

EXECUTIVE SUMMARY

EnSafe Inc. conducted a Phase I Environmental Site Assessment (ESA) of Tax Parcel 041001 00089 at 0 Nedra Avenue (subject property) in Memphis, Shelby County, Tennessee. The Phase I ESA was conducted in support of the Wolf River Brownfields Assessment Project for the Shelby County Division of Planning and Development and the subject property owner, Family Farmers Cooperative, which plans to redevelop the subject property into an urban garden. A Phase I ESA is an integral part of all appropriate inquiry (AAI), as codified in Title 40 Code of Federal Regulations Part 312, into the previous ownership and uses of the property consistent with good commercial or customary practice. The ASTM International Standard E 1527-05 is the industry standard used to comply with the AAI requirements.

SIGNIFICANT FINDINGS

Site Location, Description, and Current Uses

The 1.14-acre rectangular subject property is a grassy and wooded parcel with no structures. The property does not have direct access from any roadways but can be accessed by walking west from May Street through a vacant lot and May Street Park or via north- and east-adjoining residences. A wooded area, along the central portion of the east property boundary, was observed littered with debris.

Site History

Historical sources reviewed indicate the subject property was part of a larger parcel of undeveloped land south of Nedra Avenue and west of May Street until the late 1930s. The subject property was part of a larger parcel of grassy land at the west (unfinished) end of the Homeland subdivision (Hyde Park Neighborhood). By the late 1940s, the subject property and surrounding land, as well as the east side of what is now Kilowatt Lake, had been heavily graded. The 1958 aerial photograph shows what appears to be a foot path or drainage feature extending south from an undeveloped parcel fronting Nedra Avenue, crossing the subject property, and turning east toward May Street and Clarksdale Avenue with what appear to be structures (sheds) along the east border of the unfinished University Place and University Street.

City directories from 1932 to 2008 do not list an address for the subject property off Nedra Avenue, May Street, or University Street. The 1965 and 1971 aerial photographs show what appear to be gardens in north portions of the subject property; the remainder of the subject property was grassy with localized vegetation and mature trees (replacing the shed-type structures observed in 1958). By 1977, gardening appeared to have ceased, tree growth had increased in the wooded portion of the subject property, and several foot paths/bare areas crossed the subject property between North McLean Boulevard and May Street. In the 1992 aerial photograph, a clearly defined footpath extended south from near the north property boundary and turns east toward Clarksdale Avenue; that footpath remained evident in the 1994 and 1997 aerial photographs.

The 2003 through 2011 aerial photographs and views show the subject property similarly to how it appeared during EnSafe's site visit — grassy and partially wooded. Planted gardens were visible in 2006 and 2010, which is consistent with recent uses reported by the subject property owner

representative, Andre Mathews. Mr. Mathews did not provide information related to past pesticide or herbicide used on the various gardened portions of the subject property.

Site Observations

Solid waste, litter, and debris scattered in the wooded area included various metal and plastic items such as empty and rusted metal containers (labeled as paint cans, brake fluid, and antifreeze), tires, household appliances and televisions, vehicle canister-type air filters, miscellaneous wood material (fencing), building materials (asphalt shingles), and general trash. Certain plastic and metal debris appeared to be miscellaneous parts and pieces from discarded appliances. No odors or staining were observed around the former hazardous substance and petroleum product containers.

Adjoining and Surrounding Area Properties

The subject property is in a residential subdivision in north Memphis. Residences that front Nedra Avenue adjoin the subject property to the north and the 30-acre May Street Park property adjoins the subject property to the east, south, and west. Residences extend approximately 650 feet north and over 1 mile east of the subject property within the Hollywood Community — Hyde Park Neighborhood. Commercial operations (gas stations, restaurants, and small businesses) are along Chelsea Avenue, which is 0.3 mile to the south. North McLean Boulevard is approximately 500 feet west of the subject property, beyond which is a 6.6-acre vegetated parcel owned by the City of Memphis. Ferrell Properties/Ferrell Paving owns several parcels totaling over 400 acres west of North McLean Boulevard and south of the Wolf River, including Sand Pit Lake and Kilowatt Lake, on which Metro Materials operates a construction sand and gravel plant. Metro Materials/Ferrell Paving does not maintain an air operating permit at this location; operations are expected to emit particulates with the potential to settle on the subject property via air dispersion.

