



Environmental Resources, Inc.

August 11, 2011

Mr. Vance Jackson PG
North Carolina Department of Environment and Natural Resources
Unit Supervisor; Hazardous Waste Section
1646 Mail Service Center
Raleigh, North Carolina 27699-1646

**Re: SWMU #7 Remedial Action Task
Former Heatcraft Facility, Wilmington, North Carolina
AAF-McQuay Inc.
NCD #057 451 270
CORR Project ARN 3066 (11)**

Mr. Jackson:

CORR Environmental Resources, Inc., (CORR) on behalf of AAF-McQuay Inc (AMI) presents this plan to address latent subsurface impacts in excess of North Carolina groundwater protection standards as at the Solid Waste Management Unit #7 (SWMU #7). The subsurface impacts are likely associated with the former 90-day hazardous waste storage area which operated during active manufacturing operations in the 1980's and early 1990's at the former Heatcraft property located at 602 Sunnyvale Drive, Wilmington, North Carolina.

Soil boring assessments have identified the presence of volatile organic compounds (VOC) in excess of NC Soil Screening Levels (SSL) for trichloroethene (TCE) and naphthalene. These VOC constituents were indicated at concentrations which exceed the SSL for TCE (0.018 mg/KG) and naphthalene (0.21 mg/KG) [ppm]. In response to these data results, removal of the impacted soils in this area of the property is warranted. This remedial proposal presents a task plan to undertake the removal and proper disposal of the impacted soil materials and to restore the excavated area by backfilling with non-impacted soil materials from an off site source.

Background

This proposed remedial action task will seek to address localized soil contamination associated with the former SWMU #7. This remedial proposal is presented in response to the recommendations contained in the January 21, 2011 report of findings and proposed remedial action. The focus of the early January remedial strategy was to address the free phase hydrocarbon as it relates to the SWMU 7 area. The strategy at that time was to determine the extent of free phase hydrocarbons in the water table aquifer and to the extent possible, remove the free phase liquids by mechanical or passive techniques. The only occurrence of free phase hydrocarbon liquids has been at extraction well EW-7, while outlying monitoring wells in this area have no free phase hydrocarbons in the well bore(s).

With the removal of the free phase hydrocarbon liquids, CORR had recommended allowing the indicated VOC's in the shallow soils to naturally degrade and attenuate. The HWS did not approve this approach and this remedial task plan is offered to provide the scope of work for the referenced soil removal actions.

Hydrocarbon Issues

Twice monthly gauging has been conducted on EW-7 and where free phase hydrocarbons were indicated these were removed and containerized for proper disposal. Throughout the number of months, less than 30-gallons of hydrocarbon product were removed from the well bore by skimming or passively by use of absorbent materials. As of July no free phase hydrocarbon layer has reformed in EW-7, although the passive absorbents remain within the well bore for possible collection of hydrocarbon liquids.

As a secondary phase of assessment of the hydrocarbon plume, CORR directed the installation (as approved by HWS) of five temporary shallow piezometers at somewhat equal distance from EW-7 to assist in the determination of the extent of free phase hydrocarbons in the water table aquifer. The piezometers were constructed with one-inch diameter PVC well screen and were set to approximately 10-feet below ground surface (bgs). The piezometers were fully screened across the static water table to allow for potential phase separated hydrocarbons to accumulate within the well bore. See Figure 1 for the piezometers locations. Potential free phase hydrocarbon gauging used single-use poly bailers lowered into the well bore to a point across the static water level elevation and then removed for visual observation. No free phase hydrocarbons were indicated in any of the five piezometers over an approximate 48-hour period. The piezometers were then removed and the borehole sealed with bentonite clay to the surface.

Given the lack of accumulated free phase hydrocarbons along with the removal of the hydrocarbons from EW-7, no further skimming actions are proposed for the near term. Gauging will continue on a monthly basis and passive absorbents will continue to be deployed within the well bore to remove any latent hydrocarbon liquids which could enter the well bore.

The accumulated hydrocarbon liquids will require off site disposal as a hazardous waste due to the RCRA status of the property and from a characteristic standpoint. Analytical testing of the hydrocarbons indicated significant concentrations of VOC constituents TCE and cis-1,2 DCE. Additional contaminants included naphthalene and trimethylbenzene (1,3,5 and 1,2,4). In the effort to prepare a waste disposal profile, CORR also tested the hydrocarbon liquids for standard disposal criteria such as pH, reactivity, flammability, ignitability and corrosives. These data have been submitted to Environmental Quality (EQ) in Michigan for disposal approval. Once this approval has been granted, CORR will arrange for proper transport and disposal off site.

