

# CHANGE ORDER

OWNER-City of Columbus

## PROJECT NAME & ADDRESS

Former Columbus Wood Treating  
58 Lafayette St  
Columbus, Indiana

CHANGE ORDER NUMBER: #2

DATE: 9-12-13

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>	\$10,809.00
<u>The Contract Sum Prior to this change order was-</u>	\$314,692.13
<u>The Contract Sum will be increased or &lt;decreased&gt; or unchanged by this Change Order in the amount of-</u>	\$16,639.00
<u>The new Contract Sum including this Change Order will be-</u>	\$331,331.13

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# CHANGE ORDER SUMMARY

OWNER-City of Columbus

CHANGE ORDER NUMBER: #2

No.	Description	Date:	Addition	Deduction	Net
1	Oversight of well installation, documentation & sampling	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

## EXECUTION:

CITY:

ENGINEER:

\_\_\_\_\_  
PRINTED

John Kilmer

\_\_\_\_\_  
PRINTED

*John W. Kilmer*

\_\_\_\_\_  
SIGNED

\_\_\_\_\_  
SIGNED

\_\_\_\_\_  
DATE

September 12, 2013

\_\_\_\_\_  
DATE

## Memorandum

To: Heather Pope

Lynette Schrowe

From: John Kilmer

Bruce Carter Associates, LLC

Re: BCA Change Order #2

Date: 9/12/2013

The attached change order is for professional services to install and sample two soil gas probes requested by IBP. The scope of services is detailed in the Sampling and Analysis Plan (attached) which has been approved by IBP. The services include:

- Planning, meetings and coordination with IBP and City for the soil gas sampling;
- Preparation of Sampling and Analysis Plan;
- Oversight, installation and sampling of soil gas probes;
- Laboratory analysis of soil gas samples
- Prepare summary of results and submit to City and IBP;
- Collect 2<sup>nd</sup> round of soil gas samples from the probes in late winter (~March 2014);
- Prepare summary of results and submit to City and IBP.

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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## **SAMPLING AND ANALYSIS PLAN SOIL GAS SAMPLING FORMER COLUMBUS WOODTREATING SITE REMEDIATION COLUMBUS, INDIANA SEPTEMBER 12, 2013**

### **Background**

The former Columbus Woodtreating site located at 53 Lafayette Avenue operated as a coal and coke processing facility prior to 1903 and wood treating from the 1920s until 1970. The buildings were destroyed by fire in 1971, the buildings were removed and the site was filled with foundry sand. Investigations of the site from 1999 to 2011 identified elevated levels of semivolatile organic compounds (SVOCs), including polynuclear aromatic hydrocarbons (PAHs) and pentachlorophenol (PCP) in soil and groundwater at the site.

Remedial activities were conducted at the former Columbus Woodtreating site in 2012, in accordance with the Remediation Work Plan (RWP), dated March 15, 2012, 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 limited 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 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.

Recent groundwater samples at the monitoring well located nearest the Eynon property (MW-9) indicated naphthalene concentrations in the groundwater are above the IDEM Draft Vapor Intrusion Pilot Program Guidance (2006) groundwater screening levels (and the 2013 Remediation Closure Guide Vapor Intrusion Groundwater Screening Level – RCG VI GWSL). The former guidance specified that if occupied structures are within 100 feet of groundwater in excess of the screening level, then additional action (such as soil gas testing) is needed. The new RCG only recommends further action for petroleum chemicals if free product is within 30 feet of the structure, groundwater in below the building is much higher than the RCG VI GWSL or groundwater in contact with the structure is above the VI GWSL. Thus, further action regarding potential for vapor migration was indicated by the former IDEM guidance but may not be necessary under the newer.

In addition, 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 is unknown.

IDEM has requested that soil gas sampling be conducted. The purpose of this soil gas sampling project is to evaluate in more detail the potential for vapors to migrate from the groundwater into the soils and ultimately into the indoor air at the Eynon property.

