2.0 PHASE II ENVIRONMENTAL SITE ASSESSMENT

All Phase II ESA activities are performed in conformance with ASTM Standard Practice for Environmental Site Assessments: Phase II Environmental Site Assessment Process E1903-11. All data will be generated in accordance with the quality requirements described in the Quality Assurance Project Plan (QAPP) for Region 8 Targeted Brownfields Assessment (Weston, 2013). A Phase II ESA is conducted to obtain sound, scientifically valid data concerning actual property conditions, whether or not such data relate to property conditions previously identified as RECs or data gaps in Phase I ESAs. Without attempting to define all situations, this practice contemplates that data may inform the user's evaluations, conclusions, and choices of action in connection with stated objectives.

2.1 PHASE II ASSESSMENT INTRODUCTION

START prepared a Sampling and Analysis Plan (SAP) as part of the Phase II Environmental Site Assessment (ESA) at St. Joseph's Dormitory located on the campus of Marty Indian School, 9000 388th Avenue, Marty, Charles Mix County, South Dakota (subject property). The SAP describes site-specific tasks that were performed in support of the stated objectives

2.1.1 Statement of Objectives

The following objectives were developed as part of the SAP and Phase I and Phase II ESA:

Perform a review of previous environmental reports and obtain information regarding extent of RECs present at the site.

Conduct a Phase I ESA to identify RECs at the site.

Conduct limited Phase II ESA activities (i.e., collection of opportunity samples) to assess and evaluate the extent of known ACM contamination (i.e., fill in data gaps in materials present).

Conduct limited Phase II ESA activities (i.e., collection of opportunity samples) to determine the presence or non-presence of LBP and lead in soils.

Conduct limited Phase II ESA inspection activities to determine the presence or non-presence of PCBs, mold, and/or mercury at the site.

Collect sufficient data to determine if additional Phase II ESA activities are warranted to completely assess LBP, lead in soils, PCBs, mold, and/or mercury at the site.

Provide sufficient data to support ACM demolition and/or remediation cost estimating.

- Provide sufficient data to assist the TBA Grantee in making informed decisions with regard to the future use of the property by YST/the School.

2.2 SUMMARY OF BACKGROUND INFORMATION

2.2.1 Property Description, Location and History

The St. Joseph's Dormitory building is located on the campus of Marty Indian School, Marty, Charles Mix County, South Dakota. It is an abandoned three story brick structure with basement built around 1923. The building was used as a student dormitory quarters for the Marty Indian School until new quarters were constructed in 1999. It contains a basement, 1st floor, and 2nd floor each consisting of approximately 3,800 square feet. The roof system is ethylene propylene diene monomer (EPDM). Section 1.2 describes the property in more detail.

2.2.2 Previous Asbestos Inspections

Two previous asbestos inspections at Joseph's have confirmed the presence of asbestos. An asbestos inspection was conducted in March 1989 and a re-inspection conducted in July 1995. Based on review of these two reports, the following materials have been identified as ACM as determined through laboratory testing:

Confirmed ACBM (1989)	Sq. Ft.	Room	% ACM
9" floor tile (red)	800	10, 11	7%
9" painted over tile	150	5	10%
Pipe Joints (3 samples)	2	8	10-25%
Floor Tile (tan)	90	102	7%

Both reports indicate the floor materials are "Miscellaneous Material – Non-Friable". The 1989 report indicates the materials show signs of age and wear and tear with two rooms identified with high potential for damage. In 1995, there was no change in the assessment. The 1989 report shows 3 samples taken of mud covered pipe fittings in the basement which were reported as 10-25% ACM and 9" floor tiles reported as 7% ACM. These two materials did not show up on the 1995 report (possibly removed).

2.3 DESCRIPTION OF WORK PERFORMED AND RATIONALE

EPA Region 8 requested opportunity sampling of potential building materials to collect data sufficient to complete remediation cost estimating.

2.3.1 Building Materials

Based on the condition of the building (damage to wood floors and ceilings, presence of mold, roosting pigeons, and extensive amounts of pigeon guano) it was determined that no interior sampling for ACM or LBP would be completed. The EPA Project Officer was notified of the health and safety concerns. Based on the conditions, only limited sampling was conducted for building materials.

2.3.1.1 ACM

One sample of ceiling tile mastic (data gap sample) was collected near an entrance to the building during the limited walk-through. One exterior window component (glazing) was sampled. Few windows were accessible for sampling due to cover installed to prevent illegal entrance into the building.

2.3.1.2 Lead

No interior XRF screenings were conducted; however, based on the age of the building, the presence for LBP on interior walls is high. One exterior screening was conducted on a window trim (white). Based on XRF screenings lead-in-soil composite samples were collected at the perimeter of each external wall.

2.3.1.3 PCBs and Mercury

The visual inspection and photographs documented numerous light fixtures on each floor of the building. Based on age of the structure, potential for PCBs and mercury is high. Outdoor lighting and thermostats throughout the building have potential for mercury.

