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May 6, 1999  
5109967009.00

Ms. Madhulla Logan  
Hazardous Materials Specialist  
Alameda County Department of Environmental Health  
1131 Harbor Bay Parkway  
Alameda, CA 94503

**Subject: Work Plan for Remedial Investigation - 22-acre Former Alameda Belt Line Rail Yard, Alameda, California**

Dear Ms. Logan:

On behalf of Sun Country Partners, LLC (Sun Country), URS Greiner Woodward Clyde (URSGWC) is pleased to submit for your review and approval this work plan for a Remedial Investigation (RI) at the 22-acre Former Alameda Belt Line Rail Yard (the site). It is our understanding that Sun Country intends to redevelop the site for residential use. Areas of soil and groundwater were identified in the Phase II Environmental Assessment (URSGWC, March 9, 1999) which were recommended for additional evaluation. This work scope describes our approach to performing the additional evaluation.

**PURPOSE**

The purpose of the RI is to perform the activities recommended by the recent (URSGWC, March 9, 1999) Phase II Environmental Site Assessment (ESA). The recommendations were made to support decisions about the need (if any) and extent of remedial actions warranted at the site, with the goal to obtain from the regulatory agencies a permit for residential occupancy in a timely and cost-efficient way.

The soil and groundwater sampling plan proposed for this RI is based on the site-specific information gathered in the ESA. According to the conclusions of the ESA, the site may be used for the planned residential development provided that the recommended investigation activities are performed to address the identified environmental issues and appropriate remedial actions are carried out. On April 6, 1999, in a telephone communication with Mr. Marco Lobascio, Ms. Madhulla Logan of the Alameda County Department of Environmental Health (the County) discussed and approved the findings and recommendations of the ESA report.

## **SUMMARY OF ENVIRONMENTAL CONCERNS**

The site environmental concerns identified in the ESA are summarized below.

### ***Soil Concerns - Lead***

Lead was detected in shallow soil at a maximum reported concentration of 380 mg/kg at location SS-1. This concentration exceeds the revised California EPA-modified residential PRG of 300 mg/kg. Additional delineation of the extent of the area where lead exceeds 300 mg/kg is warranted. Based on the results of the delineation it will be possible to draw conclusions about the need (if any) for remedial actions related to lead in soil near location SS-1.

### ***Shallow Groundwater Concerns - TPH and 1,2-DCE***

The laboratory reports detection of TPH gasoline at 0.43 mg/l, and diesel at 3.7 mg/l in groundwater from Boring B-10. BTEX and PNAs, the "risk drivers" for TPH (ASTM 1995), were non-detectable. While there is no regulatory guidance (MCL, Action Level, or tap water PRG) for TPH diesel or gasoline in groundwater these detections may require further delineation following review by the Alameda County Department of Environmental Health.

The concentration of VOCs in groundwater do not exceed either the California MCL or the USEPA PRG for tap water in groundwater samples from the exploratory borings, with the exception of 1,2-DCE. The laboratory reports that the concentration of 1,2-DCE (cis) in groundwater from Boring B-6 exceeds the MCL of 0.006 mg/l. This exceedance is likely to be of minor concern to human health due to the low frequency and magnitude, and the fact that the shallow groundwater is not a viable source of drinking water.

Moreover, there is evidence of natural attenuation occurring in that area of the site. Evidence shows that reductive dechlorination of TCE into 1,2-DCE (cis) and 1,2-DCE (trans) is occurring. This process generally occurs in an anaerobic, methane-rich environment by methanogenic bacteria. However, additional delineation and confirmation needs to be performed near location B-6 to support the above conclusion.

Even in the unlikely case the shallow groundwater may be used as a drinking water source, the 1,2-DCE detection should be averaged with the 12 non-detects to obtain a concentration representing the overall site conditions. Conservatively assuming that the non-detects are all at the detection limit of 0.0005 mg/l, the average 1,2-DCE concentration is 0.009 mg/l, exceeding the MCL of 0.006 mg/l by a factor of less than two. This exceedance is evaluated to be not of concern in terms of protection of human health, provided that the recommended additional delineation activity confirms the assumption of relatively limited extent of area impacted by 1,2-DCE.

