expedited CVOC mass removal from the zone of elevated CVOC concentrations around monitoring well 116A.

2.0 BACKGROUND

This section describes the Site setting and its geographic location, the regional and Site geology and hydrogeology, and regulatory context for the proposed scope of work.

2.1 SITE SETTING

Well 116A is in the shared well area downgradient of the area between the former buildings at 401 and 405 National Avenue extending north towards extraction wells GSF-1A, GSF-1B1 and GSF-1B2. Until 405 National Avenue was redeveloped in 2001, a one-story industrial building occupied the property. In 2001, the 405 and neighboring 423 National Avenue properties were redeveloped. The redevelopment activities included demolition of existing buildings and construction of a new two-story commercial building, along with associated parking, drainage, and utility facilities. As part of that redevelopment, the 405 and 423 National Avenue properties were combined and are now collectively referred to as 425 National Avenue.

As part of ongoing property redevelopment by National Avenue Partners, LLC (NAP), the 401 National Avenue property has recently been combined with 616-620 National Avenue and 626-630 National Avenue and the new property is referred to as 600 National Avenue. The structures at these addresses have been demolished, including the former industrial building at 401 National Avenue.

2.2 GEOLOGY AND HYDROGEOLOGY

The Site is located on Pleistocene and Upper Quaternary alluvial deposits of the San Jose Plain in the north Santa Clara Valley. The Santa Clara Valley is a large depression in the central coast range that is filled with alluvial deposits that slope to the valley interior where they merge into shallow marine deposits fringing the southern San Francisco Bay margin (Canonie Environmental, 1983). The alluvial deposits are estimated to be 1,500 feet thick in the valley floor.

The alluvial deposits are unconsolidated sediments consisting of sand and gravel deposits interlayered with silt and clay deposits, which retard vertical groundwater flow. Prior

investigations at the Site encountered subsurface materials that include clays, silts, sands, clayey sands, silty sands, and sandy clays, with small amounts of fine gravel.

Groundwater aquifers within the MEW Study Area consist of shallow and deep aquifer systems, which are separated by a laterally extensive aquitard approximately 40 ft thick. The shallow aquifer system is generally present from the water table to a depth of 100 ft or less. Subdivisions within the shallow aquifer have been designated the “A” and “B” aquifers.

Groundwater flow in the shallow aquifer system is generally towards San Francisco Bay to the north. The shallow and deep aquifer systems in the MEW Study Area are not used for drinking water.

2.3 REGULATORY CONTEXT

In May 2014, the United States Environmental Protection Agency (EPA) directed MEW responsible parties to optimize and accelerate groundwater cleanup actions within the MEW study area. In response, Amec Foster Wheeler and Geosyntec Consultants jointly developed a remedial strategy on behalf of Vishay, SUMCO and STC for the shared well area located downgradient of the 401 and 425 National Avenue sites, and recommended to EPA that monitoring well 116A be converted into an extraction well.

3.0 CONVERSION OF 116A TO AN EXTRACTION WELL

The current location of monitoring well 116A is in the City of Mountain View (the City) right-of-way in National Avenue. The City informed Amec Foster Wheeler that conversion of 116A to an extraction well will require a new encroachment agreement. This permitting process may impact the schedule for conversion of the existing monitoring well 116A into an extraction well as well as the approved location of the extraction well vault. Further, as indicated above, 116A will not be connected to the GWTS until the GWTS is relocated. The anticipated location of the new extraction well in relation to the planned relocated GWTS is shown in Figure 2.

This section presents the proposed activities to install a new extraction well.

3.1 PRE-FIELD ACTIVITIES

Pre-field activities will include development of a health and safety plan, procurement of permits, coordination of property access, and underground utility clearance.

3.1.1 Health and Safety Plan

All work will be performed in accordance with a site-specific health and safety plan (HASP) to protect the public and site personnel during the fieldwork. The HASP will include health and safety precautions for known and potential physical and chemical hazards anticipated for the field effort. A map of the route to the nearest hospital and material safety data sheets (MSDS), or equivalent chemical data information, for chemicals of concern will also be included in the HASP.

3.1.2 Permitting and Access

Prior to initiating field activities, Amec Foster Wheeler or its designated subcontractors will procure all necessary boring permits from the Santa Clara Valley Water District (SCVWD) and applicable construction and encroachment permits from the City. As part of the pre-field activities, Amec Foster Wheeler will coordinate work and site access with the affected property owners and occupants.

3.1.3 Utility Location and Borehole Clearance

Prior to conducting field activities, Amec Foster Wheeler will mark the proposed drilling locations and notify Underground Service Alert (USA) of planned subsurface work. Additionally, Amec Foster Wheeler will retain a private subsurface utility location contractor to screen the proposed drilling location and the surrounding area for subsurface utilities. The area surrounding the location of extraction well 116A will be screened for potential subsurface utilities.

3.2 NEW EXTRACTION WELL INSTALLATION

The new extraction well will be constructed of 6-inch-diameter stainless steel casing and wire-wrap screen. It is anticipated that the screened interval of the new extraction well will be the same as the interval of monitoring well 116A so that the same area of elevated CVOC concentrations is addressed. The screen will be installed over a depth interval of 19 to 39 feet below ground surface, and well construction will be completed by placing the appropriate filter pack to approximately 2 feet above the top of the screen, followed by an approximate 3 foot-thick bentonite seal and cement grout above the bentonite seal to ground surface. Construction details for the new extraction well are illustrated in Figure 3. See Appendix A for the original boring log and construction details of monitoring well 116A.

3.3 NEW EXTRACTION WELL DEVELOPMENT

Following installation of the extraction well, the cement grout will be allowed to cure for at least 48 hours before the well is developed. The new well will be developed to improve the connection of the well with the surrounding sediments.

