CITY OF MERIDEN

PHASE II ENVIRONMENTAL AND GROUND & WATER ANALYSIS

AND

COMPREHENSIVE HAZARDOUS MATERIAL BUILDING SURVEY

THE HUB
77 STATE STREET
MERIDEN, CT

January 16, 2003

Submitted by:

HRP *Associates, Inc.*

167 New Britain Avenue
Plainville, CT 06062

860-793-6899

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HRP Associates, Inc.
ENVIRONMENTAL/CIVIL ENGINEERING & HYDROGEOLOGY

January 16, 2003

Ms. Wilma C. Petro, C.P.M.
City Hall, City of Meriden
Purchasing Department, Room 210
142 East Main Street
Meriden, Connecticut 06450-8022

RE: PHASE II ENVIRONMENTAL AND GROUND & WATER ANALYSIS OF THE HUB (77 STATE STREET) MERIDEN, CONNECTICUT (HRP#BR60)

Dear Ms. Petro:

Pursuant to the request for proposal (RFP) dated December 24, 2002, HRP Associates, Inc. (HRP) is pleased to submit this proposal and cost estimate for performing a Phase II environmental subsurface investigation at The Hub, 77 State Street, Meriden, Connecticut.

This proposal is based on our review of an existing Phase 1 Environmental Site Assessment report of the property completed by Metcalf & Eddy in February, 1995. The report was prepared for Canberra Industries, Inc. which was a tenant at the time of the assessment. A copy of the report was obtained by HRP from the Meriden Department of Economic Development office as directed in the RFP. In addition, HRP attended a site walkover on January 7, 2002 and conducted research for historical site operations from publicly available sources. A one page table from the Harbor Brook Flood Control Project listing contaminant concentrations in soils was received by HRP from the City on January 10, 2002 for our review. The Scope of Work outlined herein provides our approach to the evaluation of the site environmental conditions utilizing our 20 years of experience in performing these investigations within Connecticut.

INTRODUCTION

The subject property has been primarily used for retail operations since the 1960's with the exception of the time period between 1983 and 1993 when Canberra Industries Inc. occupied a major portion of the site for the manufacture and assembly of monitoring instrumentation for the nuclear and health industries. In addition, as reported in a Connecticut Department of Environmental Protection (DEP) file memo, Canberra conducted research and development for instruments used in the biomedical industry. Canberra was registered as a Large Quantity Generator of Hazardous Waste as a result of their operations. Wastes generated and documented to be disposed off-site included chlorinated solvents, alcohols, acids, caustics, oils and heavy metals. There are reportedly no records of any significant releases of these wastes to the subsurface during their tenure on site. It should be noted that two (2) small spills (one-gallon and ten-gallon) occurred on-site in the early 1990s according to DEP Spills files. Their impact to the subsurface is unknown.

Historical data indicates that several commercial and industrial operations were on site dating back to before the turn of the century: International Silver Co. (manufacturing/plating operations), gasoline service stations (2), automobile service, auto painting and dry cleaning. As shown on the attached site plan, these areas have been designated as Potential Release Areas (PRAs). In addition, the site is likely underlain by fill material originating from unknown sources. The Harbor Brook Flood Control Project data table of soil analysis lists concentrations of

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petroleum products, chlorinated solvents and heavy metals in shallow soils on site. The location of the samples collected for analysis were not identified. It is not known whether ground water monitor wells exist on-site as a result of this study. Our proposal presumes no wells are available for sample collection.

SCOPE OF WORK

The purpose of the proposed Phase II investigation work is to determine the presence of soil and/or ground water contaminants at the property based upon the former site operations identified above. Our approach to obtaining the necessary data for this purpose in a cost-effective and proven approach is to investigate the site through the use of Geoprobe® drilling techniques for the collection of soil samples and the installation of small diameter monitoring wells.

All soil samples collected during this investigation will be field screened for total Volatile Organic Compound (VOC) levels with a photoionization detector (PID) and examined for physical evidence of contamination. In order to facilitate the appropriate comparison of accurate contaminant concentrations to DEP numeric remediation criteria for the preparation of remedial cost estimates, specific contaminant species identification and quantification will be conducted using certified off-site laboratory analyses.

In order to maximize ground water quality data, we propose to sample the monitoring wells with low flow sampling techniques. Although it would be possible to reduce costs by collecting grab samples of ground water from selected Geoprobe® test borings (without well installations), we believe that the construction of small diameter monitoring wells will maximize the value of the Phase II work by allowing for:

1. Collection of ground water samples utilizing low flow sampling techniques designed to reduce turbidity of samples.

2. Collection of confirmatory ground water samples in the future to verify initial sampling results, as necessary, and

3. An accurate determination of ground water elevations and ground water flow directions.

The quality of the ground water and soil data collected during the Phase II investigation will also be verified through the collection and analysis of appropriate field and trip blanks and duplicate samples, as listed in the attached Table 1.

The specific elements of the proposed Phase II investigations are summarized below:

Phase I Environmental Site Assessment Update

Prior to conducting the field work, HRP will complete an update to the 1995 Metcalf & Eddy (M&E) report by reviewing the available regulatory files at the City of Meriden and DEP, completing a current regulatory database review following the ASTM standard radii. We will also conduct an interview with Canberra officials to review their former waste generator and management practices. Based on our recent research, it is likely that the site soils and ground

water have been impacted by historical operations or from off-site sources. The historical documents identify commercial/industrial operations on portions covered by the existing building. At this time, no subsurface investigations are proposed within the building footprint.

Utility Markouts

HRP will mark proposed sampling and drilling locations in the field and contact Call Before You Dig (CBYD). CBYD will then contact the appropriate utility companies who will mark the locations of their underground utility lines. HRP will also directly contact the City of Meriden Water and Engineering departments for utility markouts. Prior to conducting any site subsurface work, HRP will inspect the properties for the utility markings. If any questions arise about the utility markouts, HRP will recontact CBYD (or the specific utilities) to resolve the issue prior to commencing work. In addition, HRP will retain a private utility markout service to identify any buried utilities in designated sample locations.

Health and Safety Plan Preparation

HRP will prepare a site-specific Health and Safety Plan (HASP) pursuant to the Federal Occupational Safety and Health Administration (OSHA) regulations (29 CFR 1910.120). An HRP project staff member will administer the plan in the field. Implementation of the HASP with City of Meriden representatives will be coordinated as necessary.

Ground Penetrating Radar

HRP proposes to utilize ground-penetrating radar (GPR) in an effort to identify possible underground structures associated with the former International Silver (PRA #1) and two (2) "filling station" (PRAs #4 and 5) occupants of the property. This task is proposed to evaluate the potential for residual sources of contamination, particularly steel underground storage tanks, which could have significant adverse impact on the site subsurface and the property redevelopment.