## **SUMMARY OF RECOMMENDED ACTIONS**

The ESA (URSGWC, March 9, 1999) recommendations for the intended residential use of the site are presented below:

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### ***Recommended Actions for Lead in Soil***

Additional soil sampling was recommended in the vicinity of shallow soil sample location SS-1 and laboratory testing should be performed on these samples for total lead to evaluate the extent of lead impacted soils. Remedial actions are recommended for soil containing lead at concentrations exceeding the revised California/EPA of 300 mg/kg for residential exposure scenario. A soil management plan should be developed for lead impacted soils. The remedial alternatives for lead impacted soils include:

1. Excavation of soils exceeding the revised California/EPA PRG of 300 mg/kg lead and disposal of these excavated soils at an off-site approved waste management site, or
2. Excavation of soils exceeding 300 mg/kg lead and placement of these soils beneath a capping layer of clean soil or asphaltic concrete pavement or concrete pavement. Possible placement under the street areas or parking might be considered. This option may require that a notification be placed on file at the City of Alameda to identify the area of placed soils with lead for future subsurface site activities.
3. Excavation of soils exceeding 300 mg/kg lead and on-site treatment to reduce the soluble lead concentrations to levels acceptable to Alameda County.
4. Performance of a site-specific risk-based evaluation for potential exposure to lead in soil.

### ***Recommended Actions for TPH and 1,2-DCE in Shallow Groundwater***

Since it is unlikely that groundwater at the site will be used for drinking water, no active remediation of impacted groundwater is recommended. It is assumed that the drinking water for the planned development will be supplied by the local public water supply. In addition there is a low potential for incidental contact of construction workers and future residents at the site with groundwater. The ESA recommended the following:

1. Exploration of the extent of impacted groundwater with 1,2-DCE exceeding the MCL of 0.11 mg/l in the vicinity of Boring B-6.
2. Exploration of the extent of impacted groundwater with TPH gasoline and diesel in the vicinity of Boring B-10.
3. Installation of groundwater monitoring wells and documentation of stability of the plume and natural attenuation is the recommended long-term approach for areas affected by 1,2-DCE, and TPH-gasoline and diesel.

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## PROPOSED SCOPE OF WORK

The proposed scope of work for the RI is organized in the following three tasks:

### **Task 1: Finalization of This Work Plan Based on the County's Review Comments**

In Task 1 we will revise and finalize this RI work plan based on the County's review comments. Based upon our current knowledge of the site, the work plan needs to address the following five concerns:

1. Delineation of surficial soil (between 0 and one foot depth) with a lead concentration exceeding the site-specific target level (SSTL) of 300 mg/kg near location SS-1.
2. Delineation of 1,2-DCE in shallow groundwater with concentration exceeding the site-specific target level (SSTL) of 0.006 mg/l near location B-6.
3. Delineation of the relatively elevated TPH concentration detected in shallow groundwater near location B-10.

Based on professional judgement, and for budget purposes, we estimate that, at a minimum, a total of about 11 borings will be drilled and about 15 surface soil samples will be collected at the site (Figure 2) during the RI. Borings will be drilled using direct push methods. Using this method provides an evaluation of the subsurface groundwater conditions at a fraction of the cost of installing monitoring wells. We anticipate that the surficial soil samples and the borings will be allocated as follows:

1. Exploration of the extent of soil with lead near location SS-1: collect about 15 surficial soil samples using hand tools and analyze for total lead, soluble lead using WET test and using de-ionized water.
2. Exploration of the extent of 1,2-DCE in shallow groundwater near location B-6: drill about 6 borings to collect grab groundwater samples and analyze for VOCs.
3. Exploration of the extent of TPH in shallow groundwater near location B-10: drill about 5 borings to collect grab groundwater samples and analyze for TPH-gas-BTEX-MTBE and TPH-diesel and -motor oil.

The aforementioned activities will be modified according to the County's revisions (if any).

### **Task 2: Field Sampling and Laboratory Analyses**

#### Shallow Soil Sampling Near SS-1

In Task 2 we will mark the sampling locations and perform the necessary utility clearance activities. Then we will start the sampling work. Surface soil samples and samples of ballast rock, from 0- to 1-foot, will be collected in plastic zip-lock bags, and will be labeled and placed in an ice chest. About 15 surface soil samples of ballast rock are planned. Samples will be located on a 50-foot grid extending from SS-1 (refer to Figures 1 and 2). The sampling locations will be plotted on a base map using field tape measurements.

