EXECUTIVE SUMMARY

EnSafe Inc. conducted a Phase I Environmental Site Assessment (ESA) of Tax Parcel 083021 00054 (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 Wolf River Conservancy (WRC), a potential purchaser who plans use the property as part of a greenway trail and outdoor environmental classroom activities. 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 (ASTM) Standard E 1527-05 is the industry standard used to comply with the AAI requirements.

SIGNIFICANT FINDINGS

Site Location, Description, and Current Uses

The 66.09-acre vacant subject property at 2630 Epping Way is in a primarily residential area of Raleigh, a suburban community in north-central Memphis designated by the 38128 ZIP code. Raleigh is bordered on the west by the community of Frayser, on the east by the city of Bartlett, on the south by the Wolf River and north loop of I-40, and on the north by the Memphis city limits.

Site History

The subject property was part of a larger parcel of land owned by private individuals from at least 1898 to the 1960s. During that time, most of the parcel was wooded with portions under cultivation and/or fields interspersed with lush vegetation and trees. In 1948, Berry Brooks purchased over 200 acres, which included the subject property, and used the land to keep peacocks and raise cattle in addition to residing at Epping Forest Manor, the name of Mr. Brooks' estate. When he retired in 1972, Mr. Brooks sold most of his property — bound on the north by James Road, on the west by Highland Street, and on the east and south by the Wolf River — for a planned community development of residences and commercial properties.

Soil was borrowed from the portion of the subject property that is now a lake and, by 1974, the Epping Forest Club (country club) parking lots, tennis courts, swimming pool, and clubhouse were under construction. By the late 1970s, the country club was fully developed and the borrow area had filled with water. The country club ceased operating by the early 1980s and the property owners defaulted on a loan, causing the subject property to be sold by public auction in 1990. From the 1980s until 2007, when the property was donated to the Memphis City Schools (MCS) Board of Education, former improvements deteriorated and unauthorized dumping occurred. In 2007, MCS razed the former country club building, removed scrapped cars, tires, shingles, and junk that had been dumped onsite, and hauled all the material offsite for disposal. MCS then secured the facility from future dumping by installing gates and soil berms to prevent vehicle access and filled the swimming pool with soil; the concrete was not removed.

Current Development

Remnants of the former country club remaining onsite and observed during EnSafe's site visit were Epping Way Drive and turnabout, the clubhouse foundation, the tennis court base and fencing, light poles, metal and polyvinyl chloride (PVC) pipes, a fire hydrant, and wood. During the

site visit, EnSafe observed evidence of recreational users including a make-shift boat, fire pits, fishing equipment, all-terrain vehicle tracks, and food and beverage containers. EnSafe did not observe hazardous substances or petroleum product containers, storage tanks, pools of liquid, pits, odors, or staining. Various metal and PVC piping observed appeared to have been discarded (as opposed to part of an in-ground tank). The water in the lake was not turbid nor was there any sheen or discoloration observed.

There were no indications of solid waste burial or burning observed during the site visit. Miscellaneous containers, construction and demolition debris, and household trash were observed sporadically throughout the property with most concentrated around the former country club and west side of the lake (formerly accessible by vehicle from Epping Way Drive). Those materials included: roof shingles, pieces of wood, 5-gallon metal and plastic buckets, tires, bricks, plastic gallon jugs, a propane gas cylinder, and chairs. All containers observed were deteriorated (e.g., rusted and/or crushed), empty, and partially covered by leaves or vegetation. In addition, several piles of soil encased in/covered by sod netting were also observed onsite near the former tennis courts; the source of the soil was unknown. According to MCS representatives interviewed, the debris and materials observed onsite were likely disposed of since MCS' demolition and cleanup. From 2007 through 2011, the tennis courts and paved areas (driveway, turnabout, parking areas/building aprons) were the only remaining improvements; the pavement continued to deteriorate and become overgrown, and the entire property continued to become more heavily vegetated and densely wooded.

The central feature of the subject property is an approximately 20-acre oxbow-shaped lake that was excavated as a borrow pit on the subject property in the early 1970s and the material used to develop the north-adjoining apartment complex and to support widening and channeling of, and constructing levees (spoil banks) along, the nearby Wolf River. At their nearest points under normal conditions, the lake and the Wolf River are 150 to 200 feet apart. During periods of heavy flooding (such as in May 2011 when only the tops of trees, Epping Way Drive, the turnabout, and clubhouse foundation were above water) the Wolf River overflows onto the subject property and co-mingles with the water in the lake. In addition, the lake receives storm water runoff via a corrugated pipe from a north-adjoining retention pond that serves the Jamesbridge Apartment complex.

The Wolf River is listed on the Tennessee Department of Environment and Conservation (TDEC) Division of Water Pollution Control Final Year 2010 303(d) List of impaired streams. The 12.8-river-mile segment that adjoins the subject property is considered a Category 5 stream (one or more uses impaired) due to polychlorinated biphenyls (PCBs), chlordane, and dioxin from contaminated sediments; mercury from atmospheric deposition; lead from hazardous waste sites; and sedimentation/siltation, phosphorus and/or Escherichia coli from channelization and/or discharges from municipal separate storm sewer systems. This segment has been issued a fishing advisory.

