DECISION MEMORANDUM

DATE: July 12, 2017

FROM: Bill Schmithorst

TO: Brownfields Agreement File

RE: Former Chadbourn Mill
451 Jordan Place & 2625 North Davidson Street
Charlotte, Mecklenburg County
BF # 20086-16-060

Based on the following information, it has been determined that the above referenced site, whose intended use is for no uses other than high density multi-family residential, retail uses, office, hotel, warehousing, recreational, open space, and parking, can be made suitable for such uses.

Introduction:
The Brownfields Property is approximately 5.75 acres and it contains a building formerly occupied by a hosiery mill facility with a free-standing building that was occupied by a boiler (Exhibit 1). The property is surrounded by land in commercial, industrial, and residential use; bordered to the north by Charles Avenue and residential uses, to the south by land used for commercial, industrial and residential uses, to the east by N. Davidson Street and a Neese Sausage facility, and to the west by a Duke Power sub-station on N. Brevard Street.

Redevelopment Plans:
Redevelopment plans for the Brownfields Property include high density multi-family residential, retail, office, hotel, warehousing, recreation, brewery, open space, and parking uses following site demolition and regrading activities.

Site History:
North-central portions of the Brownfields Property were developed with residences as early as 1929. By 1938, a portion of the existing mill building was present along N. Brevard Street. Several additions to the mill building including a dye house, machine shop, free-standing boiler building, and smokestack were constructed in the 1940s. A warehouse addition on the northeastern portion of the mill building was completed in the 1960s.

The current building on the Brownfields Property was initially occupied by Rufus D. Wilson, Inc. and operated as a hosiery mill from the mid to late 1930s until the mid-1940s. In the mid-1940s, the Rufus D. Wilson company acquired Larkwood Silk Hosiery Mills, Inc. and changed the name of the mill to Chadbourn Hosiery Mill, Inc. In the mid-1950s, Chadbourn Mill acquired Gotham Hosiery mill and changed its name to Chadbourn-Gotham Mill, Inc. Chadbourn-Gotham Mill continued hosiery manufacturing

operations at the Site until the mid to late 1970s. Since that time, the mill building was used for warehouse space and storage. Opera Carolina utilized portions of the building for a short time in the 2010s. The mill building is currently unoccupied.

North-central and northeastern portions of the Brownfields Property were developed with residences and mill administrative offices from the 1930s until the mid to late 1970s. By the 1980s, structures in north-central and northeastern portions of the Brownfields Property had been removed. The eastern and southeastern portions of the Brownfields Property were developed with residences from the late 1930s to the early 1980s when the residences were removed. The parcel in the northeastern portion of the Brownfields Property was most recently utilized by a construction contractor for storage of equipment and materials. The eastern half of the Brownfields Property is currently vacant undeveloped land.

The Prospective Developer purchased the Brownfields Property in December 2015. The 451 Jordan Place parcel containing the mill building was purchased from Wellmon Family, LP, and the smaller vacant 2625 N. Davidson Street parcel was purchased from 2625 N. Davidson, LLC.

Potential Receptors:
Potential receptors are: construction workers, on-site workers, residents, customers, vendors, and trespassers.

Contaminated Media:
DEQ has evaluated data collected from the following media at the subject property: soil, soil-gas, and groundwater. A summary of highest detections exceeding screening levels is provided in Exhibit 2. DEQ relies on the following data to base its conclusions regarding the subject property and its suitability for its intended reuse. Refer to the following reports for site specific data used for evaluation of site risks.

Title	*Prepared by*	*Date of Report*
Supplemental Soil Assessment Activities, Chadbourn Mill, 451 Jordan Place & 2625 N. Davidson Street	Hart & Hickman	May 9, 2017
Brownfields Assessment Report, Chadbourn Mill, 451 Jordan Place & 2625 N. Davidson Street	Hart & Hickman	February 17, 2017
Phase I and II Environmental Site Assessment Report, Former Chadbourn Mill, 451 Jordan Place	Hart & Hickman	November 9, 2016
Limited Site Investigation Report, Chadbourn Mill, 451 Jordan Place	Terracon Consultants, Inc.	September 7, 2016
Phase I Environmental Site Assessment, Wellmon – 751 Jordan Place, Charlotte, NC	Summit Engineering and Construction Services, Inc.	September 1, 2015
Phase I Environmental Site Assessment, UCI, LLC Property – 2625 N. Davidson Street, Charlotte, NC	Danner Enterprises, LLC t/a Salem Environmental	March 31, 2015
Limited Soil Sampling and Analysis – 2625 N. Davidson Street, Charlotte, NC	Boyle Consulting Engineers	December 30, 2014

