

September 19, 1997
SCI 133.009

Mr. Jonathan Redding, Esq.
Fitzgerald, Abbott & Beardsley, LLP
1221 Broadway, 21st Floor
Oakland, California 94612

Work Plan
Oil-Filled Manhole and Additional Investigation
Ninth Avenue Terminal Study Area
Port of Oakland
Oakland, California

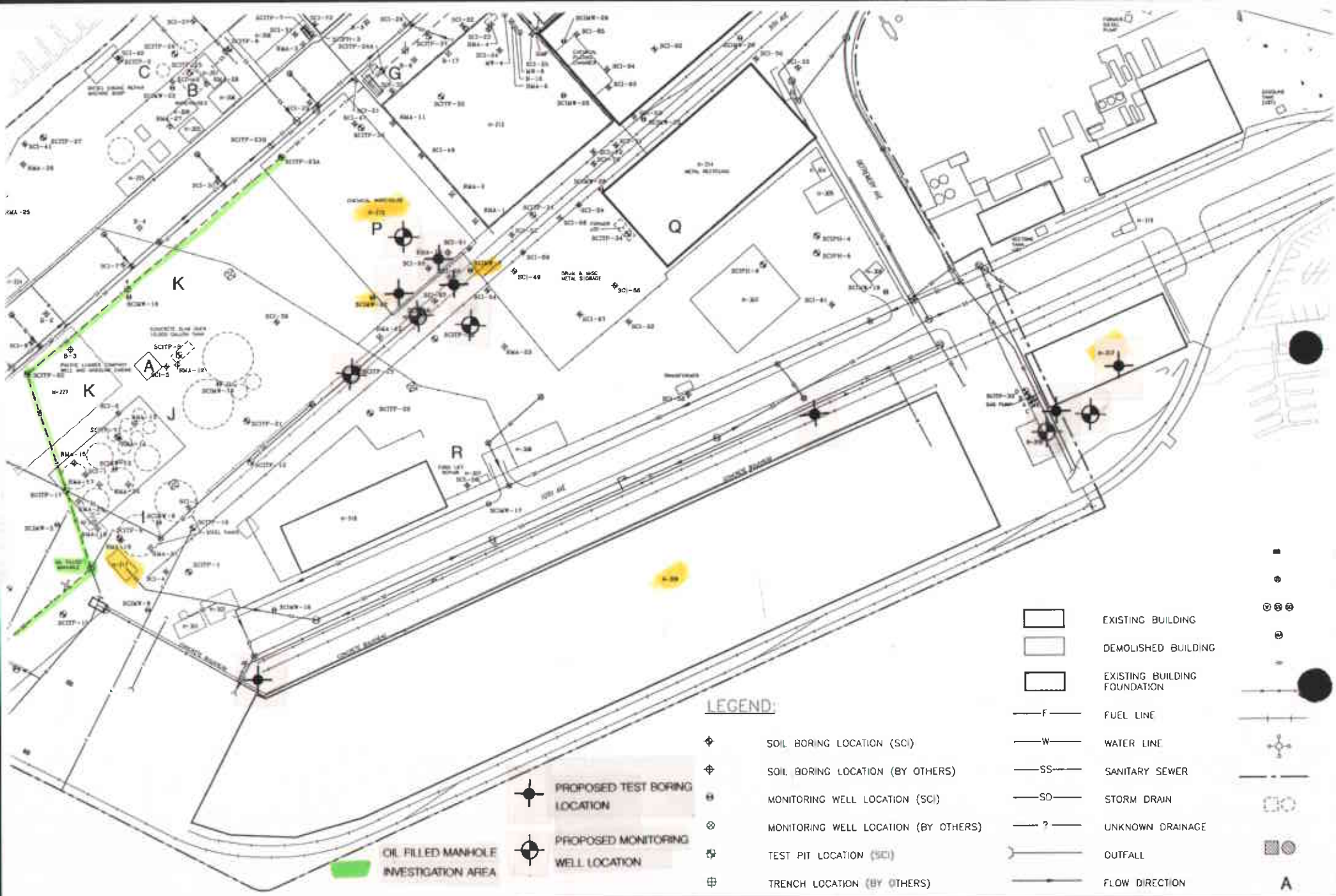
Dear Mr. Redding:

Subsurface Consultants, Inc. (SCI) is pleased to present this work plan to conduct additional investigation at the Ninth Avenue Terminal Project for the Port of Oakland. Based on findings presented in SCI's Third Interim Report of the subject site dated August 15, 1997, we have identified several areas that require additional investigation. This work plan presents SCI's recommended scope of work for several investigation tasks that are necessary to support current and future mediation and/or litigation goals of the Port of Oakland and to comply with Alameda County Health Care Services Agency requirements presented in their letters dated August 2, 1996, December 2, 1996, January 14, 1997, and April 25, 1997.



