

# CHANGE ORDER

OWNER-City of Columbus

## PROJECT NAME & ADDRESS

Former Columbus Wood Treating  
58 Lafayette St  
Columbus, Indiana

CHANGE ORDER NUMBER: #3

DATE: 2-18-14

ENGINEERS PROJECT NUMBER: 11-262

## TO CONSULTANT/ENGINEER

Bruce Carter Associates, LLC  
6330 E. 75th Street #150  
Indianapolis, IN 46250

IFA LOAN AGREEMENT DATE: 12/29/2011  
CONSULTANT SUPPLEMENT DATE: 1/30/2012  
CITY PROFESSIONAL SVCS AGREEMENT DATE: 12/28/2011

## CONTRACT FOR:

Professional Services to support remediation of Fmr Columbus  
Woodtreating site (53 Lafayette St)

<u>The original contract Sum was</u>	\$303,883.13
<u>Net change by previously authorized Change Orders</u>	\$27,448.00
<u>The Contract Sum Prior to this change order was-</u>	\$331,331.13
<u>The Contract Sum will be increased or &lt;decreased&gt; or unchanged by this Change Order in the amount of-</u>	\$46,088.00
<u>The new Contract Sum including this Change Order will be-</u>	\$377,419.13

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# CHANGE ORDER SUMMARY

OWNER-City of Columbus

CHANGE ORDER NUMBER: #3

No.	Description	Date:	Addition	Deduction	Net
1	Oversight of well installation, documentation & sampling (for 1 mobilization, 2 probes and 3 monitoring wells)	1/21/2013	\$10,809.00	\$0.00	\$10,809.00
2	Soil Gas Sampling (2 rounds)	9/12/2013	\$16,639.00	\$0.00	\$16,639.00
3	Oversight of well installation, documentation & sampling (for 4 mobilizations, 7 probes, 3 product monitoring points and 3 monitoring wells)	2/17/2014	\$46,088.00	\$0.00	\$46,088.00

## EXECUTION:

CITY:

ENGINEER:

\_\_\_\_\_  
PRINTED

John Kilmer

\_\_\_\_\_  
PRINTED

\_\_\_\_\_  
SIGNED

*John W. Kilmer*

\_\_\_\_\_  
SIGNED

\_\_\_\_\_  
DATE

February 18, 2014

\_\_\_\_\_  
DATE

## Memorandum

To: Heather Pope

Lynette Schrowe

From: John Kilmer

Bruce Carter Associates, LLC

Re: BCA Change Order #3

Date: 2/18/2014

The attached change order is for professional services for planning, overseeing installation, sampling, analysis, documentation and reporting for seven probes/temporary wells, three permanent free product monitoring points and three permanent groundwater monitoring wells requested by IBP. The scope of services is detailed in the Remediation Work Plan Addendum #2 (attached) which has been approved by IBP. The services include:

- Planning, meetings and coordination with IBP and City for the additional wells;
- Preparation of the Remediation Work Plan Addendum #2;
- Sample and oversee four probes/temporary well installation. Laboratory analysis;
- Prepare summary of results and submit to City and IBP;
- Oversee installation of two permanent wells and abandonment of old wells;
- Development, sampling and lab analysis of new permanent wells;
- Prepare summary of results and submit to City and IBP.
- Oversee installation of 3 permanent free product monitoring points;
- Sample and oversee 3 additional probe/temporary well installation. Laboratory analysis;
- Prepare summary of results and submit to City and IBP;
- Oversee installation of 1 permanent well;
- Documentation & reports.

Work will performed in accordance with the approved Remediation Work Plan and Quality Assurance Project Plan (QAPP) at the unit rates specified in the existing City/BCA agreement. A breakdown of the cost is attached to the Change Order.