Soil Issues

In reference to the SWMU #7 soil impacts and the need to remediate the soils with indicated concentrations above regulatory benchmarks, CORR offered the following recommendation:

- Conduct a focused removal of the most highly impacted, unsaturated soil materials in the vicinity of the soil borings SB-3/SB-8, SB-9 and SB-10. The analytical testing data for these borings indicated concentrations in excess of the Soil Screening Levels (SSL's) for TCE, cis-1,2 DCE and naphthalene constituents.
- The impacted soil materials should be excavated and stockpiled, either in roll off containers or in a constructed staging area for waste disposal testing and ultimate off site disposal as hazardous waste(s).
- Verification sampling will be conducted on the open excavation sidewalls and floor to determine the limits of the excavation to below SSL benchmarks.
- Backfill with native soil material from off site and return the area of the property to grade for future unrestricted use.

CORR believes the removal of a significant mass of soil material can be effective in elimination of a persistent source of VOC contamination and will serve to reduce groundwater impacts at the site. The removal of this source may also serve to reduce the operational lifespan of the current groundwater recovery and treatment system.

This section of the proposal will provide information relative to the goals of the plan, the field corrective action(s) anticipated and related information necessary to conduct the program.

The goal of the corrective action is to remove to the extent feasible highly impacted unsaturated soil material. The objective is to remove the source of contamination that may continue to degrade groundwater quality associated with SWMU #7. With the removal of the most highly impacted materials, it is anticipated that the quality of groundwater impacted from this source should improve. Current analytical testing data from groundwater monitoring indicates that degradation of the source material (TCE and TCA) through natural attenuation is occurring in groundwater at the site. The removal of the contamination in conjunction with addressing the hydrocarbon impacts should reduce potential exposure to contaminants and significantly reduce any risk to human health or the environment.

Groundwater monitoring data for the site indicates that natural attenuation of chlorinated solvents is occurring in the shallow water table aquifer. The presence of dichloroethene and vinyl chloride breakdown products confirm that site conditions can and will provide for a natural reduction in contaminants at the site over time. Removal of the source of the (TCE) will significantly diminish any future negative groundwater impacts and allow for natural biological attenuation in conjunction with the continued operation of the groundwater recovery system.

Therefore, the remedial goal is to significantly reduce the source of contaminants available to impact shallow groundwater and which provide for a reasonable reduction of the risk associated with the site. Future groundwater monitoring data will provide the analytical data necessary to evaluate the effectiveness of the remedial program by subsequent reduction in groundwater contaminant concentrations in groundwater monitoring wells impacted by this source.

To implement the corrective action at the area of concern, CORR will undertake restoration which will involve the physical removal of highly contaminated soil material by excavation and approved disposal. This activity will be followed by backfilling with native soils from an off site source. It is also recommended an approximate six-inch layer of low permeability clay soil be placed over the excavated area and covered with native sandy soils. This clay material is not intended to act as an engineered 'cap'; only as a low permeability near surface cover.

The approximate area intended for the removal of soils is presented on Figure 2. The hatched area shown is the maximum surface extent of the excavation as determined by the analytical testing data from the April and August 2010 testing reports. The approximate area extent is estimated at 30-ft by 20-ft. The depth of the excavation will be dependent upon degree of saturation; however typical depth to groundwater during the soil boring programs was approximately +/-5-ft below ground surface. These area estimates to about 130 cubic yards of in place materials. Given the upper surface to 1 to 2-ft is non-impacted; these soils will likely not require off site disposal and could be used as backfill material. This will be dependent upon analytical testing of this segregated soil material.

The initial work element proposed is to construct a staging area for the excavated materials or for locating the anticipated number of 20-cubic yard roll off containers. The removal of non-impacted near surface soils and of any surface coverings such as concrete or asphalt will be segregated from the known impacted soils. The removal of approximately 1 to 2-feet of near surface materials will expose the area of the intended removal action. The exposed soil will then be removed in approximate 2-foot lifts to approximately 5 to 6-feet below grade or to the point of groundwater saturation.