Soil
Six soil samples and two background soil samples were collected on September 30, 2016. Each sample was analyzed for VOCs (EPA Method 8260B), SVOCs (EPA Method 8270D) and Metals (EPA Methods 6010D/7471B/7196A). Soil samples were screened in the field for VOCs from ground surface to the final boring depth using a PID, and soil samples were submitted for laboratory analysis from the boring interval showing the highest PID reading or visual evidence of potential contamination. Soil contaminants above residential screening levels include: arsenic, lead, manganese, and thallium. As shown in the table below, the highest concentrations detected were above the calculated Hazard Index of 1.

Groundwater
Groundwater samples were collected from three temporary wells TMW-1 and TMW-3 on September 30, 2016 and TMW-2 on October 3, 2016. Additional groundwater samples were collected from temporary monitoring well TMW-4 on January 27, 2017. Each of the samples was submitted to a laboratory for analysis of VOCs (EPA Method 8260B), SVOCs (EPA Method 8270D) and Metals (EPA Methods 6020A-B/7470A). Groundwater contaminants above the NCAC 2L Standard include: bromodichloromethane, manganese, and trichloroethene. As shown in the table below, the highest concentrations were above the calculated Hazard Index of 1.

Sub-Slab Soil Vapor
Two sub-slab samples (SV-02 and SV-03) were collected from the mill building and one sub-slab sample (SV-01) was collected from the boiler building on September 28, 2016. Each sample was submitted for laboratory analysis of VOCs by USEPA Method TO-15. Sub-slab soil vapor contaminants detected above IHSB Residential Screening Levels include: Trichloroethylene, 1,4-Dichlorobenzene, and Naphthalene. As shown in the table below, the highest concentrations were above the calculated Hazard Index of 1.

Soil Vapor
Soil vapor samples were collected on September 29, 2016 from six vapor monitoring points located within the footprint of the proposed mixed-use buildings and were submitted for laboratory analysis of VOCs by USEPA Method TO-15. Soil vapor contaminants detected above IHSB Residential Screening Levels include: Benzene, Chloroform, Ethylbenzene, Hexane, Naphthalene, Tetrachloroethene, Trichloroethylene, 1,2,4-Trimethylbenzene, Xylenes. As shown in the table below, the highest concentrations were below the calculated Hazard Index of 1.

Indoor Soil Vapor
Two indoor air samples were collected from the mill building (IAS-2 and IAS-3) on January 27, 2017 and one indoor air sample (IAS-1) was collected from the boiler building. Indoor air soil vapor contaminants detected above IHSB Residential Screening Levels include Naphthalene which was detected in the mill building. As shown in the table below, the highest concentrations were below the calculated Hazard Index of 1.