## **Method**

A Site Access Agreement will be provided to the property owner requesting site access for a round of soil gas samples on the property. The agreement will be signed by the occupant before any soil gas sampling is conducted.

Sampling and analytical procedures will be conducted in accordance with approved U.S. EPA methods, the IDEM Risk-Integrated System of Cleanup (RISC) and Remediation Closure Guide (RCG) and discussions with IDEM staff. Soil gas samples will be analyzed for volatile organic compounds (VOCs) in accordance with the US EPA method TO-15 and the RCG on Exterior Soil Gas (SGe) Sampling.

As per IDEM guidance, two permanent SGe sample points will be driven within 5 feet of

the building's foundation to a depth of 5 feet below the basement slab using direct-push probe methods. Two SGe samples will be collected from the upgradient side the Eynon building, spread as far apart as possible. One of the sample locations will be placed at the southeast corner of the building nearest MW-9. Immediately after the points are installed and sealed, the volume of air in the sand pack will be calculated and approximately three times the calculated volume of air will be slowly purged using a large graduated syringe or hand-operated vacuum pump. Sampling will be conducted no sooner than 48 hours after sample port installation and sand pack purging, to allow subsurface vapors to equilibrate. Prior to sample collection, the internal volume of the sampling apparatus, including the implant screen and the tubing, but excluding the sample container volume and the sand pack volume will be determined. This dead volume of air in the sampling apparatus requires purging prior to sample collection. Approximately three times the dead volume of air will be slowly purged prior to sampling. Purge volumes will be recorded and submitted with the final report.

SGe samples will be collected using 1-liter Summa canisters prepared and provided by Pace Analytical Services, Inc. and are certified clean. The Summa canister will be attached to the sampling apparatus via disposable Teflon or Tygon tubing. A three way valve will be used to isolate the Summa canister from the purge pump, thereby eliminating the possibility of ambient air entering the sampling chain after purging. The start time, ending time, beginning and ending vacuum level (if available) will be recorded for each sample train along with other field observations on a field sampling log sheet. Any deviations or corrections will be noted, as well. Upon completion of sampling time, sample canisters will be capped, labeled and delivered or transported to the lab.

A Summa canister is an airtight, stainless-steel container with an inner surface that has been electro polished and chemically deactivated. The process of chemical deactivation is the "Summa" process. Summa canisters range in volume from 1 liter to greater than 15 liters. The 1-liter canister commonly is used to collect soil gas samples. A laboratory evacuates a Summa canister to a high vacuum (at least -28 inches of mercury (" Hg)). A Summa canister can hold the high vacuum for up to 30 days. The advantage of the Summa canister is that the air being sampled is "drawn" into the canister by the high vacuum thereby eliminating the need for pumps or other powered equipment. A "Flow control valve" is used to control the rate at which an air sample is drawn into a Summa canister. The flow controller, which is stainless steel, typically is adjusted so that the air can be sampled for a predetermined time or flow rate. The sample time used will be 200mL/min for the soil gas samples. Vacuum during sampling should be as low as possible, less than or equal to 10 inches of water, and should not exceed 50 inches of water. A very slow draw rate will improve results where wet or fine-grained soils

necessitate high vacuum.

The IDEM guidance recommends two sample rounds from the SGe sample points; once in the drier late summer season (low water table), and once in the wetter spring season (high water table). Since the groundwater naphthalene concentrations near the building do not exceed the screening guidance, if the initial results are below IDEM RCG screening levels only a single set of soil gas samples will be collected .

Field quality assurance/quality control (QA/QC) sampling procedures will be undertaken for this project as recommended by the RCG, methods and laboratories. A tracer gas/liquid (isopropyl alcohol), will be used during sampling as a quality assurance/quality control measure to verify the integrity of the SGe sample point seals. Leak testing procedures and results will be documented and submitted with the report.