2.3.1.4 Mold

The presence of mold and water damage was documented throughout the building. The presence of roosting pigeons and pigeon guano was document throughout the building. An odor from the pigeons and mold was noted during the inspection both indoors and outdoors.

2.3.2 Deviations from the Sampling Plan

The following deviations from the sampling plan occurred and were confirmed with EMSL Laboratory and/or the EPA Project Officer:

- Limited interior sampling occurred due to the safety and health concerns from water damage, mold and pigeons (roosting and guano). A limited walk through of the building and photographs documented RECs. EPA Work Assignment Manager (WAM) was notified of deviation from sampling plan.
- The roof was not accessed due to the condition of the building and concerns with structural integrity. The roof assessment conducted in 2006 and a photograph of the roof from St. Katherine's would provide adequate information concerning the potential environmental concerns.
- Deviation in sample containers for bulk asbestos and soil were based on certified laboratory preference (EMSL Analytical, Inc.).

- No XRF soil screening was conducted; rather the decision to collect soil samples was based on positive LBP readings and best professional judgment.

2.4 DESCRIPTION OF METHODS USED

Once mobilized, the field team conducted a visual inspection of the exterior and interior of the property to determine the level of personal protective equipment (PPE) required. Based on the condition of the building, Level C (half-face respirators, Tyvek coveralls and disposable gloves) were recommended for conducting the limited visual interior inspection and take photographs.

Laboratory samples (ACM and lead in soil) were collected in accordance with the approved SAP and identified in a field notebook and on a floor plan. XRF screening for exterior components was documented in the field notebook and downloaded into an excel spreadsheet. Photographs (Appendix A) will be taken to document information for use in this Report.

2.4.1 Asbestos Containing Material

Limited bulk asbestos samples were identified and collected in *Nasco WhirlPak* sample bags. The sample nomenclature used is: St. Joseph's (SJ), asbestos (ASB), sequential number (XXX). A chain of custody form was completed and samples were shipped to EMSL Analytical, Inc., 14375 23rd Avenue North, Minneapolis, MN 55447. See Appendix H for the chain of custody and laboratory analysis results.

2.4.2 Lead Based Paint (LBP)

LBP screening was conducted on one random exterior component (based on best professional judgment). XRF readings were documented in a notebook as follows: XRF Reading Number (78), wall (A, B, C, or D), Room (No.), Structure (window), substrate (wood), component (trim), color (white), Lead concentration (XX). Readings are uploaded to excel for review and documentation.

2.4.3 Lead-in-Soil

Based on the positive XRF (on-site) readings on the exterior painted surfaces, and the visual presence of flaked paint, composite soil samples were collected at the drip line (approximately 1-2 foot) from each external wall of the building. Two samples were collected for each external wall by visually dividing the length of the wall into half and collecting 10-12 scoops of soil for each composite sample. The soil was thoroughly mixed prior to placing the soil into the container. Decontamination of the sampling equipment (stainless steel scoop and bowl) was conducted prior to each composite sample. Nomenclature for soils is: St. Joseph's (SJ), Soil (S), Wall (Side), and Sequential number (XXX). Quality Assurance/Quality Control (QA/QC) samples were collected based on the SAP and professional judgment. A chain of custody form

will was completed and samples shipped to EMSL Analytical, Inc., 14375 23rd Avenue North, Minneapolis, MN 55447.

2.5 PRESENTATION OF INFORMATION AND DATA ACQUIRED

Information and data acquired during the investigation and sampling was documented by photograph or noted in the field logbook, including *de minimis* conditions. Sample locations are identified in Figures 3-6. Photographs are provided in Appendix A.

2.5.1 ACM

A total of 2 bulk asbestos samples were collected for analysis of ACM. Building components included ceiling tile mastic and exterior window glazing.

2.5.2 LBP

One XRF screening was taken on the exterior window frame. Window components were difficult to access due to metal or plywood coverings installed for safety purposes.

2.5.3 Lead-in-Soil

Based on a positive reading from the exterior window frame, a total of 7 composite soil samples for lead in soil were collected approximately 1 foot (drip line) from the building perimeter. One duplicate (QA/QC) sample was collected.

2.5.4 PCBs and Mercury

The presence of light fixtures (PCB ballasts and fluorescent light bulbs) was documented in the field logbook and photographed. Several fixtures are present on each floor of the building as well as outdoor lights with potential for mercury. Exit signs located on each floor may contain lithium batteries.

2.5.5 Mold/Pigeon Guano

Evidence of mold was observed throughout the building; however, it is more severe in the basement. Live pigeons (20+) were encountered in the basement during the site visit as well as several dead pigeons on all floors. Significant amounts of pigeon guano are deposited throughout the building (floor, walls, furniture). An odor was apparent indoors and outdoors. See Photos in Appendix A.

De minimis conditions included cleaning supplies. These conditions were documented by photograph or noted in the field logbook.