# Bruce Carter Associates, L.L.C.

*ENVIRONMENTAL CONSULTANTS*

*AIR • WATER • SOLID WASTE • OSHA • REMEDIATION SERVICES*

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**RWP ADDENDUM 2  
CLOSURE AND POST-CLOSURE  
FORMER COLUMBUS WOOD TREATING  
53 LAFAYETTE AVENUE  
Columbus, Indiana 47201  
Bruce Carter Associates, LLC  
February 18, 2014**

## **1.0 BACKGROUND AND PURPOSE**

### **1.1 Background**

The former Columbus Wood Treating site, located at 53 Lafayette Avenue, includes a single parcel totaling 1.24 acres. Coal and coke processing appears to have been conducted on the site from 1885 to 1903 and wood treating operations began in the 1920's. Wood treating included the use of creosote and pentachlorophenol. The plant was closed in 1970 and the buildings were destroyed in a fire in 1971. All structures were removed and the site was covered with foundry sand fill.

Remedial activities were conducted on the site in 2012 in accordance with a Remediation Work Plan (RWP), dated March 15, 2012, as prepared by Bruce Carter Associates, L.L.C. (BCA) and approved by the Indiana Brownfield Program (IBP). BCA provided technical observation for the remediation which was conducted by HIS Constructors, Inc (HIS) under contract to the Columbus Redevelopment Commission (CRC). Funding for the project was provided (mostly) through loans from the Indiana Finance Authority (IFA) with regulatory oversight from the IBP.

The remediation included primarily in-situ solidification/ stabilization of impacted on-site soil in the vadose zone, as well as some in the saturated zone. Other tasks included soil removal for landfill disposal, and removal and disposal of an underground storage tank (UST) and associated tank liquids. Upon completion, the treated area was covered with several feet of clean overburden soil, an impermeable geomembrane, 2½ feet of granular cover and topsoil and a vegetative cover. The soil remediation work was completed on June 30, 2012 and final tank residuals disposal was completed in August, 2012. A Closure Report, dated September 28, 2012, was submitted to and accepted by IBP. The RWP required the installation of additional soil borings/monitoring wells in the down-gradient direction from the site, and monitoring of groundwater from all on-site and off-site wells every six months for a period of two years.

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Elkhart, IN 46516  
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e-mail: [bca@bcaconsultants.com](mailto:bca@bcaconsultants.com)

(800) 291-1019

A total of 14 new monitoring wells (MW-15 to MW-22D) were installed on and downgradient of the site in August and September, 2012. The first round of post-remediation groundwater samples was collected from September 26-28, 2012. The results were submitted to the CRC and the IBP in a letter report dated November 5, 2012. The results of the first round of post-remediation groundwater samples indicated that the plume of impacted groundwater extended further downgradient beyond the limits of the new wells. Based on the first round of samples the IBP required the installation of three additional downgradient monitoring wells and two one-time groundwater probe samples.

The probes and wells were installed in February 2013 and the second full round of groundwater samples were collected from April 16 to May 2, 2013. The results were submitted to the CRC and IBP in a report dated July 11, 2013. Measurable free product was found to be present in two of the wells at and downgradient of the source of the plume. Based on the sampling results the plume was found to extend to the southeast beyond the downgradient wells.

## **1.2 Purpose**

This document is Addendum 2 to the RWP dated March 15, 2012. The purpose of this Addendum is to establish the conditions necessary to receive a No Further Action letter. The City of Columbus seeks to close the site in accordance with IND. CODE 13-12-3-2 and 13-25-5-8.5 (as amended) and the Risk Integrated System of Closure (RISC) guidance, and the 2012 Remediation Closure Guide (RCG) guidance (as amended). Specifically, the City seeks closure by reducing the source and implementing a risk management program to control future exposure pathways. Exposure pathways have or will be managed with institutional controls (ICs), or other appropriate measures to be implemented post-closure, which may include, among other measures, environmental restrictive covenants (ERC) with potential restrictions on surface soil excavation and groundwater use and/or an environmental restrictive ordinance (ERO). Potential exposure pathways include surface soil, subsurface soil, groundwater ingestion and vapor intrusion.