Development work will be conducted, including swab and bail and well pumping using a well service rig. The well will be pumped at multiple increasing extraction rates up to the highest feasible rate. Amec Foster Wheeler plans to conduct several short duration (approximately 30 minutes) specific capacity tests between surging and bailing/development pumping in order to evaluate if continued development will provide additional improvement in the well's performance. After the specific capacity of the well appears to have stabilized, pumping will continue at a steady rate while monitoring and recording pH, temperature, electrical conductivity, approximate pumping rate, and turbidity of water extracted from the well. Amec Foster Wheeler will collect water level measurements by hand using a depth-to-water meter

periodically during well development. Amec Foster Wheeler expects the pumping rates to start at approximately two gallons per minute (gpm), and for the maximum pumping rate not to exceed 50 gpm. Management of pumped water is described in Section 3.5 Waste Management.

At the conclusion of pumping, Amec Foster Wheeler will take measurements of the depth to water in the well. Based on recovery data and observed specific capacities at the various pumping rates during development, Amec Foster Wheeler will select the initial pumping rates to be used for hydraulic testing.

3.4 HYDRAULIC TESTING

Following the completion of well development, hydraulic testing will be conducted to estimate the appropriate pumping rate for the well and the anticipated additional chemical load to the treatment system. The hydraulic testing will include a step test and a constant rate test. Ideally, hydraulic testing will be performed while the five extraction wells at 405 National Avenue (SIL-15A, EX-1, EX-2, EX-3 and EX-4) and the three extraction wells that address the shared well area (GSF-1A, GSF-1B1 and GSF-1B2) are operating at a constant rate. The goal of the pumping tests is primarily to size a pump for the new extraction well. The estimation of various hydraulic properties is incidental to this task, but may be useful for future groundwater modeling efforts. Timing for hydraulic testing implementation may be impacted by current redevelopment activities at the 600 National Avenue property. The test procedure is described in the following sections.

3.4.1 Step Test

A pump capable of pumping at 1 to 20 gallons per minute (gpm) will be installed in the well, and a pressure transducer will be installed immediately above the pump. The pressure transducer will provide continuous readings of the water level in the well and will record the water level data at a frequency acceptable to evaluate the resulting step test data, no less than once every one minute. Manual water level measurements also will be collected with an electronic sounder during step testing to verify the transducer data. Pumping rates and total discharge will be measured using a calibrated in-line flow meter and totalizer (calibration verified during the step test). A valve near the flow meter will be used to control the discharge rate.

The step test will be run for up to eight hours and will include a minimum of four pumping rates (steps). For planning purposes we anticipate pumping rates to be approximately 1, 2, 5, and 10 gpm, but this may be adjusted based on the observed well behavior during well development. Beginning with the lowest rate, pumping will continue for between 60 and 120 minutes depending on pumping water level stabilization. Once the water levels have stabilized, or after 120 minutes of pumping, the rate will be increased and maintained at the next step. Each step during the step test be of equal length, with the exception of the last step, which

may be shorter if the well cannot support the final pumping rate, or longer if well performance and time allow. This process will be repeated until the highest practical pumping rate has been tested, with the final step used to test the limits of the well. After completion of the last pumping step, the pump will be shut off and water level recovery will be measured in the well for at least 60 minutes.

Amec Foster Wheeler will evaluate the results of the step test to determine the extraction rate for the constant rate test. After the step test has been completed and before the constant rate test, the well will be allowed to rest for at least the length of time that elapsed during the step test pumping or until water levels have recovered approximately 95 percent of their pre-pumping levels.

3.4.2 Constant Rate Pumping Test

Following the step test, Amec Foster Wheeler will conduct a constant rate pumping test. The pumping rate will be selected based on evaluation of data collected during the step test. The constant rate pumping test is anticipated to last for approximately eight to twelve hours.

A pumping rate will be chosen that is expected to be sustainable during the 24-hour pumping test and which is equal to or greater than the anticipated design pumping rate based on observations made during the step test. The pump will be installed in the well and a pressure transducer will be installed immediately above the pump. The initial rate of data logging of the transducer measurements will be one record per second; however, the rate of data logging may be reduced as the test progresses.

In addition to the water level in the new extraction well, the water level will also be recorded in the nearest monitoring well 108A. Monitoring well 108A is located approximately 65 feet east of the new extraction well. Following the conclusion of the pumping phase of the test, the pump will be shut down and recovery will be monitored. The pump will remain in the well until either 90% recovery is achieved or for the same duration as the pumping portion of the test, whichever occurs first. After removal of the pump, recovery will continue to be monitored with the pressure transducers for an additional 24 hours.

3.4.3 Data Analysis

Prior to analysis of the test data, data will be converted to consistent units, assessed for external influences, such as barometric pressure, diurnal fluctuations, and background recharge/discharge, and corrected where appropriate. Data obtained during testing will be plotted on time-series hydrographs showing pre- and post-test conditions along with the actual test responses. These data will be reviewed to identify which water level changes are clearly in response to pumping, and these responses will be plotted as drawdown on both log-log and log-linear graphs to review the general behavior of test responses. Only data that are

interpreted to be representative of the upper water-bearing unit responses to pumping will be analyzed further.

The step test will primarily be used to select constant rate, and the constant rate test data will be analyzed to select an appropriate long term pumping rate. In addition, data obtained from the observation well and the pumping well will be analyzed using type-curve matches to standard analytical solutions to obtain estimates of transmissivity and storativity or specific yield. The software package AQTESOLV™ (Duffield, 2006) will be used to expedite fitting of type-curves to hydraulic testing data. Based on our understanding of the Site hydrogeology, analysis of the data collected during this test may utilize mathematical models that represent an ideal confined and unconfined response. The analysis methods will be based on the hydraulic response observed during the constant-rate test. The selection of the long term pumping rate will be based on estimation of longer term pumping duration and associated drawdown.

