Analysis of Brownfield Cleanup Alternatives

OAK POINTE CENTRE FACILITY

(Former Palm Beach Clothing Factory)

419 Bourne Avenue

Somerset, Kentucky

Prepared for:

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1.0 INTRODUCTION

This document presents the results of an Analysis of Brownfield Cleanup Alternatives (ABCA) for the God's Pantry facility (former Palm Beach Clothing factory) in Somerset, Kentucky. Oakpointe Centre, Inc. (a 501 (c) (3) nonprofit organization) is applying for a U.S. Environmental Protection Agency (EPA) Brownfields Cleanup Grant for the restoration and redevelopment of the site.

The property is located at 419 Bourne Avenue in Somerset, Kentucky in a mixed commercial and residential area. The entire property occupies nearly 6 acres.

The current uses of the majority of immediately adjoining properties are commercial and residential and are identified below:

Direction	Description
Northeast	Haley St, Lake Cumberland District Health Department, Bourne Ave, Somerwoods Nursing and Rehab Center, single-family residences.
Southeast	Bourne Ave, El Tesoro, single-family residences.
Northwest	Broadway St, single family residences, Mound St.
Southwest	Chandler St, New Bethel Baptist Church, single-family residences.

This ABCA includes a discussion of the following:

- Identification and Development of Cleanup Alternatives
  - Description of Current Situation
  - Establishment of Cleanup Objectives
  - Screening of Cleanup Technologies
- Evaluation of Cleanup Alternatives
  - Technical/Environmental/Human Health/Institutional
  - Cost Estimates
- Justification and Recommendation of Cleanup Alternative(s)
  - Technical
  - Environmental
  - Human Health

1.1 Facility Background

The subject property is located at 419 Bourne Avenue in Somerset, Pulaski County, Kentucky. The property consists of one irregular-shaped parcel and is currently developed with two large commercial buildings, identified in this ABCA as the factory building and the warehouse building

The 144,000 square foot factory building was originally built in 1946 and was expanded with the western expansion in 1969. The factory building is constructed of concrete, brick, metal beams, and concrete block with a full basement. The 1969 addition of this building is constructed of a metal frame with metal siding on a concrete slab.

The 30,000 square foot warehouse building was built in 1969 and is constructed of metal beams and metal siding on a concrete slab. The interiors of both the factory building and the warehouse building are typically unfinished, each with limited office space. Both structures have multiple shipping docks and large overhead doors. The portion of the property not under roof consists of asphalt parking lots and limited landscaping and grassy areas.

Planned Re-Use

Palm Beach Clothing closed its doors in 2002 and the property was returned to the people of Pulaski County. It was subsequently leased for cardboard manufacturing, but by the Fall of 2020, was shuttered again and left vacant.

The intention is for the building to be renovated for an expansion of God's Food Pantry's community service operations. God's Food Pantry has a 40-year history of community service, currently providing 80,000 food service visits each year to individuals and families in need. The nonprofit organization (Oakpointe Centre) behind the property revitalization effort plans to redevelop the site to include several entities including an expansion of the food pantry/distribution capabilities along with a clothing center, life-skills education center, financial education center, medical clinic, addiction services, shower facilities for the homeless, and other activities/entities dedicated to the mission of moving poverty-stricken families forward in their lives.

A site location map is provided in **Figure 1** and an aerial photograph depicting the site and surrounding property use is provided in **Figure 2**.

1.2 Phase I Findings

LFI's Phase I Environmental Site Assessment of the property (LFI 2022) identified the fact that, due to the age of construction and certain observed components of the building structures, asbestos containing material (ACM) and lead-based paint (LBP) may be present in some areas of the on-site buildings at concentrations requiring mitigation prior to future redevelopment. ACM and LBP surveys were conducted. Results, outlined in the following sections, confirmed the presence of both.

1.3 Asbestos-Containing Materials (ACM) Survey Results

On September 7, 2022, an ACM survey of both the factory building and warehouse building was conducted by Chase Environmental Group, Inc. The survey was conducted to identify ACM throughout the interior and exterior of the aforementioned structures. The ACM survey was performed by a Kentucky accredited building inspector, in general accordance with a sampling protocol appropriate for the renovation or demolition of existing structures. The sampling protocol was modeled after EPA regulation 40 CFR 763. As defined by the EPA, materials containing asbestos at concentrations greater than 1% are considered to be ACM.

Samples of potential ACM were collected from homogeneous areas, which consisted of materials that were similar in color, texture, and size. The suspect ACM samples were delivered to San Air Laboratory, Inc (San Air) of North Chesterfield, Virginia for Polarized Light Microscopy (PLM) analysis under chain-of-custody protocols. The National Voluntary Laboratory Accreditation Program (NVLAP) accredits San Air for asbestos fiber analysis.