### Surface Soil

Prior to remediation, surface soil on the site was determined to contain PAHs in excess of the RISC Residential Default Closure Levels (RDCLs), but not in excess of the Recreational or Industrial DCLs. Most (but not all) of the surface soil exceeding the RDCLs was removed or covered. The residential exposure pathway will be

controlled through an IC, specifically, an ERC limiting land use to recreational or commercial/industrial.

#### Subsurface Soil

Prior to remediation in 2012, subsurface soil was found to exceed the ICL-direct and construction limits for SVOCs, mostly from about 7 to 20 feet. Vadose zone subsurface soil was remediated by treatment or removal of all soil exceeding the ICL-Direct from the surface to 10 feet below grade, ICL-Construction from 10 to 20 feet, or an ICL-Direct value for PCP. Treated soils were covered by several feet of fill (containing <IDCL), a geomembrane, and 2.5 feet of clean fill, top soil and vegetative cover. The construction exposure pathway will be further controlled by an ERC requiring IDEM notification and appropriate protective measures prior to any excavation which penetrates to treated soil.

#### Migration to Groundwater

Soil on the site was found to exceed the limits for migration to groundwater. Most of the source material in the vadose zone was removed from the site or remediated by soil solidification/stabilization in 2012. The soil solidification/stabilization method was designed to reduce the potential migration to groundwater from the source material by reducing its permeability and leachability. Pilot tests for the design demonstrated permeability reduced to  $<10^{-6}$  cm/sec and leachability by 97.5% (based on naphthalene and PCP in SPLP extracts). Further, a geomembrane was installed over the treated area to reduce groundwater infiltration into the treated area.

#### Groundwater

A groundwater plume (exceeding the residential levels) is present on and downgradient of the site. There are no active private wells (other than monitoring wells) in or near the plume. The exposure pathway will be controlled by an ERO or ERCs (or other appropriate measures) prohibiting wells for use of the groundwater (other than monitoring) applicable to all parcels affected by the plume and to a distance downgradient. This area is referred to as the Exposure Control Area (ECA) and is depicted on Figure A.

#### Vapor Intrusion

No structures are present on the site, but a single structure (the Eynon Law Office at 551 1<sup>st</sup> Street) is present within 100 feet of the groundwater plume. Groundwater samples at the monitoring well located nearest the Eynon property (MW-9) indicated

naphthalene concentrations in the groundwater have been above the IDEM 2013 Remediation Closure Guide Vapor Intrusion Groundwater Screening Level – RCG VI GWSL) in two of five rounds including the most recent. See Section 2.1 below for a discussion of the effort to collect soil gas samples from the Eynon property in the fall of 2013.

A geothermal system was formerly used in the Eynon office building which included a geothermal well. The system was closed down in the early 1990's, reportedly due to the presence of creosote in the geothermal well water. The system has been removed but the status of the piping and well casing (located outside the office) is unknown.

At the request of the City and following approval of sampling plans by IDEM, BCA conducted ambient and indoor air sampling at and around the Eynon office on May 11, 2012, during active in-situ remediation activities. Wind conditions suggest the day was near the average for the remediation project: calm to light and variable breezes from the west to the southeast. The temperatures were a little higher, the wind speed a little lower and the direction a little more westerly than the average for the remediation project time period.

Samples were collected from inside the office, to the east between the office and the project site, west (generally upwind) of the office, and distant to the north of the area. Samples were tested by EPA method TO-13 for SVOCs and by EPA method TO-17 for VOCs. With the exception of Naphthalene, there were no significant detections. Naphthalene was detected in the office air sample at  $5.5 \text{ ug/m}^3$ , (slightly above the 2013 RCG SL of  $3.6 \text{ ug/m}^3$ ) and in the outdoor sample to the east at  $5.6 \text{ ug/m}^3$ . Naphthalene was also detected in the other ambient air samples. The samples to the west and far to the north are distant or upwind samples indicating naphthalene was found in the background at 1.9 to  $6.7 \text{ ug/m}^3$ . These data indicate that the naphthalene in the Eynon office indoor air was most likely partly due and may have been entirely due to background sources. The sampling effort was discussed in detail in the BCA report dated June 29, 2012: "Ambient and Nearby Indoor Air Sampling".

