

ANALYSIS OF BROWNFIELD CLEANUP ALTERNATIVES

Former Kake Elementary School

Kake, Alaska

May 19, 2015

1.0 INTRODUCTION

This Analysis of Brownfields Cleanup Alternatives (ABCA) is intended as a screening tool to ensure and document that the appropriate type of cleanup is selected to address environmental contamination at the Former Kake Elementary School in Kake, Alaska. The preferred remedial action considers site characteristics, the surrounding environment, potential future uses, and cleanup goals.

2.0 SITE DESCRIPTION

The Former Kake Elementary School (School) is located in downtown Kake near intersection of Church Street and Fourth Avenue and is owned by the City of Kake (City) (Figure 1). Specifically, it is located at Township 56° 57' 27" N and 133° 54' 02" W (NAD 83). USGS Quadrangle "Petersburg (D-6)", Alaska, Township 056 South, Range 072 East, Seward Meridian. It was built in 1951 and additions to the building were made in 1979-1980. In 1996, the School closed because a new one had been built in another location. The School has been vacant for numerous years and is in a state of dilapidation. Over the years, the roof has collapsed in addition to other structural failures (Figures 2-4). The City believes that the condemned School is a safety and environmental hazard and poses an attractive nuisance for local youth. The School has an attached playground that neighborhood children continue to play in and there are no physical barriers preventing access to the School by children or trespassers. The City would like to see the School demolished as soon as possible and a community center be built in its place. There are some environmental issues that will have to be addressed prior to the demolition of the School including asbestos, lead based paint, and polychlorinated biphenyls (PCBs).

3.0 PREVIOUS INVESTIGATIONS

An asbestos survey done in 1985 identified friable asbestos-containing pipe wrap in the boiler room at the elementary school and recommended abatement. It is unclear whether the friable asbestos materials and potentially other asbestos containing materials (ACM) were removed as part of a 1986 contract to Wyman Construction. Another unofficial asbestos survey of the property was completed by the City in 2012. This survey involved the collection of various samples by the City and testing through an environmental contractor. The results identified regulated asbestos-containing materials (RACM > 1% asbestos) in floor tiles and paneling. It cannot be confirmed where the samples were collected or if the sampling was comprehensive.

In 2014, the City requested and was awarded assistance from the DEC through its Brownfield Assessment and Cleanup (DBAC) Program for assistance in assessing the condemned School such that the City could move forward with plans for demolition and subsequent redevelopment of the property. The DEC submitted to the City all reports and estimates for the work described below for their review.

The issues that were addressed and/or completed as a part of that work are as follows:

1. A Historical property assessment was done by True North Sustainable Development Solutions under subcontract to Shannon and Wilson (S&W) and found that the School is ineligible for inclusion in the National Register of Historic Places due to loss of integrity of the building.
2. A hazardous building materials survey was completed by EHS Alaska Inc. under subcontract to S&W in August 2014. The building was inspected and/or sampled for ACM, PCBs, mercury, and radioactive materials. Partial building collapse prevented the investigation of some parts of the building. Of seventy-three samples laboratory analyzed for asbestos, thirteen tested positive for RACM. The ACMs included joint compound, asbestos board, vinyl flooring, insulation, and sealants among other materials. The ACMs were of friable and potentially friable condition and the structural instability of the building would likely prevent remediation. In addition, although no asbestos dust/debris was analyzed from the ground/floor of the building, due to structural collapse, ACM debris is likely present throughout the building. As such, EHS recommended that due to the structural instability of the building, all building materials should be treated and disposed of as ACMs.

EHS also inspected the building as much as possible for lead-containing materials at sixty-one discrete locations and found that lead in paints tested was minimal but the concentration of lead in other materials varied from trace to 13.2 mg/cm².

EHS examined the building for PCB-containing light ballasts and found that although some ballasts were labeled “No PCBs”, others were not labeled and their manufacturer will have to be contacted to determine whether or not they are PCB-containing. The only mercury-containing materials identified during the survey were fluorescent lamps and HID lights. The fluorescent lamps had been vandalized and the mercury had escaped onto the building floor. No mercury-containing thermostats or electrical switches were noted in the building, but they may be present in accessible areas due to partial building collapse. There were also other materials including refrigerants, batteries, and other hazardous materials that would have to be removed (if possible) at the time of demolition.