*only soil*

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### Grab Groundwater Sampling near Boring B-6

Direct push drilling methods will be used to advance about six borings cross-gradient and downgradient from boring B-6 to explore the extent of 1,2-DCE in groundwater. Groundwater samples will be collected from each boring by placing a temporary PVC well casing in the boring, and then using either a disposable bailer or clean plastic tubing and a peristaltic pump to retrieve the water sample and place it in a clean container. The groundwater samples will be sealed, labeled and placed on ice in an ice chest. The samples will be transported to a California certified analytical laboratory. The appropriate boring locations are shown on the attached Figures 1 and 3.

Chlorinated  
only  
C7H14

### Grab Groundwater Sampling near Boring B-10

Direct push drilling methods will be used to advance about five borings upgradient, cross-gradient, and downgradient from Boring B-10 to explore the extent of TPH-gasoline, -diesel and -motor oil and MTBE in groundwater. Grab groundwater samples will be collected from each boring and will be transported to the laboratory as described for B-6 above (refer to Figures 1 and 4).

only  
TPH

### Laboratory Analyses

Table 1 presents a summary of the proposed field sampling and analysis activities. The surface soil samples will be analyzed for lead, soluble lead using the WET test, and de-ionized water. Soil and shallow groundwater samples from borings will be tested for VOCs, TPH-gasoline-BTEX-MTBE and TPH-diesel and -motor oil analyses. In addition, we will analyze some of the samples to gather evidence of natural attenuation. Instead of analyzing for PNAs, we will estimate benzo(a)pyrene and naphthalene from TPH-diesel concentration using a simplified conservative methodology developed by URSGWC and accepted by the County in other projects.

### **Task 3: Data Evaluation and RI Report**

We will evaluate the laboratory analyses results in terms of delineation of chemical distribution in the subsurface and of exceedance of regulatory standards. Detected chemical concentrations in soil and shallow groundwater will be compared to appropriate screening level criteria, i.e., USEPA Region 9 Preliminary Remediation Goals (PRGs) for residential exposure scenario, California Maximum Contaminant Levels for drinking water, and tap water PRGs. We will prepare figures showing sampling locations and relevant results such as estimated extent of lead impacted areas, groundwater concentration contours, and exceedances of standards. The RI report will include a discussion of the results of the comparisons, and our conclusions and recommendations about the need (if any) and extent of further characterization or remedial activities at the site. The report will follow the framework for the classification of sites as "low-risk" cases according to the San Francisco Bay RWQCB (1996). We will suggest the location for installation of groundwater monitoring wells to monitor the stability of groundwater plumes.

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### CONCLUSION

We look forward to receiving your comments on this work plan. If you have any questions, please call Al Ridley at (510) 874-3125 or Marco Lobascio at (510) 874-3254.

