PRELIMINARY REPORT

KOYUKUK COMMUNITY

EMERGENCY SHELTER

Koyukuk, Alaska

July 2010

Prepared for:
Koyukuk Tribal Council
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SUMMARY

The Koyukuk Tribal Council has contracted with USKH, Inc. (USKH) to provide planning services for a new Koyukuk Community Emergency Shelter, funded by an Alaska Climate Change Impact Mitigation Program grant from the Alaska Department of Commerce, Community and Economic Development (DCCED), Division of Community and Regional Affairs. The main objectives of the work effort include the following tasks related to the new shelter:

- Identifying the most appropriate site
- Determining the programmatic requirements
- Development of a schematic design
- Estimate of costs for construction
- Estimate of operational costs and income (pro forma)
- Identification of potential funding sources and funding plan
- Design of a foundation for the facility that can be constructed using local resources

On June 15, 2010, the consultant team[1] and DCCED Grant Manager Sally Cox met with the community in the first of four work sessions and identified six sites for consideration, obtained preliminary programming input for building and site, identified preliminary sustainability goals, and learned of the community's vision for the new shelter.

This Preliminary Report summarizes work to date for use during the second work session scheduled for July 27, 2010, and includes:

1. Review of Project Vision and Goals
2. Site Evaluation and Recommendations
3. Preliminary Building Program
4. Preliminary Building Concepts
5. Draft Operations Plan

[1] Consultant team included:
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1 INTRODUCTION

The community of Koyukuk is located on the banks of the Yukon River, close to the confluence of the Yukon River and the Koyukuk River. It is located 30 miles west of the City of Galena and 290 air miles west of the City of Fairbanks. The community is potentially threatened by human-caused and natural events including fire hazards, ice dams, and flooding/erosion resulting from ice dams.

According to the Koyukuk Emergency Operations Plan, structure fires and wildland fires are of concern and Koyukuk is listed as a "full protection area". Sources of fire are both human-caused and lightning strikes which may result in structure and/or wildland involvement.

Seasonal flooding is common within the village and the community has learned to live with the negative impacts of flooding, which include damage or destruction of structures, stored food, vehicles. Flooding also can create mobility problems for elders and the rest of the community. Of the threats posed to the community, floods have historically been the events for which a shelter is most needed.

The Koyukuk Community Emergency Shelter is proposed to provide shelter for the community during these events. It will serve as a command post and a "safe house" that is accessible to the community and facilitates evacuations, provides temporary housing, and enables return of residents to their homes in a safe manner. The community shelter will also provide for other community needs that may be accommodated within the shelter.

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2 SITE EVALUATION

2.1 Foreword

The selection of the most appropriate site for the new Koyukuk Community Emergency Shelter is a critical step for meeting the community's needs in times of emergency. The following analysis examines six identified sites in terms of the characteristics of flood events, the determination of general parameters of the shelter, site selection criteria, analysis of each site, and ranking the sites in terms of the selection criteria.

2.2 Characteristics of Flood Events

The location of a facility to meet community needs should recognize the nature of and immediacy of the specific events. According to information provided at the first public meeting, June 15, 2010, the community prepares for flood events weeks or even months in advance of the seasonal flooding that often occurs. The community moves foodstuffs, clothes, and valuables to caches or other structures out of the reach of floodwaters. In some cases, elders move to other villages that are not threatened by flooding. When flooding is imminent, vehicles are moved to the airport which is above "flood elevation" (roughly elevation 148 above Mean Sea Level [MSL]). Dog teams are moved to locations that are not threatened. Watchmen are posted to monitor the flood conditions on a 24-hour basis. Four-wheelers suffice for movement during flood events until the water is deep enough that canoes and boats are needed.

Floods do not typically pose "velocity" problems in which structures are subjected to strong currents or forces. Water generally rises predictably and relatively slowly. Although, when ice jams are present, the river has been known to rise relatively quickly. In some cases, the airport becomes a central area of community activity as planes arrive to assess damage and provide assistance. Further, it is a point of full evacuation if ever needed. The Ella B. Vernetti School is also a congregation point for many, though the school is small relative to the needs of the community during flood events. Still, the Koyukuk Evacuation Plan designates the school as the "preferred emergency shelter for primarily the elderly, special needs and vulnerable/at-risk populations, families with small children, and individuals on medical support, because the school has independent generator, toilets and water supply." The plan also designates the Community Hall as the preferred emergency shelter for other adults. However, it is at a lower elevation than the school and is subject to flooding at a much earlier point of a flood event.

Residents have reported that when flooding occurs, there are definite old stream channels that flood and recede more quickly than other areas of the community. In general, development is limited in the more flood-prone areas, although one of the channels flows through the heart of the community, just north of the school and tribal hall/city offices. The city's sewage treatment plant is located in one of these areas and is reported to flood in a typical event.

While flooding is problematic, erosion is also a great concern. Large sections of the Yukon River bank succumb to the forces of the fast-moving current. Remnants of "Old Town Koyukuk" include a cache and some other minor structures that are the only remaining evidence of the southern limits of the village. Land ownership maps identify lots that are now almost entirely submerged in the waters of the Yukon River.

2.3 General Service Requirements of a Community Evacuation Shelter

Following are specific needs for the shelter, identified by public input in a June 15, 2010 meeting. These are only general requirements with specifics discussed in the Facilities Description section of this document.

The public indicated that the shelter needs to be able to provide temporary housing for approximately 65% of the population of 85, or approximately 55 individuals during an emergency "on-site" evacuation. Almost all will be in family units and will include elders, adults, and children. The shelter needs to provide temporary bedding to accommodate the families. The housing will need to be divided or "divide-able" to provide some sense of privacy between families.

The shelter will require a kitchen to prepare meals, though not of a "commercial kitchen" level of requirements. The kitchen will need dry and canned good storage, utensils, 3-compartment sinks, a hand-wash sink, refrigerator, oven and stove top, and dishwasher. Space will be needed for preparing multiple meals at one setting.

The structure will need restrooms and showers to accommodate evacuees and emergency workers. The shower area should accommodate a changing area for individuals and families. Also, clothes washers will be needed either in the restroom area or in an adjacent room.

An office will be needed from which search and rescue and evacuation operations can be managed. The office will need radio and Internet communications and will need to provide storage of key documents that will be needed in evacuations.

The public identified a need for a structure or cooler in which frozen foods can be stored away from flood waters. Since these frozen foods are the result of subsistence harvest that are vital to the community, such a facility or cooler is necessary.

Utilities should include water, sewer, and power, as well as communications. The facility will be connected to the public utility, which is located above floodwater levels. The facility should also include a separate generator for backup purposes. Water should be provided via a dedicated well. Sewage and grey water can be addressed via an in-house biological treatment system, recognizing that it would require holding tanks to provide for larger numbers of people during extended periods of flooding.

2.4 Ancillary Facilities to be Considered

The community identified a number of other uses that could be accommodated within the facility, both to facilitate better use of community resources and to provide revenue sources for facility operation and maintenance. Following are ancillary facilities that were identified.

Village Public Safety Officer (VPSO) Office: The VPSO will be a critical player in the event of an evacuation. The office would provide communications and emergency power which the VPSO would need during critical VPSO responses. Also, location of the VPSO within the facility would allow close contact between the VPSO and evacuation resources. The VPSO will require a holding cell within the office to provide community safety needs.

Koyukuk Tribal Responsibilities: The Tribe currently shares offices with the City of Koyukuk though the available space is crowded. Since the Tribe shares responsibilities for preparedness with the City and the Tribe needs

space, the Tribe would like to locate its offices within the shelter, freeing space in City Hall and providing rental income for the building, funding maintenance and upkeep of the facility.

Elder Meals Program: The facility may offer an opportunity to provide a location for the Elder Meals Program given the presence of a kitchen and an open area for gatherings.

Visitor Accommodations: Currently visitors must lodge in the school. Visitors may include contractors, consultants, visiting school teams, or others not accommodated in housing. The shelter could provide temporary lodging for these visitors, generating income to offset operations and maintenance costs.