The ACM survey results are shown in the table below and summarized as follows:

- ACM was indicated within the maroon 9x9'' floor tile located within the following 1st floor areas of the main structure: *Shop*, *Bathroom 2*, and below the ceramic floor tile throughout the *Front Foyer*. All associated floor tile is considered a Category I non-friable ACM.

- ACM was indicated within the tan residual door frame caulking located on the cinderblock openings on the 1st floor and basement of the main structure. All associated residual door frame caulk is considered a Category I non-friable ACM.

- ACM was indicated within the interior window glazing associated with the colored windows located on the 1st floor and basement of the main structure. All associated window glazing is considered Category II non-friable ACM. The aforementioned glazing has become brittle and has a high probability of becoming crumbled, pulverized, or reduced to powder

by the forces expected to act on the material in the course of any proposed demolition or renovation and is therefore considered a Regulated Asbestos Containing Material (RACM).

- ACM was indicated within the interior and exterior tan caulking associated with the metal window frames located on the 1st floor and basement of the main structure. All associated window frame caulk is considered a Category II non-friable ACM. The aforementioned window frame caulk has become brittle and has a high probability of becoming crumbled, pulverized, or reduced to powder by the forces expected to act on the material in the course of any proposed demolition or renovation and is therefore considered a RACM.

- ACM was indicated within the white 12x12'' floor tile and associated black mastic located within *Office 6* on the 1st floor of the main structure. All associated floor tile and mastic is considered a Category I non-friable ACM.

- ACM was indicated within the white/tan acoustic ceiling tiles located within *Office 1* and *Office 6* on the 1st floor of the main structure. All associated acoustic ceiling tile is in friable condition thus considered a RACM.

- ACM was indicated within the residual black tar flashing located on the brick wall within the basement of the main structure's *Loading Dock*. All residual wall flashing is considered a Category I non-friable ACM.

- ACM was indicated within the tan 9x9'' floor tile and associated black mastic located within the rear outbuilding. All associated floor tile and mastic is considered a Category I non-friable ACM.

- ACM was assumed within the thermal systems insulation (TSI) pipe wrap and associated fittings (elbows, tees, wyes, etc.) located throughout the 1st floor and basement of the main structure. All associated TSI pipe wrap and fittings are in friable condition thus considered RACM.

- ACM was indicated within the exterior door frame caulk located on Side D of the main structure. All associated door frame caulk is considered a Category I non-friable ACM.

- ACM was indicated within the black tar roof flashing associated with the parapet walls, roof penetrations, and on brick and/or concrete walls of the main structure's various roofing systems. All associated roof flashing is considered Category I non-friable ACM.

- ACM was indicated within the black tar caulk/flashing located on the metal parapet cap seams of the main structure's roofing system. All associated roof flashing is considered Category I non-friable ACM.

TABLE 1 POSITIVE ASBESTOS SAMPLE LOCATIONS AND RESULTS

SAMPLE #	LOCATION	MATERIAL	EST. QUANTITY	ASBESTOS %
I-01A	Interior - 1st Floor (Shop)	Maroon 9x9'' Floor Tile	1,735 SF	5% Chrysotile (Floor Tile Only)
I-05A	Interior - 1st Floor (Storage 1 @ Storage 3)	Tan Residual Door Frame Caulk on Cinderblock	500 LF	5% Chrysotile
I-10E	Interior - Basement (Storage 4)	Tan Window Glaze	3,132 LF	2% Chrysotile
I-11A	Interior - 1st Floor (Storage 1)	Tan Metal Window Frame Caulk	2,900 LF	5% Chrysotile
I-15A	Interior - 1st Floor (Office 6)	White 12x12'' Floor Tile & Black Mastic	460 LF	5% Chrysotile (Floor Tile & Mastic)
I-20A	Interior - 1st Floor (Office 1)	White/Tan Acoustic Drop Ceiling	675 SF	2% Chrysotile
I-23A	Interior - 1st Floor (Office 6)	White/Tan Acoustic Drop Ceiling	Included Above	2% Chrysotile
I-25A	Interior - Basement (Loading Dock)	Black Residual Wall Flashing (On Brick)	15 LF	10% Chrysotile
I-28A	Interior (Rear Outbuilding)	Tan 9x9'' Floor Tile & Black Mastic	200 SF	5% Chrysotile (Floor Tile & Mastic)
***	Interior (Throughout)	TSI - Pipe Insulation Wrap & Fittings	2,800 LF	Assumed Positive
E-06A	Exterior (Side D)	White Door Frame Caulk	20 LF	3% Chrysotile

E-07A	Exterior (Colored Windows)	Pink/Tan Metal Window Frame Caulk	2,900 LF	2% Chrysotile
R-01A	Roof (Parapet)	Black Tar Flashing	3,600 SF	7% Chrysotile
R-02A	Roof (Parapet Cap)	Black Tar Seam Caulk/Flashing	Included Above	8% Chrysotile

RED – Considered an ACM as defined by the EPA SF – Square Feet LF – Linear Feet

1.4 Lead-Based Paint (LBP) Survey Results

On September 8, 2022 a LBP survey of both the factory building and warehouse building was conducted by Chase Environmental Group (2022). Only identified accessible interior and exterior locations were sampled for LBP. The LBP survey entailed the use of an X-Ray Fluorescence (XRF) detector to sample areas of the facility likely to be disturbed as part of future renovation activities. Chase did not collect paint-chip, dust, or soil samples as part of the LBP survey.