With respect to the potential for additional exposure due to groundwater plume migration, the stability of the plume will be monitored by post-closure groundwater monitoring. An ERC on the Site will require that prior to occupancy of any new structures, the potential for vapor intrusion will be assessed and IDEM will concur

that there is no unacceptable risk or confirm that additional measures, including mitigation, is necessary to address the potential VI pathway.

## 2.0 SCOPE OF WORK

The sampling and analysis procedures will follow the Quality Assurance Project Plan and Standard Operating Procedures (QAPP and Field SOP) and those recommended by the IDEM 2001 RISC guidance (as updated through 2011) and the 2012 Remediation Closure Guide (RCG) (as updated through March 2013) where not addressed in the prior documents.

### 2.1 Closure Plan

The purpose of the Closure Plan is to provide the information necessary to complete the evaluation and elimination of exposure pathways. Specifically, the plan completes the characterization of the plume, and addresses whether the potential vapor intrusion exposure pathway is complete.

#### Soil Gas Sampling

Out of an abundance of caution, the CRC elected to conduct soil gas sampling at the Eynon property. In taking the most conservative approach for the vapor intrusion exposure pathway, IDEM requested that two rounds of soil gas samples be collected from two locations adjacent to the nearby office building (See Appendix A for the approved SAP for this work). On December 2, 2013 BCA attempted to install the soil gas probes as specified in the SAP. However after meeting BCA staff and the drilling contractor on the premises, the property owner indicated that he had changed his mind and declined to allow the soil gas probes to be installed on his property. After consultation, IBP determined that in consideration of the property owner's request, the soil gas probe installation and sampling was suspended indefinitely. Should the owner change his mind and request sampling, the approved revised SAP for Soil Gas Sampling dated September 6, 2013 can be implemented or adjusted based on current standards. See the Vapor Intrusion pathway section above for discussion of the minimal exposure risk associated with the attempted soil gas sampling.

#### Groundwater Plume Limit Delineation

To complete the characterization of groundwater off-site, BCA proposes to install a series of temporary groundwater probes and permanent monitoring wells in two phases:

*Phase I* – Four (4) temporary direct push groundwater probes (B-32, B-33, B-34 and B-35) will be located as shown on the attached Figure A. Subsequent to the

probe installation, two (2) permanent monitoring wells (MW-26D and MW-27D) will be installed as near as practicable to the presumed center axis and on the northern edge of the plume, respectively. Specifically:

- The four temporary groundwater probes will be driven to the base of the water table aquifer (estimated 55 feet depth). Soil samples will be collected continuously and logged (see soil sampling procedures below). A temporary well casing and screen will be installed at the bottom of the probe hole and a groundwater sample collected (see groundwater sampling procedures below). Results of the sampling will refine understanding of the axis of plume migration in the area. A drawing and data will be submitted to IBP.
- Based on the results of the initial probe sampling, two (2) permanent monitoring wells will be installed. MW-26 will be placed along the axis of the plume and at a location estimated to be well within the limits of the plume. MW-27 will be installed near or beyond the northern edge of the plume. The new wells will be developed and sampled within two weeks after installation. The new wells will be surveyed and the water levels will be measured in nearby wells. The new data will be submitted to IBP in figures and tables.

*Phase II* – Based on the results of Phase I, as submitted to IBP as described above, additional temporary probe and monitoring well locations will be proposed for IBP approval. Three (3) additional temporary groundwater probes (B-36, B-37, and B-38) and one (1) additional permanent groundwater monitoring well (MW-28) will be installed downgradient from the Phase I probes and monitoring wells to provide additional delineation of the central axis of the plume and the downgradient limits of plume migration. Possible locations of Phase II probes and well are shown on Figure A; however the exact locations will be determined by the results of Phase I. The goal will be to place the temporary probes near but within the leading edge of the plume and to place the last monitoring well (MW-28D) beyond the leading edge to serve as a sentinel well. Temporary probes and the permanent monitoring wells will be installed as described above.