SCOPE OF SERVICES







SCI's scope of services will comprise the following activities:











- Perform an evaluation of the oil-filled manhole and its associated in- and outflow pipes (i.e., Cannery Line),
- Additional subsurface investigation at Marine Terminals Corporation (MTC) Buildings H-317 (forklift repair shop) and H-309 (Ninth Avenue Terminal Transit Shed),
- Additional investigation of an area near former Building H-215 where chlorinated solvents and pesticides have been found in soil and groundwater,
- Tidal influence study, and
- Preparation of a report describing the findings of the above.



LEGEND:

-  PROPOSED TEST BORING LOCATION
-  PROPOSED MONITORING WELL LOCATION

-  SOIL BORING LOCATION (SCI)
-  SOIL BORING LOCATION (BY OTHERS)
-  MONITORING WELL LOCATION (SCI)
-  MONITORING WELL LOCATION (BY OTHERS)
-  TEST PIT LOCATION (SCI)
-  TRENCH LOCATION (BY OTHERS)

-  EXISTING BUILDING
-  DEMOLISHED BUILDING
-  EXISTING BUILDING FOUNDATION
-  FUEL LINE
-  WATER LINE
-  SANITARY SEWER
-  STORM DRAIN
-  UNKNOWN DRAINAGE
-  OUTFALL
-  FLOW DIRECTION