Asbestos-Containing Material, Lead-Based Paint, and PCBs

Information regarding demolition of residential structures constructed during Mr. Brooks' ownership in the 1940s was not reasonably ascertainable (i.e., readily available and practically reviewable)

within the scope of this Phase I ESA. Any demolition debris that remains onsite from early residential development may contain asbestos or lead-based paint (LBP). EnSafe did not observe remnants of residential-type structures or demolition debris during the site visit but the densely wooded and heavily vegetated condition of the property may have limited visual observations.

Based on the construction dates (early to mid-1970s) of former structures associated with the country club, they were likely built using asbestos-containing material (ACM) and/or painted with LBP. MCS Facilities Support personnel inspected the clubhouse for suspect ACM, which consisted of a linoleum (roll-type) floor covering; samples of the linoleum did not contain asbestos. MCS personnel confirmed that they demolished the building, hauled the demolition debris offsite for disposal, and filled the swimming pool with soil.

Until 1979, when they were phased out of production, PCBs were used in many products including swimming pool construction materials (e.g., caulks for the pool's expansion joints and concrete decks, and paint used to coat pool surfaces and decking). Although applicable regulations do not require owners to test building materials, the disposal of PCB-containing material is regulated. In addition, PCBs can also leach out of the original construction material (such as caulking) into surrounding concrete and/or soil. PCBs may have been used in the Epping Forest Club swimming pool's construction material because it was installed prior to 1979. The pool was filled with soil circa 2007 and the surrounding concrete apron has become overgrown with vegetation.

Regulatory Research

Standard and additional federal, state, and local environmental records sources were researched for the subject property and surrounding area properties within ASTM-defined approximate minimum search distances using a commercial service, through independent research of Internet databases, review of TDEC files available at the Memphis Environmental Field Office (EFO), interviews with regulatory personnel, and Freedom of Information Act requests to local and state government agencies. Regulatory information identified no records of reported releases or threatened releases to the subject property; activities, conditions, or incidents likely to cause or contribute to releases or threatened releases; or subject property addresses or prior occupants on regulatory databases or tracking systems, or with environmental regulatory permits.

Surrounding Area Properties

The subject property is bordered on the north by The Lantern Apartments and Jamesbridge Apartments; on the west by parcels of woods, fields, and cultivated land; and on the east and south by undeveloped land along the banks of the Wolf River, Austin Peay Highway, and I-40. Surrounding area properties are primarily residential (single family homes and apartment complexes) and retail (automobile dealerships and related businesses, restaurants, contractors, small businesses, gas stations/convenience stores, and strip shopping centers). Regulatory research identified facilities on environmental databases, with reported releases, and/or with permits or other environmental records within 1 mile of the subject property. Review of available files at the TDEC Memphis EFO for those facilities — unauthorized solid waste dump sites and active gas stations that have reported releases from leaking underground storage tanks (LUST)

— does not indicate contaminants at those facilities have migrated to the subject property. The LUST sites were either issued clean closure/no further action, or remain under investigation and monitoring regulated by TDEC and covered by the state petroleum fund. In addition, the direction of groundwater flow at those sites transported contaminants away from the subject property.

CONCLUSIONS AND ENVIRONMENTAL PROFESSIONAL OPINION

This Phase I ESA has identified *recognized environmental conditions*[1] and *business environmental risks*[2] associated with the subject property, as follows.

Based on the intended use of the subject property for recreational purposes, overflow of water from the Wolf River (a Category 5 stream with a fishing advisory) that co-mingles with water in the subject property lake is considered a *recognized environmental condition.* EnSafe recommends surface water and sediment sampling to establish a baseline of contaminants in the lake and a risk assessment to ensure suitability for future use, which may include direct contact and fishing, and determine the need for continued monitoring after periods of heavy rain that causes the Wolf River to overflow onto the subject property.

Solid waste material — including construction or demolition debris, remnants of former structures, and discarded items — encountered during redevelopment and reuse may contain asbestos, the onsite disposal of which constitutes a *recognized environmental condition.* EnSafe recommends sampling material suspected of containing asbestos prior to purchase to determine appropriate disposal options and to address the potential *business environmental risk* associated with liability and costs of disposal.

The potential for PCBs to have been used in the swimming pool's construction materials poses a *business environmental risk* if future use of the subject property involves excavation and disposal of the concrete and/or underlying/surrounding soil. Exposure to PCB-containing material from the swimming pool associated with the planned use for the site is mitigated because it has been filled and covered with soil and vegetation.

DATA GAPS, LIMITATIONS, AND EXCEPTIONS

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

- The footpath around the lake was overgrown and indistinguishable in several areas, low areas were flooded, and heavy woods and thick vegetation limited access to and observations of certain portions of the subject property.

[1] ASTM 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.

- The location of original residential structures could not be determined using standard and additional historical resources, Internet research, or interviews; original residential developers and occupants (the Brooks) are deceased.

- Water in the lake limited observations of the base of the former borrow area for evidence of dumping.

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 estimates and timeframes for conducting the Phase II ESA are included.

- Site-specific health and safety plan, sampling plan, and quality assurance project plan — $2,750/14 days

- Waste Characterization (asbestos sampling) to determine disposal options for asphalt roof shingles at various locations throughout the subject property — $2,500/14 days

- Water and sediment sampling in the lake to establish a baseline of contaminants in the lake and a risk assessment to ensure suitability for future use, which may include direct contact and fishing, and determine the need for continued monitoring after periods of heavy rain that causes the Wolf River to overflow onto the subject property — $17,000/60 days