GPR is a non-destructive and non-intrusive geophysical exploration technique that uses radar waves to detect and record subsurface features. This method has been widely used in the environmental industry to locate buried features such as underground storage tanks, drums, pipes, etc. GPR involves scanning the subsurface with a device that emits and records the return signals of electromagnetic energy in the radar wavelength. The variation in return signals due to variable attenuation and reflectance characteristics of subsurface materials produces a continuous, two-dimensional cross-sectional image of the subsurface.

A GSSI Subsurface Interface Radar System 3 coupled with a 500 MHz antenna (or similar unit) will be utilized for the survey. The SIR-3 provides an instant record on paper tape of subsurface conditions, thus allowing for survey location adjustments, if necessary, based on field interpretation of the data.

HRP will establish a survey grid in designated areas of interest. The survey line spacing will be established in the field by the operator based upon site conditions and the anticipated system location(s). The survey areas must be as free as possible of vehicles, brush, and other obstacles to allow antenna traverse and good contact with the ground.

Installation of Test Borings and Monitoring Wells with Soil Sampling

All work will be administered and managed by an HRP Connecticut Licensed Environmental Professional (LEP). HRP will supervise the installation of soil test borings and ground water monitoring wells on the property. The final locations of the wells and borings will be determined by the results of our updated Phase I assessment. However, in general, the soil borings will be installed in areas of known or suspected contamination as determined from our review of the historical data. We have identified several Potential Release Areas (PRAs) requiring investigations, which are noted on the attached site plan. The monitoring wells will be installed within or immediately down gradient of suspected sources. At least one monitoring well will also be installed in a presumed upgradient point based on our observations to determine whether ground water contamination, if detected, is migrating to the site from an off-site location.

All soil borings and monitoring wells will be installed by Logical Environmental Solutions (LES), a woman-owned company, using a two-inch direct push method, Geoprobe®-type drill rig. Soil samples will be collected in two-foot increments, continuously as the drill rig is advanced. Each monitoring well will be constructed using a 10-foot length of ¾-inch to 1-inch diameter Schedule 40 PVC well screen (0.010-inch slot) and solid riser pipe. The well screens will be installed across the water table [approximately two (2) feet above and eight (8) feet below ground water].

Clean, washed silica sand will be installed around and approximately two feet above each well screen followed by a 2-foot bentonite seal to prevent surface water infiltration. The remaining annular space around the riser pipe will be backfilled with clean drilling cuttings or sand, or will be sealed with bentonite-concrete grout slurry, depending on the well depth and sampling objectives. Each well will be finished at the surface with a locking cap and a flush-mounted, bolt-down road box that will be cemented in place. Any suspected contaminated drilling cuttings will be sampled and contained on the site pending laboratory analysis.

The supervising geologist will maintain detailed drilling logs for each boring and collect soil samples. The samples will be collected, following ASTM and DEP protocols, continuously from the site surface to the bottom of the boring using macro-samplers. The samples will be placed into the appropriate labeled containers, preserved as necessary, and preserved on ice in coolers. Decontamination procedures will be employed between samples to prevent cross-contamination. HRP will retain a portion of each sample for field screening with a photoionization detector (PID). Selected samples will be submitted for analysis to a local state-certified laboratory, Connecticut Testing Laboratories, Gracey Avenue, Meriden.

The sampling strategy used will be based upon the identified and suspected contaminants and the matrices involved. The appropriate SW-846 and EPA/DEP-approved analytical methods will be requested for all samples. In addition, analytical methods that produce the lowest minimum detection limits (MDLs) will be used so that the MDLs are lower than the appropriate regulatory standards. The parameters proposed for analysis are listed in Table 1.

Specific soil samples to be chosen for laboratory analysis will be based upon:

- The presumed direction of ground water flow,
- The locations of the AOCs,
- The stratigraphy of the subsurface materials,
- The physical characteristics of the known and suspected contaminants, and

- The physical nature of the soil sample, including PID readings.

Samples will be collected using standard field protocol. Quality Assurance/Quality Control (QA/QC) samples will be prepared to ensure accuracy of the data. Chain-of-custody control will be maintained at all times. The samples will be prepared and preserved in the field according to the applicable EPA and DEP guidelines and protocols and HRP's Standard Operating Procedures. Accurate field notes will be maintained.

Elevation Surveys and Monitoring Well Sampling

After approximately a period of one week to allow for well stabilization, HRP field personnel will measure the fluid level in each well and collect representative ground water samples utilizing low flow sampling techniques. Low flow sampling has been proven to reduce heavy metal concentrations in ground water samples that result from increased turbidity and, therefore, a more representative sample of the aquifer and resultant ground water quality. Other sampling methods that include pumping at rates that over-stress the well, or bailing the well, can cause water column mixing and excessive drawdown. The result is typically increased turbidity and increased heavy metal concentrations.

The ground water samples will be collected in accordance with the U.S. Environmental Protection Agency (Region 1) "Low Stress (Low Flow) Purging and Sampling Procedure for the Collection of Ground Water Samples from Monitoring Wells", Revision 2, dated July 1996 and the Connecticut Department of Environmental Protection "Draft Site Characterization Guidance Document", dated June 12, 2000. Each well will be purged and sampled using a variable speed bladder or peristaltic pump and dedicated disposable tubing.

Each well will be purged and sampled using the desired pumping devise. Prior to sampling, each well will be measured for depth to water below the top of the PVC well casing using an electronic water level indicator. Each well will also be checked for the possible presence of floating petroleum product. The depth to water measurements will be used along with well construction details to determine the middle of the water column within the well. The bladder pump, or the small diameter tubing of the peristaltic pump, will be slowly lowered into the well to the approximate middle of the water column. If the water surface within the well is determined to be above the screen section, the tubing intake will be positioned more towards the center of the well screen.

Ground water will be pumped at such a rate as to minimize the stress on the well and limit mixing of the water column. Depth to water measurements will be recorded in 3 to 5-minute intervals to determine the ideal pumping rate to maintain drawdown at or less than 0.3 feet. Should the water level within the well not stabilize during pumping (at the minimum pumping rate of the sampling equipment), the well will be pumped down to a level above the tubing intake, allowed to recharge, and a sample will be collected at that time.

Water quality indicator parameters (pH, temperature, redox potential, conductivity, dissolved oxygen, turbidity) will be measured using an in-line flow through cell to continuously measure the above parameters. Measurements will be recorded at a maximum interval of 3 to 5-minutes to identify when stabilization of the parameters is established. Once each of the indicator field parameters have stabilized, the ground water samples will be collected prior to the flow through cell.

Purged well water will be contained and stored on-site in a 55-gallon drum, appropriately labeled at the time of sampling. Ground water sampling results will be utilized to make specific recommendations regarding the means of handling the drummed purge water.

Ground water samples will be placed into the appropriate, pre-preserved labeled containers. The sample containers will be kept on ice in coolers until they are submitted to Connecticut Testing Laboratories for analysis.