The excavated soil material will be staged on-site for composite sampling and waste profiling. During the excavation, grab samples will be collected from the excavation face for field screening using a calibrated photoionizing device (PID) to determine relative impacts of volatile organic constituents. Following the removal of each lift and as indicated by the field screening results, composite soil samples will be collected for analytical testing. This testing will provide an indication of soil quality and will allow for decisions concerning additional removal if warranted. Analytical testing will utilize EPA Method 8260 by SGS of Wilmington.

The confirmation composite soil samples will be collected from the sidewall face(s) and bottom of the excavation as verification of the soil removal. Confirmation composite soil samples will be collected for each approximate 100-square foot area. Each composite sample will be comprised of soil collected from five locations from the target 100-square

foot verification area. These samples will not be mixed or composited, but added directly into the laboratory provided containers.

For Quality Control purposes and based on the anticipated number of samples to be collected, field duplicate samples will be obtained at a rate of one duplicate sample per each set of twenty samples acquired. A trip blank sample will be included for each sample cooler submitted to the laboratory. All samples will be labeled with date and time of sample collection, analytical request, sample number and signature of the technician. The samples will be iced within a cooler and a chain-of-custody record will be prepared to document the sampling information prior to delivery to the analytical laboratory.

Proposed Clean-up Standards

The North Carolina statutory limit as SSL's will be utilized as the remedial clean-up target concentrations. The SSL is a concentration of a constituent which can remain in subsurface soil without adverse impact to underlying groundwater. The regulatory benchmarks for the proposed remedial action are as follows for the constituents indicated in the soil boring analytical reports:

- TCE – 18 µg/KG (ppb)
- Cis-1,2 DCE – 360 µg/KG
- 1,1 DCE - 46 µg/KG
- Vinyl Chloride – 0.19 µg/KG
- Naphthalene – 210 µg/KG
- 1,2,4 TMB - 6,700 µg/KG
- 1,3,5 TMB - 6,700 µg/KG
- 4-isopropyltoluene; SSL Not Established

SSL = NC HWS C soil Levels listed in Federal Remediation Branch Target Screening Values, January 2010:

If the analytical testing data indicate constituent concentrations equal to or less than those listed above that area will be considered complete. In addition to the proposed clean-up target concentrations, the total extent and depth of the excavation will be determined in two ways:

- When the excavation encounters infiltration of groundwater creating saturated soil conditions to the open excavation; and/or
- Continued excavation is prohibited by the plant building or subsurface structures such as the fire hydrant loop or subsurface utilities or the property line.

The excavation is intended to remove only unsaturated soil materials.

Figure 3 presents a cross section view of the intended excavation area using the previously submitted analytical testing results.

Backfilling

Subsequent to the removal of all impacted, non-saturated soil material at a concentration greater than the proposed clean-up criteria, the excavation will be backfilled with clean native soils to approximately 1.5-feet below the ground surface. At that depth, an approximate six-inch layer of low permeability clay will be added and compacted to provide an effective cover of the excavated area. The surface will be completed with one-foot of native soils graded to match the pre-existing ground elevation.

Waste Disposal

Disposal and transportation of the excavated soils or other contaminated materials will be subcontracted to an authorized and properly permitted hazardous waste treatment facility. As of the date of this proposal, the disposal subcontractor (EQ) has been provided an analytical testing summary from the soil boring tasks and relevant information concerning possible waste codes.

Health and Safety

Health and safety considerations are addressed utilizing a specific Health and Safety Plan (HASP). The HASP will be jointly authored by CORR and the subcontractor with CORR providing safety oversight of the field work program. Due to the sandy nature of site soils, no workers will be allowed into the excavation and confirmation samples will be collected by mechanical means. Air quality in the breathing zone will be monitored using a calibrated PID instrument. All subcontract personnel will have the required health and safety training.

Schedule

The intended schedule to undertake the remedial program will require approximately one week to conduct the excavation, confirmation sampling and ultimate backfilling and grading. Once the task plan is approved by the HWS, CORR will notify the property owner to provide notice of the intended excavation schedule. The property owner will retain the right to approve the on site field work task schedule so as not to interfere with on going property uses.

The schedule for disposal will be dependent upon the classification of the waste stream, acceptance of the waste materials by the receiving facility and scheduling of the transportation vendor. It is anticipated the wastes will be properly transported off site within 90-days of generation of the waste stream.