The following or equivalent analysis methods will be considered for use in evaluating responses under confined aquifer conditions (i.e., estimating transmissivity and storativity):

- Theis (1935) method
- Cooper-Jacob (1946) method
- Theis recovery (1935) method

The following or equivalent analysis methods will be considered for use in evaluating responses under unconfined aquifer conditions (i.e., estimating transmissivity and specific yield):

- Jacob (1944) correction method
- Neuman type-curve (1972, 1974) method

The transmissivity values calculated with the aquifer test solution(s) that appear to provide the "best-fit" or most reasonable results will be used along with the interpreted saturated thickness to calculate values for bulk horizontal hydraulic conductivity of the water-bearing unit in the test area.

3.4.4 Groundwater Sampling and Analysis

During the constant rate pumping test, a single round of groundwater samples will be collected from the new extraction well and analyzed for CVOCs by U.S. EPA Method 8260B using a reduced analyte list from U.S. EPA Method 8010. These data will be used to determine additional chemical load to the groundwater treatment system, and for waste profiling purposes.

Amec Foster Wheeler will follow established QA/QC procedures for this investigation, which generally follow the QA/QC goals and analytical laboratory quality assurance manual included

in the Unified Quality Assurance Project Plan (UQAPP), as approved by the U.S. Environmental Protection Agency (EPA) for the MEW Site on February 3, 1993.

Method blanks, field blanks, and trip blanks will be used to monitor for potential false positive results introduced at the laboratory, during sampling and/or transport, respectively. Method blanks, trip blanks and field blank samples will only be tested CVOCs by EPA Method 8260B using a reduced analyte list from U.S. EPA Method 8010.

Data accuracy will be assessed by the analysis of laboratory control samples/laboratory control sample duplicates (LCS/LCSD), blank spike/blank spike duplicate (BS/BSD), and matrix spike/matrix spike duplicate (MS/MSD) samples, and evaluation of the recovery of spiked compounds. These will be expressed as a percentage of the true or known concentrations. Surrogate recoveries and blank results will also be used to assess accuracy.

Data precision will be evaluated by comparing duplicate sample analytical results. The duplicate data evaluation will be based on calculating the relative percent difference (RPD) between duplicates.

3.5 WASTE MANAGEMENT

Disposal of generated wastes will be the responsibility of Vishay/SUMCO and STC. Amec Foster Wheeler will assist Vishay/SUMCO and STC in coordinating and scheduling waste disposal. Anticipated wastes streams include drill cuttings, PVC well casings, equipment wash water, purge water and hydraulic testing water.

The total volume of water generated by all development and testing activities is estimated to be less than 10,000 gallons. Liquid wastes will be stored in a temporary above ground storage tank. Water generated from well development and pump testing will be conveyed directly to the storage tank by temporary piping. The temporary piping will enter the top of the tank to prevent back pressure or flow from the tank to the well.

Solid wastes will be stored in 55-gallon drums. All wastes will be stored at the 600 National Avenue property pending profiling, transportation and off-site disposal at an appropriately licensed facility. Liquid wastes will be conveyed to and treated by the existing groundwater treatment system if effluent discharge is in compliance with NPDES permit requirements. All waste containers will be clearly labeled with generator contact and phone number, drilling location(s), and date of generation.

3.6 REPORTING

Following completion of extraction well construction, hydraulic testing and connection to the GWTS, Amec Foster Wheeler will document field activities and results in a letter report. At a minimum, the report will include:

- A written description of field activities.

- New extraction well construction details.
- Results of hydraulic testing.
- Results of chemical analyses of groundwater samples.
- Copies of field forms, analytical laboratory reports, a data validation summary, and chain-of-custody forms.

3.7 SCHEDULE

Amec Foster Wheeler will initiate the scope of work to install a new extraction well once EPA approves this work plan, and necessary City and SCVWD permits are obtained. It is anticipated that field work will begin during the first quarter of 2016 per the schedule below.

- Week 1 – Monitoring well overdrilling and extraction well installation
- Week 2 – Well development and hydraulic testing
- Week 3 – Connection of new extraction well to relocated GWTS

The report will be submitted eight weeks after the fieldwork is complete.

4.0 REFERENCES

AMEC Foster Wheeler Environment & Infrastructure, Inc. (Amec Foster Wheeler), 2015, Annual Progress Report—2014, Facility Specific Work, 405 National Avenue, Mountain View, California, April.

Canonie Environmental Service Corp., 1983, Subsurface Hydrogeologic Investigation, Mountain View Facility, Fairchild Camera and Instrument Corporation, June 13.

Duffield, G.M., 2006, AQTESOLV for Windows Version 4 User's Guide, HydroSOLVE, Inc., Reston, Virginia.

Geomatrix Consultants, Inc. (Geomatrix), 1996, Addendum to the Revised Combined Intermediate and Final Source Control Remedial Design, 405 National Avenue, Mountain View, California, prepared for General Instrument Corporation and Siltec Corporation, April.

Geomatrix, 1999, Confirmation Soil Sampling Report, Groundwater and Soil Vapor Extraction and Treatment Systems, 405 National Avenue, Mountain View, California, February.

Haley & Aldrich, Inc., 2011, Site-Wide Vapor Intrusion Sampling and Analysis Work Plan for Response Action Tiering, Middlefield-Ellis-Whisman Superfund Area, Mountain View, California and Moffett Field, September 29 (revised March 22, 2013).

U.S. Environmental Protection Agency (U.S. EPA), 1989, Record of Decision (ROD), Middlefield-Ellis-Whisman Study Area: EPA Region IX.

U.S. EPA, Record of Decision Amendment for the Vapor Intrusion Pathway Record of Decision Amendment for the Vapor Intrusion Pathway, Middlefield-Ellis-Whisman (MEW) Superfund Study Area, Mountain View and Moffett Field, California, August 16.