Free Product Delineation. Free product was recently identified in MW-24D and the downgradient extent of free product is not known. The downgradient limit will be determined during the plume delineation tasks described above. Once the limit is known, BCA will consult with IBP to determine the placement of three Free Product

Piezometer Probes (B-39, B-40, and B-41) that will be installed to the base of the aquifer. Although shown at the locations previously proposed on the attached Figure A, those locations will be adjusted after consultation with IBP. Soil will be sampled continuously during probe advancement near the bottom of the aquifer, and the presence and thickness of any visibly-impacted zone(s) will be noted on the boring logs. Permanent piezometers (1-inch ID PVC with 10-foot PVC screens) will be installed at the bottom of the probe and will be sealed to the surface and a steel protective cover will be installed in concrete. An interface probe will be used to measure for the presence and thickness of any free product (if any). Consistent with prior discussions, no groundwater or soil samples will be analyzed from probes/piezometers containing free product.

Upgradient Wells. Based on the data, no further sampling and analyses will be required for four upgradient monitoring wells (MW-1, MW-3, MW-5 and MW-8). Since 2007, four rounds of samples have been collected from MW-1 and three rounds from each of the other three wells. Low levels, below the RDCL, were detected in MW-3 in 2007, but there have been no detections since then. All four wells will be permanently abandoned (in accordance with DNR requirements) by sealing the casing with bentonite and removing the steel protective covers.

## **2.2 Post-Closure Plan**

To ensure that there remains no unacceptable risk in connection with residual contamination, the CRC proposes a post-closing stewardship plan. The CRC suggests that after it is determined that there is an adequate understanding of plume behavior, then a Stewardship Agreement be executed for any future work. This plan would identify the future obligations to receive NFA determination. The obligations may include, among other measures, ERCs, an ERO, and/or other appropriate measures to prevent or control some exposure pathways and a groundwater monitoring plan to confirm that the CSM for the site remains valid.

## **2.3 Field Methods**

The following sections summarize the field methods applicable to this SAP. For detailed information on field methods see the Field Standard Operating Procedures (Appendix D of the RWP).

### Groundwater Probe/Temporary Well Installation/Free Product Piezometers

Probes will be advanced by means of direct push technology. With the exception of Free Product Piezometer probes and locations that have already been sampled to

depth, the probes will be sampled continuously by utilizing 4-foot long macro-bore rods equipped with an acetate inner liner. Soil samples will be screened in the field with a photo-ionization detector (PID) and logged in accordance with the Unified Soil Classification System (UCS). Field evidence of contamination (PID, olfactory or staining) will be noted.

Groundwater samples will be collected by use of temporary 1" PVC sampling points placed in selected boreholes. Sampling will be conducted with a non-contact stainless steel submersible bladder pump. Groundwater will be purged and sampled following the IDEM Micro-Purge (Low-Flow) Sampling Option (revised November 3, 2009) to the extent possible. Field parameters (Temperature, Conductivity, Dissolved Oxygen, pH, and Oxygen Reduction Potential) will be monitored in each temporary sampling point during purging until at least three (3) parameters have stabilized. If groundwater monitoring parameters cannot be stabilized, a sample will be collected regardless and a note will be recorded in the field book. Groundwater samples will be pumped directly into sample bottles (of types specified by the EPA methods) provided by the analytical laboratory.

For Free Product Piezometer locations 1-inch ID PVC casing with 10-foot PVC screens will be installed at the bottom of the probe and will be sealed to the surface and a steel protective cover will be installed in concrete. An interface probe will be used to measure for the presence and thickness of any free product (if any).

Soil cuttings and purge water from impacted areas will be treated as indicated below in Section 2.6.

#### Monitoring Well Installation

Borings will be advanced using 4<sup>1</sup>/<sub>4</sub> inch hollow stem augers. Soil samples will be collected continuously during drilling unless the location has been previously sampled. Samples will be collected through the augers using a 1<sup>1</sup>/<sub>2</sub> inch split spoon sampler driven 2 feet below the augers and retrieved and opened. Each split spoon sample will be screened using a Photoionization detector (PID). Soil cuttings and purge water from impacted areas will be treated as indicated below in Section 2.6.