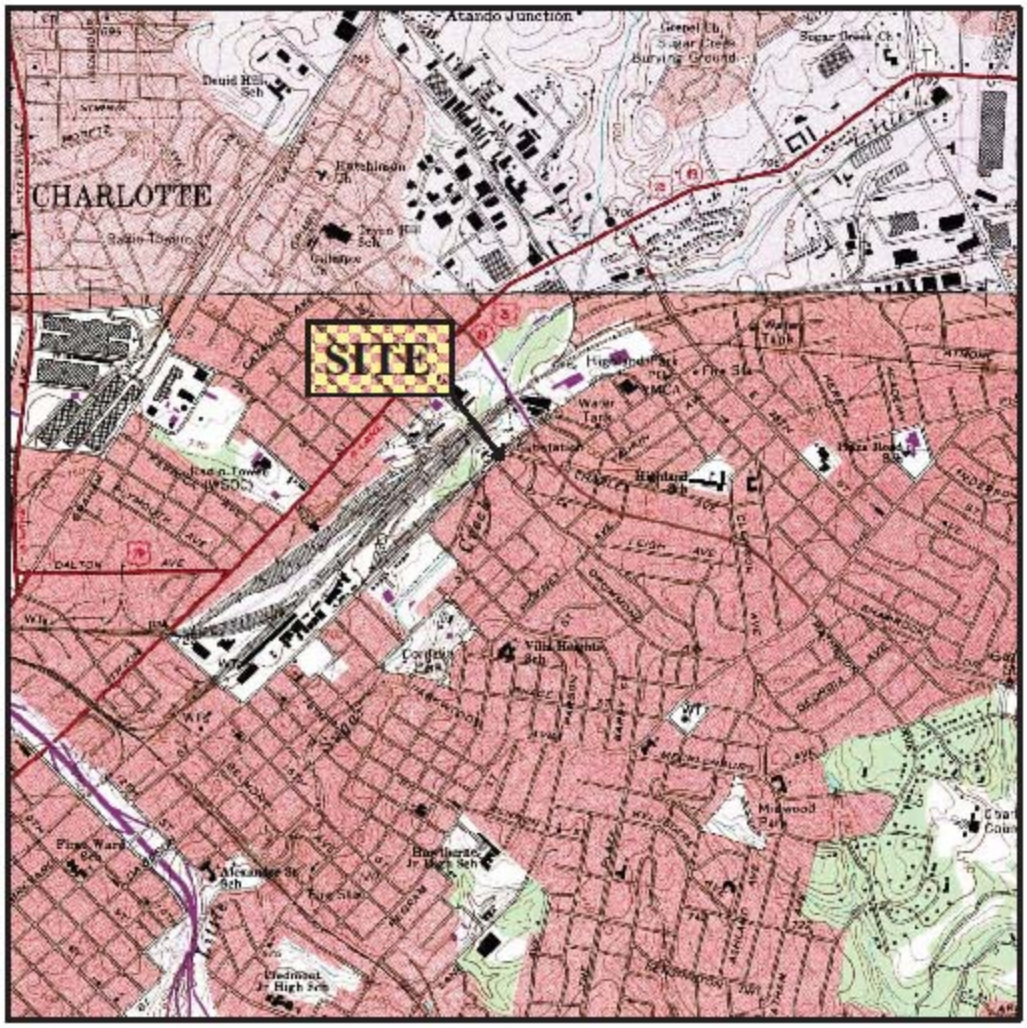
Risk Calculations
Risk Calculations were performed using Excel worksheets provided by Sandy Mort, NCDEQ Brownfields Toxicologist. The risk calculations indicated the following based on available data, including the following media: groundwater, subsurface residual soil, soil gas, and indoor air:

PRIMARY CALCULATORS				
Receptor	**Pathway**	**Carcinogenic Risk**	**Hazard Index**	**Risk exceeded?**
Resident	Soil Combined Pathways	5.3E-06	2.5E+00	YES
	Groundwater Combined Pathways	1.5E-04	9.8E+00	YES
Non-Residential Worker	Soil Combined Pathways	1.0E-06	1.7E-01	NO
	Groundwater Combined Pathways	1.3E-05	1.9E+00	YES
Construction Worker	Soil Combined Pathways	3.0E-07	1.4E+01	YES
VAPOR INTRUSION CALCULATORS				
Receptor	**Pathway**	**Carcinogenic Risk**	**Hazard Index**	**Risk exceeded?**
Resident	Groundwater to Indoor Air	2.7E-05	2.1E+00	YES
	Soil Gas to Indoor Air	1.8E-05	2.4E-01	NO
	Indoor Air	3.3E-06	1.8E-01	NO

The mediums affected include groundwater, groundwater to indoor air, soil vapor, and subsurface soil. The groundwater, groundwater to indoor air and soil vapor risk drivers are primarily related to TCE detected in groundwater. No TCE was detected in soil or indoor air. The risk driver for subsurface soil is Manganese due to the risks related to construction workers from soil dust generation. Manganese was also detected at elevated concentrations in site specific background subsurface soil samples collected near the property boundary. The PD is proposing to add appropriate vapor mitigation systems to buildings constructed onsite to proactively address potential vapor intrusion issues. In addition, the PD will add appropriate dust control measures to address potential exposure to manganese during construction.