Instruction Space: A number of programs such as IGAP, Violence Safety Class, and other education classes would benefit from a facility with space for instruction and kitchen facilities. This could be another way to use the facility to generate potential revenue to offset operations and maintenance costs.

Summary of building size requirements: The above requirements would generate a building in size between 5,100 square feet and 8,200 square feet, based on initial estimates of needs.

2.5 Criteria for a Community Evacuation Shelter

The location of a shelter will be determined, in part, by the community's long range vision of where the community will be in 20 to 50 years. The June public meeting addressed this question and concluded the following:

- Most buildings are in good shape. They are either recently constructed or have been maintained in generally good shape. Recently constructed homes are on piles that will accommodate most flood conditions. Other structures have been raised in elevation to recognize flood events.
- It is doubtful that there will ever be sufficient federal or state funds to move the village to a different location. Koyukuk is a subsistence village with limited individual personal income, which makes it unlikely that villagers will have access to sufficient funds to move their own homes or to construct new homes.
- Village life is sustained by the river. Many people would probably refuse to leave the homes they live in. They wish to be close to their boats and their traditional roots, not safely on a high bluff far from the river below.
- Villagers have learned to accommodate flooding and prepare weeks and even months in advance of flooding. They have also learned how to rebuild and how to keep rebuilding costs down in the event of a flood. Their key interest is to provide a safe place to shelter community members when flooding occurs.

Given these findings, this report is based on the assumption that the village which will remain in its present location for the foreseeable future.

2.5.1 Elevation:

The community shelter must be located above flood waters. Currently, the airport is considered to be above flooding and is at elevation 148 above Mean Sea Level (MSL). Given that the airport has survived multiple flood events and has functioned well, a base flood elevation for the building floor should be near the airport elevation, achieved either by locating on a site that provides that elevation, by building on piles, or by building a "safe island" in the flood zone.

2.5.2 Proximity to River:

Erosion is a significant issue and has "eaten" portions of the village for many years. The shelter should not be built within 250 feet of the river. Also, certain remnant channels exist that flood much more quickly than other areas of the village. These areas should be removed from consideration as building sites.

2.5.3 Proximity to Village Center:

The shelter should be located within walking distance of the current village center, roughly defined as the Ella B. Vernetti School. This should be approximately within ½ mile of the school with decreasing value with increasing distance from the school.

2.5.4 Proximity to Airport:

The airport serves as the focus of operations during flood events with supplies and personnel arriving by air, individuals evacuating by air, and personal possessions being stored at the airport. Proximity to the airport is desirable, with decreasing value with distances greater than ¼ mile from the airport.

2.5.5 Parcel Size:

The structure size itself may be as much as 8,200 square feet in size. The site needs to accommodate the facility plus utilities, parking (trucks, boats/4-wheelers, etc.), and any fill side-slopes that are needed to bring the facility above flood elevation. Also, given the importance of the facility in fires, a substantial fire break should be provided as well. FireWise suggests a completely clear area of 30 feet from structures and partial clearing and fuel controls to 100 feet from structures. Given these requirements, the facility should have a minimum parcel size of two acres.

2.5.6 Soils:

Soils should be suitable for building and site construction. Wetter soils are less desirable for construction than drier soils.

2.5.7 Site Development Costs:

In general, the building costs will be roughly the same. However site costs may be significantly higher depending on gravel import requirements and depth to groundwater, though groundwater is expected to be generally the same throughout the village.

2.6 Candidate Parcels

Six sites were identified for consideration as potential locations for the shelter:

- Near Airport
- End of Spruce Street, North Side of Road
- South of the Power Plant
- "ATCO" Trailer Site, North of School
- Adjacent to (south of) City/Tribal Office

- Koyukuk Mountain

Following is a review of each of the candidate sites. The review includes a summary of the general site characteristics accompanied with a review of the compliance of the site with the criteria above. The compliance with criteria includes a summary table with a grading of "A", "B", or "C". An "A" would be provided to a site which fully meets the criteria. A rating of "B" would be provided to a site that generally complies with the criteria but has some limitations. A rating of "C" would be provided to a site that has a "fatal" flaw and would seriously compromise the intent of constructing a shelter at that site for the specified criteria. A site with a fatal flaw would need extenuating circumstances to warrant further consideration as a potential site.

2.6.1 Near Airport

The Airport parcel is on Third Ridge Road/Airport Access. It is an upland area covered by spruce forest. The upland area under consideration as a site is bordered to the north and south by lower areas that tend to be the first areas flooded during seasonal events. The site is higher than most other sites with elevations that range between 133 and 138 MSL. The site is approximately 750 feet from the airport. The parcel is owned by the City of Koyukuk and is bordered to the north by a parcel owned by Gana-A'Yoo. The northern 62 feet of the parcel is overlain by a road and utility easement.

Figure 1 Near Airport Site

Elevation: This parcel is higher in elevation than any other site provided within the village proper. It is approximately 10-15 feet below the "safe" elevation of 148 MSL, and is almost level with the adjacent road surface on Third Ridge Road/Airport Access.

Proximity to River: The parcel is removed from the river by 1,800 feet.

Proximity to Village Center: The site is approximately 0.45 miles from the village center.

Proximity to Airport: The site is only 750 feet from the airport.

Parcel Size: The site is part of a large city-owned parcel and could be subdivided from that parcel if desired. The site offers a suitable size parcel with a lot width of approximately 100 to 150 feet, exclusive of the road/utility easement, available to accommodate the proposed facility. Access would probably be best served via a roadway that would be an extension of Spruce Street, to the west, facilitating village expansion as needed.

Soils: The full parcel is upland spruce and should have typical soils with no wet areas.

Site Development Costs: The higher elevation of this site provides for lower development costs since gravel importation will be relatively limited in comparison to some other sites. Water and sewer utilities would need to be developed on the site.

Table 1 Evaluation of Near Airport Site

Criteria	Evaluation A-B-C A-Excellent, B-Acceptable, C-Fails
Elevation	B
Proximity to River	A
Proximity to Village Center	B
Proximity to Airport	A
Parcel Size	A
Soils	A
Site Development Costs	A

2.6.2 End of Spruce Street, North Side of Road

This parcel is located at the northern side of Spruce Road, eastern side of Third Ridge Road/Airport Access. The parcel is owned by Gana-A'Yoo. It is a large parcel of land and includes primarily spruce forest at approximate elevation 134 MSL and lower areas that appear to be wetter at elevation 132 MSL. The lower areas are an extension of the low wet areas located west of Third Ridge Road and areas are prone to flood. The land is approximately six feet below the adjacent roadways.

Figure 2 Spruce Street Site

Elevation: The site varies in elevation from approximately 132 to 134 MSL. Portions of the area are known to flood during flood events. The elevation places the site approximately 14 feet below the desirable elevation of 148 MSL.

Proximity to River: The site is over 1,800 feet distant from the river.

Proximity to Village Center: The location is approximately 0.4 miles from the village center. It is at the perimeter of a residential area.

Proximity to Airport: The site is approximately 1,100 feet from the airport, within short walking distance.

Parcel Size: The site is part of a larger parcel that would require subdivision. The area available is adequately sized though an irregular parcel would need to be constructed with frontage off of Spruce Street, Airport Access, and Third Ridge Road.

Soils: Most of the site is expected to have soils typical of the spruce-covered portions of the village. However, lower areas are expected to include wetter soils. Extensive soil import will be required to provide parking pads and possibly building areas.

Site Development Costs: Site development will be driven to a great degree by the cost of imported gravel that is required for a building and parking pad. Costs could be higher than other sites since it is owned by Gana-A'Yoo and would probably need to be purchased.

Table 2 Evaluation of Spruce Street Site

Criteria	Evaluation A-B-C A-Excellent, B-Acceptable, C-Fails
Elevation	B
Proximity to River	A
Proximity to Village Center	B
Proximity to Airport	A
Parcel Size	B
Soils	B
Site Development Costs	B

2.6.3 South of the Power Plant

This site is directly south of the existing power plant. It is approximately four to six feet below the pad elevation of the power plant site and portions of the site are as much as eight feet below the adjacent roadway elevation. The site is fully vegetated and backs to a ball diamond which could serve as a "fire break" for a proposed facility. The parcel is owned by the Yukon-Koyukuk School District.