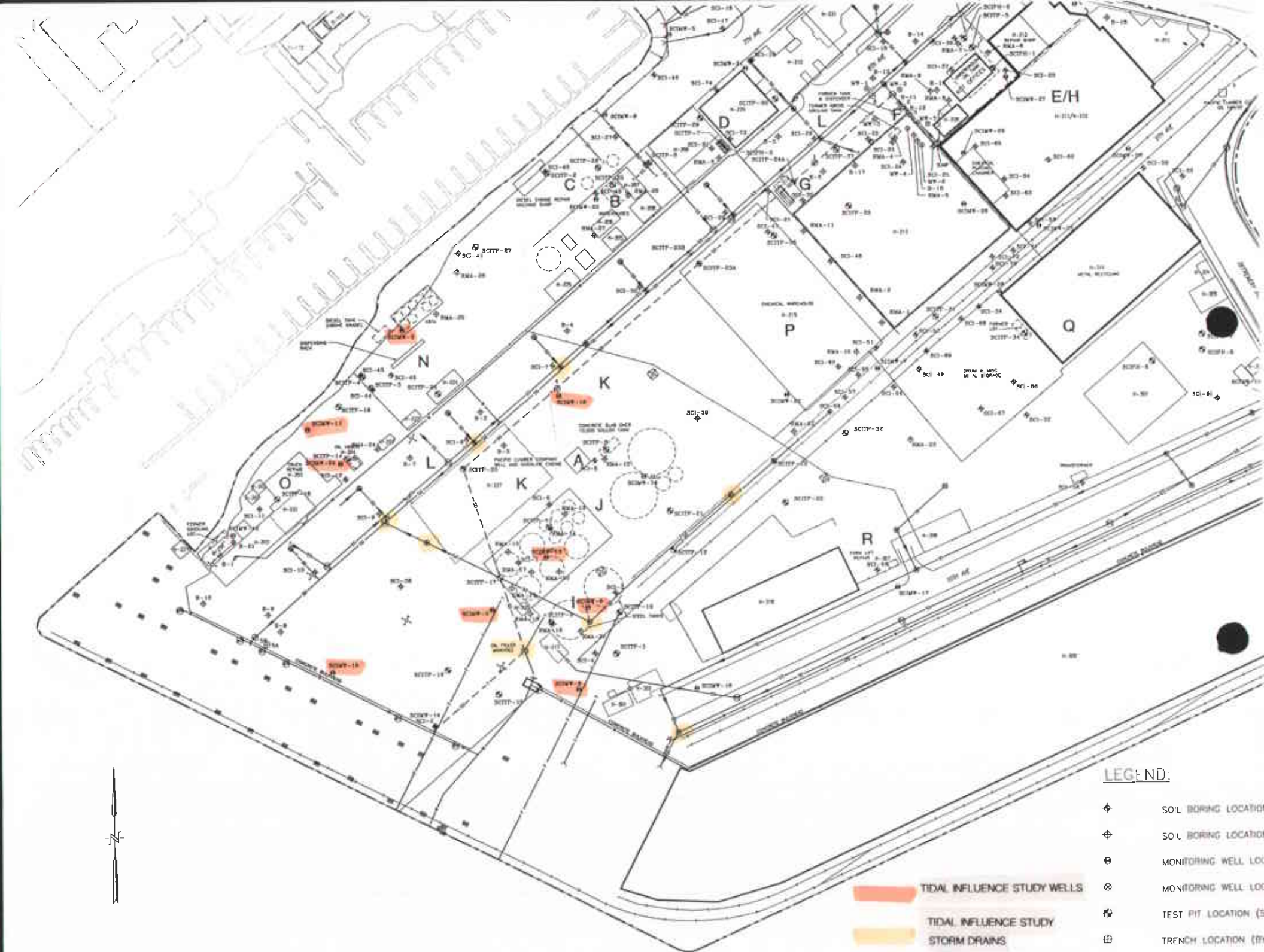


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 DATE 9-11-97



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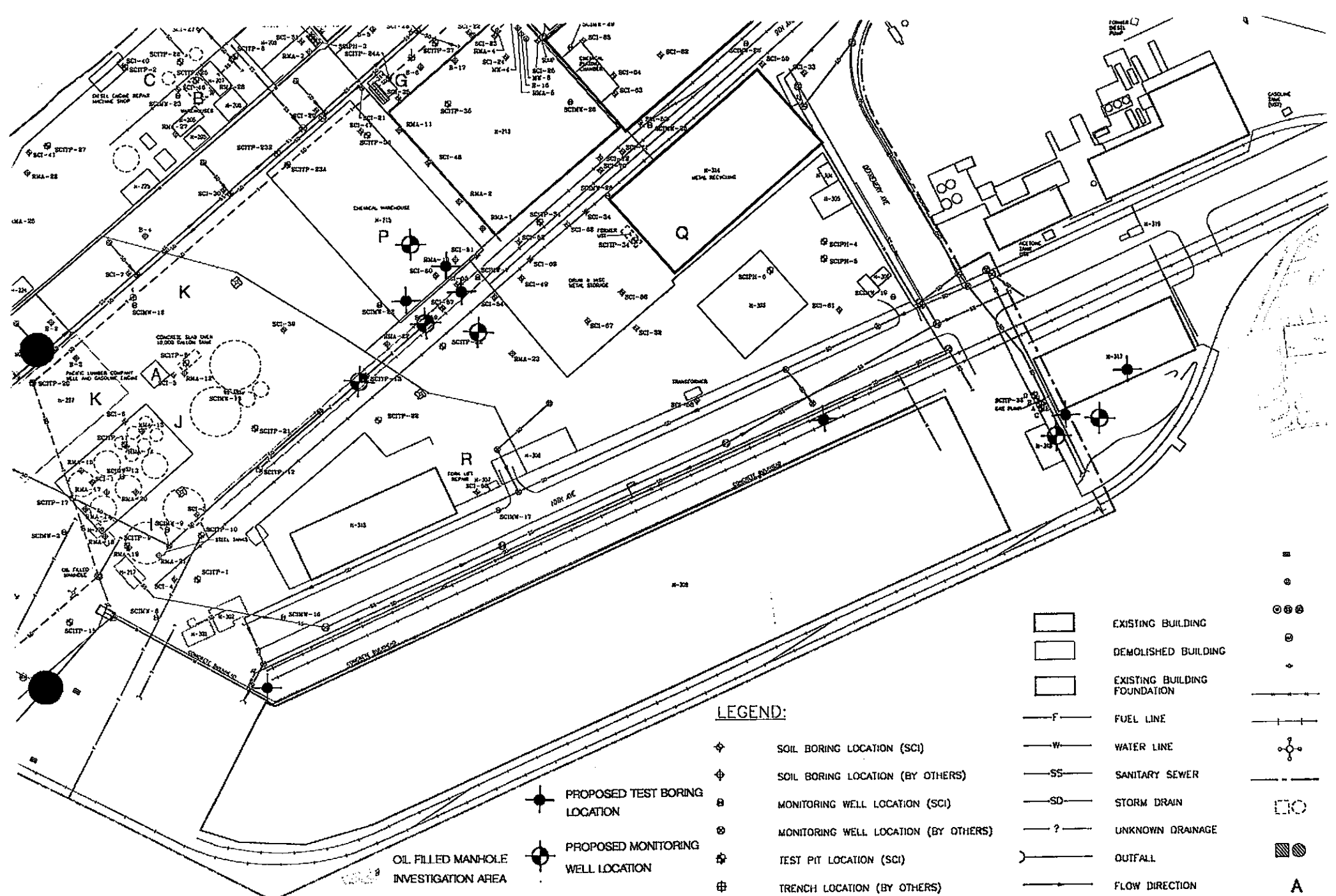
NINTH AVENUE TERMINAL
 PORT OF OAKLAND
SITE PLAN