Sincerely,

URS Greiner Woodward Clyde



Albert P. Ridley, C.E.G.  
Project Manager



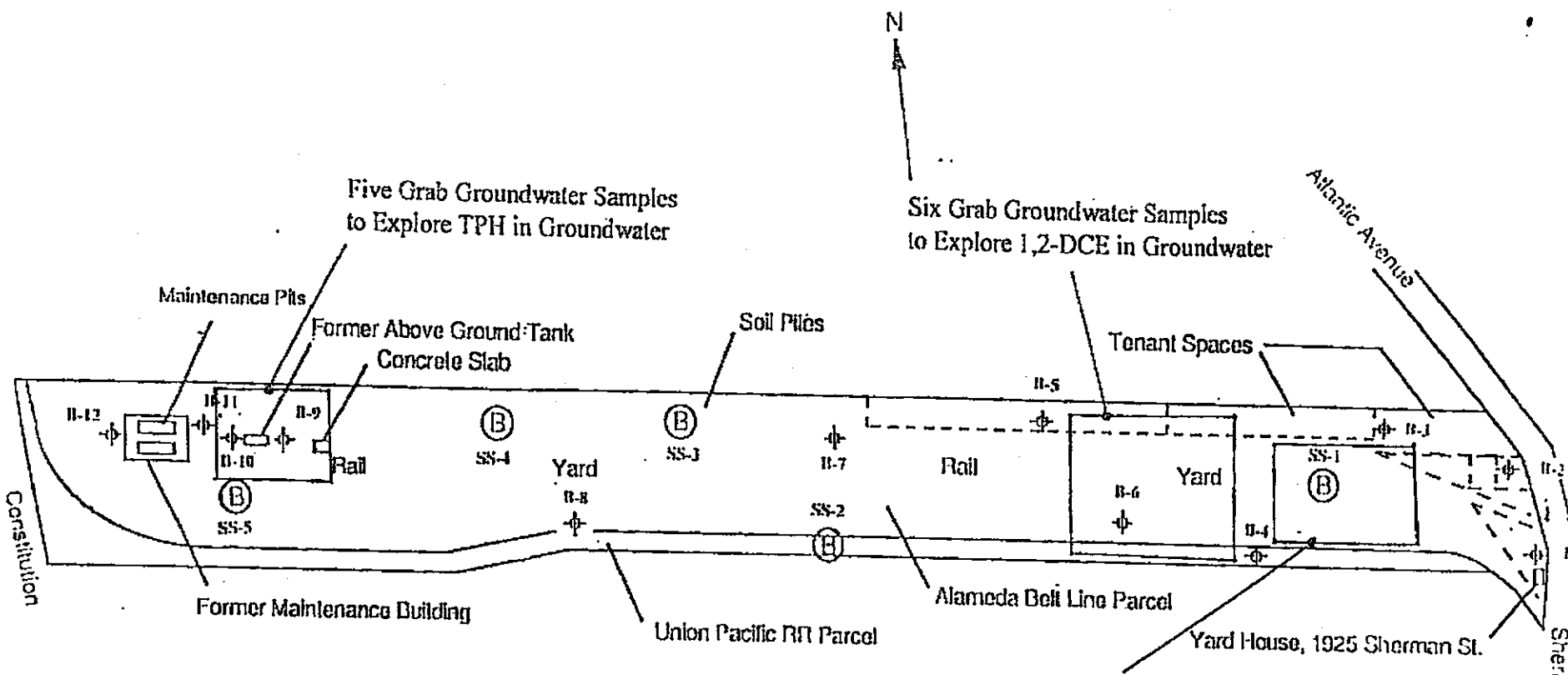
Marco C. Lobascio, P.E., R.E.A.  
Senior Civil Engineer

### Enclosures:

- Table 1. Summary of Field Sampling and Analyses Activities
- Figure 1. Site Map and Sampling Locations
- Figure 2. Illustration of Sampling Locations - Lead Area
- Figure 3. Illustration of Sampling Locations - 1,2-DCE Area
- Figure 4. Illustration of Sampling Locations - TPH-d and TPH-g Area

**TABLE 1. SUMMARY OF FIELD SAMPLING AND ANALYSES ACTIVITIES**

Location	Proposed Analyses of Soil and Shallow Groundwater Samples								
	EPAS015M	EPAS015M	EPAS015M	VOCs	VOCs	CMC-17	CMC-17	Lead Only	NAT
	TPH (soil)	TPH (soil)	TPH (soil)	EPAS250	EPAS250	EPAS017	and 17 EPAS311	EPAS010	Indicator
	-	-	-	-	-	-	3	15	-
	-	-	-	6	-	-	-	-	3
	5	5	5	-	-	-	-	-	3
	2	2	-	2	2	2	-	-	-
	1	1	-	1	1	1	-	-	-
	2	2	2	2	2	2	-	-	-
	10	10	7	11	5	5	3	15	6