HRP will survey the relative elevations of the each well so that the direction of ground water flow can be determined and mapped.

Data Analysis and Report Preparation

HRP will review and interpret all soil and ground water sampling data and testing results. Numeric contaminant concentrations will be compared to soil and ground water remediation criteria established in the Connecticut Remediation Standard Regulations (Connecticut General Statutes Section 22a-133k). Exceedances of standards will be highlighted in data tables and their significance will be discussed in the project reports. The reports will include figures documenting all sampling locations and the indicated ground water flow directions. The reports will include HRP's conclusions and recommendations for additional investigation and/or remediation, as warranted.

The report will include a preliminary discussion of various alternative approaches which may be pursued to accomplish remediation, as appropriate. Remedial options will vary with the nature and distribution of the contaminants detected, and will likely be impacted by the specific future use of each parcel. Future property considerations which can significantly affect the scope of any required remedial actions include the proposed plans for existing buildings, future buildings, and the nature of the future land use (residential, commercial, or industrial). In certain circumstances, the Connecticut Remedial Standard Regulations (RSR) allow for the encapsulation of contaminated soils beneath overlying clean soils, pavement, existing building, or future buildings. Environmental Land Use Restrictions (ELURs) may also be an appropriate means of compliance by confirming the non-residential exposure scenario for a site, or with the proper encapsulation of "inaccessible" or "environmentally isolated" contaminated soil. HRP will maintain communication with the City of Meriden during the conduct of the Phase II investigation to monitor any developing plans for the parcel which could impact our remedial recommendations.

The Phase II report will be submitted to the City of Meriden in draft format for review and comment. The final reports will be signed by a Connecticut LEP. The report will be prepared in Microsoft Word and all figures will be prepared in AutoCAD. If requested, HRP will provide the City with an electronic copy of the documents and figures. The LEP will oversee all aspects of the Phase II investigations.

PROJECT BUDGET

The attached Table 2 presents estimated costs for each of the above-referenced tasks. The work will be billed on a time and materials basis. These costs will not be exceeded without written approval.

PROJECT SCHEDULE

HRP expects that the proposed work can be completed, with deliverable work products, within six to ten (6-10) weeks from authorization and access to the property.

PROJECT AUTHORIZATION

HRP is prepared to enter into a standard contract with the City of Meriden upon acceptance of this Scope of Work.

Thank you for the opportunity to provide this proposal. If you have any questions or require further information, please contact the undersigned at 860-793-6899.

Sincerely,

HRP ASSOCIATES, INC.

Michael S. Cote, P.G., L.E.P.
Project Manager/
Asbestos Management Planner

Dudley W. Alleman, L.E.P.
Senior Project Manager

Attachment

TABLE 1 - Summary of Identified Potential Release Areas, and Proposed Phase II Subsurface Investigation Tasks and Laboratory Analyses

The Hub, State Street, Meriden, CT

PRA#	Name	Anticipated Contaminants of Concern	Comments	Proposed Investigations and Analyses																	
				Investigation			*Analyses*														
				Geoprobe Test Borings	Overburden Monitoring Wells	GPR	8021B VOCs		ETPH		8100		Metals Mass*		Metals SPLP		PCBs		Total Metals (Ground Water)	
							Soil	Ground Water	Soil	Ground Water	Soil	Ground Water	Soil	Ground Water	Soil	Ground Water	Soil	Ground Water	Soil	Ground Water
PRA # 1	Former International Silver	VOCs, Metals, Cn, PAHs, ETPH, and PCBs	Northeastern Portion of the Property, Proximal to State Street	10	3	X	10	3	20	3	5		15	NA	10	NA	3		NA	3
PRA # 2	Former Auto Painting Operation	VOCs, Metals, PAHs, ETPH	Southwest of the Current Site Building	4	1		4	1	8	1	2		6	NA	4	NA			NA	1
PRA # 3	Former Dry Cleaner	VOCs, ETPH	Southwest of the Current Site Building	4	1		4	1	8	1				NA		NA			NA	
PRA # 4	Former "Filling Station" & Canberra Loading Dock Area	VOCs, Metals, Cn, PAHs, ETPH	Central Southeastern Portion of the Building Area	4	1	X	4	1	8	1	2		6	NA	4	NA			NA	1
PRA # 5	Former "Filling Station"	VOCs, Metals, PAHs, ETPH	Northwestern Quadrant of the Site	4	2	X	4	2	8	2	2		6	NA	4	NA			NA	2
PRA # 6	Former Commercial/Industrial Operations	VOCs, Metals, Cn, PAHs, ETPH, and PCBs	Northeastern Portion of the Site, Proximal to Mill Street	8	3		8	3	16	1	4		16	NA	12	NA	3		NA	3
QA/QC Samples (3 VOC Trip Blanks, 1 Soil Duplicate, 1 Ground Water Duplicate)							1	4	1	1	1		1		1		1			1
			Totals	34	11		35	15	69	10	16	0	50	0	35	0	7	0	0	11

GPR = Ground Penetrating Radar
PRA = Potential Release Area
Blank = Not to be Analyzed
NA = Testing Method Not Applicable to Media Type
Cn = Cyanide
* = Mass Metals Plus Cyanide at PRA #1, #4, & #6
8021B VOCs = EPA Method 8021B Halogenated and Aromatic Volatile Organic Compounds
ETPH = Extractable Total Petroleum Hydrocarbons
8 RCRA Metals = Arsenic, Barium, Cadmium, Chromium, Lead, Mercury, Selenium, and Silver
8100 = EPA Method 8100 Polynuclear Aromatic Hydrocarbons
PAHs = Poly Nulcear Aromatic Hydrocarbons
Mass Metals = 8 RCRA Metals plus Copper, Nickel, & Zinc by Mass Analysis
Total Metals = Groundwater Analysis of the 8 RCRA Metals plus copper, nickel, and zinc by Total Analysis Procedures
PCBs = Polychlorinated Biphenyls
SPLP Metals = 8 RCRA Metals plus Copper, Nickel, & Zinc by Synthetic Precipitation Leaching Procedure