Once the total depth for each well is reached a monitoring well will be constructed. Wells will be constructed of a 2-inch diameter 10-foot section of 0.010-inch slotted schedule 40 PVC well screen and 2-inch diameter PVC riser. Sand will be installed to two feet above the well screen, followed by a 2-foot bentonite seal. The annulus will be grouted to the surface and a 6 inch diameter flush mount steel protective cover will be concreted in place. All wells will be developed until the water being

extracted is visibly clear.

#### Groundwater sampling

Groundwater will be collected through disposable or dedicated tubing connected to a 12-volt submersible pump. Groundwater will be purged and sampled following the IDEM Micro-Purge (Low-Flow) Sampling Option (revised November 3, 2009) to the extent possible. Field parameters (Temperature, Conductivity, Dissolved Oxygen, pH, and Oxygen Reduction Potential) will be monitored in each temporary sampling point during purging until at least three (3) parameters have stabilized. If groundwater monitoring parameters cannot be stabilized, a sample will be collected regardless and a note will be recorded in the field book. Groundwater samples will be pumped directly into sample bottles (of types specified by the EPA methods) provided by the analytical laboratory.

## **2.4 Laboratory Methods**

All groundwater samples will be analyzed for SVOCs by method 8270/8270SIM. In addition, all groundwater samples will be tested for the following geochemical parameters by field methods (as required for low-flow sampling):

- Temperature
- Specific conductivity
- pH
- oxygen reduction potential (ORP)
- Dissolved Oxygen

## **2.5 Quality Control**

Quality control samples are collected and analyzed to assess the quality of the data resulting from the field sampling program. Quality control samples and laboratory reports will meet the requirements of the guidance. Equipment blanks will be collected for this project for any samples collected using non-disposable equipment and will include one (1) for the groundwater sampling equipment and one (1) for the soil sampling equipment. One (1) trip blank will be collected for the project (for CAHs only). Field duplicate samples for each matrix will be collected at the rate of one (1) per 20 investigative samples per sample matrix. Matrix spikes and matrix spike duplicates (MS/MSD) will be collected at a rate of one (1) per 20 investigative samples per sample matrix. The laboratory will include a DQO Level IV report package for final closure groundwater samples. Other laboratory reports will include a Level II report package.

## **2.6 Decontamination & Waste Handling**

Sampling equipment utilized at the site will be decontaminated using a non-phosphate detergent wash and distilled water rinse prior to and following the collection of each sample to reduce the potential for cross contamination. All other procedures used to decontaminate equipment will be documented. Where practical, disposable sampling equipment will be used to eliminate the need for decontamination. Decontamination wash water from impacted locations will be treated as hazardous waste. Soil cuttings and purged groundwater from impacted zones will be treated as hazardous waste. Soil containing pentachlorophenol below the IDEM commercial direct exposure screening level may be treated or disposed as non-hazardous waste. Groundwater containing pentachlorophenol below RCRA limits may be handled as non-hazardous waste.

## **2.7 Report**

Observations and data from each phase of this RWP Addendum 2 will be submitted in figures and tables in draft form to facilitate input from IBP. The final data generated by field investigation will be summarized in a bound or electronic (PDF) report that will be included in the next scheduled groundwater monitoring report (spring of 2014). The report will contain a detailed explanation and documentation of sample locations and collection procedures. The analytical data will be summarized and conclusions discussed to the extent possible.