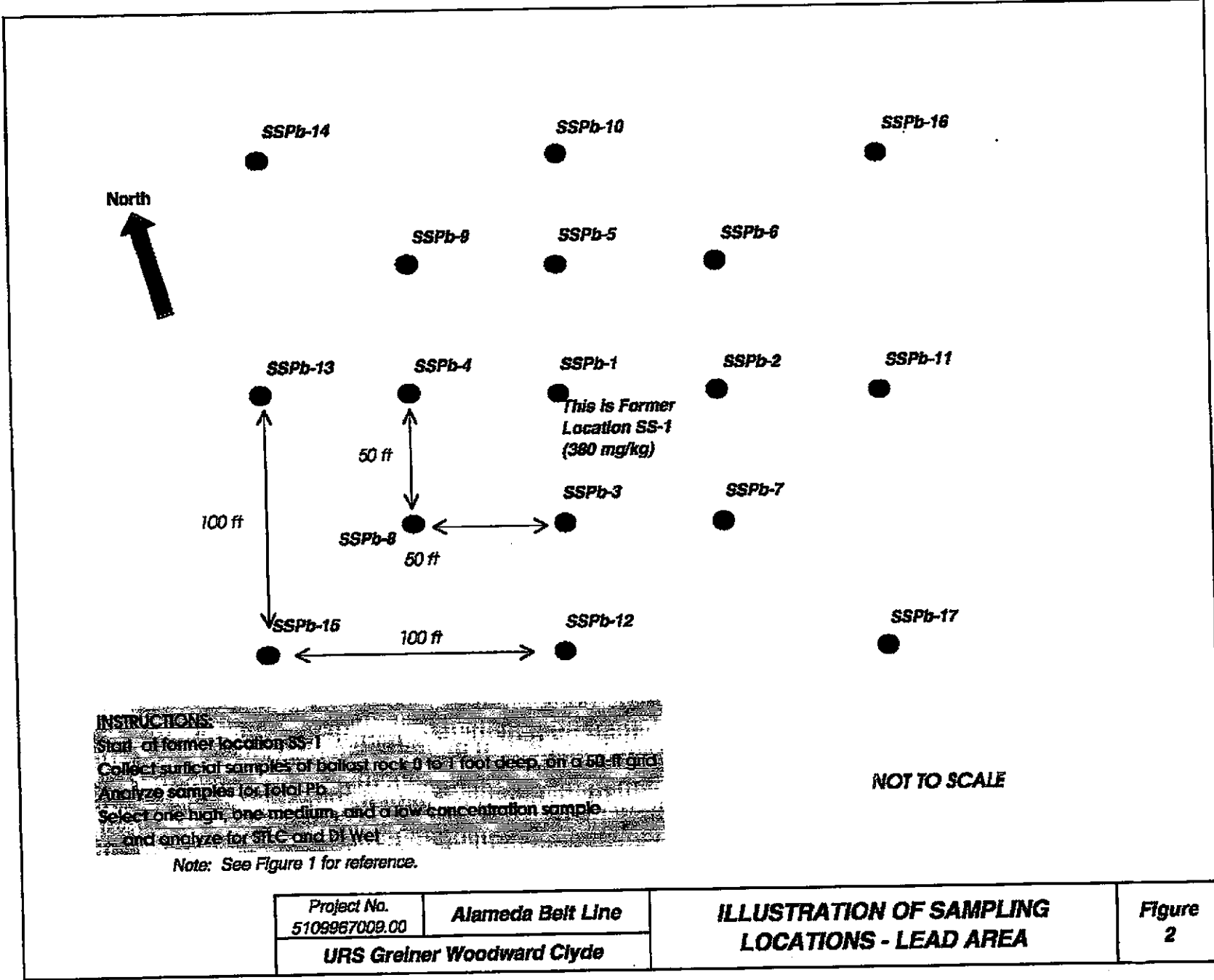
15 Shallow Soil Samples to Explore extent of Lead in Ballast Rock