To help determine if the closed geothermal well at the office could still act as a preferential pathway, additional information on the well will be requested. If the well is accessible, it will be inspected to try to confirm if it was sealed.

### **Laboratory Analysis**

Soil gas samples will be analyzed by Pace Analytical of Minneapolis, Minnesota for naphthalene by EPA Method TO-15. Laboratory QA/QC procedures will be documented and the laboratory analytical reports will include full Level IV QA/QC reports.

### **Report**

Observations and data generated by field investigation will be summarized in an electronic format (PDF) or bound report and included with the next Groundwater Monitoring Progress Report for submittal to the Client. 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. The need for additional investigation or remediation will also be discussed, if appropriate.

**Cost**

The estimated costs of performing the proposed services are summarized on the attached table. **The cost of providing these soil gas sampling services is estimated to be approximately \$16,639.00 (assuming two rounds of SG sampling)** which would not be exceeded without approval of the client and would be billed monthly on a time and materials basis per the approved contract fee schedule, including:

VP, Senior Engineer	\$105.00/hr.
Project Mngr/Scientist/Geologist III	\$88.00/hr.
Project Mngr/Scientist/Geologist II	\$81.00/hr.
Project Mngr/Scientist/Geologist I	\$74.00/hr.

Project direct expenses will be charged at cost +10%.

**COST ESTIMATE**  
Bruce Carter Associates, LLC

30-Aug-13

<b>Fmr Columbus Woodtreating - Soil Gas Sampling</b>	<b>\$16,639</b>
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Item Description No.	Quantity	Units	\$/Unit	Subtotal	TOTAL (\$)
<b>Task 1: Soil Gas Sampling - September 2013</b>					<b>\$12,291.96</b>
Task A: Planning, IDEM coordination, meetings, SAP					\$4,385.00
Senior Engineer	25	hr	\$105.00	\$2,625.00	
Pjt Mgr/Geol/Scientist	20	hr	\$88.00	\$1,760.00	
Task B: Field Sampling, preparation, data evaluation, summary					\$5,516.96
Field prep, sampling, handling					\$3,060.00
Senior Engineer	6	hr	\$105.00	\$630.00	
Pjt Mgr/Geol/Scientist	30	hr	\$81.00	\$2,430.00	
Field Expenses					\$100.00
Misc Field Supplies	1	day	\$100.00	\$100.00	
Travel - Mileage (RT=110mi)					\$145.20
Travel - Mileage (RT=110mi)	330	mi	\$0.44	\$145.20	
Subcontracts					\$2,211.76
Probing/SG point installation					\$1,618.98
Analytical Laboratories	1	ea	\$1,618.98	\$1,618.98	
Soil Gas by TO-15	2	ea	\$296.39	\$592.78	
Report					\$2,390.00
Senior Engineer	6	hr	\$105.00	\$630.00	
Pjt Mgr/Geol/Scientist	20	hr	\$88.00	\$1,760.00	
<b>Task 2: Soil Gas Sampling - March 2014</b>					<b>\$4,347.18</b>
Task B: Field Sampling, preparation, data evaluation,					\$2,607.18
Field prep, sampling, handling					\$1,916.00
Senior Engineer	4	hr	\$105.00	\$420.00	
Pjt Mgr/Geol/Scientist	17	hr	\$88.00	\$1,496.00	
Field Expenses					\$50.00
Misc Field Supplies	1	day	\$50.00	\$50.00	
Travel - Mileage (RT=110mi)					\$48.40
Travel - Mileage (RT=110mi)	110	mi	\$0.44	\$48.40	
Subcontracts					\$592.78
Analytical Laboratories					\$592.78
Soil Gas by TO-15	2	ea	\$296.39	\$592.78	
Report					\$1,740.00
Senior Engineer	4	hr	\$105.00	\$420.00	
Pjt Mgr/Geol/Scientist	15	hr	\$88.00	\$1,320.00	