

Via Email

April 21, 2016

Town of Chapel Hill
6850 Millhouse Rd.
Chapel Hill, NC 27516-8173

Attn: Mr. Lance B. Norris, MBA
Director, Public Works Department

Re: Police Department Property
828 Martin Luther King, Jr. Blvd.
Chapel Hill, NC
H&H Job No. TCH-002

Dear Lance:

As requested, we have prepared this letter to address concerns raised by residents regarding the presence of coal combustion residuals (aka coal ash) that were used as structural fill at the Town of Chapel Hill Police Department property located at 828 Martin Luther King, Jr. Blvd. The concerns were included in a bulleted list entitled Chapel Hill Environmental Site Characterization, April 1, 2016 Revision.

The Town of Chapel Hill plans to perform additional assessment along the Bolin Creek Greenway near the Police Department to further evaluate soil conditions along the greenway, evaluate potential short-term risks and mitigation during future greenway construction, and to evaluate potential longer-term risks and mitigation during long term use of the greenway. Until the assessment is completed, the Town has decided not to perform construction along this portion of the greenway and has directed the Contractor currently working on the project to suspend any plans to initiate that portion of the current Bolin Creek Greenway extension project planned for the east side of Martin Luther King, Jr. Blvd.

In February 2016, Falcon Engineering collected seven soil samples along the greenway and near the proposed location of the future greenway. The results of analysis of the samples indicated that, although several metals were detected above North Carolina Department of Environmental Quality (DEQ) Preliminary Soil Remediation Goals (PSRGs), metals concentrations in most samples were consistent with naturally occurring background levels. A comparison of soil sample concentrations detected north and south of the greenway versus typical North Carolina background concentrations for metals detected above DEQ health-based Residential PSRGs and Protection of Groundwater PSRGs is presented below:

Metal	Soil Metal Concentration Range – North Side of Greenway (mg/kg)	Soil Metal Concentration Range – South Side of Greenway (mg/kg)	Range of Background Concentrations in NC Soil (Note 1) (mg/kg)	Mean Background Concentration in NC Soil (Note 1) (mg/kg)	NC DEQ Health-Based Residential PSRG (mg/kg)	NC DEQ Protection of Groundwater PSRG (mg/kg)
Arsenic	6.7 - 24	3.1 – 8.5	1 – 18	4.8	0.68	5.8
Barium	210 – 830	82 - 380	50 – 1,000	356	3,000	580
Chromium	27 - 31	13 - 35	7 – 300	65	(**)	(***)
Cobalt	20 - 28	6.8 - 12	ND – 50	14.2	4.6	0.9
Manganese	1700 – 3,300	240 - 910	8 – 3,394(*)	594(*)	360	65
Selenium	ND – 2.4	ND	ND – 0.8	0.42	78	2.1
Thallium (Note 2)	1.2 – 1.7	ND	2.2 – 23	8.6	0.16	0.28
Vanadium	81 – 95	37 - 54	15 – 300	107	78	6

Notes:

ND = Not Detected

NR = Not Reported

(Note 1) = Source: James Dragun and Khaled Chekiri. 2005. Elements in North American Soils, Second Edition, Amherst Scientific Publishers, except for Thallium

(Note 2) = Thallium background data from Hansford T. Shacklette and Josphine G. Boerngen. 1984. Elements in North American Soils and Other Surficial Materials of the Conterminous United States, USGS Professional Paper No 1270

(*) = NC Data Not Reported; value is for Southeastern US

(**) = 0.3 mg/kg for hexavalent chromium and 24,000 mg/kg for trivalent chromium

(***) = 3.8 mg/kg for hexavalent chromium and 360,000 mg/kg for trivalent chromium

As indicated above, background concentrations of many metals are higher than the PSRGs. For this reason, DEQ does not require remediation of soil to below background levels even if the concentrations exceed PSRGs. Several metals (i.e., arsenic and selenium) were detected above typical naturally occurring background levels in soil samples collected along the north side of the greenway near the existing security fence. This is not surprising given that these samples were reported to be close to coal ash material on the other side of the fence. Metals concentrations were not detected above background levels in the samples from the south side of the greenway where future greenway construction is planned. The Town of Chapel Hill plans to conduct additional assessment to evaluate naturally occurring concentrations of metals in the area of the Police Station for further evaluation of the data collected along the greenway. In addition, the Town plans to evaluate the chromium detections in soil to determine if the chromium is the more toxic form of chromium known as hexavalent chromium or is the relatively non-toxic form of chromium known as trivalent chromium.

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In addition, please note that the DEQ PSRGs are used to screen soil data to determine if additional assessment needs to be performed and are not typically used as final “cleanup” levels or an indicator by themselves of a health concern. The PSRGs are based upon very conservative exposure assumptions. For example, one of the equations used to calculate the Residential PSRGs assumes that a child ingests 200 mg/day of soil for 350 days/year for a six-year period, which is unlikely to occur for occasional visitors along the greenway. DEQ allows determination of final remedial goals based upon the number of compounds detected and the types of exposures expected.

Although assessment of structural fill containing coal ash at the Town of Chapel Hill Police Station property has not been completed, based upon the results of the soil sampling conducted along the Bolin Creek Greenway, we do not believe that there is a significant exposure risk for public use along the existing greenway. Nevertheless, work in the greenway extension on the east side of Martin Luther King, Jr. Blvd. has been suspended pending additional assessment and guidance from the North Carolina Department of Environmental Quality.

With regard to groundwater, the groundwater assessment conducted to date indicates that elevated levels of metals are present below the coal ash fill but do not appear to have migrated to groundwater along the greenway toward Bolin Creek. Additional groundwater assessment and monitoring are planned to further confirm groundwater conditions at the Police Station property.

We appreciate the opportunity to assist with this project. Should you have any questions or need additional information, please do not hesitate to call me at (704) 586-0007.

Very truly yours,

Hart & Hickman, PC



Steven C. Hart, PG
Principal Hydrogeologist