2.6 EVALUATION OF INFORMATION AND DATA

2.6.1 Bulk Asbestos

A total of 2 bulk samples were collected for asbestos analysis of bulk materials via EPA 600/R-93/116 Method using Polarized Light Microscopy (PLM). Both samples were of building materials. Asbestos was identified in the following sample (>1% ACM):

	Location	Component	ACM %
SJ-ASB-001	1st Floor Room	Ceiling Tile (Mastic)	5%

The National Emission Standards for Hazardous Air Pollutants (NESHAP) *40 CFR 61, Subpart M* defines friable asbestos-containing material (ACM) as any material containing more than one percent (1%) asbestos as determined using the method specified in Subpart F, 40 CFR Part 763, Section 1, Polarized Light Microscopy (PLM) that, when dry, can be crumbled, pulverized or reduced to powder by hand pressure (Sec 61.141). Non friable ACM is any material containing more than one percent (1%) asbestos as determined using the method specified above, that, when dry cannot be crumbled, pulverized, or reduced to powder by hand pressure.

2.6.2 Lead in Paint

The XRF is calibrated to conform to Chapter 7 of the HUD *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing* which sets the threshold of lead content for lead-based paint. This approach can produce satisfactory results for classifying the paint on architectural components using the federal threshold of 1.0 mg/cm^2. Three XRF readings were taken (including validation and calibration) and one indicated that lead was detected above the federal guidelines on the exterior window trim.

2.6.3 Lead-in-Soil

Six of the seven the samples indicate lead levels above the regional screening level (RSL) for lead in soil (400 parts per million [ppm] also mg/Kg); one of the six was a duplicate (QA/QC) sample.

Sample No.	External Wall Location	Lead Concentration mg/Kg (ppm)
SJ-S-E-001	East	2,600
SJ-S-W-001	West	1,200
SJ-S-W-002	West	4,000
SJ-S-N-003 (duplicate)	North	1,400
SJ-S-N-001	North	8,000
SJ-S-N-002	North	11,000

2.7 INTERPRETATION OF RESULTS

2.7.1 Building Materials

The analytical data for asbestos detection and lead in paint and soil have been reviewed by Gary Snow and Mary Kenner. Sampling followed the procedures set forth in the Quality Assurance Protection Plan/SAP approved by Stephanie Metz, Brownfields Project Officer.

Based on the objectives of the Phase II (as identified in the SAP), the field observations and laboratory sampling indicates the following:

Asbestos >1% (AHERA/NESHAP) in building materials.

LBP >1 mg/cm^2 (HUD) on exterior window components and assumed on interior components based on age of the structure.

Lead in soil > 400 ppm (RSL).

Potential for PCB/mercury in numerous light fixtures present in the building.

Mold (presence) on all floors of the building; coating the walls in the basement (multiple colors of mold).

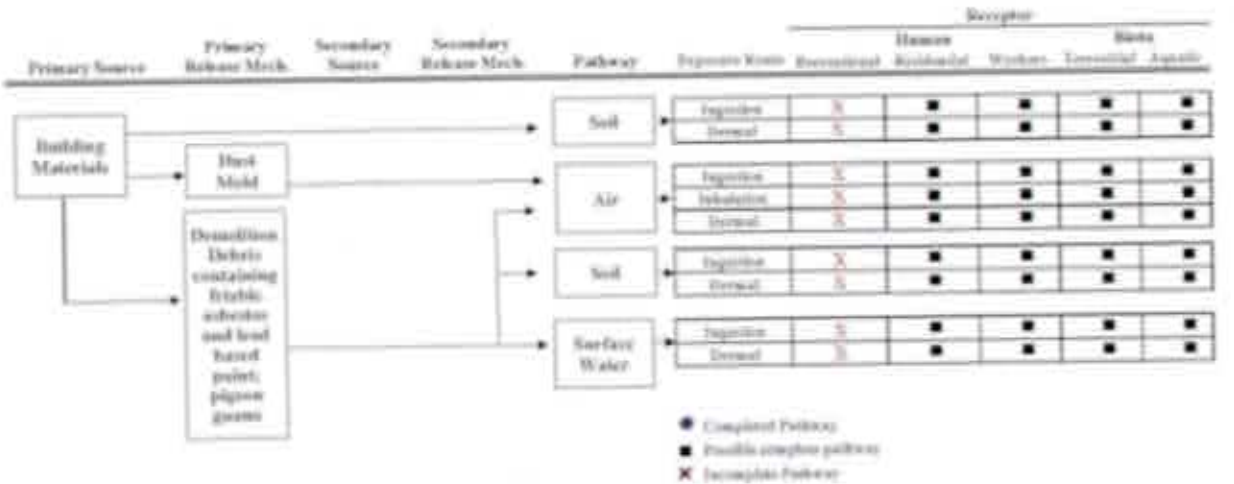
Significant amounts of pigeon guano located throughout the building (floors, walls, furniture, fixtures).

- Potential for lithium batteries in emergency and exit lighting (indoor and outdoor).

2.7.2 Conceptual Site Model

The following conceptual site model identifies potential contaminants and their primary sources, and delineates the potential pathways through various environmental media relevant to the project. Receptors and exposure routes are also identified.