LEGEND

- ⊕ Planned Soil Boring
- Ⓟ Shallow Soil Sample

<p>Project No. 5109967009.00</p>	<p>SUN COUNTRY PARTNERS</p>	<p>REMEDIAL INVESTIGATION SAMPLING LOCATIONS</p>	<p>Figure 1</p>
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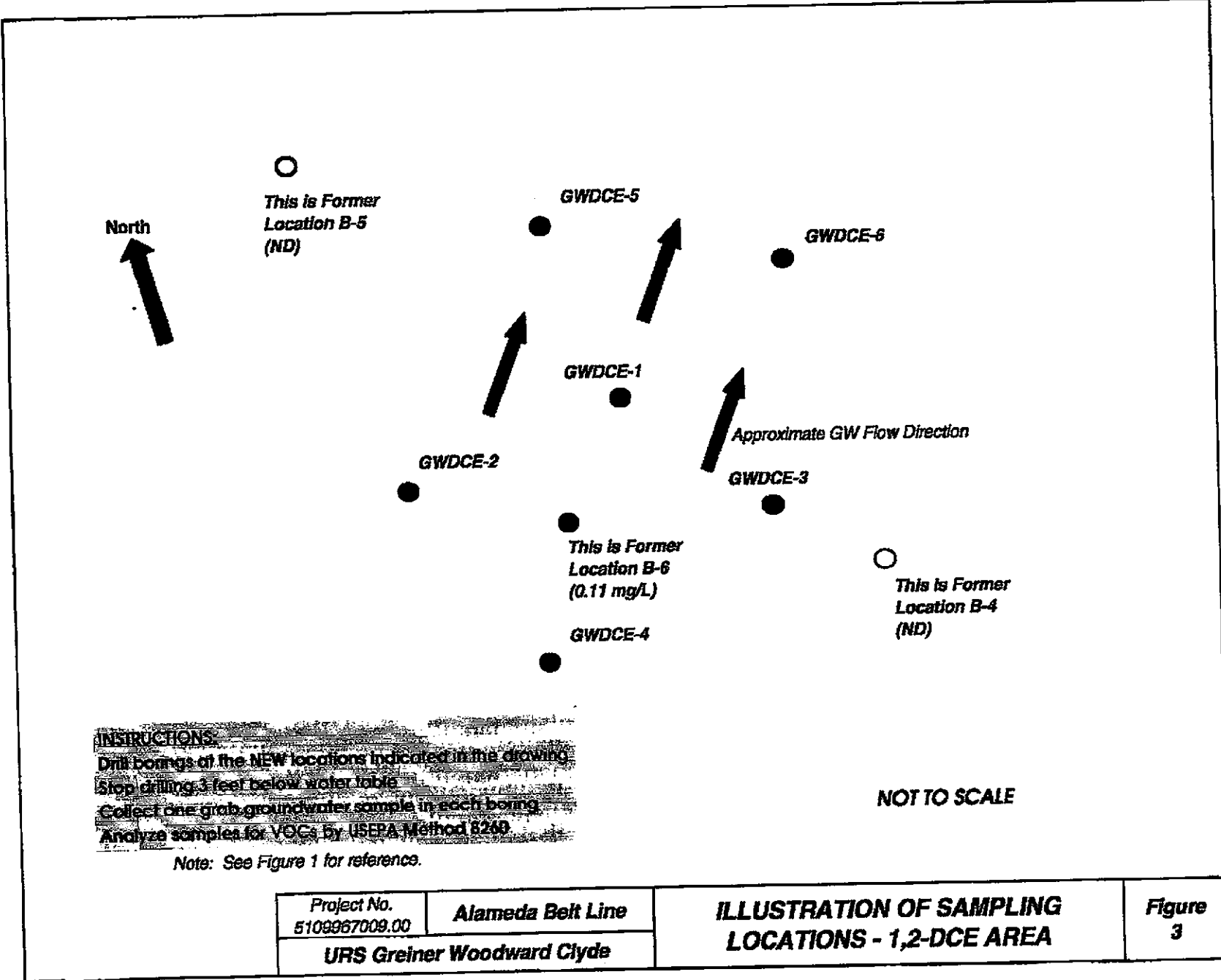


**INSTRUCTIONS:**  
 Start at former location SS-1  
 Collect surficial samples of ballast rock 0 to 16" foot deep, on a 50-ft grid  
 Analyze samples for total Pb  
 Select one high, one medium, and a low concentration sample  
 and analyze for SFLC and DI Wet

Note: See Figure 1 for reference.

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Project No. 5109967009.00	Alameda Belt Line	ILLUSTRATION OF SAMPLING LOCATIONS - LEAD AREA	Figure 2
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**ILLUSTRATION OF SAMPLING LOCATIONS - 1,2-DCE AREA**

**Figure 3**