Many components including doors, windows, door frames, and window frames appeared to be original to the structure. Since LBP was potentially used during the time the structure was constructed and maintained, there is the potential that painted surfaces contain LBP. The LBP survey was not conducted as a U.S. Department of Housing and Urban Development (HUD) or USEPA lead-based paint inspection, but rather a general evaluation of the building for lead-based paint so conclusions on future use or recommendations in regard to LBP during renovation activities could be appropriately derived from the results of the sampling.

A total of 60 XRF readings were taken from painted surfaces throughout the interior and exterior of the factory building. USEPA uses a lead level of 1.0 mg/cm^2 or higher by XRF to assess whether the lead level in paint is considered LBP. Locations from which samples were collected that exceeded USEPAs 1.0 mg/cm^2 screening standard are shown in the following table.

TABLE 2 LBP SAMPLE LOCATIONS AND RESULTS EXCEEDING USEPA SCREENING LEVEL

SAMPLE #	DESCRIPTION	LOCATION	XRF RESULT (mg/cm^2)
E-07	RED FIRE HYDRANT	EXTERIOR – SIDE A	**1.6**
E-08	RED HVAC RAILING	EXTERIOR – SIDE A	**2.6**
E-13	CREAM METAL WINDOW FRAME	EXTERIOR – BASEMENT	**1.6**
E-14	CREAM METAL WINDOW FRAME	EXTERIOR – BASEMENT	**4.1**
E-16	YELLOW HAND RAIL	EXTERIOR	**2.6**
E-18	WHITE METAL WINDOW FRAME	EXTERIOR - BASEMENT	**2.7**
E-19	YELLOW RAILING	EXTERIOR – REAR SIDE B	**2.5**
E-21	CREAM METAL WINDOW FRAME	EXTERIOR – 1^{ST} FLOOR	**2.8**
E-22	RED RAILING AROUND HYDRANT	EXTERIOR – SIDE C	**1.8**
I-35	VERT. GREEN SUPPORT COLUMN	INTERIOR – STORAGE 1	**3.2**
I-36	VERT. GREEN SUPPORT COLUMN	INTERIOR – STORAGE 1	**4.7**
I-37	GREEN METAL WINDOW FRAME	INTERIOR – STORAGE 1	**5.0**
I-44	LT. GREEN SUPPORT COLUMN	INTERIOR – STORAGE 1	**5.8**
I-54	YELLOW HAND RAILS	INTERIOR – STAIRWELL	**1.3**
I-57	BROWN WINDOW FRAME	INTERIOR – OFFICE 4	**4.8**

RED – Considered LBP by EPA if >1.0 mg/cm^2 by XRF

The ACM and LBP surveys pertain directly to those areas observed and sampled within the subject property and are not intended to provide data or information for the entirety of the buildings. Only those areas accessible during the site visit, including areas considered "typical" of those conditions and materials found throughout the property structure, were sampled for laboratory and XRF analysis, as appropriate.

Changes in the condition of the building may occur with time due to either natural processes or human activities. The findings presented in this report are based on site conditions existing at the time of the investigation. The potential exists for ACM to be present in areas that may not be revealed until renovation or demolition activities begin. If potential ACM materials are discovered that are not identified within this report, those materials should be sampled by a licensed inspector, analyzed by an accredited laboratory, and removed accordingly.

2.0 IDENTIFICATION AND DEVELOPMENT OF REMEDIAL ALTERNATIVES

This section describes establishment of cleanup objectives and screening of remedial technologies.