A report of findings will be prepared to provide the information and data results to the HWS for review. The report will detail the field remedial tasks, summarize the analytical testing data, and provide scaled drawings of the excavation dimensions along with sampling locations and testing results. The report will include the waste transportation manifests and waste disposal certifications received from the vendor(s).

Plan Approval

CORR would like to undertake the proposed remedial work in the fall of this year to take advantage seasonal weather. We respectfully request review and approval of the proposed remedial task plan so work can begin scheduling subcontractors and making on-site arrangements with respect to access and mobilization.

Thank you for your prompt review and approval of this proposal. If there are any questions regarding the proposed remedial task, please contact me at 972-303-1039.

Cordially,

CORR Environmental Resources, Inc.

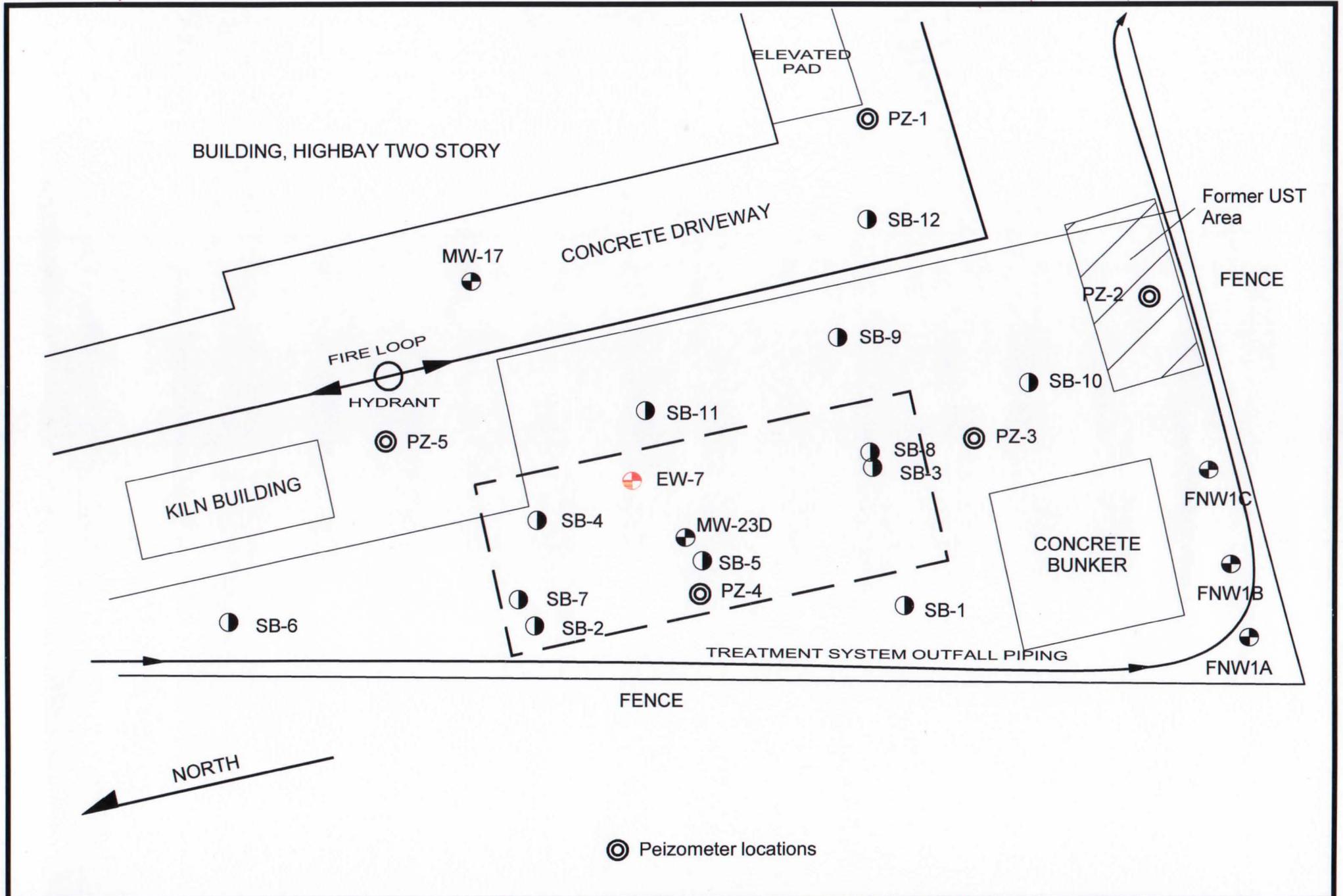


Raymond Roblin PG
Principal

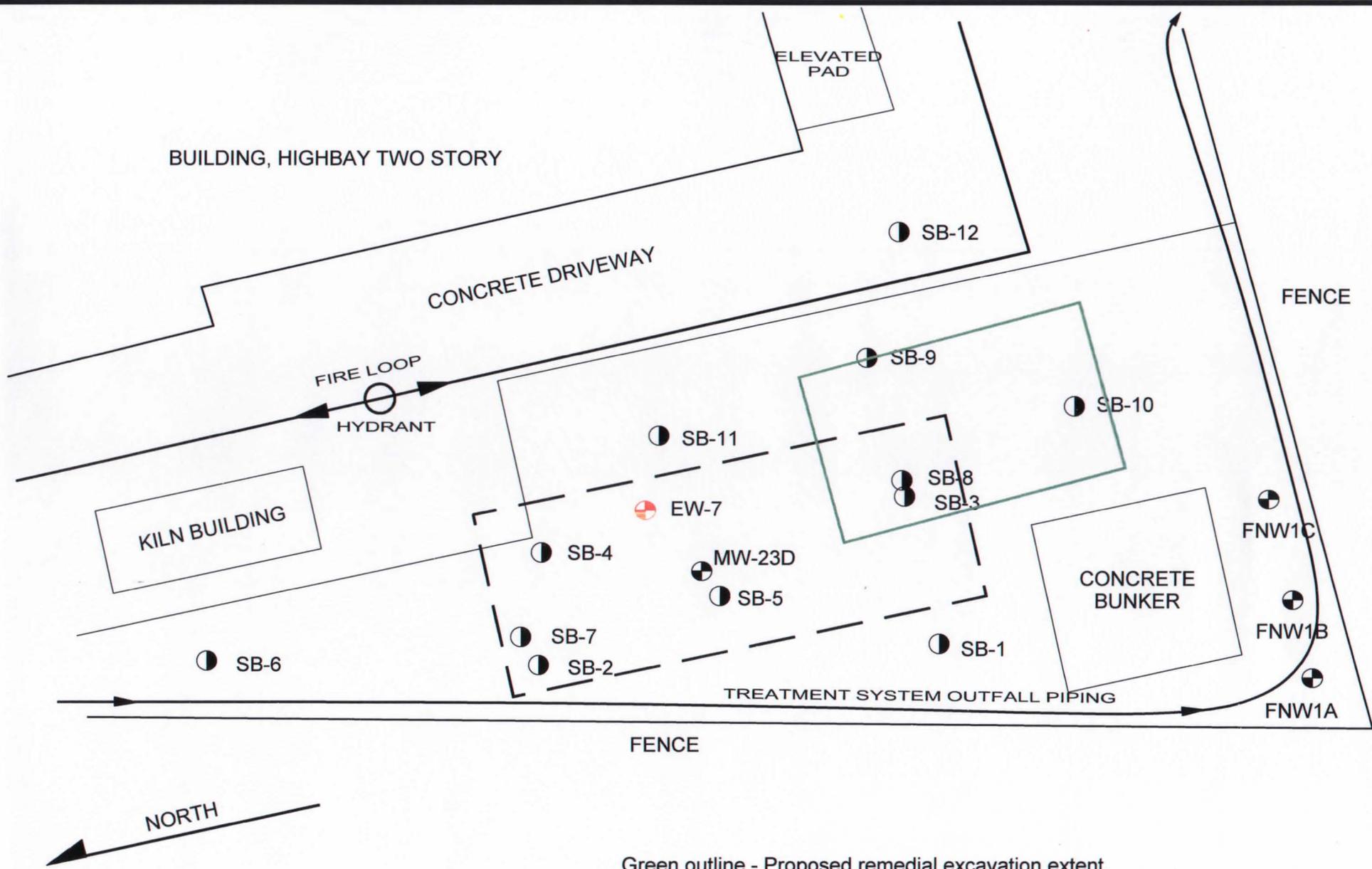
Cc: Mr. Paul Heim – AMI
Mr. Mark Yohman - Lennox
Site Files

Enclosure

File: c:\CORRDOCS\Wilmington\Post Closure Files\CA Work Plans\SWMU 7 RAP



⊙ Peizometer locations



Green outline - Proposed remedial excavation extent.