Required Land Use Restrictions:
Based on the site-specific data provided to the Brownfield program, the site reuse is suitable for high density multi-family residential, retail, office, hotel, brewery, warehousing, recreation, open space, and parking, as-long-as the agreed upon land use restrictions in the BFA are abided by.

1. No use other than for definitions for Hotel, Open Space, High Density Residential, Retail, Warehousing, Recreation, Commercial and Parking.
2. No groundwater use
3. No disturbing soil without DEQ approval or for landscape/mowing/pruning/repair of underground infrastructure (written notice to DEQ)/work for EMP.
5. Soil Import/Export.
6. No new buildings until DEQ says indoor air is safe/no VI issues/VI protection installed.
8. EMP
9. Access to Brownfields Property for environmental assessment.
10. NBP reference in deed
11. No contaminants on property except for de minimis amounts, fluid in vehicles, fuels for generators/equipment
14. LURU submission January 1st



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APPROXIMATE
0 2000 4000
SCALE IN FEET

U.S.G.S. QUADRANGLE MAP

CHARLOTTE EAST, NORTH CAROLINA 1991

QUADRANGLE
7.5 MINUTE SERIES (TOPOGRAPHIC)

TITLE	**SITE LOCATION MAP**
PROJECT	FORMER CHADBOURN MILL 451 JORDAN PLACE CHARLOTTE, NORTH CAROLINA
hart hickman SMARTER ENVIRONMENTAL SOLUTIONS	2923 South Tryon Street Suite 100 Charlotte, North Carolina 28203 704-586-0007 (p) 704-586-0373 (f)
DATE: 10-19-16	REVISION NO: 0
JOB NO: FAI-028	FIGURE: Exhibit 1

Exhibit 2

The most recent environmental sampling at the Brownfields Property reported in the Environmental Reports occurred in January 2017. The following tables set forth, for contaminants present at the Brownfields Property above unrestricted use standards or screening levels, the concentration found at each sample location, and the applicable standard or screening level. Screening levels and applicable standards are shown for reference only and are not set forth as cleanup levels for purposes of this Agreement.

GROUNDWATER

Groundwater contaminants in micrograms per liter (the equivalent of parts per billion), the standards for which are contained in Title 15A of the North Carolina Administrative Code, Subchapter 2L (2L), Rule .0202, (April 1, 2013 version):

Groundwater Contaminant	Sample Location	Date of Sampling	Concentration Exceeding Standard (µg/L)	Standard (µg/L)
Bromodichloromethane	TMW-1	9/30/2016	0.80	0.6
Bromodichloromethane	TMW-3	9/30/2016	0.96	0.6
Manganese	TMW-2	10/3/2016	2,500	50
Manganese	TMW-3	9/30/2016	94	50
Trichloroethene	TMW-2	10/3/2016	11	3

SOIL

Soil contaminants in milligrams per kilogram (the equivalent of parts per million), the screening levels for which are derived from the Preliminary Residential Health-Based Soil Remediation Goals of the Inactive Hazardous Sites Branch of DEQ's Superfund Section (October 2016 version):

Soil Contaminant	Sample Location	Depth (ft)	Date of Sampling	Concentration Exceeding Screening Level[1] (mg/kg)	Residential Screening Level[2] (mg/kg)
Arsenic	SB-2	8-10	9/30/2016	0.69	0.68
Arsenic	SB-3	2-4	9/29/2016	2.9	0.68
Arsenic	SB-4	7-9	9/30/2016	0.97	0.68
Arsenic	BKG-1	3-3.5	9/29/2016	2.0	0.68
Arsenic	BKG-2	3-3.5	9/29/2016	1.2	0.68
Manganese	SB-1	5-7	9/29/2016	1,600	360
Manganese	SB-2	8-10	9/30/2016	2,800	360
Manganese	SB-4	7-9	9/30/2016	1,300	360
Manganese	SB-5	1-3	9/30/2016	1,400	360