2.1 Establishment of Remedial Objectives

ACM is subject to a variety of regulatory requirements summarized as follows:

- 40 Code of Federal Regulations (CFR) 61, Subpart M - National Emissions Standards for Hazardous Air Pollutants (NESHAP) requires removal of ACM from buildings prior to renovation or demolition (as adopted by 401 Kentucky Administrative Regulation (KAR) 58:025). This typically requires an intrusive investigation to identify ACM hidden in floors, wall, ceilings, etc.
- 40 CFR 763 - U. S. Environmental Protection Agency (EPA) Asbestos Hazard Emergency Response Act (AHERA) requires management of asbestos in schools and provides a standard of care for asbestos surveys (as adopted by 401 KAR 58:005 and 401 KAR 58:010). AHERA surveys are typically baseline surveys; they do not identify several types of NESHAP regulated materials (e.g. hidden or exterior ACM).
- 29 CFR 1926.1101 - U. S. Occupational Safety & Health Administration (OSHA) asbestos regulations require management of asbestos in buildings to protect workers. AHERA surveys meet the OSHA requirement to identify ACM in buildings.
- 29 CFR 1910 Subpart I - Personal Protective Equipment
- 29 CFR 1910.134 - Respiratory Protection
- 49 CFR 100 - 185 - Transportation

Lead in paint is subject to the following regulations, at a minimum:

- OSHA 29 CFR 1926.62, Safety & Health Regulations for Construction, Occupational Health & Environmental Controls – Lead (as adopted by 803 KAR 2:403)
- OSHA 29 CFR 1910.1025, Toxic & Hazardous Substances – Lead (as adopted by 803 KAR 2:320).

OSHA's Lead in General Industry Standard (29 CFR 1910.1025) covers the use of lead in general industry. This regulation includes non-construction-related maintenance work. Maintenance activities covered by the General Industry Standard are those which involve making or keeping a structure, fixture, or foundation in proper condition in a routine, scheduled, or anticipated fashion.

Maintenance work associated with construction, alteration, or repair activities is covered by the Construction Standard (29 CFR 1926.62). OSHA's Lead in Construction Standard (29 CFR 1926.62) applies to all construction work where an employee may be occupationally exposed to lead. The Lead in Construction Standard applies to any source or concentration of lead to which workers may be exposed as a result of construction work. OSHA standards are not limited to lead-based paint as defined by HUD or EPA or lead-containing paint.

All work related to construction, alteration, or repair, including painting and decorating, is included in OSHA's Lead in Construction Standard. Under this standard, construction includes, but is not limited to:

- Demolition or salvage of structures where lead or materials containing lead are present;
- Removal or encapsulation of materials containing lead;
- New construction, alteration, repair, or renovation of structures, substrates, or portions or materials containing lead;
- Installation of products containing lead;
- Lead contamination from emergency cleanup;
- Transportation, disposal, storage, or containment of lead or materials containing lead where construction activities are performed; and
- Maintenance operations associated with these construction activities.

Construction work with the potential for lead exposures, excluded from coverage in the General Industry Standard for lead by 29 CFR 1910.1025(a)(2), is covered by the Lead in Construction Standard. The construction standard establishes maximum limits of exposure to lead for all workers covered, including a permissible exposure limit and action level. Employers of construction workers are responsible for developing and implementing a worker protection program.

The U.S. Department of Housing and Urban Development (HUD) *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing* (June 1995), and the EPA requirements for LBP activities in target and child-occupied facilities (40 Code of Federal Regulations (CFR) Part 745) provide regulatory and industry guidelines for conducting LBP sampling. Both HUD and EPA have set a threshold of 1.0 milligram per square centimeter (mg/cm^2) by XRF analysis, and 5,000 parts per million (ppm), or 0.5% by weight, for defining LBP. OSHA regulates maintenance and construction activities that disturb lead paint with any amount of lead, including those below the HUD level of 1.0 mg/cm^2. A review of the test results show many of the painted surfaces in the building contain lead which is below the HUD level, but subject to OSHA regulations.

For waste streams, including paint containing lead and building materials with paint containing lead, the EPA regulations on hazardous waste determination may apply, 40 CFR 261 and 40 CFR 262. If a waste stream is determined to be hazardous waste, it must be transported for disposal to a Subtitle C landfill. Otherwise, disposal at a Subtitle D landfill that accepts the waste may be allowed.

2.2 Exposure Pathways

If friable and/or damaged, ACM, unless abated or included in an Operations and Maintenance (O&M) Plan, can result in exposure to building occupants by ingestion. Exposure to LBP of workers during construction projects and during later occupancy of a commercial or industrial facility is governed by U.S. and Kentucky Occupational Health and Safety Administration regulations (e.g., 29 CFR 1926.62). The primary exposure route would be ingestion of exposed paint.

2.3 Screening of Cleanup Technologies

This section discusses screening of appropriate cleanup technologies for site media.

2.3.1 General Response Actions

General response actions describe those actions that will satisfy the site cleanup objectives. These include:

- No action;
- Engineering controls;
- Stabilization/Encapsulation;
- Abatement or otherwise removal of the medium; and
- Any combination of the above technologies, as appropriate.

Specific remedial technologies then were identified for these general response actions, as described in Section 2.3.2.