Conceptual Site Model



2.8 FINDINGS, OPINIONS, AND CONCLUSIONS OF THE PHASE II ESA

START has performed a limited Phase II ESA in conformance with the scope and limitations of TDD 1307-12, 40 CFR Part 312, and ASTM E1903-11 on the property located at 9000 388th Avenue, Marty, Charles Mix County, South Dakota (subject property). Any exceptions to or deletions from this practice are described in Section 5 of this report.

Information collected from the Phase I and II ESA and the material from the original asbestos inspection and re-inspections, provides sufficient data to proceed without additional sampling. Based on the September 2013 site visit and questionable structural integrity of the building, no further activity (inspection or remediation) should be permitted until reviewed by a structural engineer. According to the Marty Indian School Facility Director stated that windows and other support structures are in danger of collapse. The floor system consists of cast in place concrete with wood sleepers and hardwood floors on the upper two floors that have significant damage from water and pigeon guano making it difficult to ascertain the subfloor's structural integrity.

Given the small quantity or absence of obvious friable asbestos material and questionable integrity of the building, demolition of the building is recommended with the debris disposed of off reservation at the Southern Missouri Recycling and Waste Management District, Lake Andes, SD. The landfill is certified for asbestos disposal and accepts nonfriable material. The following sections provide information concerning individual building materials.

2.8.1 Asbestos Containing Material

NESHAP requirements apply to any project, or group of projects at a facility, planned or anticipated within a calendar year which will reach the NESHAP threshold (160 square or 260 linear feet). According to South Dakota regulations, Category I nonfriable materials are not required to be handled or disposed of as regulated asbestos materials as long as they remain nonfriable during removal and handling. Any Category I materials which are not in poor condition and are not made friable during handling can be disposed of as normal waste, but may be subject to local landfill requirements. Any friable materials exceeding 160 square feet must be handled and disposed of according to all NESHAP requirements. Southern Missouri Landfill at Lake Andes is permitted for ACM but only accepts non-friable material. The next closest landfill is located in Mitchell, Pukwana or Vermillion. According to SD DENR these landfills are permitted to accept asbestos related waste; however, it is advised to contact the landfill prior to planning for the demolition and disposal.

Roof materials: The 2006 roof assessment indicates the roof is EPDM, which generally does not contain asbestos. The EPDM roofing appears to be in very poor condition. An area of the structure and roof deck supporting roof system "A" has broken down from within and appears to be structurally weak and extremely dangerous. The pre-cast cap at the parapet walls for roof systems "A" and "B" have experienced some degeneration and are in need of repair and general

maintenance. Based on the stone cap results from St. Katherine's, it can be assumed that the St. Joseph's stone cap contains ACM in the tar and caulk. This is considered a Category I material that has become friable due to age and damage and must be handled according to NESHAP. If the structure is deemed structurally safe, the friable material must be removed prior to demolition, the non-friable material could be left in place during demolition.

Estimated Quantity: 0.35 cubic feet (flashing and caulk only)

Plaster/Texture: The plaster was sampled in 1989 (non-detect). The plaster can be disposed as part of the construction/debris rubble should demolition be selected. Given the presence of floor tile and other Category I materials which may be left in the building, it is recommended that the debris waste be disposed of off reservation. Encapsulation is recommended (see Section 2.82, Lead-Based Paint).

Floor tiles and mastic: There is approximately 1,040 square feet of 9" floor tile containing asbestos according to the 1989 asbestos inspection. Asbestos containing resilient floor coverings must be removed before demolition only if they are in poor condition and are friable. The 1989 inspection indicates that 40 square feet is damaged. This could not be confirmed due the amount of debris and organic material covering the floor caused by the dropping of the ceiling and pigeons and safety issues. Option 1: If the building is deemed unsafe, floor tiles could be left in place during demolition as the debris will contain other Category I asbestos. The debris should be disposed at a landfill that accepts asbestos materials and should not be recycled. Option 2: If the building is deemed safe, recommend removal of all floor tiles to reduce the cost of demolition and landfill charges. Note: floor tiles cannot be ground up with concrete or other building debris for demolition.

Estimated ACM Quantity: 1,040 square feet (1989 estimate-unable to confirm).

Ceiling Tile Mastic: The ceiling in St. Joseph's on the 1st and 2nd floor has collapsed. Mastic was scattered throughout many of the rooms and commingled with plaster, trash, and pigeon guano. Based on the condition of the building, there are two options for removal:

1. The mastic material is categorized as asbestos containing (>1% ACM) nonfriable Category I under NESHAP regulations. The mastic could remain in the building during demolition and disposed in a landfill that accepts asbestos materials.
2. If the building is deemed structurally safe, this material could be carefully collected and placed in a leak-tight disposal bag and disposed of as non-friable ACM (in order to minimize the amount of asbestos in the construction/demolition debris). However, it will be very difficult to establish a negative pressure enclosure for any abatement given the condition of the windows and other building penetrations.