Figure 3 Site immediately south of the power plant, plant located on the left of photo

Elevation: This parcel is considerably lower than adjacent roadway and as much as 16 feet below the desirable elevation of 148 MSL. Development of this site would require extensive fill and possibly ramps and stairs to provide access to the facility.

Proximity to River: The site is 700 feet from the river, removing erosion as a concern for the foreseeable future.

Proximity to Village Center: The location is relatively close to the village center. However, it is directly adjacent to the power plant which could subject the facility to some undesirable noise. Also, the proximity to the power plant provides a generally non-aesthetic setting for a facility that is an important element of the community identity.

Proximity to Airport: The location is approximately 0.5 miles by road from the airport.

Parcel Size: The proposed site could be withdrawn via platting or deed from the larger parcel on which it is located. It could provide a site of an adequate size to meet needs.

Soils: Soils are expected to be similar to those of other sites in the center of the community though the lower elevations may render the soils wetter than more upland sites. Imported fill would be required to provide for parking and a suitable building pad.

Site Development Costs: Construction costs would be driven to a great degree by the amount of fill required to provide a constructible building pad. The site is lower than others, possibly increasing the cost significantly. It would be possible to use the existing sewage lagoon for sewage though a self-contained system may be more appropriate given the nature of the flooding of the lagoon during flood events. A separate well would probably be required for water.

Table 3 Evaluation of Power Plant Site

Criteria	Evaluation A-B-C A-Excellent, B-Acceptable, C-Fails
Elevation	B
Proximity to River	A
Proximity to Village Center	B
Proximity to Airport	B
Parcel Size	A
Soils	B
Site Development Costs	B

2.6.4 "ATCO" Trailer Site, North of School

The "ATCO" site is located at the village center, immediately north of Ella B. Vernetti School and east of the village sewage lagoon. The site is currently the location of a number of ATCO trailers that were used in past construction projects. The portion of the site that was developed in the past is approximately 90 feet by 185 feet in dimension with a small finger to the west that is 55 feet by 20 feet. This yields a roughly usable area of 16,650 square feet, or approximately 0.4 acres. The site has a roughly level surface of imported gravel that is four to five feet thick. The site is approximately five feet below flood level. It is owned by the City of Koyukuk.

Undeveloped land is available to the north of the "ATCO pad" but is much lower with elevations of approximately 128 feet above MSL. This area is reported to be under water during flood events. The area is vegetated with willow and some birch.

Figure 4 ATCO trailers at site north of Ella B. Vernetti School

Elevation: The site topographic mapping for this site shows the existing pad at elevation 134.9 MSL. Though currently below flood elevation, a structure could be constructed to be above flood elevation through a combination of fill and ramps, with construction somewhat similar to that of the school. Residents of the village report that the site is located in an area through which water "pours" when flooding occurs. The "developed"

portion of the parcel would be approximately 13 feet below the desirable "safe" elevation of 148 MSL. The undeveloped portion would be almost 20 feet below that elevation if the area to the north were required for development.

Proximity to River: The parcel is removed far enough from the river to not be threatened by erosion in the foreseeable future.

Proximity to Village Center: The site would allow the shelter to be in the center of the community, handy to all residents.

Proximity to Airport: The site is approximately 0.6 miles from the airport. While relatively close to the airport, flooding of roadways will hamper the ability to facilitate logistics during emergency events. This is true for all sites within the community.

Parcel Size: The parcel is city-owned. As currently developed, the parcel is smaller than would be desirable for the shelter facility, by 1.6 acres short of the suggested 2.0 acre site requirements. While the parcel could handle the structure itself, it would provide limited space for parking of vehicles and maneuvering of vehicles or for FireWise criteria. The developed footprint could be expanded to the north, perhaps as far as to Spruce Street. However, that location is as much as 11 feet below the elevation of the existing roadway, thus any development would require extensive fill. Further, developing this parcel could create additional flooding issues given that the area fills with water during floods. The "damming" of this natural low area, preventing flood waters from passing through the narrow remnant channel, could result in upstream flooding. Further study would be needed of the ramifications of filling this parcel should it be seriously considered for development.

Soils: The soils appear to provide a base from which the site could be developed for those formerly filled areas. The non-filled areas to the north will probably tend to be wetter and possibly less desirable for development. As mentioned above, site development would require imported soil to achieve a flood-free zone.

Site Development Costs: Costs of development would be increased by the amount of fill necessary to bring the site up to an elevation that is safe for occupation by the shelter. If expansion into the lower areas to the north is required to provide an adequately sized parcel, the amount of fill would be greatly expanded. Utility costs could be lower since water, power, and sewer facilities are within generally close proximity though in-facility sewage treatment would be desirable since the existing sewage lagoon floods.

Table 4 Evaluation of ATCO Trailer Site

Criteria	Evaluation A-B-C A-Excellent, B-Acceptable, C-Fails
Elevation	B
Proximity to River	A
Proximity to Village Center	A
Proximity to Airport	B
Parcel Size	B
Soils	B
Site Development Costs	B

2.6.5 Adjacent to (south of) City/Tribal Office

This site is currently used for storage of old propane tanks and other relics that are not of use within the community. Much of the site is forested with second generation birch and cottonwood. The site is limited in size comprising only 2.0 acres or less. Similar to the ATCO site, it is relatively low and subject to flooding, though the addition of fill and the raising of the structure would allow a location free of flooding. This location may not subject to the flood flows that were reported for the ATCO site. Utilities are generally close by though not as close as the ATCO location. There has been some concern on the part of residents that the location is contaminated by spilled fuels. This would probably necessitate a Phase I Environmental Site Assessment at a minimum. The site is owned by the City of Koyukuk.

Figure 5 South of City/Tribal Offices

Elevation: The location is shown to be at elevation 135 and is subject to flooding but could be raised via fill or a structure with ramps and stairs to provide a structure above flood elevations.

Proximity to River: This site is closer to the river than other alternatives however remains approximately 400 feet from the shoreline.

Proximity to Village Center: This site is directly adjacent to the city hall and tribal offices and is close to almost all village functions.

Proximity to Airport: This site is approximately 0.7 miles from the airport.

Parcel Size: The parcel is city-owned and space is available on this parcel to accommodate the proposed structure. The actual site could be subdivided from the parent parcel if desired.

Soils: Soils appear to accommodate development although significant amounts of fill would be required to provide a site that was above flood elevations. There is some concern that the site has contaminated soils as a result of fuel spills and storage of leaky canisters over time.

Site Development Costs: Utilities could be provided by general public water, sewer, and power facilities. However, gravel costs would increase building costs. A new facility will need in-facility sewage treatment since the existing sewage lagoon floods. Costs could be significantly high if the site were found to have fuel-contaminated soils.

Table 5 Evaluation of City/Tribal Hall Site

Criteria	Evaluation A-B-C A-Excellent, B-Acceptable, C-Fails
Elevation	B
Proximity to River	B
Proximity to Village Center	A
Proximity to Airport	B
Parcel Size	A
Soils	B
Site Development Costs	B

2.6.6 Koyukuk Mountain

The Koyukuk Mountain site is approximately 1-1/2 miles north of the village center, in the direction of the village cemetery and down a well-graded gravel road. The site is proximate to a gravel pit that has served as a material source for roadways and the village airport. Currently, access to the site is available via a road that serves for materials extraction at higher elevations within the gravel pit. Should this site be developed, a new access road would probably be appropriate, located at the toe of the existing slope that leads from the Koyukuk/Yukon River floodplain and the bluffs above.

Figure 6 View of access road to upper levels of existing gravel extraction site

Elevation: A site within the general area that is available could be found to avoid any challenges posed by flood waters.

Proximity to River: The site is removed from the river sufficiently to avoid erosion threat.

Proximity to Village Center: The site is far outside of the desirable location for a shelter. It would be problematic to transport elders and families in a timely manner if an impending emergency required immediate evacuation. Further, portions of the access roadway are believed to be below flood elevation and could impede effective evacuation.

Proximity to Airport: The location is distant from the airport. The supervision of any incoming supply distribution and the ability to administer any logistics would be compromised significantly, especially if the access road were under water.

Parcel Size: The parcel could be of adequate size to suit all requirements for the project.

Soils: The area is the source of gravel for construction projects within the village and should be suitable for development.

Site Development Costs: Site development would require clearing and extensive grading to facilitate construction of building pads. The area slopes gently through the general area providing suitable building pads. Gravel would be readily available, reducing haul costs. Utilities are not available at the site.

Table 6 Evaluation of Koyukuk Mountain Site

Criteria	Evaluation A-B-C A-Excellent, B-Acceptable, C-Fails
Elevation	A
Proximity to River	A
Proximity to Village Center	C
Proximity to Airport	C
Parcel Size	A
Soils	A
Site Development Costs	B

2.6.7 Site Selection Summary

The available sites provide a range of opportunities and all sites provide positive attributes that would allow construction of a facility that would meet many, though not all of the criteria. Only one site has "fatal flaws", that being the Koyukuk Mountain site. That site is distant from the community and because of that distance, complicates evacuations. Also, it lacks any proximity to the airport, posing challenges with the supervision and coordination of relief efforts and re-building efforts.

The ATCO site, the City Hall site, and Power Plant site all provide proximity to the village center, but would require extensive fill to provide a building pad that meets both structure and parking pad requirements. Also, these sites do not allow efficiency of relief effort coordination due to their distance from the airport. The City Hall site could possibly have contaminated soils increasing development costs and delaying development. The ATCO site could require substantial amounts of fill into an area that floods; possibly causing negative impacts to the east should the passage of water through the area be compromised.

The two sites nearest the airport most readily provide coordination of evacuation and relief efforts. However, the Spruce Street site has pockets of low land that are inundated quickly. Also, that site is relatively low in elevation requiring fill of a quantity similar to many of the sites closer to the village center. Further, it is in private hands and would probably have to be purchased, increasing development costs. Because of the higher elevation of the Near Airport site and the relatively less expensive development costs, it would be preferred to the Spruce Street site.

The Near Airport site provides an upland area, close to the airport, facilitating coordination of evacuation and relief efforts. It has a higher elevation than other sites that are near-town, reducing gravel requirements and costs. The downside is that it is somewhat separated from the village center, requiring villagers who use the facility on a daily basis to walk slightly less than a ½ mile. The programs this may affect would include Elder Meals, the village clinic, and the Village Public Safety Officer, should these programs be located at the building. However, while located a relatively long walking distance (compared to other sites), the location is easily accessible by 4-wheeler which is an often-used means of travel and would probably be the primary means of access. Site development of the parcel will require clearing much of the rise on which it sits, providing for the building and parking that would be required off of the road. The available land is relatively narrow, thus the development will be deeper than it is wide. Given its narrow width, it will require as much as 600 feet of site depth if the full development of 2 acres were required. This is fully available and the development could be accommodated. It should be noted that the requirement for the 100 foot FireWise distance is for the removal of fuel sources and does not require full removal of trees for more than the first 30 feet. However, undergrowth removal, at least fuel sources, is required for the full 100 foot distance. Thus the facility should be platted in order to ensure that the facility has control over the full affected area of two acres.

Following is a summary of the ratings of the available parcels that were considered above:

Table 7 Summary Table of Comparative Ratings for Sites

Criteria↓ Site→	Site 1 Near Airport	Site 2 North Side Spruce Street	Site 3 South of Power Plant	Site 4 ATCO Site	Site 5 Adjacent to City Hall	Site 6 Koyukuk Mountain
Elevation	B	B	B	B	B	A
Proximity to River	A	A	A	A	B	A
Proximity to Village Center	B	B	B	A	A	C
Proximity to Airport	A	A	B	B	B	C
Parcel Size	A	B	A	B	A	A
Soils	A	B	B	B	B	A
Site Development Costs	A	B	B	B	B	B
Overall Ranking	**1**	**2**	**2**	**2**	**2**	**3**