2.3.2 Identification of Potential Remedial Technologies

A comprehensive list of cleanup alternatives was assembled for the ABCA. Potential remedial technologies or categories of technologies were identified and screened, and are listed below.

The technologies for ACM and LBP identified for the screening evaluation are as follows:

No Action

Stabilization/Encapsulation with Operations & Maintenance (O&M) Plan

Removal/Abatement

2.3.3 Description of Initial Potential Remedial Technologies

2.3.3.1 No Action

Under the no action option, no remedial action would be performed, nor would any engineering or institutional controls be implemented. This alternative is provided as a baseline for comparison to the remedial technologies considered.

2.3.3.2 Removal

This involves abatement/removal of ACM identified in the survey to the extent possible using a licensed contractor. For any ACM remaining (e.g., in the roof), an O&M Plan would need to be developed and implemented.

This alternative involves removal of components with LBP (e.g., doors that may be difficult or infeasible to abate) or removal of flaking, loose, and flaked LBP and properly disposing of wastes. For LBP remaining, an O&M Plan would need to be developed and implemented.

2.3.3.3 Stabilization/Encapsulation with O&M Plan

For ACM, encapsulation is an alternative which would be designed to prevent exposure to or release of fibers, dust, or other materials containing these substances. For example, an encapsulating acrylic, water-based, low volatile organic compound primer and conditioner can be applied to fibrous and porous ACM. This functions as a penetrating and flexible encapsulant and primer to which a topcoat(s) can be applied. Most encapsulants can be brushed, rolled, or sprayed on.

If ACM is to be left in place, i.e., not removed/abated, then an O&M Plan would be required to be developed and implemented. This Plan would detail training requirements for employees and contractors, notification requirements prior to ACM removal activities, administrative procedures covering work that may disturb ACM, maintenance of ACM including routine maintenance and cleaning and discussion of prohibited activities, requirements for removing or disturbing ACM, and requirements for ACM contractors/consultants.

This alternative involves applying a coating(s) to LBP on walls or other building components to remain after removal of flaking, loose, and flaked paint. If LBP is to be encapsulated, i.e., not removed/abated, then an O&M Plan would be required to be developed and implemented. This Plan would detail training requirements for employees and contractors, notification requirements prior to LBP removal or disturbance activities, administrative procedures covering work that may disturb LBP, maintenance of LBP including routine maintenance and cleaning and discussion of prohibited activities, requirements for removing or disturbing LBP, and requirements for LBP contractors/consultants.

2.3.4 Initial Screening Criteria for Potential Remedial Technologies

The initial screening of potential remedial technologies has been completed based upon six balancing factors:

- *Effectiveness* - Considers the magnitude of risk from untreated contamination or treatment residuals, adequacy of institutional and engineering controls, extent to which beneficial uses are restored or protected, and time until remedial action objectives are achieved.
- *Long-term Reliability* - Evaluates the reliability of the treatment technology, the reliability of engineering and institutional controls necessary to manage risk, and uncertainties in long-term management (operation, maintenance, and monitoring).
- *Implementability & Implementability Risk* - Focuses on practical, technical, and legal difficulties and unknown factors associated with the remedy; the ability to monitor effectiveness; federal, state, and local requirements; and the availability of necessary services, materials, equipment, and specialists. Also looks at potential impacts on the community; potential impacts on workers and site operations; potential impacts on the environment; and the time required to complete the remedial action.
- *Reduction of Toxicity, Mobility, or Volume of Wastes* - Focuses on treatment process used and materials tested; the amount of hazardous materials destroyed or treated; the degree of expected reductions in toxicity, mobility, and volume; the degree to which treatment is irreversible; and the type and quantity of residuals remaining after treatment.
- *State and Community Acceptance* - Considers reuse and future planning.
- *Reasonableness of Cost* - Determines capital, operation and maintenance, and periodic review costs of the remedial action; and the degree to which costs are proportionate to benefits to human health and the environment.

Estimates of costs, if any, are preliminary at this time. The potentially applicable remedial technologies are evaluated in greater detail in later sections to assist in determining which remedial technology or technologies may be most appropriate for the site. The remedial technologies included in the screening process are grouped into several general response

actions, as described in Section 2.3.1, and the results of the screening are summarized in the following sections.

2.3.4.1 No Action

The No Action option has no inherent implementation risk, has no cost, and is easily implementable. However, the No Action option is not effective and does not offer long-term reliability, because it is not protective of human health and the environment. Furthermore, the cleanup goals for the site would not be met if this option were implemented. However, this alternative will be retained to serve as a baseline.

2.3.4.2 Removal

For existing ACM, abatement provides the best solution for mitigating risks and avoiding later exposure should the site not be maintained properly. Roofing materials that may contain ACM (e.g., mastic/felt) would not be abated, and therefore an O&M Plan would be necessary.