3. A 4,500-gallon heating oil underground storage tank was excavated on September 16-17th 2014. Equipment and labor were provided by the City and oversight and analytical sampling were conducted by S&W. The tank was buried at approximately 10 feet below ground surface and was emptied prior to excavation. Excavated soils were field screened using a portable photoionization detector. Two cubic yards of potentially contaminated soil was segregated from potentially clean soil (93 cubic yards) and both were stockpiled on site. After the laboratory results indicated that the excavation base and sidewalls met all cleanup standards set forth by 18 AAC 75.341(d), the excavation was backfilled with clean soil. The contaminated soil had diesel range organics at a concentration of 2,170 mg/kg in addition to benzene and naphthalenes at lower concentrations (0.025-9.68 mg/kg). The contaminated soil was placed in the City Pit area for natural attenuation and monitoring after the DEC provided approval.
4. Demolition and disposal rough order of magnitude costs for disposal of the School both off and on-island using an asbestos monofill were provided by Alaska Demolition Inc. (AKD) under subcontract to S&W. The estimated cost for demolition and disposal of the School

off-island to an appropriate landfill was 2.6 million dollars. This value is based on approximately 363 cubic yards of demolition debris that is assumed to be ACM because asbestos abatement is not possible due to structural collapse. AKD provided an itemized cost list with their estimate. Much of the cost of demolition and disposal is associated with long term rentals of heavy equipment such as a crane, not available in Kake. The heavy equipment would have to be rented for four months due to once-weekly barge service and dock competition with seafood exports. In addition, AKD assumed that other materials and asbestos specialists would not be available in Kake.

AKD provided a second rough order of magnitude cost estimate for demolition and disposal of the School on-island using an asbestos monofill at the request of the DEC. The cost was estimated at \$988,000.

5. A proposal and cost estimate for an asbestos monofill permit for the City of Kake was provided by S&W at the request of the DEC. The scope of work included the permitting application in addition to facility design, waste handling, and an operations and closure plan. It did not include building the monofill. The estimated cost for the permitting and design of an asbestos monofill for the City is \$ 25,000.

The City has again applied for and been granted DBAC assistance for the asbestos monofill permit in preparation for demolishing the School. The current scope of work is to provide the City with the permit and the building plans for an asbestos monofill to be located near the City, either on City land or on Kake Tribal Corporation land.

4.0 REMEDIAL ALTERNATIVES CONSIDERED

This section identifies the remediation alternatives that may be used to address the environmental contamination at the site. The “No Action Alternative” is used as the baseline against which the other alternatives are analyzed. All of the alternatives will be evaluated with respect to Chapter 75 of Title 18 of the Alaska Administrative Code (18 AAC 75).

The following broad categories of evaluation criteria were considered in assembling remediation alternatives at the site:

- Overall protectiveness to public health and welfare of the environment
- Feasibility in achieving site redevelopment

A detailed preliminary cost estimate, including notes and assumptions, can be found at the information repository at the City of Kake office and at the Juneau DEC office.

4.1 No Action Alternative

The “No Action Alternative” would leave a dangerous, attractive nuisance in the middle of the community. The partially collapsed building would remain in place and continue to be a physical hazard to the public. Contamination present within the building could potentially migrate from within the building and concentrate in the soil, potentially migrating off-site via runoff and surface water, having a negative effect on adjacent properties and possibly human health (given prolonged exposure). This property would remain both a physical and environmental hazard and a blighting influence on the neighborhood.

4.2 Removal and Disposal Alternative # 1

The “Removal and Disposal Alternative # 1” will remove building debris and contaminated soil from the site and dispose of it off-island at an estimated cost of 2.6 million dollars. The itemized rough order of magnitude cost is available at the City of Kake office and the Juneau DEC office.

4.3 Removal and Disposal Alternative # 2

The “Removal and Disposal Alternative # 2” will remove building debris and contaminated soil from the site and dispose of it on-island in a permitted asbestos monofill at an estimated cost of \$988,000 in addition to the \$25,000 for the asbestos permit and monofill construction design.

5.0 PREFERRED REMEDIAL ALTERNATIVE

The remedial alternatives were evaluated based on overall protectiveness to public health and welfare of the environment, and feasibility in achieving site redevelopment.

The “Removal and Disposal Alternatives # 1 and # 2” are considered reasonable, technically feasible and capable of protecting human health and the environment. However, Alternative # 2 is vastly more economically feasible due to the great cost of shipment of asbestos demolition debris off-island. Furthermore, the capacity to address this option at this time may be more economically feasible than in the future because of current funding available through the DEC DBAC grant, although this grant would only provide the asbestos monofill permit and not demolition at this time. Demolition of the School may be achieved through further state or federal funding or by the City itself.

The “No Action Alternative” would continue to leave the collapsed building and debris in place at the site, providing an attractive nuisance resulting in severe physical hazards, possibly endangering the community to exposure of residual contamination, and hampering redevelopment of the site.