Estimated quantity: 4,800 square feet

2.8.2 Lead-Based Paint

The disposal of lead-based paint (LBP) waste is regulated by the South Dakota DENR. Disposal options and applicable management requirements for collected debris are based upon whether the waste stream is considered a hazardous waste (i.e., Toxic Characteristic Leaching Procedure [TCLP] test) and the amount of debris generated. Lead-based paint was not screened on interior components. Exterior components contained ACM >1%. Based on the age of the building, and results from St. Katherine's, LBP is highly suspect.

Estimated Quantity: 8,500 square feet (plaster walls)
7,200 square feet (plaster ceilings)
75 windows

2.8.3 Lead-in-Soil

Six soil samples (north, east and west) indicate lead levels above the EPA regional screening level (RSL) for lead in soil (400 ppm), which is consistent with the XRF screening of the window components and visible paint flakes located along the external walls. Plastic sheeting should be used during demolition to prevent additional LPB to enter the soil near the foundation. After demolition, top soil should be removed (2-3 inches minimum) and disposed in an approved landfill. Post removal soil-screening (XRF) or soil sampling should be conducted to confirm that contamination has been removed or reduced to below the federal standards.

Estimated Quantity: TBD during demolition planning

2.8.4 PCBs/Mercury

Light fixtures were identified on all floors with potential PCBs/Mercury in ballast and fluorescent bulbs. Some ballast had labels of "No PCBs" while others will be assumed to contain PCB based on age of the building or damaged ballast (flash). Outdoor emergency lights have potential for mercury. Remove and dispose at an EPA-approved facility.

Estimated Quantity: 200 fixtures (PCB ballast, mercury light bulbs and exterior lights)

Based on the structural integrity of the building and other concerns with mold and pigeon guano, there could be issues with removal of the light fixtures (as regulated materials). Emergency and exit lights located on each floor may also contain lithium batteries.

2.8.5 Mold

The presence of mold is visible throughout the building, particularly in the basement. Mold can and likely has caused structural damage to the building (wood flooring). This is compounded by the presence of roosting pigeons and significant amounts of pigeon guano. There are no EPA regulations or standards for airborne mold concentrations. All molds have the potential to cause

health effects. Molds produce allergens, irritants, and in some cases, toxins that may cause reactions in humans.

Based on the structural integrity of the building and the extensive amount of mold and pigeon guano, the mold and the pigeon guano should be left in place during demolition. The level of personal protective equipment (PPE) required for adequate protection for workers involved in the demolition process needs to be considered during planning.

If there is a requirement for building materials to be separated for recycling during demolition (masonry, wood, and sheetrock), it may be recommended that the large components of mold be removed. Mold is likely comingled with the ceiling tile mastic, pigeon guano and building debris on the 1st and 2nd floors. Bagging the components would help clean the building and give the workers more protection, but there is no regulation that requires removal prior to demolition.

2.8.6 Pigeon Guano

The building is severely contaminated with pigeon guano and roosting and dead pigeons throughout the building. Bird droppings from pigeons have contributed to damage in the building structure, ventilation systems and paint finishes due to its corrosive nature. The dead pigeons introduce parasites, fleas and ticks creating a breeding ground for other biological hazards. This combined with the unpleasant odor and potential for bacteria and fungus presents a risk to human health. The safe removal of the bird waste is important to ensure human health issues are eliminated; however, cleaning the area prior to removal is near to impossible due to the commingled guano and building debris created by moisture and pigeons. Thus, the pigeon guano should be left in place during demolition. Proper level of PPE required for adequate protection for workers involved in the demolition process needs to be considered during planning.

2.9 SPECIFICATIONS FOR ASTM E 1903-11 REPORT USE AND RELIANCE

2.9.1 Special Terms and Conditions

This document has been prepared by the WESTON START IV team as tasked by the EPA solely for the use and benefit of the EPA, YST, and MIS. Any use of this document or information herein by persons or entities other than the EPA, YST, or MIS, without the express written consent of START, will be at the sole risk and liability of said person or entity. START will not be liable to the EPA, YST, MIS, or such persons or entities, for any damages resulting therefrom. It is understood that this document may not include all information pertaining to the described site.

2.9.1.1 Limitations and Exceptions of Assessment

ASTM E1903-11 (Section 4.2.1) acknowledges that "No Phase II ESA can eliminate all uncertainty. Furthermore, any sample, either surface or subsurface, taken for chemical testing may or may not be representative of a larger population. Professional judgment and interpretation are inherent in the process, and even when exercised in accordance with objective scientific principles, uncertainty is inevitable. Additional assessment beyond that which was reasonably undertaken may reduce the uncertainty". ASTM E1903-11 (Section 4.2.1.2) acknowledges that "The effectiveness of a Phase II ESA may be compromised by limitations or defects in the information used to define the objectives and scope of the investigation, including inability to obtain information concerning historic site uses or prior site assessment activities despite the efforts of the user and Phase II Assessor to obtain such information in accordance with 5.1.3". Furthermore, the ASTM E1903-11 (Section 4.2.2) states "Phase II ESAs do not generally require an exhaustive assessment of environmental conditions on a property. There is a point at which the cost of information obtained and the time required to obtain it outweigh the benefit of the information and, in the context of private transactions and contractual responsibilities, may become a material detriment to the orderly conduct of business. If the presence of target analytes is confirmed on a property, the extent of further assessment is a function of the degree of confidence required and the degree of uncertainty acceptable in relation to the objectives of the assessment."