Paint removal is a highly labor intensive activity, and creates an increased risk of associated dust exposure to site personnel. This alternative is only retained for removal of flaking, loose, and flaked paint.

2.3.4.3 Stabilization and/or Encapsulation with O&M Plan

Encapsulation does not remove the need to maintain non-friable ACM, so such an approach would require an O&M Plan. Since non-friable ACM can become friable if not properly maintained or protected, this alternative is not retained for further consideration.

Encapsulation does not remove the need to maintain LBP, so such an approach would require an O&M Plan. For LBP, this alternative is considered appropriate because exposure can be minimized through easily available encapsulation products.

2.4 Climate Change Considerations

EPA requires an ABCA to evaluate the resilience of the remedial options in light of reasonably foreseeable changing climate conditions. Changing climate conditions may include, e.g., sea level rise and increased frequency and intensity of flooding and/or extreme events.

The remedial options evaluated for this ABCA involve predominantly activities within the building, involving the removal and/or encapsulation of ACM and LBP. Regulations, discussed in Section 2.1, concerning such work limit the amount of contaminants in air and other media that are allowed. Foreseeable changing climate conditions would have little or no impact on the effectiveness of proposed remedial options under consideration.

3.0 IDENTIFICATION OF CLEANUP ALTERNATIVES

Based upon the screening in Section 2.0, the following alternatives were identified, and will be discussed in detail in the subsequent sub-sections:

Alternative No. 1 - No Action
Alternative No. 2 - Removal/Abatement (ACM and flaking, loose, and flaked LBP)
Alternative No. 3 – Stabilization/Encapsulation of remainder of LBP with O&M Plan

Media (contaminant)	Retained Alternatives
ACM	1 – No Action; 2 – Removal/Abatement
LBP	1 – No Action; 2 – Removal/Abatement; 3 – Encapsulation

A broad conceptual design and summary of these remedial alternatives is provided to enable adequate evaluation and comparison. It is expected that a final detailed design of the selected remedial alternative will be completed prior to implementation. As part of the design process, necessary modifications to the conceptual design may be necessary. Also note that the cost estimates included in the evaluation are based upon a conceptual design and are provided only to enable comparison of alternatives.

3.1 Alternative 1: No Action

Alternative 1 would involve no remedial actions and serves as a baseline for comparing other alternatives. Building use would occur without any restrictions and without regard for existing contamination or conditions.

3.2 Alternative 2: Removal/Abatement

Alternative 2 involves removal/abatement of ACM in the building, as detailed in the Table in Section 1.3. Abatement eliminates the risk from all forms of ACM. Alternative 2 also involves

removal/abatement of flaking, loose, and flaked LBP. Removal may be accomplished by hand methods, by scraping, by abrasive blasting methods, e.g., using dry ice or sodium bicarbonate media, sand (or similar materials like coal slag abrasive), air, wet/water, vacuum, or centrifugal. Some of these methods result in decreased volumes of waste streams and savings in labor, time, energy, and abrasive material. These methods will be given preference, if and where they are applicable. Note that complete removal of LBP from all surfaces is not considered practical. Therefore, a separate cost estimate for complete removal is not provided in Section 4.0.

3.3 Alternative 3: Stabilization/Encapsulation with O&M Plan

This alternative involves applying a coating(s) to LBP on surfaces to remain after removal of flaking, loose, and flaked paint. Coating types could include epoxy, acrylic, polyurethane, polyurea, oil-base, and latex. Important properties to consider when choosing a coating include elongation (i.e., elasticity or rigidity), dry film thickness, drying or curing time, and compatibility with existing surfaces. Epoxy-type coatings are widely used for LBP encapsulation. Epoxy coatings generally consist of a three part epoxy-polyamide coating applied in a primary layer, clad layer, and surface layer. A LBP encapsulant can also be used, such as Fiberlock Technologies Inc. LBC Lead Barrier Compound or similar product.

4.0 EVALUATION OF CLEANUP ALTERNATIVES

In this section, each retained cleanup alternative is described in greater detail. Each alternative was evaluated against: protectiveness, effectiveness, long-term reliability, implementability, implementation risk, and cost reasonableness. Costs are expressed in 2022 dollars.

4.1 Alternative 1: No Action

Protectiveness

The No Action alternative does not achieve the protectiveness requirements, and the corrective action objectives are not satisfied.

Effectiveness

The alternative is not effective at reducing or managing risk. The magnitude of residual risk is unacceptable.

Long-term Reliability

This alternative does not achieve long-term reliability.

Implementability

The No Action alternative is easy to implement.

Implementation Risk

No risk would be incurred during implementation of the No Action alternative.

Reasonableness of Cost

No costs would be incurred in implementing the No Action alternative.

4.2 Alternative 2: Removal/Abatement

Alternative 2 involves abatement of ACM.