The DEC has consulted with the City during a City Council meeting in addition to telephone conversations and together they have determined that the “Removal and Disposal Alternative # 2” is the preferred remedial strategy for the site due to cost restraints and the remote location of Kake. The permitting of an asbestos monofill for the City of Kake provides the first step in the demolition of the School and reuse of the site for the benefit of the community.

6.0 FIGURES

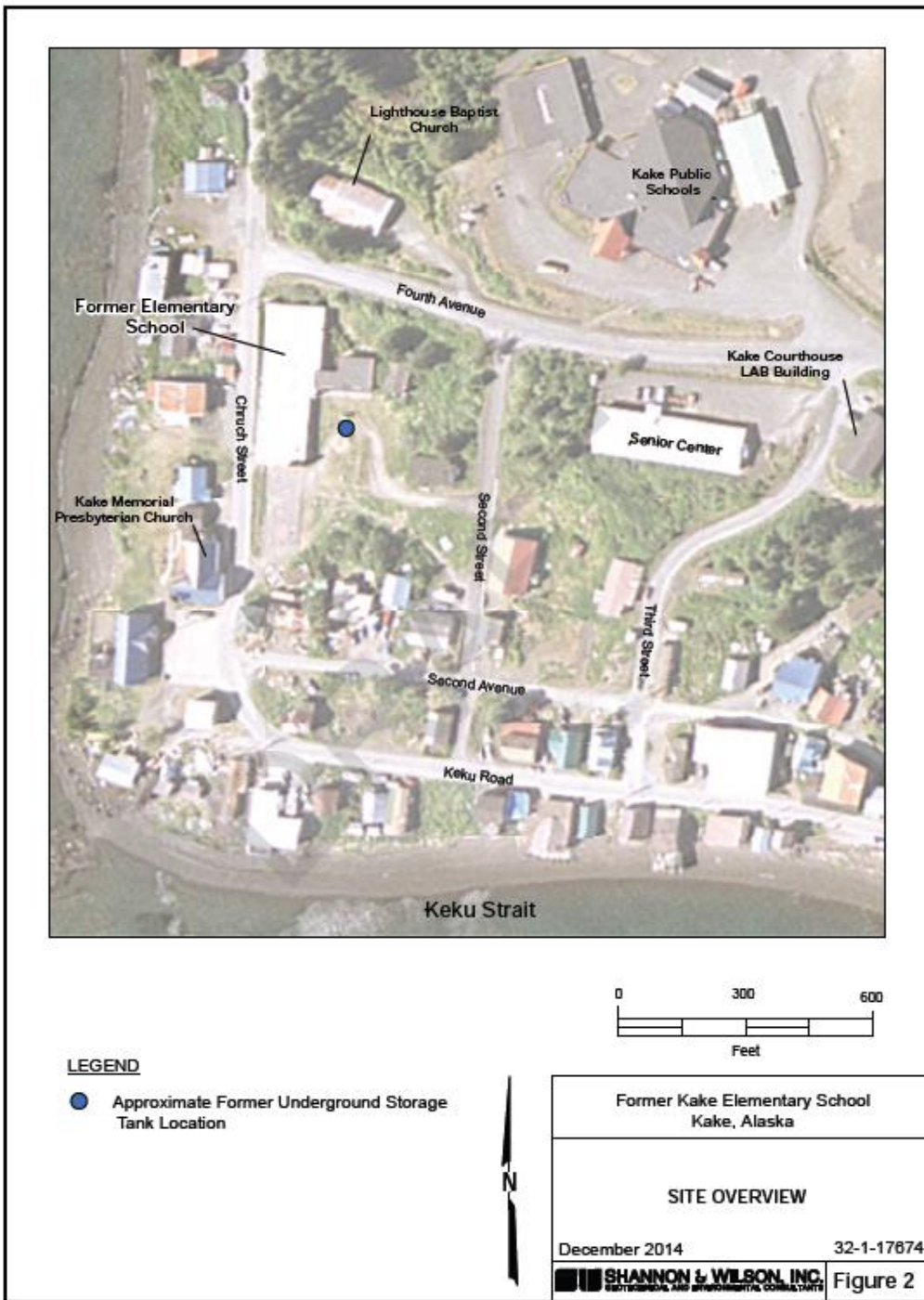


Figure 1: Location of the Former Kake Elementary School. Photo copied from Shannon and Wilson 2014.



Figure 2: The School and the adjacent playground.



Figure 3: The collapsed roof of the School.



Figure 4: The interior of the School.

7.0 REFERENCES

Shannon and Wilson. December 2014. Site Assessment Former Kake Elementary School Kake, Alaska ADEC File ID: 1514.57.002.