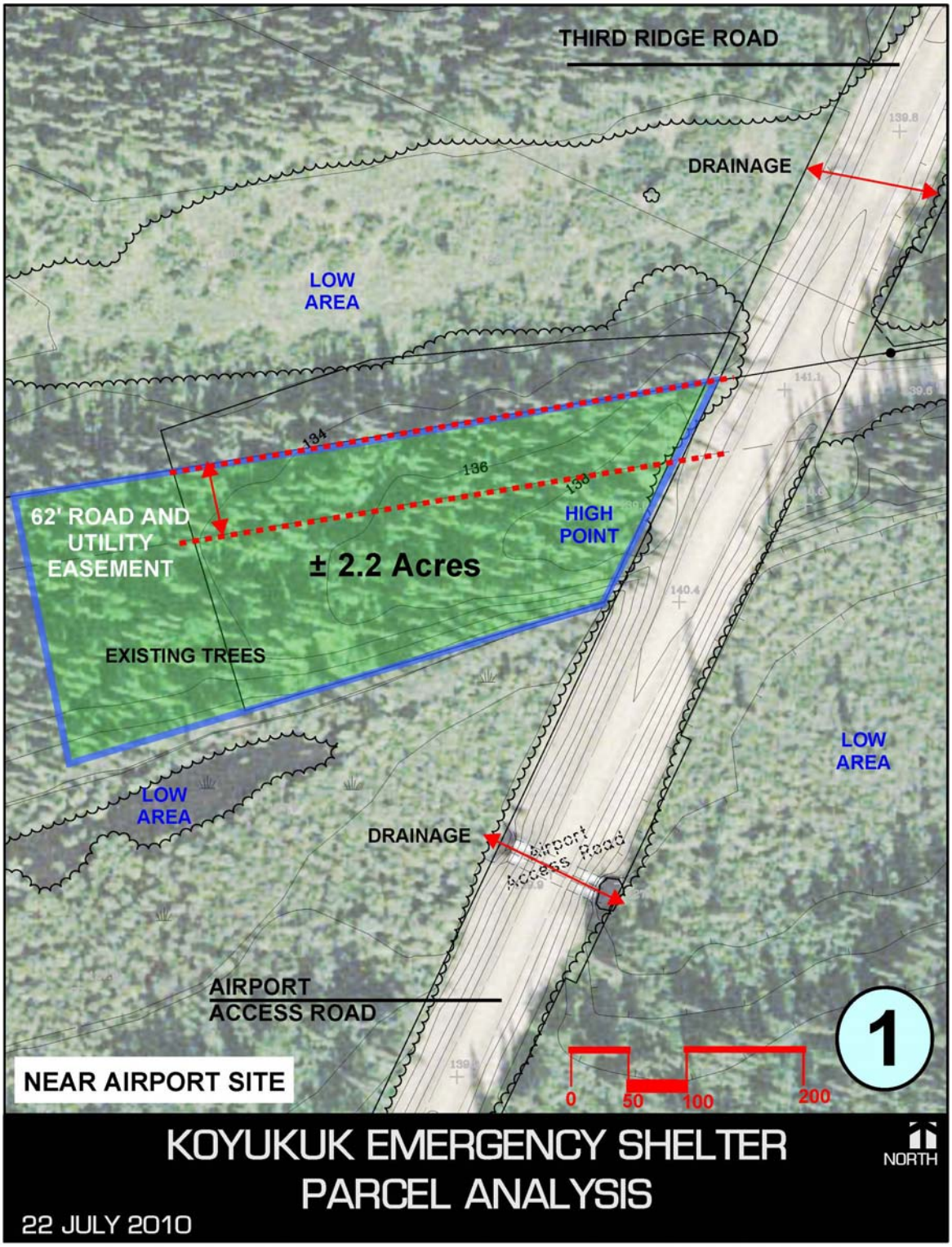

Figure 7 Near Airport Site

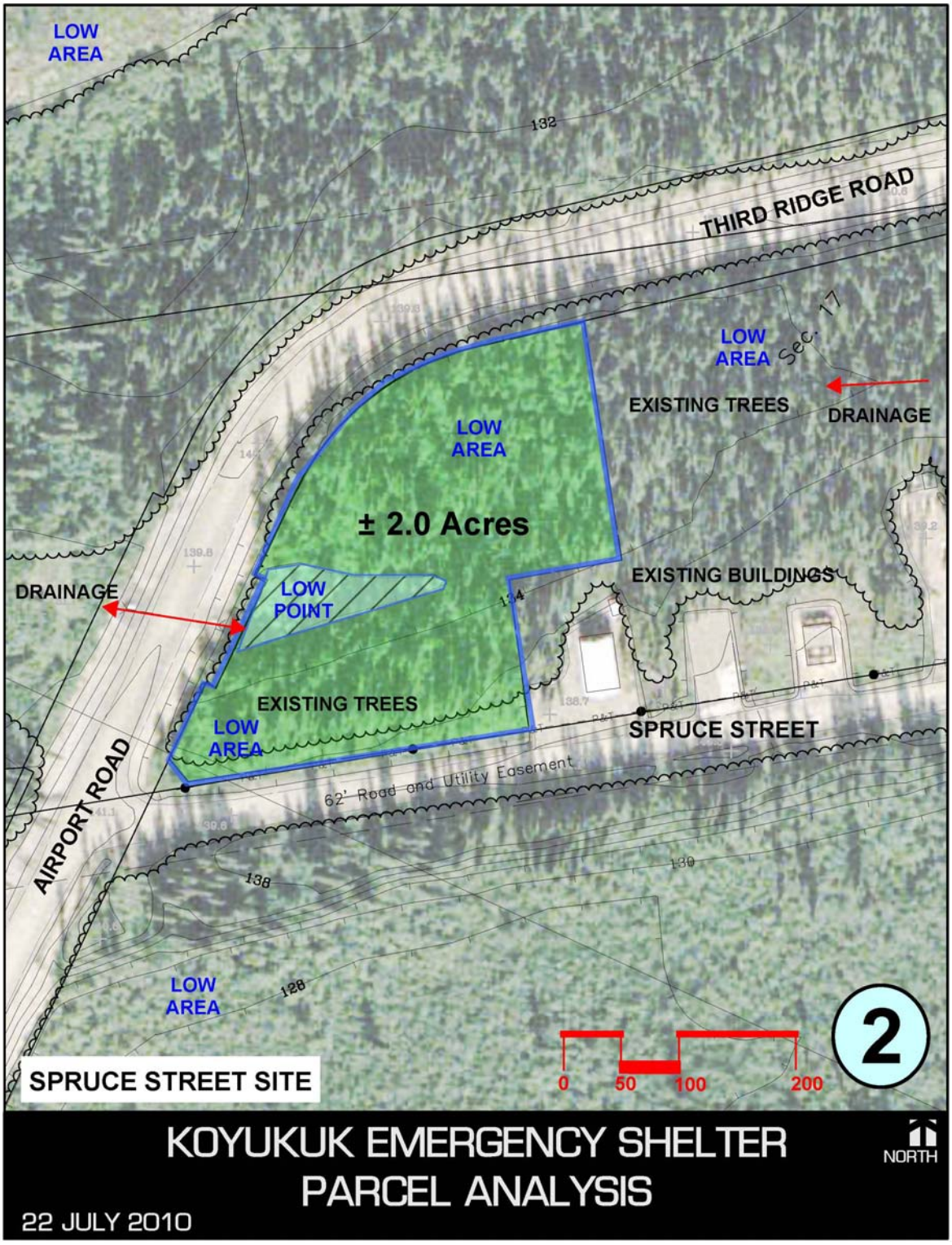

Figure 8 Spruce Street Site

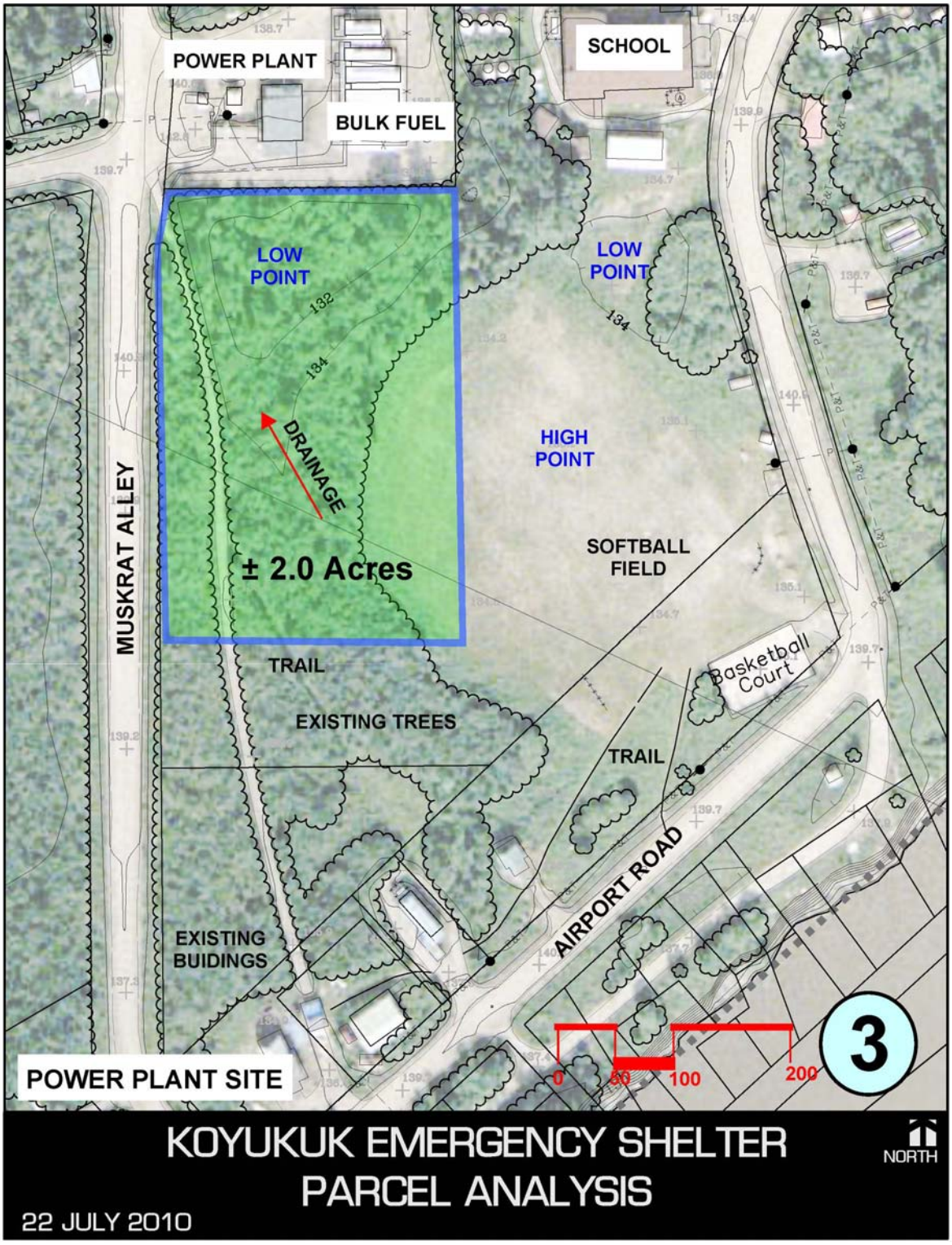

Figure 9 Power Plant Site

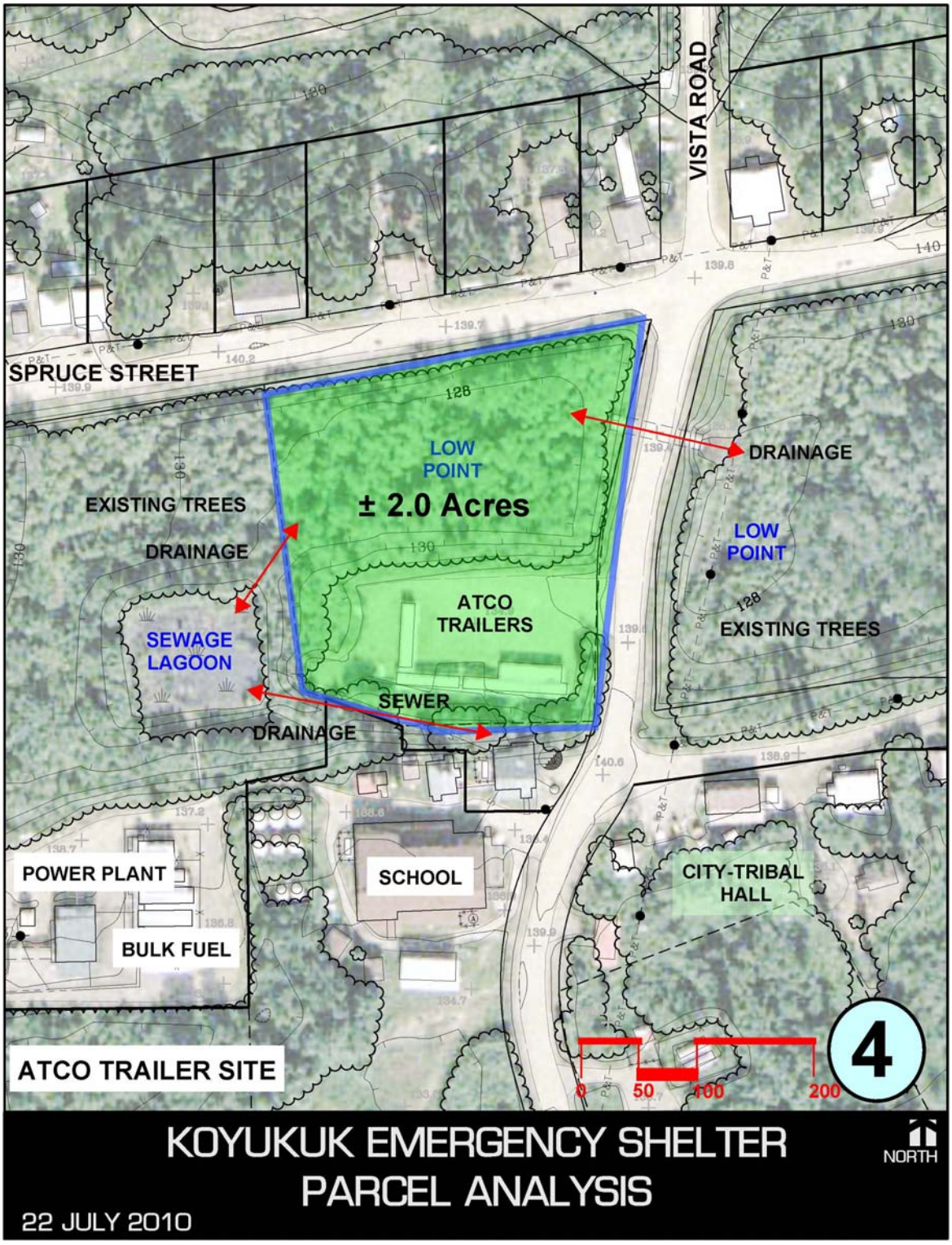

Figure 10 ATCO Trailer Site

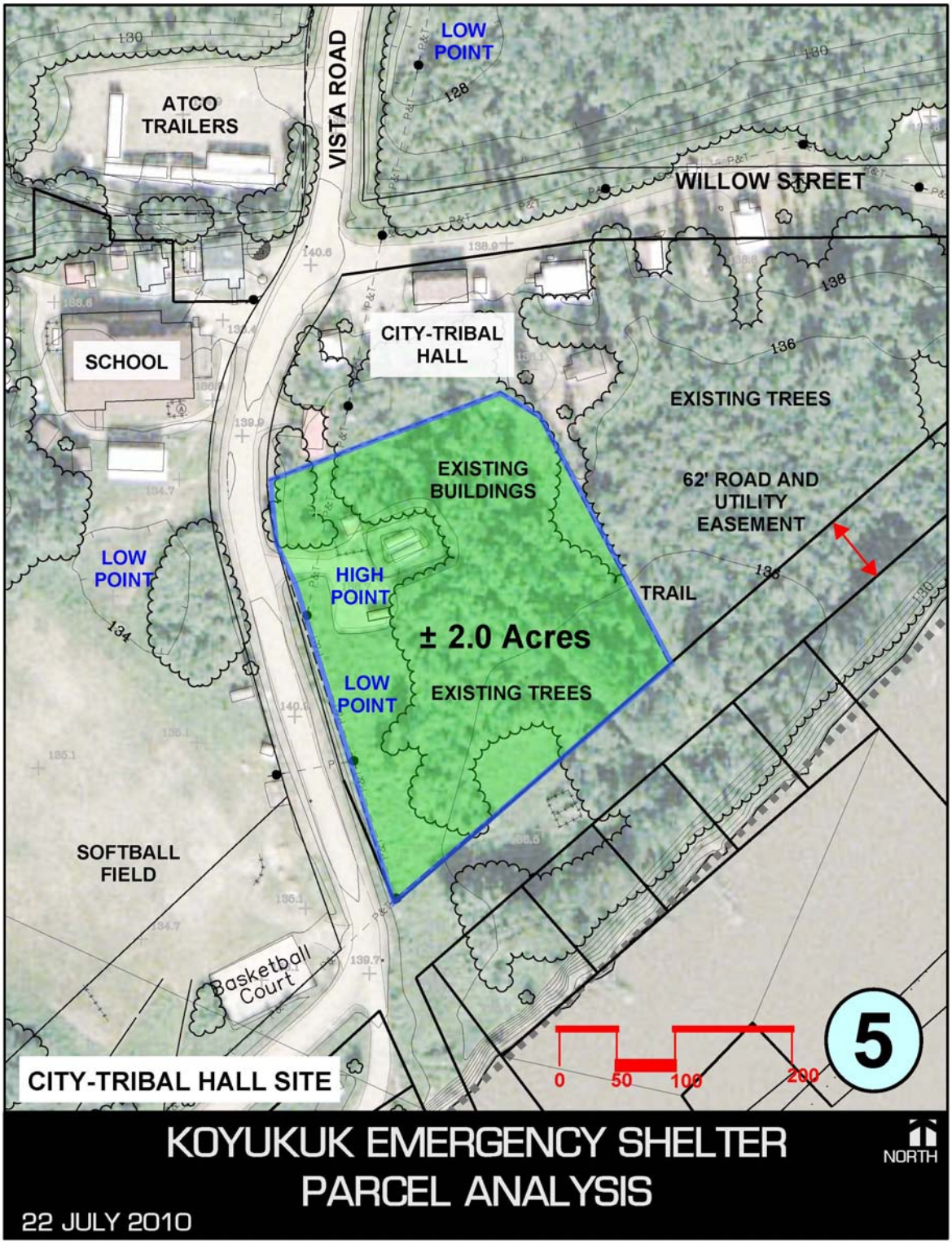

Figure 11 City-Tribal Hall Site

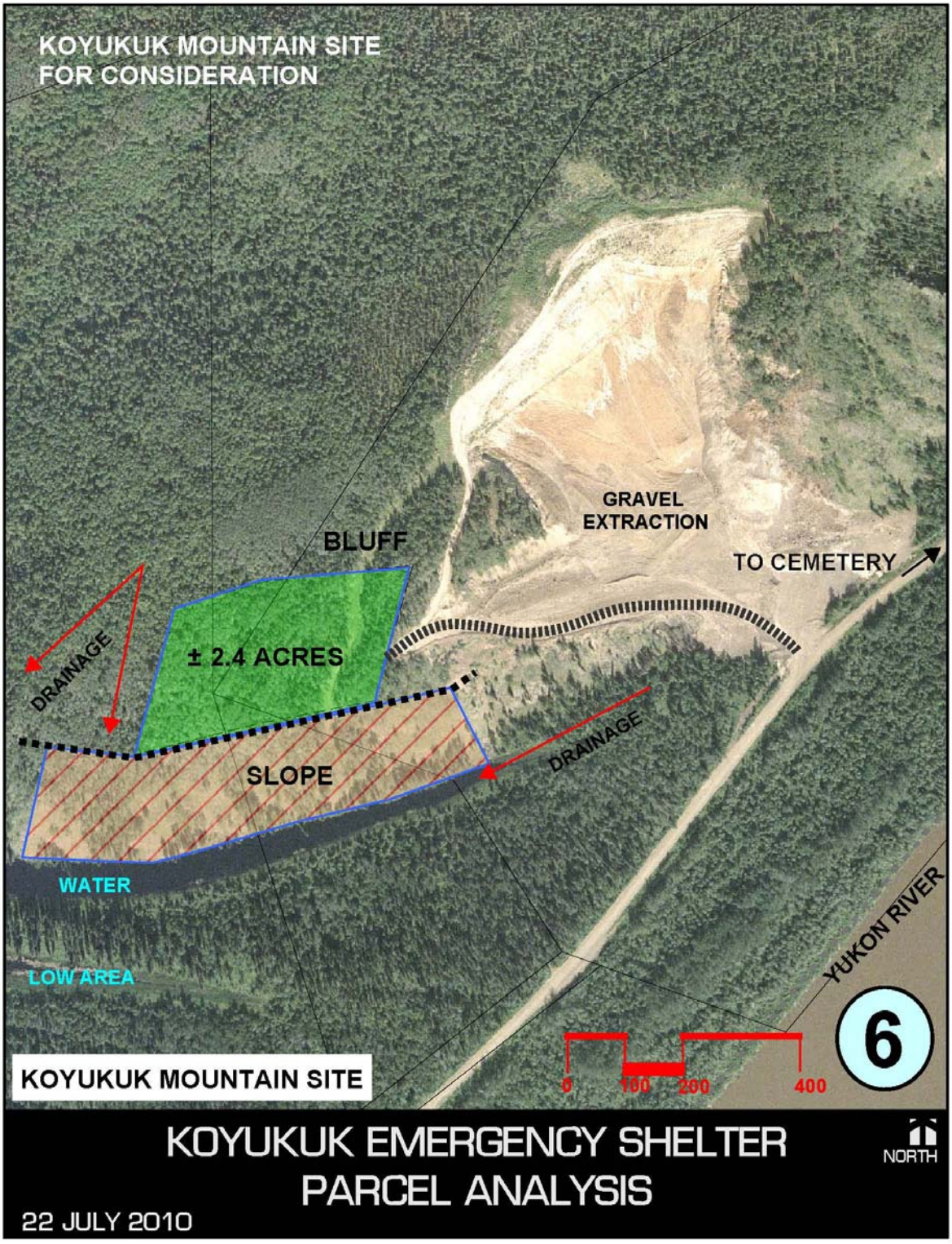

Figure 12 Koyukuk Mountain Site

3 PRELIMINARY BUILDING PROGRAM

3.1 Foreword

The Koyukuk Community Emergency Shelter will be a community resource with functions related to both emergency and non-emergency use, with the following goals:

- To provide shelter for the community during emergencies, principally during floods, but also in fire events and extreme weather events
- To provide non-emergency functions as a Tribal and community asset
- To offer capacity to accommodate 65 persons for 10 to 14 days in an emergency situation
- To benefit from the co-location of a proposed new village clinic to be constructed, including shared building pad and utilities
- To generate revenue to offset operation and maintenance costs through transient/visitor lodging/meals, and other opportunities

3.2 General Program Requirements

Based on input from Work Session Number 1 in Koyukuk, and previous information from the design of the Koyukuk Community Multi-Purpose Building[2], a preliminary building program has been developed which includes the following spatial groupings:

Tribal Offices: Non-emergency space for the Koyukuk Tribal Council will include offices, workroom, communications room and storage for records and supplies. During an emergency event, these areas will become the event command center.

Kitchen, Serving, Food Storage: Food storage, preparation and serving functions must at a minimum accommodate the 65-person occupant load for emergency events, and provide similar capacity for large community gatherings in non-emergency situations. Food storage areas will primarily offer dry storage and must be sized to hold sufficient reserves for the 14-day maximum event duration. Cooking facilities should be simple in nature, with easy to use and maintain, high-quality, residential appliances that do not require Type I (grease) commercial hoods with fire suppression, which precludes the use of deep fat fryers and griddles. Cooking facilities should include a three-compartment sink and a separate hand wash sink to provide the flexibility to include food service (i.e. restaurant, café, snack bar). Non-emergency uses will include the Elders Meals Program[3], potlatches and community events, and potential food service. During an emergency event, the food preparation areas should be designed to accommodate both large group meal and family meal preparation. Provision for community food storage could also be considered.

Assembly Room: Forming the heart of the facility, the assembly room will provide space for dining and community activities during non-emergency use, and will function as gathering, dining and shelter space (sleeping) during emergency events. The assembly room will provide sleeping space for most people taking shelter during an emergency event. Adjunct storage space should be provided to allow for flexibility of use, including storage of tables and chairs.

[2] Designed for the Koyukuk Tribal Council by USKH in 1994 but never funded or constructed, the Multi-Purpose Building program contains many of the same elements as the Community Emergency Shelter.
[3] Currently, meals for this program are cooked in individuals' homes.

VPSO: Locating an office for a Village Public Safety Officer (VPSO) within the facility is desirable both in emergency and non-emergency situations. The VPSO will be a resource and a potential revenue source. As an option, VPSO living quarters could be included in the facility, as a means to provide additional revenue generation.

Lodging/Sleeping Rooms: Currently, there are no transient quarters available in Koyukuk for visitors, except for the school, which provides mats for sleeping on the floor of the library. Two to four guest rooms will be provided that could be rented out to both short- and long-term visitors. During an emergency event, these rooms will be made available to Elders to provide them a quieter shelter location than the main assembly room. It will be desirable to have a secondary set of private toilet/bathing facilities associated with these rooms.