Protectiveness

This alternative satisfies the protectiveness criterion. Protectiveness is achieved by removal of ACM.

Effectiveness

The main hazard from ACM, which derives from flaking, loose, and flaked material, is removed.

Long-Term Reliability

Abatement and removal is a permanent fix for ACM.

Implementability

Implementation of Alternative 2 would be moderately difficult. Proper containment practices would have to be implemented during abatement, and potential final air clearance samples collected before re-occupation of abated areas would be allowed.

Implementation Risk

The implementation risk associated with this alternative is considered low to moderate. For ACM abatement, contractors will need to abide by all relevant health and safety regulations.

Reasonableness of Cost

A cost estimate for ACM abatement is approximately $**671,915.** This cost estimate is based on the following assumptions: (1) abatement methodologies were selected based on the most cost effective approach, (2) clearance sampling costs are included for one mobilization, and (3) failure of clearance samples resulting in re-sampling is not included. The following table provides details of the cost estimate. We have included the costs for all abatement activities in the following table for a QAPP, HASP, ABCA, Remedial Action Plan, Bid Specification, Project Management and the Completion Report ($75,000) as shown in Task 3 of the application, hence the total of $755,665 in the Table.

TABLE 3 ACM REMOVAL/ABATEMENT COST ESTIMATE

Description	Unit	Quantity	Unit Cost	Cost
Project Management & Workplans (for all abatement activities)				
Generic QAPP	hour	50	$150	$7,500
Health & Safety Plans	hour	25	$150	$3,750
Finalize ABCA	hour	40	$150	$6,000
Bid Documents/Specifications	hour	75	$150	$11,250
Remedial Action Plan	hour	60	$150	$9,000
Project Management, EPA Reporting, Travel, & Mileage	hour	250	$150	$37,500
ACM Abatement Costs (no window removal)				
Mobilization Personnel & Equipment	LS	1	$2,500.00	$2,500
ACM 1st Floor Shop 9x9 Tile & Mastic	sq/ft	1,750	$7.50	$13,125
ACM 1st Floor Door Frame Caulk & Cinder Block	LF	500	$10.00	$5,000
Interior Basement Window Glazing	LF	3,500	$14.00	$49,000
Inteiror 1st Floor Window Frame Caulk	LF	2,900	$14.00	$40,600
Interior 1st Floor 12x12 Tile & Mastic	sq/ft	500	$7.50	$3,750
Interior 1st Floor Acoustic Drop Ceiling	sq/ft	675	$13.00	$8,775
Interior Basement Black Flashing	LF	15	$15.00	$225
Interior Rear Outbuilding 9x9 Tile & Mastic	sq/ft	200	$7.50	$1,500
Interior TSI Glovebag Throughout 30' Height	LF	4,000	$38.00	$152,000
Exterior Site D Door Frame Caulk	LF	20	$10.00	$200
Exterior Window Frame Caulk	LF	3,000	$11.00	$33,000
Roof Black Flashing Parapet Wall	sq/ft	3,600	$8.00	$28,800
Waste Transportation & Disposal	20 CY	15	$1,850.00	$27,750
Oversite, Air Monitoring, & Clearance Sampling	hour	150	$150.00	$22,500
** Per Davis Bacon Wage Determination	% of labor	35%	$95,000.00	$33,250
Block Openings/Window Removal & Disposal as ACM (no replacement windows included)				
1st Floor Openings (Plywood & Sheet Metal Framed)				
Side A - 4,610 sq/ft - 17 openings	sq/ft	4,610	$20.00	$92,200
Side B - 528 sq/ft - 2 openings	sq/ft	528	$20.00	$10,560
Side C - 2,872 sq/ft - 6 openings	sq/ft	2,872	$20.00	$57,440
Side D - 1,268 sq/ft - 7 openings	sq/ft	1,268	$20.00	$25,360
Basement Openings (Plywood & Sheet Metal Framed)				
Side C - 1,384 sq/ft - 20 openings	sq/ft	1,384	$20.00	$27,680
Side D - 460 sq/ft - 5 openings	sq/ft	460	$20.00	$9,200
Manlifts & Equipment Rental for Removal & Framing	LS	1	$15,500.00	$15,500
Lodging & Per Diem	Man/Day	80	$150.00	$12,000
Abatement Activity Reports				
Completion/Final Report	hour	70	$125	$8,750
			Total Costs	**$755,665**

4.3 Alternative 3: Stabilization/Encapsulation with O&M Plan

Alternative 3 involves application of coating(s) to LBP.

Protectiveness. This alternative satisfies the protectiveness criterion. Protectiveness is achieved by minimizing exposure, since the current LBP will be beneath newly applied coatings.

Effectiveness. This alternative is effective, since existing coating technologies are available which have been used in similar applications. To increase effectiveness, it may be necessary during building refurbishment to remove small areas of paint where it is damaged or beginning to flake.