2.9.2 Disclaimers

START has performed this Phase II ESA in general conformance with the scope and limitations of ASTM E 1903-11 standard and TDD 0003/1307-12. The Phase II ESA findings and conclusions presented herein are professional opinions based solely on data collected during the assessment and/or interpretation of information and past data provided for review. The information and data collected from the Site by START is based on the conditions existing on the date(s) of START's assessment activities at the property. START does not warrant or guarantee information obtained from third parties used for this assessment are correct, complete, and/or current.

Though START did collect samples and/or perform testing during this assessment, it is possible that past contamination remains undiscovered or that property conditions will change in the future. START does not warrant or guarantee the property suitable for any particular purpose or certify the property as "clean."

ASTM E1903-11 (Section 1.5) states "This practice is not intended to supersede applicable requirements imposed by regulatory authorities. This practice does not attempt to define a legal standard of care either for the performance of professional services with respect to matters within its scope, or for the performance of any individual Phase II Environmental Site Assessment."

Information, limitations, and disclaimers provided in this general section apply to all of the sections included in this report.

2.10 SIGNATURE OF PHASE II ASSESSOR AND SEAL

This Phase II ESA was completed by the following START personnel; qualifications are provided at the end of the report:

Ms. Mary Kenner, ACM Inspector and Environmental Professional

Mr. Gary Snow, ACM Inspector and Environmental Professional

Mr. Greg Geras, P.G., Geoscientist and Environmental Professional

Ms. Mary Kenner has undertaken the role of Phase II Assessor for this assessment. The following is the certification statement as defined in ASTM Practice E 1903-11 Section 9.2.1:

We have performed a Phase II environmental site assessment at the located on the campus of Marty Indian School, 9000 388th Avenue, Marty, Charles Mix County, South Dakota in conformance with the scope and limitations of ASTM Practice E 1903-11 and for the following objectives:

- *Perform a review of previous environmental reports and obtain information regarding extent of RECs present at the site.*
- *Conduct a Phase I ESA to identify RECs at the site.*
- *Conduct limited Phase II ESA activities (i.e., collection of opportunity samples) to assess and evaluate the extent of known ACM contamination (i.e., fill in data gaps in materials present);*
- *Conduct limited Phase II ESA activities (i.e., collection of opportunity samples) to determine the presence or non-presence of LBP and lead in soils.*
- *Conduct limited Phase II ESA inspection activities to determine the presence or non-presence of PCBs, mold, and/or mercury at the site;*
- *Collect sufficient data to determine if additional Phase II ESA activities are warranted to completely assess LBP, lead in soils, PCBs, mold, and/or mercury at the site;*
- *Provide sufficient data to support ACM demolition and/or remediation cost estimating.*

- *sProvide sufficient data to assist the TBA Grantee in making informed decisions with regard to the future use of the property by YST/the School.*

Mary Kenner
Certifying Environmental Professional (Print)

Scientist
Title

Signature

Date

3.0 CLEANUP ALTERNATIVES

Cleanup options include no action and demolition (leave building materials in place). No cost estimate is provided for remediation for reuse. Based on the deteriorating condition of the building, the costs to clean the building of mold and pigeon guano, remove asbestos, and upgrade the building to code (fire, electrical, handicap accessibility) would far exceed the costs to demolish.

3.1 NO ACTION

Under the no action alternative, the building would remain in place; however, the structural integrity of the building and the biohazards (mold and pigeon guano) present a health and safety hazard to the MIS staff and students. Steps should be taken to notify the MIS Campus of the RECs (asbestos and LBP) and efforts should be made to secure the building and surrounding soils to restrict access to any persons and prevent children from potential exposures. Children should be discouraged from playing around the foundation of the building due to elevated levels of lead-based paint.

3.2 DEMOLITION (LEAVE BUILDING MATERIALS IN PLACE)

A structural engineer would need to determine the structural integrity of the building before any additional investigation or remediation/demolition is conducted. Based on the deteriorating condition of the building, presence of mold, and pigeon guano), demolition is the preferred option leaving building materials in place. The cost for this (with a 20% contingency of $41,000 to $55,000 added) is estimated to be approximately **$246,000 to $330,000**. The condition of the building and biological hazards (mold, pigeons, and other vectors) compromises worker safety and access to abate asbestos materials and remove light fixtures (ballasts, fluorescent bulbs, lithium batteries). The cost estimate provides line items for abatement, encapsulation, fixture removal, and demolition. The line item for lead encapsulation (scraping and HEPA vacuuming)

for lead-based paint is not a federal requirement, but an option to stabilize loose, flaked paint components prior to disposal. It is not included in the cost estimate. Abatement and encapsulation are only valid if the structure is deemed safe. Some landfills may require sorting of building components during demolition (in place). If review by a structural engineer indicates the building is sounds, the estimated cost to abate and demolish the building is approximately between $293,300 and $363,300.