Restrooms/Showers/Laundry: Restroom facilities will include public restrooms sized to accommodate 60 persons under an emergency event, and to accommodate a similar number during community potlatches and other events. Private restrooms will be desirable to serve the lodging/sleeping rooms. Shower facilities will be required and could be associated with the restrooms, or in separate shower rooms. Minimal laundry facilities should be provided, principally for emergency use, as the washeteria will be assumed to be unusable.

Support Spaces: Utility spaces will be required for mechanical and electrical equipment, water storage and treatment, and sewage treatment. Pending investigation will include the potential for an operational well at the facility, as well as a packaged wastewater treatment unit (e.g. Lifewater), which would require minimal heated building area. Other support spaces will include custodial and storage areas. Storage provisions will need to include supplies for 60 persons for 14 days. An emergency generator could be considered, however, given the relative security of the elevated village power plant, it may be possible to reliably intertie to this source of power and maintain its operation during an emergency.

Exterior Spaces: With 65 persons being sheltered, a need for exterior overflow space such as a large deck or patio will be important. Some portion of the exterior space should be covered. In addition, there should be ample parking/storage area for snow machines, ATVs and other items that need to be moved from high water. Currently, such items are moved to the apron at the airfield in flood events.

The following table contains a summary of interior spaces with emergency and non-emergency functions, and preliminary low and high range square foot areas.

Table 8 Preliminary Building Program

Goals:

- Provide shelter for the community during emergencies, principally during floods, but also fire, extreme weather events.
- Provide non-emergency functions as a Tribal and community asset.
- Capacity to accommodate 65 persons for 10 to 14 days in an emergency.
- Potential strong relationship to new clinic to be constructed.
- Potential revenue generation from transient/visitor lodging and meals.