Long-Term Reliability. Several types of long-lasting, robust coatings have been developed which should minimize O&M.

Implementability. Implementation of Alternative 3 would be relatively easy. Coatings are readily available and application with rollers, brush, or other typical methods for applying paint can be used.

Implementation Risk. The implementation risk associated with this alternative is considered low. Coatings can be applied as part of building refurbishment.

Reasonableness of Cost. A cost estimate for Alternative 3 is approximately **$45,000.** Details are provided as follows.

TABLE 4 ENCAPSULATION OF LBP COST ESTIMATE

Description	Unit	Quantity	Unit Cost	Cost
LBP Encapsulation				
LBP Abatement & Re-paint	LS	1	$35,000	$35,000
O&M Plan	hour	30	$125	$3,750
Oversight	hour	50	$125	$6,250
			Total Costs	**$45,000**

5.0 RECOMMENDED CLEANUP ALTERNATIVES

The selection of the recommended cleanup alternatives is based upon the evaluation and comparison of alternatives contained within preceding sections of this report. Based upon the evaluation of the technologies, the recommended remedial alternative is as follows:

Alternative No. 2 - Removal/Abatement of ACM and LBP that is flaking, loose, or flaked.

Alternative No. 3 – Stabilization/Encapsulation for LBP that is not flaking, loose, or flaked.

Media (contaminant)	Alternatives
Asbestos	2 – Removal/Abatement
Paint (Lead)	2 – Removal/Abatement; 3 - Encapsulation

The total cost estimate for removal/abatement of ACM and LBP and encapsulation of LBP is **$716,915.**

Per 401 KAR 58:040 (Requirements for Asbestos Abatement Entities), ACM disposal will occur at a landfill that has approval from the KDWM to accept asbestos-containing waste according to the provisions of Title 401, Chapter 47, and shall meet all other applicable local, state, and federal laws.

LBP that is not flaking or flaked will be encapsulated with a durable, compatible coating system. Prospective vendors will be contacted and their products researched to determine which is best for this application. An O&M Plan will be required for remaining LBP. Building components that are removed without being abated will be transported to an off-site permitted landfill for proper disposal.

Other constraints/conditions include:

- Due to access restrictions and safety concerns, roofs were not sampled. It is recommended that roofing materials be treated as an assumed ACM, unless further sampling proves otherwise.

- The OSHA Construction Standard for Asbestos (29 CFR 1926.1101) must be followed for personnel conducting activities that may disturb materials that contain asbestos during abatement, construction, demolition, renovation, and other similar activities, whether they are considered ACM because they contain greater than 1% asbestos, or if they contain 1% or less asbestos. Materials that are confirmed to contain trace

amounts of asbestos (<1%) are not currently subject to the EPA NESHAP asbestos regulations. These materials; however, may still be subject to federal OSHA regulations when their disturbance may elevate, or potentially elevate, the concentration of airborne fibers above the eight-hour time weighted average permissible exposure limit of 0.1 fibers per cubic centimeter of air (f/cc) or the 30-minute short term excursion limit of 1.0 f/cc. It should be noted, despite these limits established by OSHA, that no "safe" level of asbestos exposure has been determined.

- If concealed ACM is observed during renovation activities, it will be necessary to investigate and collect samples in order to confirm the presence or absence of ACM.
- Contractors associated with renovation activities should be trained in 'lead safe work practices', follow applicable OSHA regulations regarding renovation and LBP, including requirements for air sampling and respirator use (if applicable), and perform a Toxicity Characteristic Leaching Procedure (TCLP) analysis of a sample of the representative waste stream for lead prior to disposal to determine if the waste is hazardous.

- Employees who work with LBP should be provided with proper personal protective equipment, as well as the appropriate removal equipment, training, and licensure as applicable.

- LBP must be disposed of in accordance with Federal, State, and Local laws and regulations.

- LBP removal should be monitored to ensure that no lead dust is released into ambient air. Air monitoring must be performed in accordance with applicable regulations and potentially affected employees must be notified of any LBP work.

- If concealed LBP is observed during renovation activities, it may become necessary to investigate and collect samples in order to confirm the presence or absence of LBP.

6.0 REFERENCES

Chase Environmental Group 2022. *Asbestos-Containing Materials and Lead-Based Paint Inspection Report, God's Pantry Facility, 419 Bourne Avenue, Somerset, Kentucky.* October 7, 2022.

Linebach Funkhouser, Inc. 2022. *Phase I Environmental Site Assessment Report: God's Food Pantry Property – 419 Bourne Avenue, Somerset, Pulaski County, Kentucky*. September 9, 2022.

FIGURES

Figure 1: Site Location Map

Figure 2: Site Map