Wahler Associates, 1988a, Further Soil and Groundwater Investigation (2 volumes), 405 and 423 National Avenue, Mountain View, California, March.

Wahler Associates, 1988b, Summary Report, Soil and Groundwater Investigation (2 volumes), 405 and 423 National Avenue, Mountain View, California, for Siltec Corporation, December.

Wahler Associates, 1986a, Interim Report, Siltec Groundwater Investigation for Siltec Corporation, Mountain View, California, January.

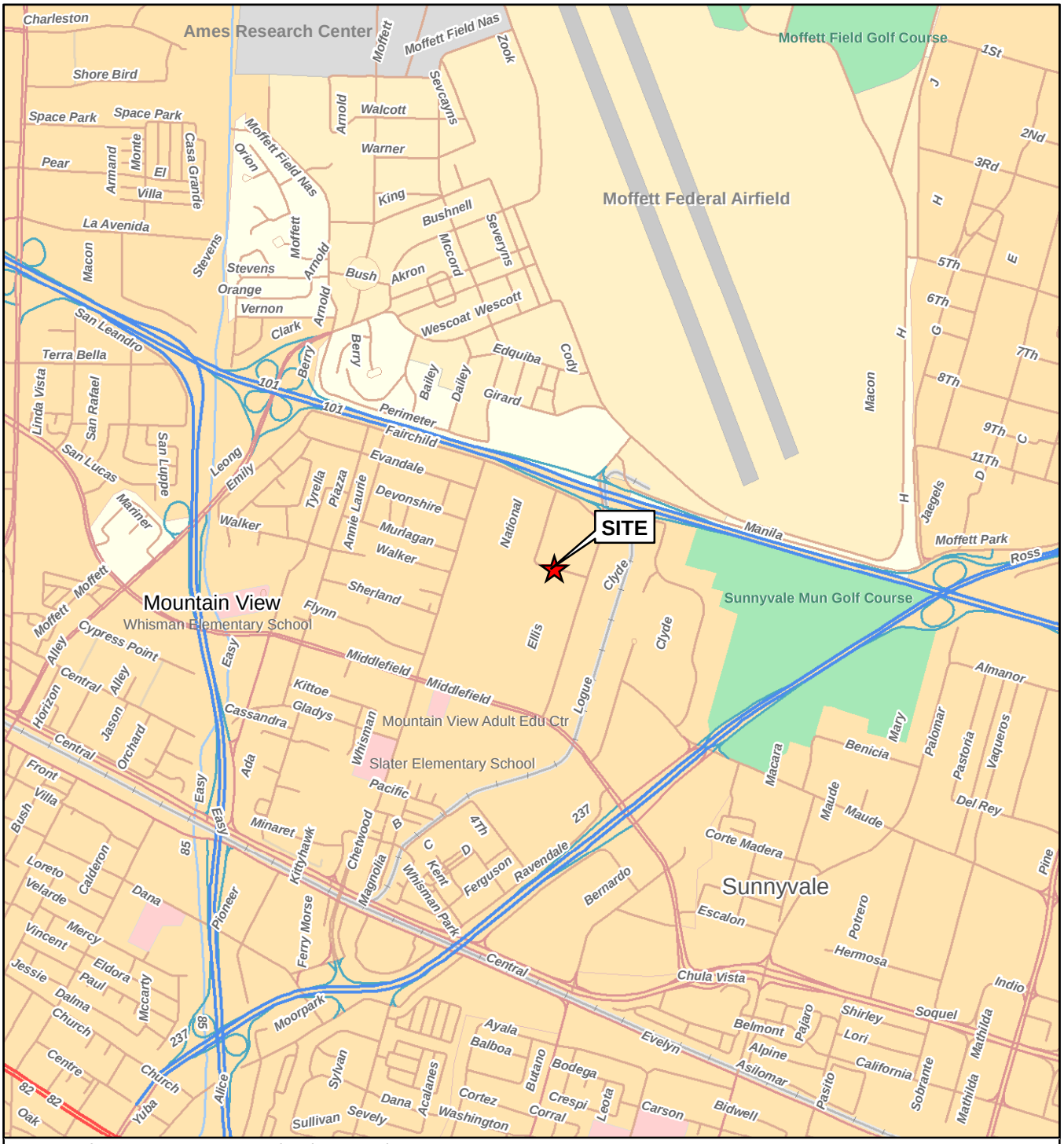
Wahler Associates, 1986b, Additional Information Concerning Groundwater Investigation at Siltec Corporation, Mountain View, California, June.

Wahler Associates, 1985, Interim Report, Siltec Groundwater Investigation for Siltec Corporation, Mountain View, California, October.

Wahler Associates, 1982, Soil and Groundwater Reconnaissance for Siltec Corporation, Mountain View, California, November.

Watkins-Johnson Environmental, Inc., 1992, Source Control Characterization Study for 405 National Avenue, Mountain View, California, for U.S. EPA Region IX, June.

FIGURES



Basemap from StreetMapPro 2007 (EnvironmentalSystems Research Institute, Inc. [ESRI], 2007).

N

0 2,000 Feet

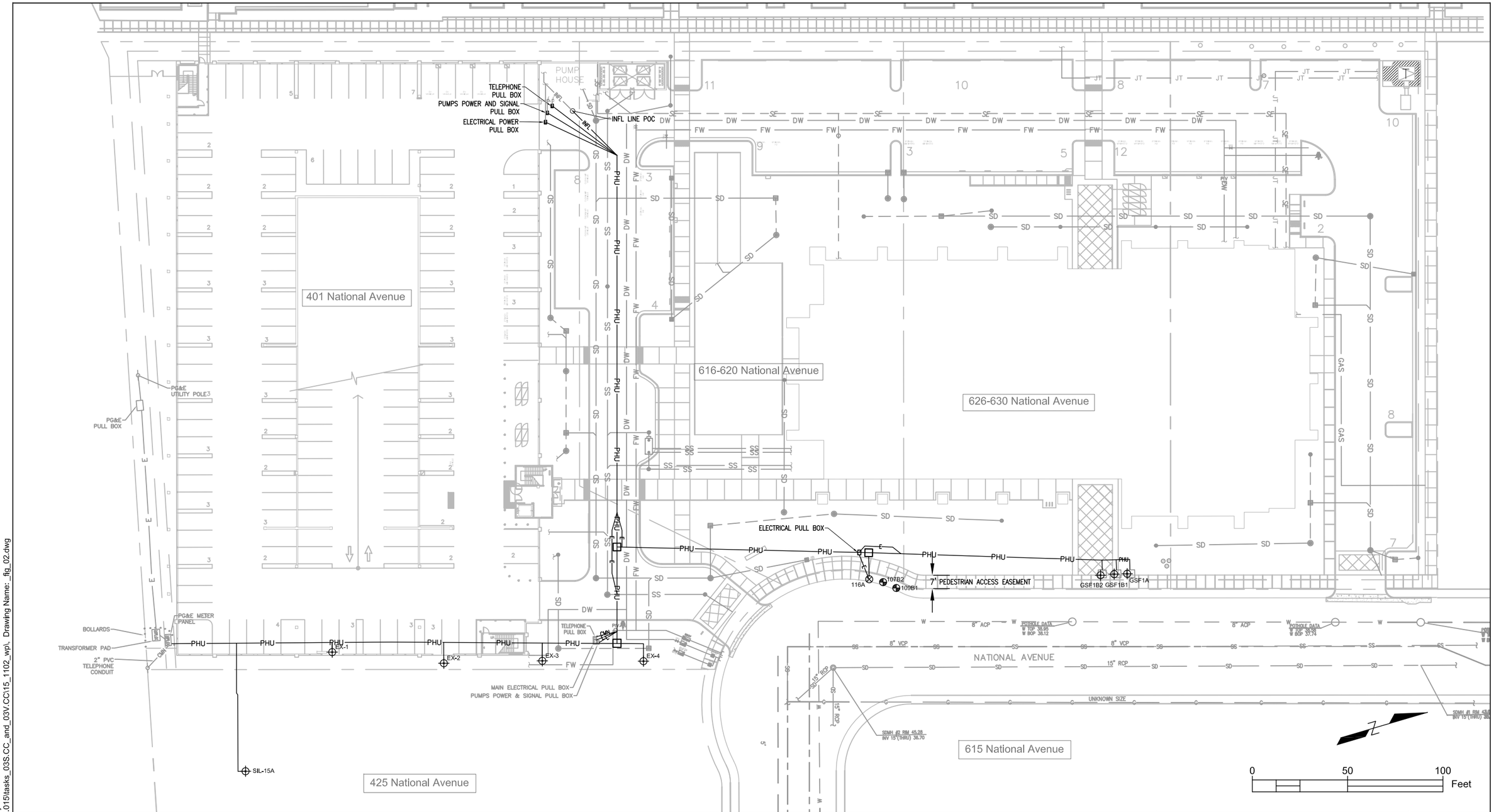
SITE LOCATION MAP
405 National Avenue
Mountain View, California

amec foster wheeler

Date: 06/10/2015 | Project No. 0014860015.02

Figure 1

R:\1000-1900s\1486\1486.015\tasks_02S.JJ_and_02V.JJ\15_0610_GWTSrwp_fig_01_405National.mxd



LEGEND

- GROUNDWATER MONITORING WELL
- GROUNDWATER EXTRACTION WELL
- PROPOSED GROUNDWATER EXTRACTION WELL
- E — ELECTRICAL LINE
- CMN — EXTRACTION WELL COMMUNICATION LINE
- INFL — INFLUENT LINE
- PHU — PUMP HOUSE UTILITY TRENCH
- PROPERTY LINE

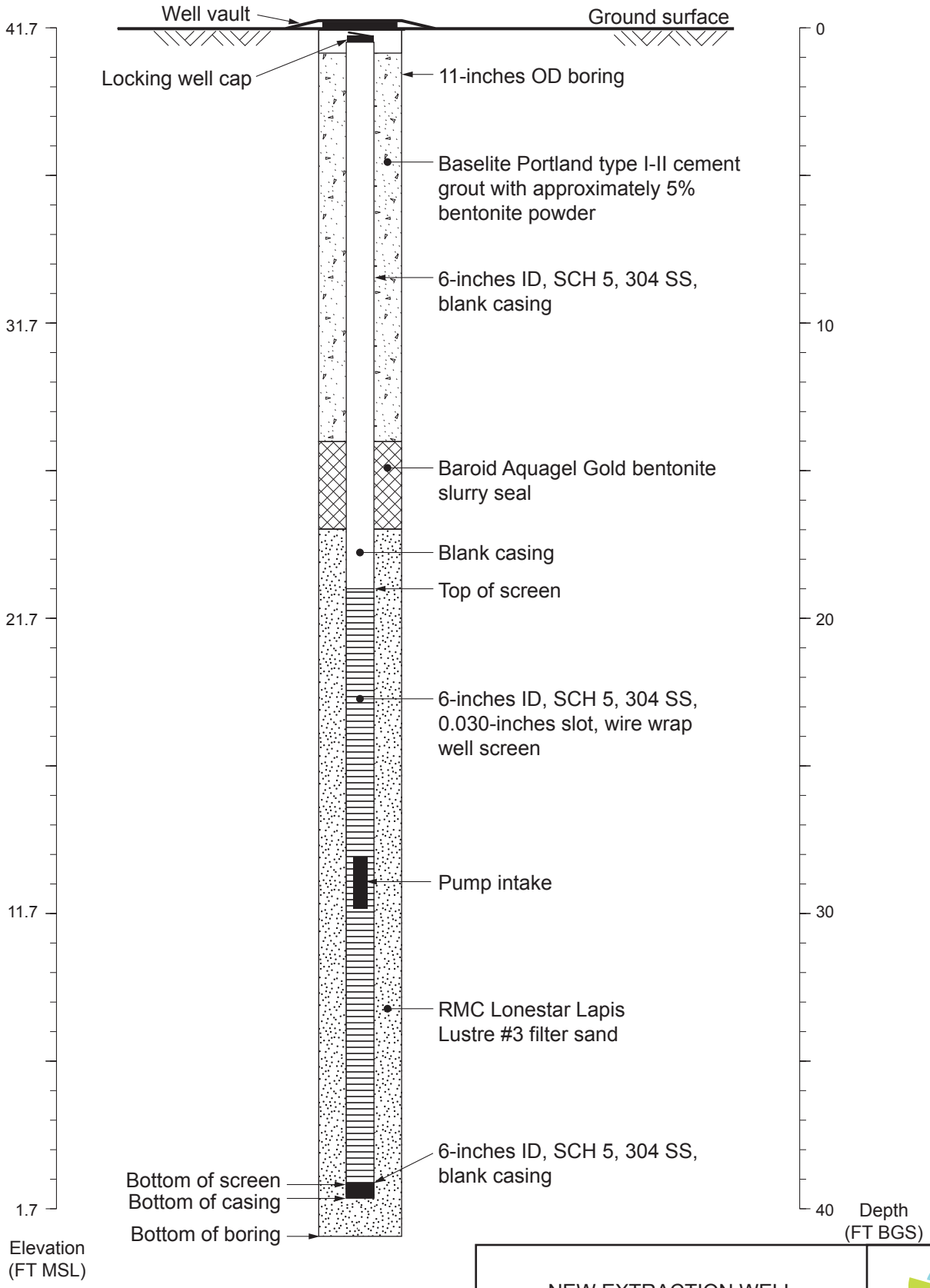
SITE PLAN
405 National Avenue
Mountain View, California

amec foster wheeler

Date: 11/03/2015 | Project No. 001486015

Figure 2

Plot Date: 11/03/15 10:36am Plotted by: dave.oshea
Drawing Path: R:\1000-1900s\1486\1486.015\tasks_03S.CC_and_03V.CC\15_1102_wp\ Drawing Name: _fig_02.dwg



Approximate vertical scale = 5 feet

NEW EXTRACTION WELL
CONSTRUCTION DETAILS
405 National Avenue
Mountain View, California

amec foster wheeler

Date: 01/14/2016 | Project No. 14860015

Figure 3

R:\1000-1900s\1486\1486.015\tasks_03S.CC_and_03V.CC\15_0611_116Awp_fig_03.ai

APPENDIX A

Monitoring Well 116A
(boring log, construction details)

Boring Log

Canonie

W 116 A
109B1
107B2

Boring Log

PROJECT No. CES 82-023-00
BORING No. EB-57
LOGGED BY J. McCue
PAGE 1 OF 3

PROJECT NAME FAIRCHILD SEMICONDUCTOR CORPORATION, MOUNTAIN VIEW, CALIFORNIA
BORING LOCATION *N 332,082 E 1,548,819 SURFACE ELEV. *41.5
DRILLER ALL TERRAIN DRILLING DATE: START 8-28-86 FINISH 9-02-86

DEPTH	SAMPLE No.	TYPE	INTERVAL FROM	INTERVAL TO	BLOW COUNT 0-6	6-12	12-18	RECOVERY IN INCHES	U.S.C.S. SOIL TYPE	PERCENT MOISTURE	qu TSF	CONTACT DEPTH	SOIL DESCRIPTION AND REMARKS	PIEZO
													(Brown Clayey Topsoil).	
												4.0		
5	1	PB	4.0	6.0				24	CL		1.25		Medium Stiff To Stiff Red-Brown Silty Clay, Some Fine To Coarse Sand, Trace Of Fine Gravel.	
	2	PB	6.0	8.0				21	CL		1.75			
10	3	PB	8.0	10.0				24	CL		0.75	10.0		
	4	PB	10.0	12.0				24	ML			12.0	Brown Mottled Fine Sandy Silt, Trace Of Clay.	
15	5	PB	12.0	14.0				22	CL		0.75		Medium Stiff To Stiff Gray Motteled Brown Silty Clay, Trace Of Fine To Coarse Sand.	
	6	PB	14.0	16.0				24	CL		1.25			
	7	PB	16.0	18.0				21	CL CL/SC		0.75	18.0	6-In. Brown Clayey Fine To Coarse Layer From 17.5 Ft. To 18.0 Ft., Brown Silty Fine Sand, Trace Of Fine Gravel, Clay, Wet.	
20	8	PB	18.0	20.0				20	SM					
	9	PB	20.0	22.0				21	SM			22.0	Gray Clayey Silt, Some Fine Sand	
									ML			23.0	Gray Fine Sand, Some Silt, Wet.	
	10	PB	22.0	24.0				21	SM			24.0	Soft To Medium Stiff Gray Silty Clay, Some Fine To Coarse Sand, Trace Of Roots.	
25									CL		0.25			
	11	PB	24.0	26.0				24	CL		0.75	26.0		
									CL		0.50		Medium Stiff Gray Fine Sandy Clay, Trace Of Roots. 8-In. Fine To Coarse Sand Layer From 27.5 Ft. To 28.3 Ft.	
	12	PB	26.0	28.0				20	CL/SW					
30	13	PB	28.0	30.0				24	CL		0.75	30.0		
									CL		2.00		Medium Stiff To Very Stiff Gray Silty Clay, Trace Of Fine To Coarse Sand.	
									CL		0.75			
	14	PB	30.0	34.0				47	CL					
									SP			33.5	Gray Fine Sand, Some Medium To Coarse Sand, Trace Of Fine Gravel, Silt, Clay.	
35	15	PB	34.0	36.0				24	SP			36.0		
													Gray Silty Fine Sand, Trace Of Roots.	
	16	PB	36.0	40.0				42	SM			39.0	Stiff Gray Silty Clay, Trace Of Roots.	
40									CL		1.50	40.0		

Rev. 2-86

*Location Coordinates And Surface Elevation ...

Canonie

Boring Log

PROJECT No. CES 82-023-00
BORING No. EB-57
LOGGED BY J. McCue
PAGE 2 OF 3

PROJECT NAME FAIRCHILD SEMICONDUCTOR CORPORATION, MOUNTAIN VIEW, CALIFORNIA
BORING LOCATION *N 332,082 E 1,548,819 SURFACE ELEV. *41.5
DRILLER ALL TERRAIN DRILLING DATE: START 8-28-86 FINISH 9-02-86

DEPTH	SAMPLE No.	TYPE	INTERVAL FROM	INTERVAL TO	BLOW COUNT 0-6	6-12	12-18	RECOVERY IN INCHES	U.S.C.S. SOIL TYPE	PERCENT MOISTURE	qu TSF	CONTACT DEPTH	SOIL DESCRIPTION AND REMARKS	PIEZO.
	17	PB	40.0	44.0				48	CL		0.75	44.0	MEDIUM STIFF GRAY SILTY CLAY. SOME FINE TO COARSE SAND. TRACE OF FINE GRAVEL. 5-IN. FINE SAND LAYER AT 40.2 FT.	
45	18	PB	44.0	49.0				57	CL		0.25	47.5	SOFT GRAY FINE TO COARSE SANDY CLAY. TRACE OF FINE GRAVEL. 6-IN. GRAY FINE TO COARSE SAND LAYER FROM 47.0 FT. TO 47.5 FT.	
50	19	PB	49.0	54.0				60	CL CL SM		1.50 1.25 0.75	50.5 53.0	STIFF GRAY SILTY CLAY. TRACE OF FINE TO MEDIUM SAND. TRACE OF ROOTS. MEDIUM STIFF TO STIFF TAN SILTY CLAY. TRACE OF FINE TO COARSE SAND.	
55	20	PB	54.0	56.0				19	SW-SM				BROWN FINE TO COARSE SAND. SOME FINE GRAVEL. TRACE OF SILT. WET.	
	21	PB	56.0	59.0				32	CL		1.50	57.5	SILTY AT 53.0 FT.	
60	22	PB	59.0	64.0				60	CL SW&GP		0.50	64.0	MEDIUM STIFF TO STIFF BROWN FINE TO COARSE SANDY CLAY. SOME FINE GRAVEL. BROWN FINE TO COARE SAND AND FINE GRAVEL. TRACE OF SILT. WET.	
65	23	PB	64.0	66.0				20	CL		1.50	65.0 66.0	STIFF BROWN SILTY CLAY. SOME FINE TO COARSE SAND. TRACE OF FINE GRAVEL.	
	24	PB	66.0	68.0				15	GP-GM				BROWN SILTY FINE TO COARSE GRAVEL AND FINE TO COARSE SAND, WET.	
70	25	PB	68.0	70.0				14	SW&GW					
	26	PB	70.0	72.0				11	SW			72.0	BROWN CLAYEY FINE SAND, SOME MEDIUM TO COARSE SAND, TRACE OF FINE GRAVEL.	
	27	PB	72.0	74.0				21	SC		0.75			
75	28	PB	74.0	76.0				24	CL SC		0.50	75.0 76.5	BROWN FINE SAND. SOME MEDIUM TO COARSE SAND. SOME CLAY. TRACE OF FINE GRAVEL. MOIST.	
	29	PB	76.0	81.0				51	CL		1.00	78.5	STIFF BROWN MOTTLED GRAY SILTY CLAY. SOME FINE SAND. MOIST.	
80									SM		1.00	80.5	BROWN TO GRAY SILTY FINE SAND. MOIST.	

Canonie

Boring Log

PROJECT No. CES 82-023-00
BORING No. EB-57
LOGGED BY J. McCue
PAGE 3 OF 3

PROJECT NAME FAIRCHILD SEMICONDUCTOR CORPORATION, MOUNTAIN VIEW, CALIFORNIA
BORING LOCATION *N 332,082 E 1,548,819 SURFACE ELEV. *41.5
DRILLER ALL TERRAIN DRILLING DATE: START 8-28-86 FINISH 9-02-86

DEPTH	SAMPLE No.	TYPE	INTERVAL FROM	INTERVAL TO	BLOW COUNT 0-6	6-12	12-18	RECOVERY IN INCHES	U.S.C.S. SOIL TYPE	PERCENT MOISTURE	qu TSF	CONTACT DEPTH	SOIL DESCRIPTION AND REMARKS	PIEZO.
									CL		1.00		STIFF GRAY SILTY CLAY, TRACE OF FINE TO COARSE SAND.	
												81.5		
	30	PB	81.0	84.0				36	SC				GRAY CLAYEY FINE SAND, SOME MEDIUM TO COARSE SAND, 6-IN. GRAY SILTY CLAY LAYER FROM 83.5 FT. TO 84.0 FT.	
									CL		1.25	84.0		
85														
	31	PB	84.0	86.0				24	ML					
												86.5	GRAY TO BROWN FINE SANDY SILT, TRACE OF CLAY, TRACE OF MEDIUM TO COARSE SAND, 6-IN. BROWN SILTY FINE SAND LAYER FROM 86.0 FT. TO 86.5 FT.	
									CL		1.25			
	32	PB	86.0	91.0				54						
90									CL		2.75			
												91.0		
	33	PB	91.0	94.0				36	CL		1.25		STIFF TO VERY STIFF GRAY TO BROWN SILTY CLAY, SOME FINE TO COARSE SAND, TRACE OF FINE GRAVEL.	
95														
	34	PB	94.0	99.0				57	CL		0.75		STIFF TO MEDIUM STIFF BROWN SILTY CLAY, TRACE OF FINE TO COARSE SAND, TRACE OF ROOTS. 6-IN. FINE SAND LAYER AT 101.5 FT.	
100														
	35	PB	99.0	104.0				53	CL		1.50			
105														
	36	PB	104.0	108.0				48	CL		1.00			
												108.0		
110	37	PB	108.0	110.0				24	CL		2.25	110.0	VERY STIFF BROWN SILTY CLAY, TRACE OF ROOTS.	
													BOTTOM OF BORING AT 110.0 FT.	

NOTES:
1. BORING WAS DRILLED USING MUD ROTARY METHOD.
2. UPON COMPLETION BORING WAS BACKFILLED WITH CEMENT/BENTONITE GROUT FROM 110.0 FT. TO GROUND SURFACE.

B2

rev. 2-86
*LOCATION COORDINATES AND SURFACE ELEVATION ARE APPROXIMATE

Construction Details

Canonie

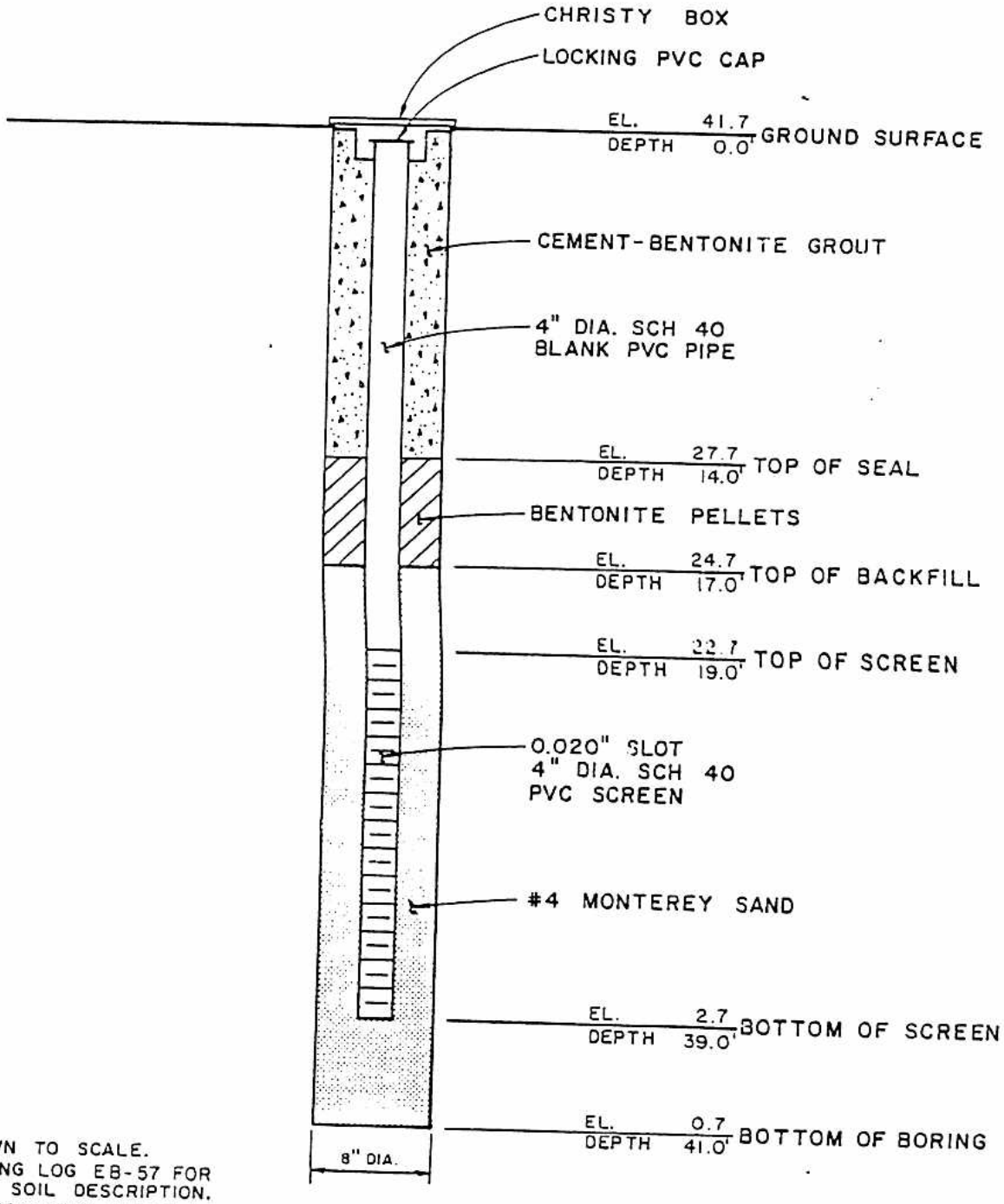
Observation Well Details

PROJECT No. CES82-023

WELL No. 116A

PROJECT NAME FAIRCHILD SEMICONDUCTOR CORP., MOUNTAIN VIEW, CA

BORING LOCATION N 332,074.0 E 1,548,811.3 DATE 9-17-86 BY JM



NOTES:

1. NOT DRAWN TO SCALE.
2. SEE BORING LOG EB-57 FOR DETAILED SOIL DESCRIPTION.
3. WELL IS SCREENED IN THE 'A' AQUIFER ZONE.