Soil Contaminant	Sample Location	Depth (ft)	Date of Sampling	Concentration Exceeding Screening Level[1] (mg/kg)	Residential Screening Level[2] (mg/kg)
Manganese	SB-6	2-4	1/27/2017	1,000	360
Manganese	BKG-1	3-3.5	9/29/2016	590	360
Manganese	BKG-2	3-3.5	9/29/2016	370	360
Thallium	SB-2	8-10	9/30/2016	0.63	0.156
Thallium	BKG-1	3-3.5	9/29/2016	0.16	0.156
Thallium	BKG-2	3-3.5	9/29/2016	0.23	0.156
Total Petroleum Hydrocarbons (Diesel)	SS-5	1-2	12/17/2014	480	100[3]

[1] Concentrations of arsenic, manganese, and thallium detected in soil samples collected at the Brownfields Property may be naturally occurring.

2 Screening levels displayed for non-carcinogens are for a hazard quotient equal to 0.2. Screening levels displayed for carcinogens are for a 1.0E-6 lifetime incremental cancer risk.

3. 100 mg/kg is the DEQ UST Section action level for TPH DRO. An additional soil sample (SS-2A) was collected from the general location of SS-5 on April 6, 2017 and analyzed by EPA Method 8270D. There were no detections of SVOCs above screening levels.

SUB-SLAB SOIL VAPOR

Sub-slab vapor contaminants in micrograms per cubic meter, the screening levels for which are derived from the Residential Vapor Intrusion Screening Levels of the Division of Waste Management (October 2016 version):

Sub-slab Soil Vapor Contaminant	Sample Location	Date of Sampling	Concentration Exceeding Screening Level ($\mu g/m^3$)	Residential Screening Level[1] ($\mu g/m^3$)
Trichloroethylene	SV-01	8/10/2016	9,100	13.9
Trichloroethylene	SV-01	9/28/2016	2,500	13.9
1,4-Dichlorobenzene	SV-03	9/28/2016	170	85.1
Naphthalene	SV-02	9/28/2016	34	20.9
Naphthalene	SV-03	9/28/2016	6,000	20.9

[1]Screening levels displayed for non-carcinogens are for a hazard quotient equal to 0.2. Screening levels displayed for potential carcinogens are for a 1.0E-5 lifetime incremental cancer risk.

SOIL VAPOR

Soil vapor contaminants in micrograms per cubic meter, the screening levels for

which are derived from the Residential Vapor Intrusion Screening Levels of the Division of Waste Management (October 2016 version):

Soil Vapor Contaminant	Sample Location	Date of Sampling	Concentration Exceeding Screening Level ($\mu g/m^3$)	Residential Screening Level[1] ($\mu g/m^3$)
Benzene	VMP-1	9/30/2016	1,900	120
Chloroform	VMP-1	9/30/2016	270	40.7
Ethylbenzene	VMP-1	9/30/2016	390	374
Hexane	VMP-1	9/30/2016	12,000	4,870
Naphthalene	VMP-1	9/30/2016	200	20.9
Tetrachloroethene	VMP-1	9/30/2016	400	278
Trichloroethylene	VMP-1	9/30/2016	230	13.9
1,2,4-Trimethylbenzene	VMP-1	9/30/2016	230	48.7
Xylene, m- & p-	VMP-1	9/30/2016	1,200	695

[1]Screening levels displayed for non-carcinogens are for a hazard quotient equal to 0.2. Screening levels displayed for potential carcinogens are for a 1.0E-5 lifetime incremental cancer risk.

INDOOR AIR

Indoor air contaminant screening levels in micrograms per cubic meter, the screening levels for which are derived from the Residential Vapor Intrusion Screening Levels of the Division of Waste Management (October 2016 version):

Indoor Air Contaminant	Sample Location	Date of Sampling	Concentration Exceeding Screening Level ($\mu g/m^3$)	Residential Screening Level[1] ($\mu g/m^3$)
Naphthalene	IAS-3	1/27/2017	3.0	0.626

[1]Screening levels displayed for non-carcinogens are for a hazard quotient equal to 0.2. Screening levels displayed for potential carcinogens are for a 1.0E-5 lifetime incremental cancer risk.