St. Joseph's
Based on R.S. Means Costs
Date Prepared: 10/28/2013

Asbestos Abatement Cost Breakdown

ACM	Square Footage		Unit Price		Removal Cost
9x9 Floor Tile	1,040	$	1.94	$	2,017.60
Window Caulk	20	$	50.00	$	1,000.00
Ceiling mastic	4,800		$0.95	$	4,560.00

Preparation of Area	Square Footage		Unit Price		Total Prep Cost
Move furniture and materials				$	15,000.00
Critical Barriers				$	750.00
Decontamination Chamber	18	$	6.30	$	113.40
Set up neg. air machine, 1-2k CFM	6	$	129.00	$	774.00

Disposal	Unit		Unit Price		Total Cost
Polyethylene bags, 6-mil, 3 C.F.	350	$	1.36	$	476.00
Disposal Fees (Non-friable)	45	$	5.00	$	225.00
Total Abatement Cost				**$**	**24,916.00**

Lead Paint Encapsulation	Square Footage		Unit Price		Total Cost
Plaster (Walls)	8500	$	1.12	$	9,520.00
Plaster (Ceiling)	7200	$	1.22	$	8,784.00
Windows	75	$	53.00	$	3,975.00
Total Encapsulation Cost				**$**	**22,279.00**
Removal of fixtures	200		72.5	**$**	**14,500.00**

Demolition Costs

Dumping Fees (80-100 @ $1,000)	$80,000-$100,000
Demolition/Sorting	$50,000-$75,000
Site Recovery/Compaction	$75,000-100,000
Total Demolition Cost	**$205,000-$275,000**

NOTE: Abatement and Encapsulation are only vaid if the structure is deemed safe.

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4.0 QUALIFICATIONS

WESTON utilized qualified professional staff, trained in performing the scope of work required for this Phase I ESA. This team included a project manager and technical specialist. Their roles are described in more detail as follows:

Environmental Scientist – Ms. Mary Kenner holds a B.S. Interdisciplinary Sciences with over 18 years of project experience in environmental consulting, conducting Phase I and Phase II assessments, preliminary assessments/site investigations (PA/SI), field sampling plans, quality assurance program plans, and National Environmental Policy Act (NEPA) documentation. She has worked with several Tribes on Brownfields Program development. Certifications include 40-Hour OSHA Hazardous Waste Site Worker Training; 8-Hour OSHA Refresher Training; Certified Asbestos Building Inspector; First Aid and CPR; Phase I and Phase II Certificate for Commercial Real Estate.

Asbestos and Lead Inspector–Mr. Gary Snow has 35 years of experience as general contractor and asbestos consultant. Lead Contactor Training (Oregon State University; University of North Dakota); Certified Mold Remediation; 40-Hour OSHA Hazardous Waste Site Worker Training; 30-Hour OSHA Field Supervisor Course, 10-Hour Construction Worker, US EPA LPB Certification, Region VIII, Certified Asbestos Inspector, Management Planner, Abatement Designer, Contractor, and Supervisor.

Project Geologist and Environmental Professional – Mr. Greg Geras is a project geoscientist with over 10 years of experience in the field of environmental sciences and consulting. Mr. Geras specializes in the development and implementation of site investigation plans, analysis of soil and groundwater data, evaluation of remediation options, and conducting Phase I and Phase II ESA investigations. He is experienced in projects involving initial site assessment, soil and groundwater investigations, remedial action/corrective action plans, risk assessment, closure plan development, and agency negotiation.

- Project Manager –Mr. Mark Blanchard, P.G. is an environmental professional with 20+ years of experience as a geologist conducting and managing complex projects including site assessments, feasibility studies, and remedial design activities at RCRA/Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) sites. He is experienced in conducting and managing projects involving condition assessment, conducting research, and writing and reviewing technical documents including Phase I ESAs.

5.0 REFERENCES

Akta Lakota Museum and Cultural Center, 2013. Yankton Sioux Reservation. Website access on 9/10/2013. http://aktalakota.stjo.org/site/News2?page=NewsArticle&id=8661,.

Citation	Reference Type	Soundness	Applicability and Utility	Assessment Factor Clarity and Completeness	Uncertainty and Variability	Evaluation and Review
Akta Lakota Museum, 2013.	Webpage	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable

American Society for Testing and Materials (ASTM), 2005. E1527-05, *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process.* West Conshohocken, Pennsylvania.