### 3.0 COST

The estimated costs of performing the proposed services are summarized below:

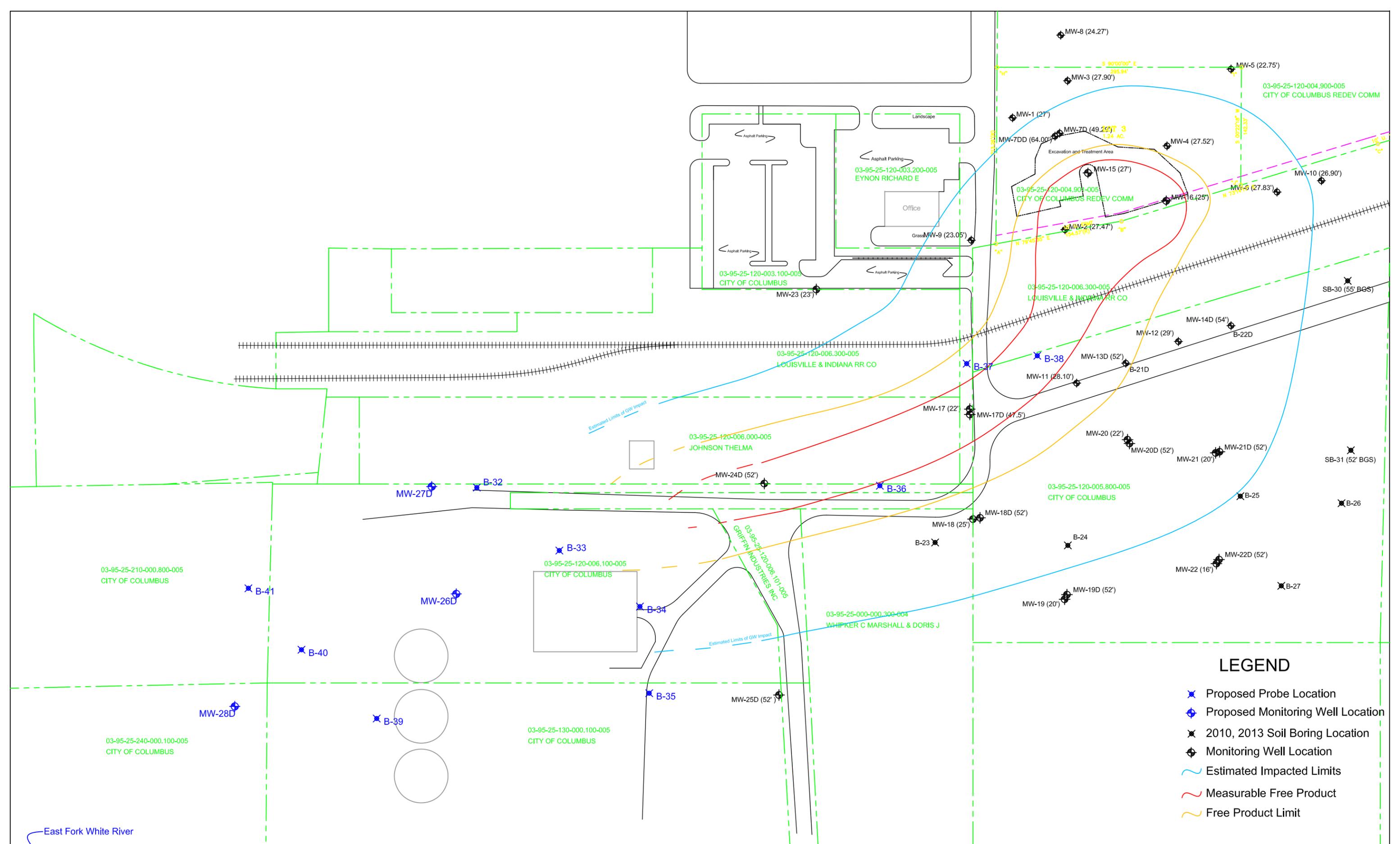
HIS Constructors – \$48,027.

- Install seven probes/temporary wells to 55'
- Install three permanent 1-inch diameter points to 55'
- Install three (permanent) 2-inch monitoring well to 55'
- Abandon four (4) existing monitoring wells per DNR
- Dispose up to four (4) drums purge water (hazardous waste)

BCA - \$46,088

- Planning, IBP/City/Contractor coordination, SAP
- Sample and oversee probe/temporary well installation;
- Sample analysis, summary of results, IDEM coordination;
- Log, develop and sample new wells and abandonment of old wells;
- Documentation & reports.