prepared by
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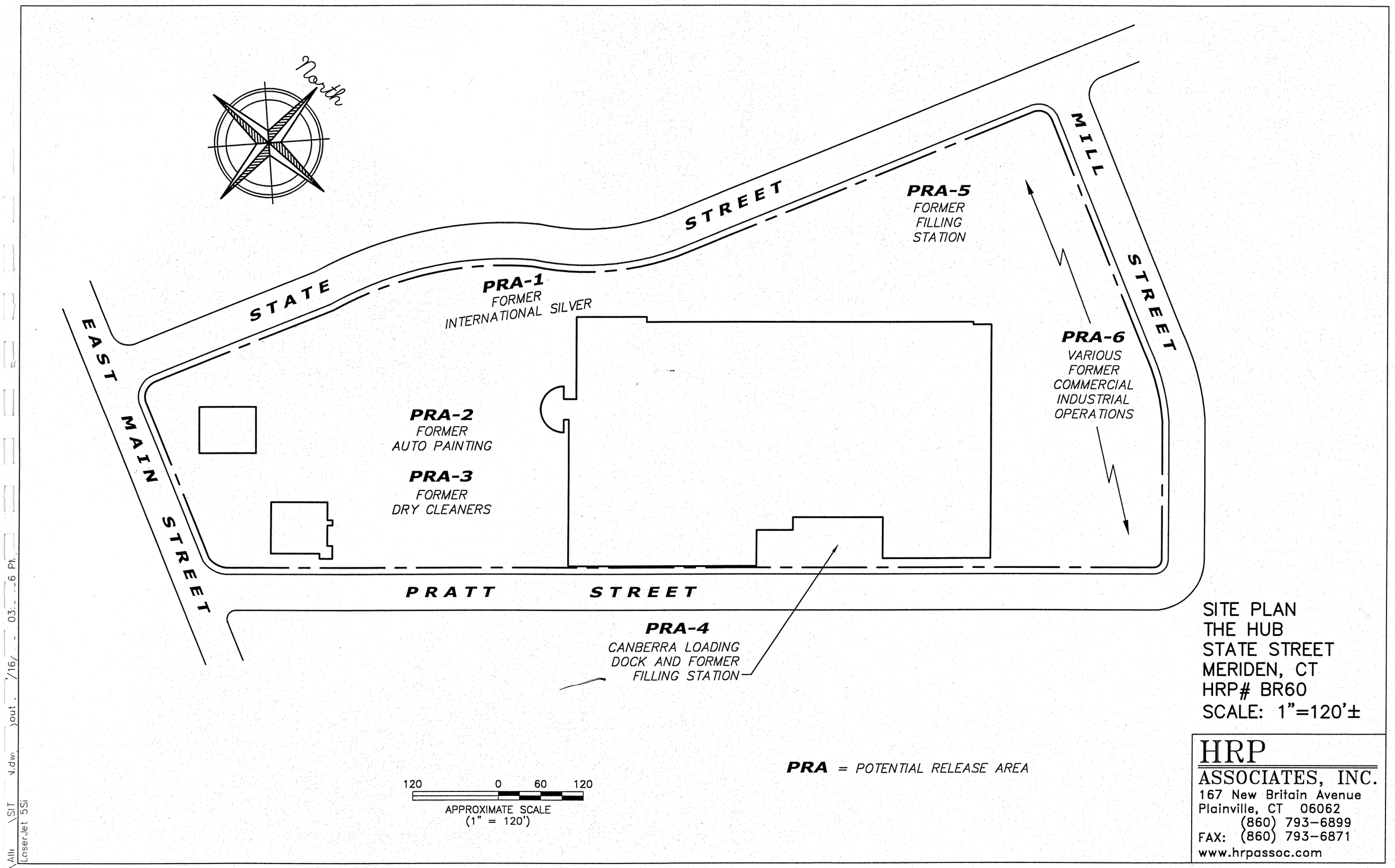
Table 2 - Subsurface Investigation Fee Proposal

The following estimated costs are presented for the above referenced tasks. The work will be billed on a time and materials basis, and these costs will not be exceeded without prior written approval.

Task	Cost
Phase I Update	$1,200
Utility Markouts	$1,500
Health & Safety Plan	$500
Ground Penetrating Radar Survey	$1,500
Test Boring and Monitoring Well Installation	$10,700
Laboratory Analysis of Soil Samples	$16,065
Elevation Survey and Ground Water Sample Collection & Analysis	$4,780
Data Analysis, Report Preparation, and Project Management	$6,440
Estimated Project Subtotal	$42,685



SITE PLAN
THE HUB
STATE STREET
MERIDEN, CT
HRP# BR60
SCALE: 1"=120'±

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2

HRP Associates, Inc.
ENVIRONMENTAL/CIVIL ENGINEERING & HYDROGEOLOGY

January 16, 2003

Ms. Wilma C. Petro, C.P.M.
City Hall, City of Meriden
Purchasing Department, Room 210
142 East Main Street
Meriden, Connecticut 06450-8022

RE: COST ESTIMATE FOR BUILDING INTERIOR INSPECTIONS FOR THE COMPLETION OF THE EVALAUTION OF POTENTIAL BUILDING TOXINS (HAZ MAT SURVEY) AT THE HUB, 77 STATE STREET, MERIDEN, CONNECTICUT (HRP #BR60)

Dear Ms. Petro:

The following proposal and cost estimate are provided, as requested, for site inspections and surveys necessary to complete:

- A detailed inspection of the subject building which was originally constructed in circa 1968 as a shopping mall,
- Surveys and inventories of potential building toxin-containing materials (e.g. lead paint, asbestos, fluorescent light fixtures, electrical switches, and mechanical components) that will be necessary for the demolition of the existing structure, and
- Engineering estimates of the anticipated costs for pre-demolition abatement of the identified toxins.

For efficiency, these inspections are proposed to be conducted contemporaneously. These cost estimates are provided based on our present understanding of the site and site conditions. Estimates of sample quantities are also based upon our experience with buildings of similar size and construction.

INTRODUCTION

Based upon information provided by Ms. Peggy Brennan (City of Meriden) and Mr. Wayne D'Amico (MERG) during the pre-bid walkthrough on January 8, 2003, we understand that some site plans and building drawings are available which will assist in our conducting the work. HRP anticipates that we will scan/digitize/import the existing drawing(s) into our AutoCAD drafting system so that electronic deliverables can be provided to the city at the completion of the project. Further, the building's roofing contractor is reported to have conducted significant repair/replacement activities in recent years. HRP will coordinate with this firm in order to document the history of the site roofing systems and develop the rationale for a roof sampling/repair program, which will be proposed to the City and MERG prior to conducting destructive sampling in this area.

Regarding the Asbestos Containing Building Materials (ACBM) at the property, it is not realistic to presume that the precise number of samples required to complete the survey can be determined at this time. For that reason, HRP has utilized the following logic in estimating what we believe to be a realistic number of samples for a building such as this one. A conservative protocol for refuting the presumption that materials contain asbestiform fibers is to analyze at

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least three samples of each material[1]. HRP will generally submit three samples of each suspect material for laboratory analysis on a "positive-stop" protocol, under which analysis of samples from a given homogenous area is discontinued when a positive sample has been identified. Therefore, as an estimate of the number of samples to be collected and potentially analyzed from within the building, HRP expects that (on the order of) 100 suspect materials will be identified, and three samples of each will be collected for analysis (300 samples estimated for the building interior).