Citation	Reference Type	Soundness	Applicability and Utility	Assessment Factor Clarity and Completeness	Uncertainty and Variability	Evaluation and Review
ASTM	Guidance	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable

American Society for Testing and Materials (ASTM), 2011. E1903-11, Standard Practice for Environmental Site Assessments: Phase II Environmental Site Assessment Process. West Conshohocken, Pennsylvania.

Citation	Reference Type	Soundness	Applicability and Utility	Assessment Factor Clarity and Completeness	Uncertainty and Variability	Evaluation and Review
ASTM	Guidance	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable

Charles Mix County, 2013. Tax Map, Marty, SD School Area. Prepared 8/29/2013 by Noreen Strid, GIS Administrator.

Citation	Reference Type	Soundness	Applicability and Utility	Assessment Factor Clarity and Completeness	Uncertainty and Variability	Evaluation and Review
Charles Mix County, 2013.	Phone Conversation	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable

Drapeau, Gaylen and C. Reynolds 2013. Personal conversation. September 10, 2013.

Citation	Reference Type	Soundness	Applicability and Utility	Assessment Factor Clarity and Completeness	Uncertainty and Variability	Evaluation and Review
Drapeau and Reynolds, 2013	Phone Conversation	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable

EDR. 2013a. *The EDR Radius Map™ Report with GeoCheck®. 9000 388th Avenue, Marty, SD. Inquiry number 3735362.2, September 23, 2013.*

Citation	Reference Type	Soundness	Applicability and Utility	Assessment Factor Clarity and Completeness	Uncertainty and Variability	Evaluation and Review
EDR, 2013a	Database	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable

EDR. 2013b. *The EDR Aerial Photo Decade Package. 9000 388th Avenue, Marty, SD. Inquiry number 3735362.5-1,2, September 23, 2013.*

Citation	Reference Type	Soundness	Applicability and Utility	Assessment Factor Clarity and Completeness	Uncertainty and Variability	Evaluation and Review
EDR, 2013b	Photographs	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable

EDR. 2013c. *EDR Historical Topographic Map Report. 9000 388th Avenue, Marty, SD. Inquiry number 3735362.4, September 23, 2013.*

Citation	Reference Type	Soundness	Applicability and Utility	Assessment Factor Clarity and Completeness	Uncertainty and Variability	Evaluation and Review
EDR, 2013c	Historical Maps	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable

EDR. 2013d. *EDR Chain of Title Search. 9000 388th Avenue, Marty, SD. Inquiry number 3735362.13.1, September 23, 2013.*

Citation	Reference Type	Soundness	Applicability and Utility	Assessment Factor Clarity and Completeness	Uncertainty and Variability	Evaluation and Review
EDR, 2013e	Historical Record	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable

EDR. 2013e. *The EDR Environmental LienSearch™ Report. 9000 388th Avenue, Marty, SD. Inquiry number 3735362.2-1, September 23, 2013.*

Citation	Reference Type	Soundness	Applicability and Utility	Assessment Factor Clarity and Completeness	Uncertainty and Variability	Evaluation and Review
EDR, 2013e	Database	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable

Hazard Control, Inc. ACBM Inspection. St. Katherine's 90000B. February 2, 1989. Reinspection July 1995.

Citation	Reference Type	Soundness	Applicability and Utility	Assessment Factor Clarity and Completeness	Uncertainty and Variability	Evaluation and Review
Hazard Control, Inc.	Report	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable

Leasure, Richard, 2013. Personal interview. September 25, 2013.

Citation	Reference Type	Soundness	Applicability and Utility	Assessment Factor Clarity and Completeness	Uncertainty and Variability	Evaluation and Review
Leasure, 2013	Interview	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable

NIOSH, 1998. Health Hazard Evaluation Report. Yankton Sioux Tribe-Marty Indian School, Marty, South Dakota. Prepared by Ronald M. Hall and Yvonne Boudreau, M.D., HETA 98-0124-2743. NIOSH Publications Office. Cincinnati, OH. http://www.cdc.gov/niosh/hhe/reports/

Citation	Reference Type	Soundness	Applicability and Utility	Assessment Factor Clarity and Completeness	Uncertainty and Variability	Evaluation and Review
NIOSH, 1998.	Previous Report	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable

Schemmer Associates, 2006. Roof Assessment, St Joseph's Building 90000D. Prepared for Bureau of Indian Affairs.

Citation	Reference Type	Soundness	Applicability and Utility	Assessment Factor Clarity and Completeness	Uncertainty and Variability	Evaluation and Review
Schemmer	Report	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable

United States Environmental Protection Agency (USEPA), Notification of Demolition and Renovation. 6/3/2011.

Citation	Reference Type	Soundness	Applicability and Utility	Assessment Factor Clarity and Completeness	Uncertainty and Variability	Evaluation and Review
USEPA, 2011	Form	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable

United States Department of the Interior (USDOI), National Parks Service (NPS), *National Register of Historic Places Registration Form.*

Citation	Reference Type	Soundness	Applicability and Utility	Assessment Factor Clarity and Completeness	Uncertainty and Variability	Evaluation and Review
USDOI, NPS,	Application	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable