

2 March 2009  
ERM Project No. 0072943

Mr. Steven M. Scharf, P.E.  
New York State Department of Environmental Conservation  
Division of Environmental Remediation  
Remedial Action, Bureau A  
625 Broadway  
Albany, NY 12233-7015



Re: Revised Work Plan For Soil Vapor Intrusion/Indoor Air Quality Investigation  
Interior Building Areas Near Phase II Area Nos. 25 & 46  
Former Grumman Plant 2, Bethpage, New York

Dear Mr. Scharf:

On behalf of Steel Los III, LP, (Steel Los III), ERM Consulting & Engineering, Inc. (ERM) is providing this revised Work Plan for a Supplemental Soil Vapor Intrusion (SVI)/Indoor Air Quality (IAQ) Investigation within the former Grumman Plant 2 building within certain office/breakroom areas, and near Area of Concern Nos. 25 (Former Paint Storage, Mixing and Stripping Room) & 46 (Machine Pit) identified in a Phase II investigation conducted by Dvirka & Bartilucci in 1996.

### ***Background***

A SVI investigation was conducted pursuant to the Stipulation Agreement between Steel Los III and NYSDEC dated 4 February 2008, and involved collection of six (6) sub-slab vapor samples in accordance with ERM's 28 January 2008 Revised SVI Investigation Work Plan (the Work Plan) that was approved by New York State Department of Environmental Conservation.<sup>1</sup> The purpose of the SVI investigation was to evaluate whether there are any potential soil vapor intrusion issues within the former Grumman Plant 2 building that are associated with the former Areas of Concern.

The sub-slab vapor sampling was performed on 25 February 2008 and findings were presented to NYSDEC in ERM's 6 May 2008 letter<sup>2</sup>.

<sup>1</sup> Letter dated 31 January 2008 from Steve Scharf-NYSDEC to Chris Wenczel-ERM.

<sup>2</sup> Letter dated 6 May 2008 from Chris Wenczel-ERM to Steve Scharf-NYSDEC.

Sampling locations SS-01 through SS-06 are shown in Figure 1, which were slightly adjusted in the field based on accessibility and positioned to cause minimal disruption to the business activities of the current tenant, the United States Postal Service (USPS). Detected compounds and associated concentrations are summarized below.

Detected Compounds ( $\mu\text{g}/\text{m}^3$ )	Area 25		Area 46			
	SS-01	SS-02	SS-03	SS-04	SS-05	SS-06
1,1,1-Trichloroethane	33,400	1,260	2,050	4.01	11.7	23.7
1,1-Dichloroethane	3,200	130	U	U	U	U
1,1-Dichloroethene	1,520	14.3	U	U	U	U
1,2,4-Trimethylbenzene	U	U	U	67.8	175	12.4
1,3,5-Trimethylbenzene	U	U	U	24.3	25.4	3.3
1,3-Butadiene	U	U	U	1.84	U	U
2-Butanone	U	U	15.1	17.2	24.3	11
4-Ethyltoluene	U	U	U	10.2	16.2	2.98
4-Methyl-2-pentanone	U	U	U	297	U	6.1
Acetone	U	5.98	96.3	327	138	58.8
Benzene	U	U	U	4.1	U	2.53
Carbon disulfide	175	U	U	3.96	U	1.96
Carbon tetrachloride	454	26.5	U	U	U	U
Chloroethane	21.6	U	U	U	U	U
Chloroform	815	26.8	24	3.71	U	15.6
Cis-1,2-Dichloroethene	15.5	U	U	2.89	U	U
Cyclohexane	10.7	U	U	U	U	U
Ethanol	55	U	93.4	46.7	252	9.56
Ethylbenzene	U	U	U	17.1	U	3.85
Freon-113	196	37.2	U	U	U	U
Heptane	U	U	U	2.94	U	2.32
Isopropanol	U	U	U	7.74	U	6.15
Methylene chloride	21.4	U	U	U	U	U
n-Hexane	U	U	U	2.27	U	2.22
o-Xylene	U	U	U	36.1	U	3.49
p/m-Xylene	U	U	U	91.3	U	14
Propylene	U	U	U	8.34	U	U
Tetrachloroethene	U	138	U	6.33	U	2.86
Toluene	U	U	11.7	22.1	21.9	14.2
Trichloroethene	128	723	1,320	724	290	395
Trichlorofluoromethane	U	U	13.7	3.51	U	16.8

As noted in our 6 May 2008 letter, we do not expect any impacts to indoor air quality from the sub-slab vapors because the integrity of the floor slab is very good, and there are powerful heating/ventilation/air conditioning systems that continuously feed and circulate fresh air from outdoors under a positive pressure to all occupied areas of the building, which would suppress sub-slab vapors from entering the building. Specific details are presented below.

According to Steel Los III, the HVAC system for USPS space in the former Grumman Plant 2 building (the space containing former AOCs 25 & 46) consists of 34 rooftop units that produce an airflow of 2,560,000 CFM. The nominal fresh air setting is at 20%, resulting in a fresh air flow of 512,000 CFM. The footprint of the USPS space is 373,000 square feet, with an interior volume of 10,440,000 cubic feet. The HVAC system provides a minimum of 3 air changes an hour. In general, fresh air influx through the HVAC system places the space under positive pressure. The space is not airtight, allowing communication between indoor and outdoor air, which also lessens vapor intrusion concerns. The building's floor consists of a concrete slab that ranges from 6 to 12 inches in thickness with an average thickness of approximately 8 inches.

Ceiling heights range from 9 to 38.5 feet with 96% of the space consisting of high bay areas with a ceiling height of 24 feet or greater.

Although ERM believes its previous study determined that vapor intrusion is not of concern, the NYSDEC and NYSDOH have requested that Steel Los III to perform additional soil vapor sampling along with the simultaneous collection of an indoor air sample at each location.

The sample analytical results will be compared to NYSDOH guidance values to verify the absence of indoor air impacts from sub-slab vapors. This revised SVI Work Plan sets forth the proposed Scope of Work to satisfy the NYSDEC's request. The proposed Scope of Work is detailed below.

### *Scope of Work*

Steel Los III intends to conduct the SVI investigation during the month of March 2009. Proposed sampling locations are shown in Figure 1.

Sub-slab, indoor air and outdoor air sampling will be performed following the applicable protocols identified in the NYSDOH "Guidance for Evaluating Soil Vapor Intrusion in the State of New York" (October 2006). Prior to collection of samples, ERM will complete the "Indoor Air Quality Questionnaire and Building Inventory, and Product Inventory Forms" contained in Appendix B of the NYSDOH Guidance. This will include activities such as use of a photoionization detector (PID) to identify areas of potential interferences, and removing possible sources of VOCs from the sampling area. All samples will be collected with

individually-certified clean 6-liter Summa® canisters fitted with regulators programmed to collect the sample over an 8-hour period.

All sub-slab soil vapor, indoor air and outdoor air samples will be collected over the same 8-hour period. This corresponds to a flow rate of 0.002 liters per minute (L/min), which is less than the maximum 0.2 L/min required by the NYSDOH Guidance. At each sample location, all the pertinent data will be recorded in the field notebook and/or data collection forms. This information will include the following items:

- Sampler's name;
- Date, time and PID reading;
- Date and time of sample start and stop;
- Summa® canister serial number;
- Initial and final Summa® canister vacuum
- Sample identification, and descriptive location of the sampling area;
- Sample identification for other corresponding samples at the same property;
- Weather conditions including barometric pressure, and ambient temperature inside and outside the building;
- Sampling depth(s);
- Soil type at sample location, if known;
- Soil vapor purge volumes;
- Apparent moisture content of the air being sampled;
- Description of features that may impact the vapor measurements (e.g., storage areas for materials that may contain VOCs, drainage facilities, utility lines, any contamination noted, floor stains, etc.); and
- All equipment calibrations performed.

### Sub-Slab Soil Vapor Samples

Four (4) sub-slab soil vapor samples (SS-07 through SS-10) will be collected: one soil vapor sample will be collected from each of Areas Nos. 25 & 46, and two additional locations that the NYSDOH now has requested to be sampled. Proposed sample locations are shown in Figure 1, to be verified in the field based on accessibility and positioned to cause minimal disruption to the business activities of the current tenant, the USPS. Samples SS-07 and SS-09 correspond to the two additional locations requested by NYSDOH. Sample SS-08 corresponds to the highest VOC concentrations previously observed at Area No. 46 (SS-03). Sample SS-10 corresponds to the location closest to an occupied area within Area No 25.

The proposed sampling location in AOC 25 is considered representative of a worse-case location regarding soil vapor intrusion since it is located in an area with a low ceiling and a security office situated on top of an area of known sub-slab VOC concentrations in soil. Other office areas are located a minimum of 150 feet away from the AOCs associated with VOC concentrations in soil and are less likely to be impacted from vapor intrusion from these areas.

After the floor slab has been inspected, the location of subsurface utilities determined, and the ambient air surrounding the proposed sampling screened with a PID, a hammer drill will be used to advance a one-inch diameter boring to a depth of approximately one-half-inch into the floor slab, a one-half-inch diameter boring will be drilled in the center of the initial one-inch boring to a minimum depth of three (3) inches beneath the floor slab into the sub-slab aggregate. Dedicated Teflon tubing (approximately 3/8-inch outside diameter) will be inserted two (2) inches into the subsurface through the one-half -inch diameter boring. The annular space between the floor and the tubing will then be sealed with beeswax.

To ensure the sample collected will be representative, one to three volumes of air will be purged from the tubing and the borehole using a dedicated purge pump. Following the purge, a PID will be attached to the sampling tubing and measurements will be monitored and the highest reading recorded. The PID will then be disconnected, and the tubing will be connected to the Summa<sup>®</sup> canister regulated for an 8-hour sample collection period. Sampling will be discontinued while the canister still exhibits a slight vacuum. After the sub-slab sample collection is complete, the tubing will be removed and the borehole will be filled to the floor surface with quick drying hydraulic cement. Photographs of the sampling vicinity will be collected.

### Indoor Air Samples

Four (4) indoor air samples (IA-07 through IA-10) will be collected from the immediate locations of the sub-slab samples. Sample collection will be through a section of dedicated Teflon tubing extending from the Summa<sup>®</sup> canister to the breathing zone of a seated person, approximately three (3) feet above the floor. Sampling will be discontinued while the canisters still exhibit a slight vacuum. Photographs of the sampling vicinity will be collected.

### Ambient Air Sample

The Plant 2 building has roof-mounted heating/ventilation/air conditioning systems that continuously feed and circulate fresh air from outdoors under a positive pressure to all occupied areas of the building. Accordingly, one (1) ambient air sample will be collected from an upwind location on the roof adjacent to a roof-top air intake for the building.

A section of dedicated Teflon tubing will be extended from the Summa<sup>®</sup> canister to collect the sample from the breathing zone of a standing individual at four (4) to six (6) feet above the ground. Sampling will be discontinued while the canister still exhibits a slight vacuum. Photographs of the sampling vicinity will be collected.

### Laboratory Analysis

At the conclusion of sampling, the canisters will be shipped via overnight delivery to Accutest Laboratories (NYSDOH Certification No. 10983) in Dayton, New Jersey, an Environmental Laboratory Accreditation Program- (ELAP)-certified laboratory. All samples will be analyzed for VOCs using USEPA Method TO-15, with a target detection limit of 1.0 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ) or less for all parameters except trichloroethene (TCE). The target detection limit for TCE in indoor air samples will be  $0.25 \text{ ug}/\text{m}^3$ . If TCE is not detected in an indoor air sample at  $1.0 \text{ ug}/\text{m}^3$ , using the standard TO-15 full-scan analysis, additional analysis of the sample will be carried out using GC/MS selective ion monitoring (SIM) to achieve the required  $0.25 \text{ ug}/\text{m}^3$  detection limit. This lower detection limit is required for TCE because the Decision Matrices in the NYSDOH Guidance will be used to evaluate indoor TCE concentrations, and Decision Matrix 1 evaluates the risks posed by TCE at concentrations as low as  $0.25 \text{ ug}/\text{m}^3$ .

### *Health & Safety*

All site activities will be performed in accordance with ERM's Health & Safety Guidance Manual. In addition, all sampling will be conducted by a two-person team.

### *Reporting*

All laboratory data will be provided in ASP Category B deliverable format and the data validated. A letter report will be prepared and submitted to NYSDEC that include: 1) a summary of the sampling

activities performed including any required deviations from this work plan, 2) a summary table of all sampling results reported  $\mu\text{g}/\text{m}^3$  with detection limits equal to  $1.0 \mu\text{g}/\text{m}^3$  or less, 3) completed "Indoor Air Quality Questionnaires, Building Inventory Forms, and Product Inventory Forms", 4) sampling logs, 5) photographs of sampling locations, 6) Data Validation Reports, and 7) Category B Laboratory Data Deliverables.

We anticipate that this work plan will meet the expectations of the NYSDEC and accordingly, ERM plans to conduct the sampling in early March. If you have any additional questions or comments, please do not hesitate to contact me at (631) 756-8900.

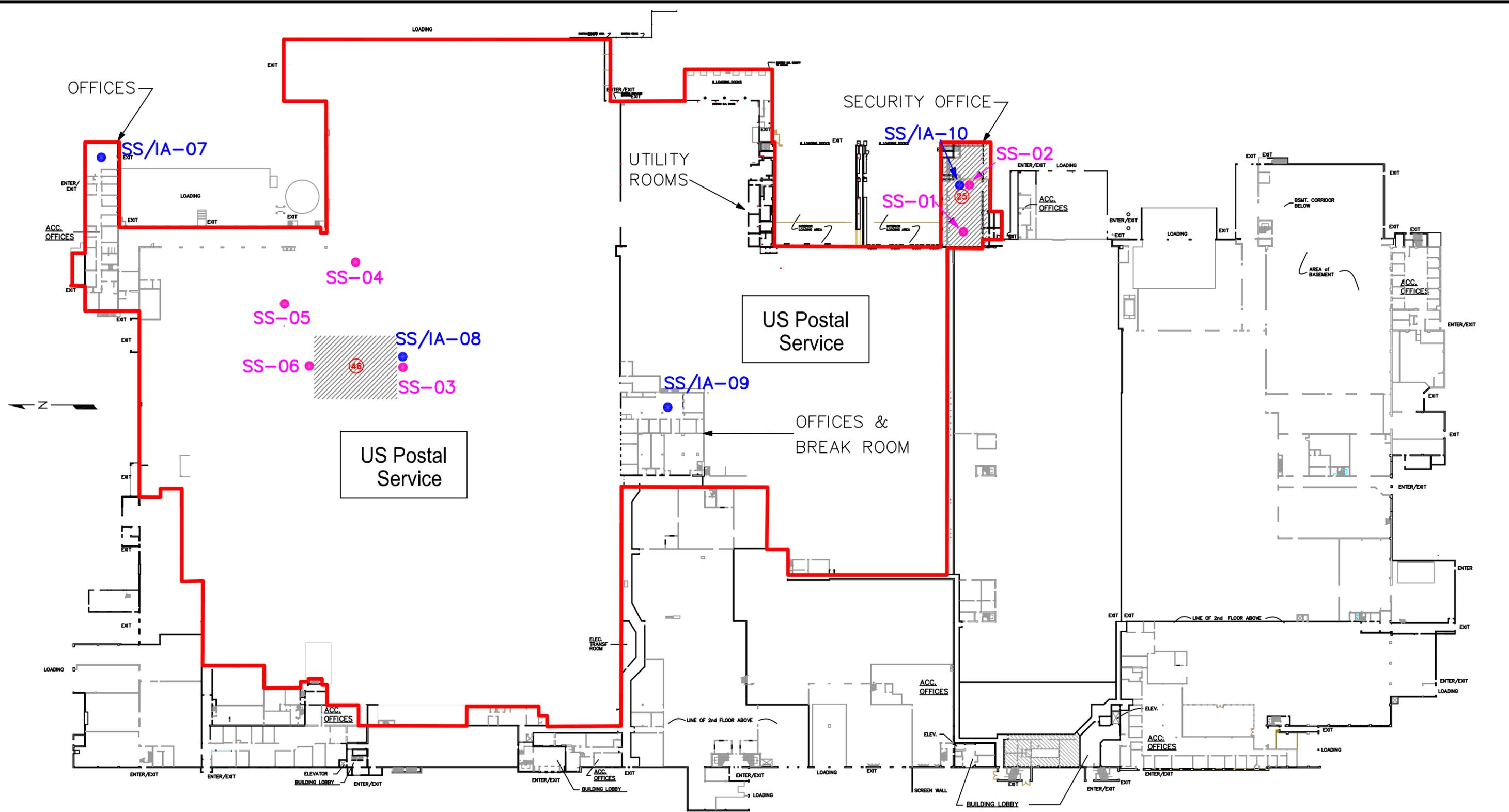
Very truly yours,



Chris W. Wenczel  
*Senior Consultant*

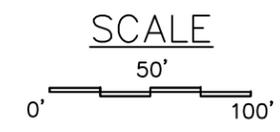
#### Attachments

cc: Kevin Lumpe, Steel Los III, LP  
Manfred Bohms, Steel Los III, LP  
John Swartwout, NYSDEC  
Walter Parish, NYSDEC



- LEGEND**
- US POSTAL SERVICE SPACE
  - (25) FORMER AREA OF CONCERN
  - FORMER SOIL VAPOR SAMPLING LOCATION (25 FEBRUARY 2008)
  - PROPOSED SOIL VAPOR/INDOOR AIR SAMPLING LOCATION

US POSTAL SERVICE SPACE = ~373,000 SQ. FT.  
 US POSTAL SERVICE OFFICE & BREAKROOM SPACE = ~15,800 SQ. FT. (~4%)



TITLE		
PREVIOUS AND PROPOSED SUB-SLAB SOIL VAPOR SAMPLING LOCATIONS		
PREPARED FOR		
STEEL LOS III		
Environmental Resources Management DRAWN: EMF/CWW	JOB NO.: 0072943	FILE NAME:
SCALE	GRAPHIC	FIGURE
DATE	02/25/09	1