Regarding roofing materials, the necessary quantity of samples is dependant upon the number of layers (membranes, felts/papers, and mastics) and the identified roofing components (flashing, repair mastics, breach mastics, etc.). Further, the snow-covered condition of the roof observed during the walk-through complicates definitively inspecting all of the materials. For this reason and based upon the potential for creating roof leaks, HRP suggests that the roof sampling be conducted immediately prior to the abatement activities. The bidding abatement contractors could provide unit rates for roofing materials collection and disposal, and these costs could be reasonably extended to provide a conservative estimate of the total abatement cost. For budgetary purposes, HRP anticipates that on the order of 50 roofing samples may be required.

SCOPE OF WORK

Task 1 – Pre-Demolition Asbestos Survey/Abatement Cost Estimate

This task will consist of a survey and inventory of asbestos containing building materials (ACBM), by state licensed asbestos inspectors, in all accessible functional spaces within the subject building. Accessible functional spaces generally include: office space, common areas, spaces above dropped ceiling systems, vaults, mechanical rooms, boiler and HVAC rooms, crawl spaces and basements. Non-functional spaces will be inspected if destructive methods and sampling can be safely performed, are authorized by the property owner, and deemed practical by the inspector. Non-functional spaces include, but are not limited to, areas such as elevator shafts, chimney interiors and sealed wall chases. HRP will not sample any mechanical/electrical equipment or materials located in unsafe areas if dangerous or impractical, at the judgment of the inspector. In these instances, HRP will note these areas in the report. For this estimate, it is presumed that roof access for sampling can be gained in a safe and adequate manner to conduct the survey, and that snow will be predominantly absent at the time of the inspection.

The actual number of samples required will depend on the types and quantities of suspect materials present in the building. HRP will employ an independent, certified laboratory for the Polarizing Light Microscopy (PLM) analyses. It has been assumed for the purposes of this estimate that approximately 350 (total) samples will be collected from the subject building. At this time, we estimate that 300 of these samples (building interior) will be analyzed by PLM, and that 50 samples (roofing materials) will be analyzed by PLM in a Non-Organically Bound matrix (PLM NOB), which is used for roofing and similar materials, and requires additional preparation.

[1] Note that (per Federal regulations) spray-on or troweled-on materials require 3, 5, or 7 samples based upon the identified square footage of the suspect material. When applicable, this sampling convention will be followed.

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Additional samples may be required to perform an adequate survey, depending on the actual materials present. HRP will inform the client prior to submitting any samples in excess of the estimated total for analysis. Where practical and when required by federal regulation, HRP will collect a minimum of three samples from each homogenous area, consistent with generally accepted work practices. The presence of asbestos at 1% or greater in any sample from a homogenous area is sufficient to qualify that material as ACM, regardless of the number of negative samples. Analyses therefore will be performed on a "positive-stop" protocol, under which analysis of samples from a given homogenous area is discontinued when a positive sample has been identified.

At the conclusion of the asbestos survey, HRP will prepare a written report, which will document the results of the asbestos survey. The report will contain tables and figures, and will include HRP's conclusions and recommendations, as appropriate. Based upon asbestos abatement bidding that HRP has been involved with in the past, cost estimates for predemolition abatement will also be prepared. HRP will provide electronic deliverables of the report, cost estimate, and mapping (in a PDF file for the text and tables, and in AutoCAD Release 14 for the site plan(s)).

Task 2 – Pre-Demolition Lead Paint Screening

HRP will contract a licensed lead inspector (Protect Lead-Testing Services a.k.a. Leadsafe) to conduct a preliminary lead-based paint inspection of the structures described above. An XRF (x-ray fluorescence) Spectrum Analyzer instrument will be used to test representative components in each portion of the building (i.e., walls, ceilings, windows, doors, baseboards). The unit is a non-destructive tool to detect lead-based paint at concentrations above or below the 1.0 milligrams per square centimeter (mg/cm^2) action level determined by HUD guidelines. The scope of work for the lead-based paint testing will be determined in the field at the discretion of the lead inspector.

After screening the structure for lead-based paint, the lead inspector will collect representative core samples, as necessary, from specific locations. The purpose of this sampling is to collect and test representative bulk samples for lead-based paint to properly characterize the demolition debris for disposal purposes. Fifteen (15) samples from the structure will be submitted to a State-certified laboratory and analyzed for leachable lead by the Toxicity Characteristic Leaching Procedure (TCLP).

At the conclusion of the lead paint screening, and after all the results are received from the laboratory, HRP will prepare a written report, which will document the results of the survey. The report will contain the inspection report, tables, and figures, and will include HRP's conclusions and recommendations, as appropriate.

Task 3 – Hazardous Materials Inspection and Component Inventory/Characterization

In conjunction with the asbestos and lead paint surveys, HRP will complete the building inspection with a detailed survey of potential building toxin containing materials and hazardous materials. All accessible spaces within the building and on the roof will be closely inspected for features and conditions that could be expected to potentially adversely impact the local soil and ground water quality. During this inspection, HRP will also determine the quantity of items within the buildings that are expected to impact the pre-demolition abatement process and the

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eventual costs for building demolition/disposal. Such items will include, but not be limited to, fluorescent light fixtures, electrical switches, and mechanical components (including HVAC systems, transformers, elevators, cranes, lifts, electrical components, etc.). At this time, HRP is not proposing to sample the content of inventoried building components. We suggest that waste characterization for disposal of such materials be a component of the demolition contractor's waste disposal plan.

PROJECT BUDGET

The attached Table 1 presents estimated costs for each of the above-referenced tasks. The work will be billed on a time and materials basis. The Table 1 costs will not be exceeded without written approval.

PROJECT SCHEDULE

HRP expects that the proposed work can be completed, with deliverable work products, within six to ten (6-10) weeks from authorization and access to the building.

PROJECT AUTHORIZATION

HRP is prepared to enter into a standard contract with the City of Meriden upon acceptance of this Scope of Work.

Thank you for the opportunity to be of service. If you have any questions, please contact the undersigned at (860) 793-6899.

Sincerely,

HRP ASSOCIATES, INC.

Michael S. Cote, P.G., L.E.P.
Project Manager/
Asbestos Management Planner

Dudley W. Alleman, L.E.P.
Senior Project Manager

Attachment

n: \Meriden-The Hub-Bldg Toxins Survey.doc

TABLE 1
ESTIMATED COSTS FOR BUILDING INTERIOR INSPECTIONS & SURVEYS
THE HUB, 77 STATE STREET, MERIDEN, CONNECTICUT

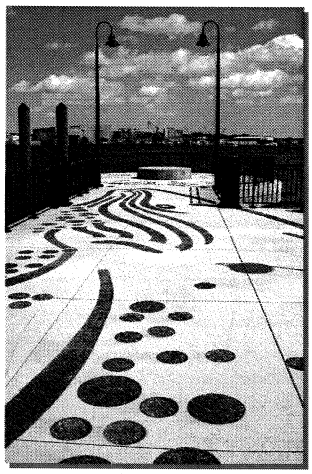
Task 1 - Pre-Demolition Asbestos Survey				
Inspection, Reporting, and Project Management*	LSE	1	$13,470.00	$13,470.00
PLM Sample Analyses	EA	300	$10.00	$3,000.00
PLM NOB Sample Analyses	EA	50	$25.00	$1,250.00
Task 2 - Pre-Demolition Lead Paint Survey				
Inspection, Reporting, and Project Management*	LSE	1	$1,200.00	$1,200.00
Licensed Lead Paint Testing Subcontractor**	LSE	1	$8,050.00	$8,050.00
Task 3 - Phase I Inspection of Building Interior & Potential Building Toxin Inventory/Characterization				
Inspection, Reporting, and Project Management*	LSE	1	$2,480.00	$2,480.00
			Proposed Total :	$29,450.00

LS = Lump Sum
EA = Each
LSE = Lump Sum Estimate (Not to exceed without prior approval)
DAY = Day Rate
*= Incudes Field Tools, Supplies, and Personal Protective Equipment
** = Includes Collection and Analysis of 15 Samples for Lead by TCLP, As Required For Demolition

3

Brownfields Redevelopment

Waterfront Park, Thames River, New London, CT



The city of New London is currently constructing a waterfront park on the Thames River immediately south of the local railroad station. The property was a former railroad maintenance yard, dating back to the late 1800s. Several environmental investigation reports were completed for the city in the 1980s and 1990s which identified significant petroleum contamination on the ground surfaces, extending down into the shallow water table and eastward along the shoreline.

During construction of the piers for the elevated walkway in Winter 2000, petroleum-contaminated soils were encountered at the river's edge, resulting in petroleum releases to the river. HRP worked closely with U.S. Coast Guard, Connecticut Department of Environmental Protection (DEP) Office of Long Island Sound Program and Urban Sites Remediation Program, and the City of New London and its contractors to implement a mitigation plan for preventing further releases into the surface waters.

HRP researched and recommended the installation of a specialized filter fabric which is designed to prevent oil migration but allows water flow. The contaminated soils, rocks, and timbers associated with the railroad yard along the shoreline were excavated and disposed off-site. The filter fabric was placed so that it would be covered by the stone revetment (rip rap) which is adjacent to and below the elevated walkway.

All work was completed on an accelerated basis to accommodate the use of the park for OpSail 2000 in early July. A temporary stone dust layer cap was placed over the unexcavated areas west to the railroad tracks so the site could be utilized for the OpSail events. Additional soils have been excavated and a ground water monitoring system has been installed. The investigations, remediation, and proposed additional work has been approved by DEP. Completion of the park is scheduled for early 2003.

FIRM

HRP Associates, Inc.
167 New Britain Avenue
Plainville, CT 06062
(860) 793-6899

VALUE

$150,000

POINT OF CONTACT/ PHONE NUMBER

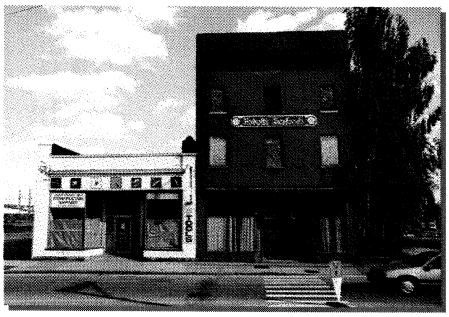
City of New London
New London, CT

Bruce Hyde
(860) 447-5247

- *During construction of the piers for the elevated walkway, petroleum-contaminated soils were encountered at the river's edge, resulting in petroleum releases to the river*
- *HRP researched and recommended the installation of a specialized filter fabric which is designed to prevent oil migration but allows water flow*
- *All work was completed on an accelerated basis to accommodate the use of the park for OpSail 2000 in early July 2000*

Brownfields Redevelopment

Vacant Former Industrial/Commercial Property, New London, CT



A private prospective developer is currently negotiating with the City of New London and another private landowner for the purchase and redevelopment of a group of properties located on Bank Street, New London, Connecticut. The site was formerly occupied by a number of industrial and commercial facilities dating back to the turn of the century. Occupants have included a seafood cannery, theatre, coal yard, biscuit company, tube manufacturer, and a vehicle service and repair station. The proposed development is a high-rise residential condominium.

In May 2000, the City of New London was granted $250,000 from he U.S. EPA "Brownfields Assessment Demonstration Pilot" for environmental studies of several sites in the community. Approximately $90,000 of the total was utilized for environmental investigations of this property.

Initially, HRP performed Phase I Environmental Site Assessments (ESAs) of the parcels to identify whether significant environmental concerns are present. The ESAs were completed following ASTM protocol which included a review of published environmental databases, publicly available Connecticut Department of Environmental Protection files, City of New London files, Sanborn Fire Insurance Maps, and aerial photographs. Site-specific and area-wide Areas of Concern (AOCs) were identified and Phase II investigations were designed and implemented.

Based upon the results of the Phase I ESAs, subsurface investigations (Phase II and III) were conducted on the properties where there were known or suspected contaminant sources. Prior to beginning the investigations, a Brownfields Program Quality Assurance Project Plan (QAPP) was prepared by HRP and approved by the EPA Region I Office of Site Remediation and Restoration.

The subsurface investigations completed by HRP included geophysical surveys (i.e., ground penetrating radar), test pits, test borings, and ground water monitor well installations, and collection and analysis of soil and ground water samples. In addition, a pre-demolition asbestos containing building materials survey was conducted by HRP. Comprehensive summary reports have been completed, and HRP is working closely with the City of New London, US EPA, and the prospective developer during the redevelopment process.

FIRM

HRP Associates, Inc.
167 New Britain Avenue
Plainville, CT 06062
(860) 793-6899

VALUE

$110,000

POINT OF CONTACT/ PHONE NUMBER

Office of Development and Planning
City of New London
New London, CT

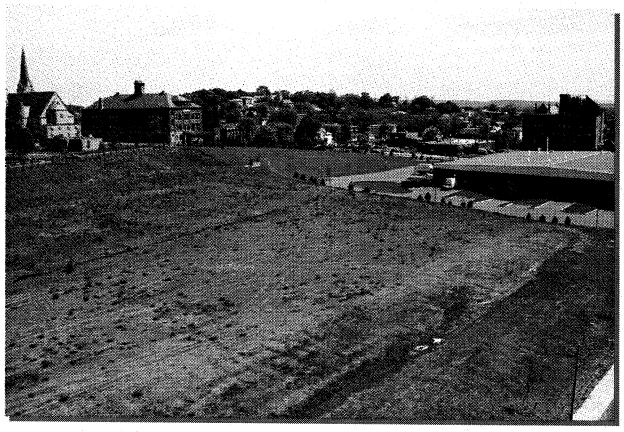
Bruce Hyde
(860) 447-5247

- *Initially, HRP performed Phase I ESAs of the parcels to identify whether significant environmental concerns are present*
- *Prior to beginning the investigations, a Brownfields Program QAPP was prepared by HRP and approved by the EPA Region I Office of Site Remediation and Restoration*
- *Comprehensive summary reports have been completed ,and HRP is working closely with the City, EPA, and the prospective developer during the redevelopment process*

Phase I/II Assessment/Hydrogeological and Subsurface Investigation

Bearing Manufacturing Company, New Britain, CT

Pursuant to the sale of a historical industrial facility used for bearing manufacturing, HRP Associates, Inc. was retained to conduct a complete facility inspection and subsurface investigation to determine the degree and extent of soil and ground water contamination. Investigations included the installation of soil borings, test pits, and groundwater monitoring wells. Ground penetrating radar was used to locate buried underground storage tanks. The work was conducted concurrent with demolition of the facility and site redevelopment activities. Contaminants found to be present include chlorinated volatile organic compounds, metals, petroleum hydrocarbons, and PCB's. Upon completion of subsurface investigations, HRP designed a plan for site remediation of soil and groundwater in accordance with Connecticut's remedial standard regulation. Approximately 20,000 tons of contaminated soil were removed from the site. HRP designed and implemented a screen and sampling program that resulted in a substantial reduction in disposal costs. The project is currently being redeveloped by the City of New Britain into an industrial park, which was the goal of this Brownfields project.



FIRM

HRP Associates, Inc.
167 New Britain Avenue
Plainville, CT 06062
(860) 793-6899

VALUE

$1,500,000

POINT OF CONTACT/ PHONE NUMBER

The Torrington Company
Torrington, CT

John R. Healy
(860) 626-2021

- *HRP was retained to conduct a complete facility inspection and subsurface investigation to determine the degree and extent of soil and ground water contamination*
- *Investigations included the installation of soil borings, test pits, and groundwater monitoring wells*
- *Contaminants found to be present include chlorinated volatile organic compounds, metals, petroleum hydrocarbons, and PCB's*
- *The project is currently being redeveloped by the City of New Britain into an industrial park, which was the goal of this Brownfields project*

Brownfields Redevelopment

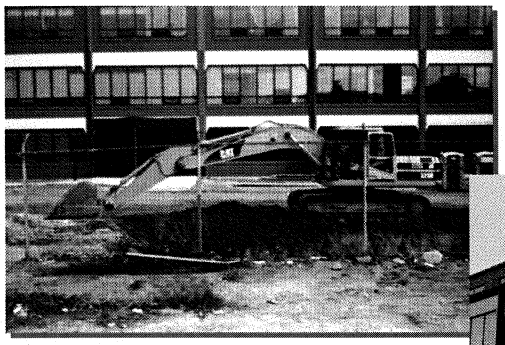
Science Park Development Corp, New Haven, CT

HRP Associates, Inc. (HRP) was retained by Science Park Development Corporation (SPDC) to provide comprehensive environmental services to assist in the redevelopment of a large former manufacturing facility into offices and laboratories for the biotechnology industry. HRP began the project with an update of an existing Phase I assessment, followed by Phase II and Phase III investigations. The schedule for the project was expedited in order to accommodate the needs of existing tenants in the facility.

The following issues were identified for the site, and a brief summary of the actions that were taken is also provided:

- VOC contamination was identified in groundwater. "Hot spot" remediation was completed in selected catch basins, and long term soil gas monitoring was completed beneath the building.
- Contaminated soil mixed with wood and metal was identified in an old, buried basement. The basement area was dewatered, and the contaminated materials were removed and then segregated for appropriate off-site disposal.
- A large area of metal-contaminated soil was identified in an area where a new parking lot was proposed for development. "Hot spot" remediation was completed in selected locations, and then an Engineered Control was requested and approved by CT DEP.

The exterior redevelopment activities are complete. An Engineered Control supported by an Environmental Land Use Restriction (ELUR) was implemented at the site to prevent human exposure to contaminants. A monitoring program was approved for the site by CT DEP, and currently long-term ground water monitoring is continuing.



FIRM

HRP Associates, Inc.
167 New Britain Avenue
Plainville, CT 06062
(860) 793-6899

VALUE

$250,000

POINT OF CONTACT/ PHONE NUMBER

Science Park
Development Corp.
New Haven, CT

Dick Grossi
(203) 786-500

- *HRP was retained to provide comprehensive environmental services to assist in the redevelopment of a large former manufacturing facility into a state-of-the-art biotechnology facility*
- *The site was fully investigated and then remediation of VOCs and heavy metals contaminated soil "hot spots" was completed*
- *After soil remediation, an Engineered Control supported by an Environmental Land Use Restriction was implemented at the site, and long term monitoring, as approved by CT DEP, continues*

Phase I/II Environmental Site Assessment/Subsurface Remedial Action

Former Foundry, Naugatuck, CT

HRP Associates, Inc. performed a Phase I and Phase II site assessment and subsurface investigation of an eight-acre vacant, former iron and stainless steel foundry in Naugatuck, Connecticut in support of property transfer and subsequent redevelopment. Soils contaminated with petroleum and heavy metals were identified in several areas of the site. Subsequent phases of remedial action, overseen by HRP, included the removal of underground petroleum storage tanks, the excavation and off-site recycling/disposal of contaminated soils, and post-remediation ground water monitoring. All site characterization investigations and remedial actions were approved by the Connecticut Department of Environmental Protection (CTDEP) Urban Sites Remedial Action Program, who became involved with the project during the latter phases to assist with property transfer and redevelopment.

HRP also designed and tested sub-slab engineering vapor controls for newly constructed retail buildings to protect indoor air quality from the infiltration of gasoline vapors. These vapors were off-gassing from an underlying ground water plume derived from an off-site source. Periodic post-remediation groundwater and air monitoring documented the effectiveness of site remediation activities and vapor control measures and CTDEP approved discontinuance of the monitoring program one year in advance of established regulatory requirements. The remedial efforts undertaken by the property owner as designed and overseen by HRP led to the revitalization of an unused vacant site and its successful redevelopment as a retail shopping center.

FIRM

HRP Associates, Inc.
167 New Britain Avenue
Plainville, CT 06062
(860) 793-6899

VALUE

$300,000

POINT OF CONTACT/ PHONE NUMBER

Confidential

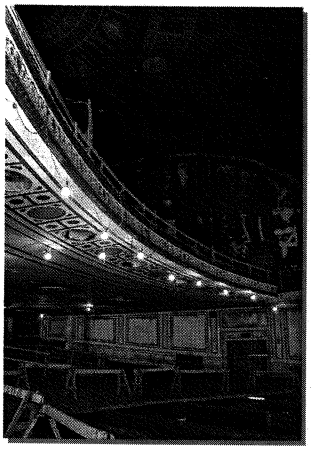
- *Soils contaminated with petroleum and heavy metals were identified in several areas of the site*
- *HRP designed and tested sub-slab engineering vapor controls for newly constructed retail buildings to protect indoor air quality from the infiltration of gasoline vapors*
- *Periodic post-remediation groundwater and air monitoring documented the effectiveness of site remediation activities and vapor control measures*
- *CTDEP approved discontinuance of the monitoring program one year in advance of established regulatory requirements*

Asbestos/Lead Paint/Microbial Survey and Abatement

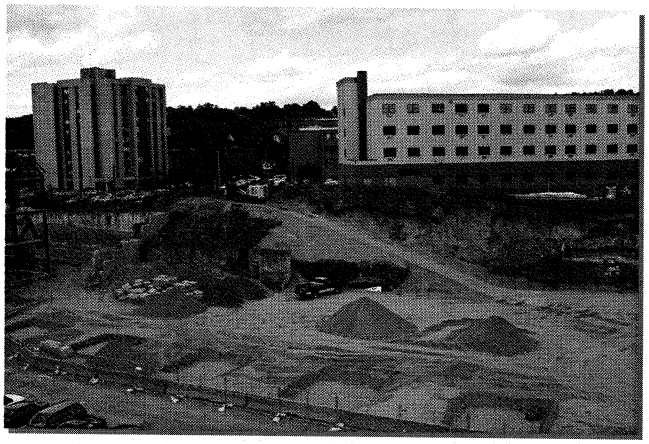
Arts Magnet School and UCONN Branch Campus, Waterbury, CT

HRP Associates, Inc. (HRP) was retained by the Naugatuck Valley Development Corporation (NVDC) to provide a full range of environmental services to assist in an urban redevelopment project involving a proposed Arts Magnet School, and an adjacent regional branch campus for UCONN. The proposed Arts Magnet School will also include the renovation of a large theatre building (the "Palace"), which has been vacant for over 10 years. HRP began the project with the completion of Phase I reports covering all of the parcels involved with the project. Phase II/III subsurface investigations were subsequently conducted.

Remediation, via appropriate off-site disposal, of approximately 70,000 tons of petroleum and metals contaminated soil was completed. Also, numerous underground storage tanks were remediated (removed) from the site.



In addition to the above, lead paint, asbestos, and microbial contamination surveys were completed for the vacant Palace Theatre with the finding that abatement was necessary for all three of these building related contaminants. In order to make the building safe for entrance by untrained personnel, an initial cleanup involving lead paint, asbestos, and microbial contamination was put out to bid, overseen, and confirmed as completed through clearance testing. Once plans are completed for the structural changes to the theatre, then an abatement plan will be prepared and implemented for remaining lead paint and asbestos. Asbestos and lead paint surveys were conducted for eight other buildings on the site prior to their demolition.



FIRM

HRP Associates, Inc.
167 New Britain Avenue
Plainville, CT 06062
(860) 793-6899

VALUE

$1,500,000

POINT OF CONTACT/ PHONE NUMBER

Naugatuck Valley
Development Corporation
Waterbury, CT

John Lembo
Dan Sahl
(203) 756-2719

- *HRP was retained to provide a full range of environmental services to assist in an urban redevelopment project involving a proposed Arts Magnet School, and an adjacent regional branch campus for UCONN*
- *Phase II/III environmental investigations were completed, followed by soil remediation*
- *Lead paint, asbestos, and microbial contamination surveys were completed, followed by abatement of lead paint and asbestos materials*

Pre-Demolition Asbestos and Lead Surveys

New London Development Corporation, New London, CT

HRP Associates, Inc. was responsible for providing and coordinating pre-demolition asbestos, lead paint, PCB, mercury lamp, and mechanical component surveys of the former United States Naval Underwater Warfare Center, as well as dozens of small commercial and residential parcels, in preparation for subject area redevelopment. HRP reviewed construction drawings, existing U.S. Navy building toxin surveys, and performed extensive sample/surveys to provide QA/QC of the existing data and expand the surveys to facilitate fast-paced demolition activities. Thousands of suspect asbestos, lead paint, dielectric fluid, and hydraulic oil samples were collected and analyzed, summarized in conjunction with a certified industrial hygienist, and presented in abatement specifications for contractor bidding.

Subsequent to building demolition, site work activities identified asbestos piping, insulation, and weather-proofing buried in the ground which was excavated by HRP and abated as necessary. HRP provided on-call services for sampling, evaluating preparation of specifications, and regulatory coordination related to the identified building toxins.

FIRM

HRP Associates, Inc.
167 New Britain Avenue
Plainville, CT 06062
(860) 793-6899

VALUE

$150,000

POINT OF CONTACT/ PHONE NUMBER

New London Development Corporation
New London, CT

Jenny Wronowski
(860) 447-8011

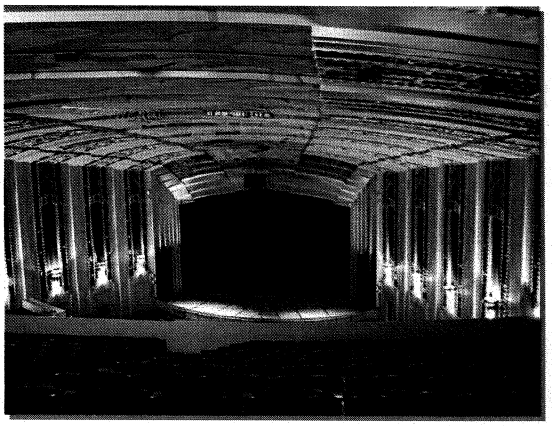
- *HRP was responsible for providing and coordinating pre-demolition asbestos, lead paint, PCB, mercury lamp, and mechanical component surveys*

- *HRP provided on-call services for sampling, evaluating preparation of specifications, and regulatory coordination related to the identified building toxins*

Environmental Abatement Study

The Bushnell Theater, Hartford, CT

HRP Associates, Inc. (HRP) was responsible for providing a survey of the asbestos and lead paint in the Bushnell Theater in Hartford, CT. HRP inspected and sampled the designated locations as determined by the architect in charge of the selective demolition and renovations. HRP then developed plans and specifications for the required asbestos abatements, conducted pre-bid conferences, and assisted in contractor selections. HRP retained the services of Crane Environmental and Abacus Environmental to provide special expertise. Additionally, HRP provided on-call sampling services and monitoring of abatement activities.



FIRM

HRP Associates, Inc.
167 New Britain Avenue
Plainville, CT 06062
(860) 793-6899

VALUE

$15,000

POINT OF CONTACT/ PHONE NUMBER

The Bushnell Center for the Performing Arts
166 Capitol Avenue
Hartford, CT

Lynn Robinson
(860) 987-6030

- *HRP was responsible for providing a survey of the asbestos and lead paint*
- *HRP also provided on-call sampling services and monitoring of abatement activities*