Several uncontrolled dumping sites, unpermitted landfills, and other commercial/light industrial facilities within 1 mile are undergoing investigation and/or remediation under the purview of the USEPA and/or TDEC for soil, sediment, and/or groundwater contamination. Regulatory files reviewed and interviews with state agency personnel did not indicate releases from those facilities have migrated to the subject property.

ENVIRONMENTAL PROFESSIONAL OPINION

This Phase I ESA has not identified evidence of a *recognized environmental condition*¹. The following *business environmental risks*² are associated with the subject property.

The various hazardous substance and petroleum product containers disposed of onsite were empty and no odors or staining was observed, although the heavily vegetated condition of the disposal area may have limited EnSafe's ability to identify evidence of a release. Historical aerial

¹ ASTM International defines a *recognized environmental condition* as "the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater, or surface water of the property. The term includes hazardous substances or petroleum products even under conditions in compliance with laws.

² *Business environmental risks* are those that may have a material environmental or environmentally driven impact on the business associated with the current or planned use of a parcel or commercial real estate.

photographs do not indicate evidence (pits, vehicle trails leading to the area) of large-scale subsurface burial or disposal but the vertical extent of debris could not be determined based on visual observations. The types of materials observed in this area appear to be a result of random disposal from households. Mr. Mathews future use plans do not involve this area; however, to mitigate potential *business environmental risk*, EnSafe recommends clearing vegetation, sorting and characterizing debris to determine disposal options, and visual observations of the underlying ground surface to identify buried debris and/or evidence of releases. Information obtained during those activities will determine the necessity for and type of environmental media sampling. Based on the containers' original labeling, possible contaminants of concern (COCs) include semi-volatile organic compounds (SVOCs)/petroleum hydrocarbons, metals, asbestos, and volatile organic compounds (VOCs).

The potential for accumulation of particulate matter from current and historical sand and gravel dredging and manufacturing operations within 600 feet of the subject property poses a *business environmental risk* associated with the proposed future use (growing food for human consumption). EnSafe recommends additional research to confirm COCs from Metro Materials' operations with the intention of collecting surface and shallow subsurface soil samples in areas to be gardened.

DATA GAPS, LIMITATIONS, AND EXCEPTIONS

The following limitations and exceptions noted by EnSafe during this assessment are considered data gaps that may have limited EnSafe's ability to identify *recognized environmental conditions*.

- Lack of former owner(s) and occupant(s) available to interview to provide information related to the material disposed of onsite and use of pesticides and herbicides from gardening
- Heavy vegetative growth covering debris onsite limited EnSafe's ability to observe the extent (depth) of disposed material and/or make observations of evidence of releases (staining, odors, etc.)

PHASE II ENVIRONMENTAL SITE ASSESSMENT

The following summarize what specific activities a Phase II ESA of the subject property may entail based on the Phase I ESA findings; corresponding cost estimates³ and timeframes for conducting the Phase II ESA are included.

Work Plan \$1,500

Additional Site Research (14 days) \$500

Conduct additional research and records review to determine if additional (historical) data is available for surrounding area facilities, including Metro Materials, and to confirm suspected COCs.

³ This cost estimate has been prepared using rates and fees specific to EnSafe's contract with the Shelby County Division of Planning and Development for the Wolf River Brownfields Assessment Project. This general cost estimate has been prepared for informational purposes only. An updated cost estimate should be prepared once a final scope of work is determined by all involved parties.

Subsurface Investigation (60 days) \$15,000

The subsurface investigation, involving hand-auger borings for soil sampling, would be designed to focus on surface and shallow subsurface impacts from (1) discarded items on the subject property, (2) past gardening, and (3) potential dispersion of particulate matter from nearby Metro Materials. Corresponding COCs are (1) VOCs, SVOCs/petroleum hydrocarbons, metals, and asbestos; (2) particulate matter and metals; and (3) pesticides and herbicides.