The costs are broken down in detail on the attached tables and contractor quotes. The costs would not be exceeded without approval of the client. BCA will invoice monthly on a time and materials basis per the approved contract fee schedules.



**LEGEND**

- ✦ Proposed Probe Location
- ⊕ Proposed Monitoring Well Location
- ✖ 2010, 2013 Soil Boring Location
- ⊕ Monitoring Well Location
- ~ Estimated Impacted Limits
- ~ Measurable Free Product
- ~ Free Product Limit

<b>Bruce Carter Associates, LLC</b> 6330 E. 75th SUITE 150 INDIANAPOLIS, IN 46250 317-578-4233	DATE: <b>12/06/2013</b>	DRAWING TITLE <b>Proposed Wells          Impacted Groundwater Limits</b>	PROJECT LOCATION: Former Columbus Wood Treating 53 Lafayette Ave Columbus, Indiana	DRAWN BY: BCA PROJECT NO. <b>11-262</b>	FIGURE <b>A</b>
	SCALE: <b>1"=100'</b>				

<b>CAT 2:</b>	<b>Monitoring Well Installation Oversight and Sampling Winter 2014</b>						<b>\$46,088</b>
	Install 7 temporary wells/probes, 3 permanent probes and 3 permanent Monitoring wells.						
	Sample Temporary probes & permanent wells.						
	Summary Results						
<b>Task 1:</b>	Planning, IBP/City/Contractor coord, Sampling & Analysis Plan						
	includes all related tasks (other than soil gas) from July 2013 - January 2014.						
	Senior Engineer		65	hr	105	6825	<b>\$8,585</b>
	Pjt Mgr/Geol/Scientist III		20	hr	88	1760	
<b>Task 2:</b>	Install Probes (B-32 to B-35)						<b>\$10,920</b>
	Field prep, sampling, handling						
	Senior Engineer		12	hr	105	1260	
	Pjt Mgr/Geol/Scientist III		61	hr	88	5368	
	Field Expenses						
	Misc Field Supplies		3	day	25	75	
	Water level meter		3	day	12	36	
	Interface Probe		1	ea	200	200	
	1-inch GW pump (low flow)		1	day	100	100	
	GW flow cell/multi sonde		1	day	150	150	
	0.170" Poly dual tube		260	ft	1.75	455	
	Travel - Mileage RT = 4		520	mi	0.4	208	
	Hotel (1 person)		0	ea	105	0	
	Subcontracts						
	Laboratory Analyses						
	GndWtr SVOC/PAH 8270SIM		4	ea	189.75	759	
	GW Field QA/QC Samples		3	ea	189.75	569.25	
	Drilling Contractor & drum disposal - See Contracting Section						
	Summary data after sampling						
	Senior Engineer		4	hr	105	420	
	Project Mngr/Scientist		15	hr	88	1320	
<b>Task 3:</b>	Install New Monitoring Wells & Abandon Old wells, sample new (MW-26, MW-27)						<b>\$7,327</b>
	Field prep, sampling, handling						
	Senior Engineer		8	hr	105	840	
	Pjt Mgr/Geol/Scientist III		51.5	hr	88	4532	
	Field Expenses						
	Misc Field Supplies		4	day	25	100	
	Pumps (2-inch dedicated)		2	ea	175	350	
	3/8" Poly sample tubing		110	ft	1.0	110	
	GW flow cell/multi sonde		1	day	150	150	
	Water level meter		3	day	12	36	
	Travel - Mileage RT = 5		650	mi	0.4	260	
	Hotel (1 person)		0	ea	105	0	
	Subcontracts						
	Laboratory Analyses						
	GndWtr SVOC/PAH 8270SIM		2	ea	189.75	379.5	
	GW Field QA/QC Samples		3	ea	189.75	569.25	
	Drilling Contractor - See Contracting Section						
<b>Task 4:</b>	Install Probes (B-36 to B-41)						<b>\$12,446</b>