LEGEND:

- ◆ SOIL BORING LOCATION
- ⊕ SOIL BORING LOCATION
- ⊙ MONITORING WELL LOCATION
- ⊗ MONITORING WELL LOCATION
- ⊙ TEST PIT LOCATION (5)
- ⊕ TRENCH LOCATION (10)
- TIDAL INFLUENCE STUDY WELLS
- TIDAL INFLUENCE STUDY STORM DRAINS

NOTES:

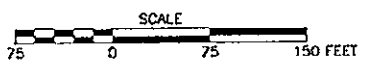


LEGEND:

- PROPOSED TEST BORING LOCATION
- PROPOSED MONITORING WELL LOCATION
- OIL FILLED MANHOLE INVESTIGATION AREA

- SOIL BORING LOCATION (SCI)
- SOIL BORING LOCATION (BY OTHERS)
- MONITORING WELL LOCATION (SCI)
- MONITORING WELL LOCATION (BY OTHERS)
- TEST PIT LOCATION (SCI)
- TRENCH LOCATION (BY OTHERS)

- EXISTING BUILDING
- DEMOLISHED BUILDING
- EXISTING BUILDING FOUNDATION
- FUEL LINE
- WATER LINE
- SANITARY SEWER
- STORM DRAIN
- UNKNOWN DRAINAGE
- OUTFALL
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**NINTH AVENUE TERMINAL
 PORT OF OAKLAND**

SITE PLAN

A

TABLE A - ADDITIONAL RECOMMENDED INVESTIGATION

NINTH AVENUE TERMINAL
 Port of Oakland, California
 SCI 133.009
 August 1997

ITEMS OF FURTHER STUDY	DATA COLLECTION														SAMPLE ANALYSES					BRIEF STATEMENT OF OBJECTIVES/RATIONALE/COMMENTS ^{1,2}
	Site Reconnaissance	Install Monitoring Wells	Drill Test Borings	Collect Soil Samples	Collect GW Sample	Utility Locating	Tidal Influence Study	Gas/BTEX EPA 8015	Extended Diesel - Oil Range EPA 8015	Volatile Organics EPA 8240	Semi-Volatile Organics EPA 8270	Chlorinated Pesticides PCB's EPA 8080	Heavy Metals EPA 6000/7000	Lead EPA 7240	Total Oil and Grease SMWW	Chromium 6+	pH, minerals	Cyanide		
1. Oil Filled Manhole Investigation						1													The diesel product identified in the manhole closely resembles the diesel product released at the KOT facility. Pipes that feed and exit this manhole are constantly submerged beneath the surface of the liquid, impeding visual observation of the pipes. The number, location, size, construction, and configuration of this and other pipes is therefore essential to evaluate the source of product in the manhole.	
2. Marine Terminals Corp. Building H-317: Install 2 wells and drill 2 test borings Building H-309: Drill 2 test borings		2	4	12	6			18	18	18	18			12	18				The former UST area adjacent to Building H-317 reportedly had a spill in 1975. Investigation in April/May 1997 showed that this site has been impacted by petroleum hydrocarbons. Further study is necessary to determine the extent of contamination. During a recent site reconnaissance, SCI discovered additional potential source areas near Building H-317 and H-309: a central drainage area in H-317, a possible solvent sink drainage pipe, and excessive surface staining near an unpaved drainage area.	
3. Solvent Area at Former Building H-215 Install 3 shallow wells, 1 deep well and drill 3 test borings		4*	3	45	5	1		50	50	50		21			50				High concentrations of chlorinated solvents have been found in this area. The lateral and vertical extent of contamination to groundwater has not been fully characterized.	
4. Tidal Influence Study 6 wells and 7 manholes/catch basins							1												A tidal influence study is necessary to evaluate the effect that the tides have on groundwater near Clinton Basin and to assess the effectiveness of the bulkhead wall in inhibiting the migration of contaminants in groundwater.	
5. Issue Report of Findings																			Includes data reduction and engineering analysis.	
Totals	0	2	7	57	11		1	68	68	68	18	39	0	12	68	0	0	0		

1. These should not be considered to be an exhaustive list of objectives, rationale, and comments.
 2. Scope presented should not be considered comprehensive. Areas may be added, deleted, or relocated as additional information becomes available.
 * SCI proposes that one monitoring well will be double-cased and installed approximately 60' into a deeper confined aquifer.