Interior Space Description	Emergency Use Functions	Non-Emergency Use Functions	Area (SF) Low	Area (SF) High	Notes
Tribal Offices	Command Center	Tribal Offices			
Work Room			200	300	
Office No. 1			120	150	
Office No. 2			80	100	
Office No. 3			80	100	
Open Office Area (4 stations)			240	320	
Comm Room (data/phone)			30	50	
Records / Storage / Supplies			50	80	
Kitchen, Serving, Food Storage	Group Meal Preparation Family Meal Preparation	Elders Meals Program Potlatch/Special Events Meals Café/Restaurant Community Food Storage	250	350	
Assembly Room	Family Shelter/ Housing Dining	Community Activities Dining	1,500	2,100	Sleeping for 60 @ 25 to 35 SF/person
VPSO Office/Holding Cell			150	200	Optional
Lodging/Sleeping Rooms	Elder Shelter/ Housing	Transient and Visitor Lodging	400	800	2 to 4 units at 200 SF
Public Restrooms/Showers			500	800	For community use
Private Restrooms/Showers			120	240	For lodging rooms
Laundry			100	150	

Interior Space Description	Emergency Use Functions	Non-Emergency Use Functions	Area (SF) Low	Area (SF) High	Notes
Support Spaces					
Mechanical Equipment			200	500	
Electrical/Emergency Generator			100	250	
Water Storage/Treatment					Water storage tank
Sewage Treatment					Modular unit
Custodial			50	100	
Storage			250	500	
Subtotal			4,420	7,090	
Circulation at 15%			663	1,064	
Total			5,083	8,154	
SF/Person Total (at 65 persons)			78	125	

3.3 Program Considerations

In developing the design of the new facility, the following programmatic considerations will be important:

- Zoning of the facility in terms of public, semi-public and private spaces: The assembly room will be the public center of the facility. Lodging/sleeping rooms should be separated for quiet and privacy; Elders will appreciate a quiet location for their shelter quarters.
- Taking advantage of solar exposure: Natural light, passive solar, and potential photovoltaic power should be considered.
- Relationship to the proposed new clinic: Both facilities must be accessible to and visible from the road system with the potential to share water and sewer utilities.
- The primary purpose of the emergency functions is to shelter people; any provision for dogs and other pets is not a part of the program.

3.4 Preliminary Building Code Analysis

The authority having jurisdiction in Koyukuk is the State of Alaska Department of Public Safety, Division of Fire and Life Safety, i.e. State Fire Marshal. The adopted codes are the International Building Code (IBC) series, with the exceptions of the Uniform Plumbing Code and National Electrical Code. A brief summary of programmatic code considerations is as follows:

1. **Use and Occupancy Classification**: While the program contains mixed uses, the overall classification would be that of A-3, Assembly, under IBC Section 508.3.2 for non-separated occupancies.

2. **Type of Construction**: Type V-B, non-rated, combustible will be assumed, because the structure may be constructed of local materials, and to keep the construction simple and cost effective.

3. **Allowable Height and Building Area**: With an overall A-3 occupancy classification, and Type V-B construction, IBC Table 503 provides a base allowable area of 6,000 square feet and one story. Assuming that a minimum separation of 30 feet can be maintained all around the building, a 75 percent frontage increase is allowed per IBC Section 506.2, allowing a total one story building area of 10,500 square feet. This area easily accommodates the programmed building area. A two-story building is not permitted unless the type of construction is upgraded to Type V-B fire rated construction, or the building is equipped with an automatic sprinkler system per IBC Section 504.2. A mezzanine is allowed under provisions of IBC Section 505, and is limited to one-third of the floor area of the room or space in which they are located. Presumably, this would be the assembly room.

4. **Fire Protection Systems**: For Group A-3 occupancies, IBC Section 903.2.1.3 does not require the building to be protected by an automatic sprinkler system in that 1) it is less than 12,000 square feet, 2) is has less than 300 occupants, and 3) it is not located on a floor other than the level of exit discharge.

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4 PRELIMINARY BUILDING CONCEPTS

4.1 Foreword

The Koyukuk Community Emergency Shelter design will be based on the Building Program. The Preliminary Building Program outlines initial general programmatic criteria and components that will be refined during and after Work Session Number 2. As tools to further discussion of the building program and design, USKH and CCHRC have developed four initial concept diagrams that are presented below.

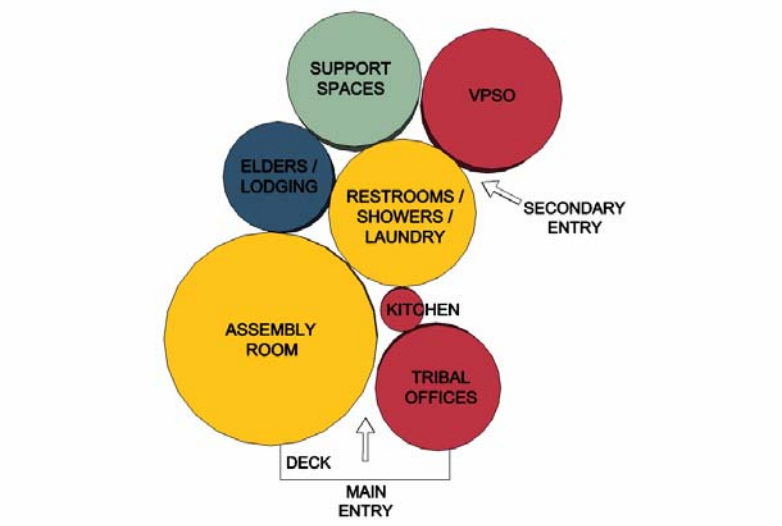
4.2 Concept Presentation Format

The concepts are presented in "bubble diagram" format, with circles representing each major spatial block, sized proportionally to their respective program area. Adjacencies are depicted by the relationships between the blocks and the blocks are color coded to reflect a hierarchy of zoning as follows:

- PUBLIC
- SEMI-PUBLIC
- PRIVATE
- UTILITY

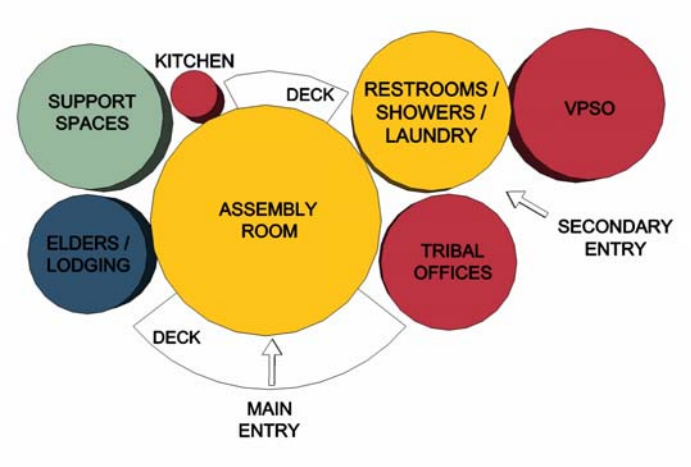
4.2.1 Concept 1

Path of the River: In this concept, program space is organized along a main vertical circulation spine that curves though the proposed program spaces. The main entry serves as the focus of the concept while providing a secondary service entrance at the end of the circulation path. The public and semi-public spaces are oriented to the south, southeast allowing the support spaces located on the north side of the building. The location of the Elders/Lodging space provides privacy while still being directly adjacent to the main circulation and public and semi-public uses.



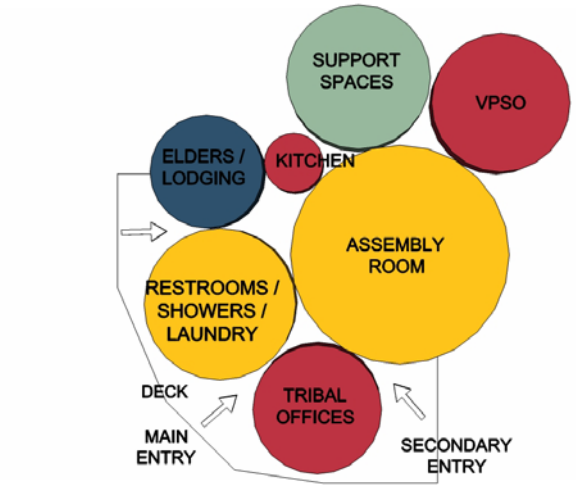
4.2.2 Concept 2

Heart of Community: In this concept, the main entry opens directly onto the main assembly public space and places the Assembly Room in the center of the facility. The solar orientation of this concept stretches along the southern orientation providing natural light from the South and also to the North from the additional deck space.



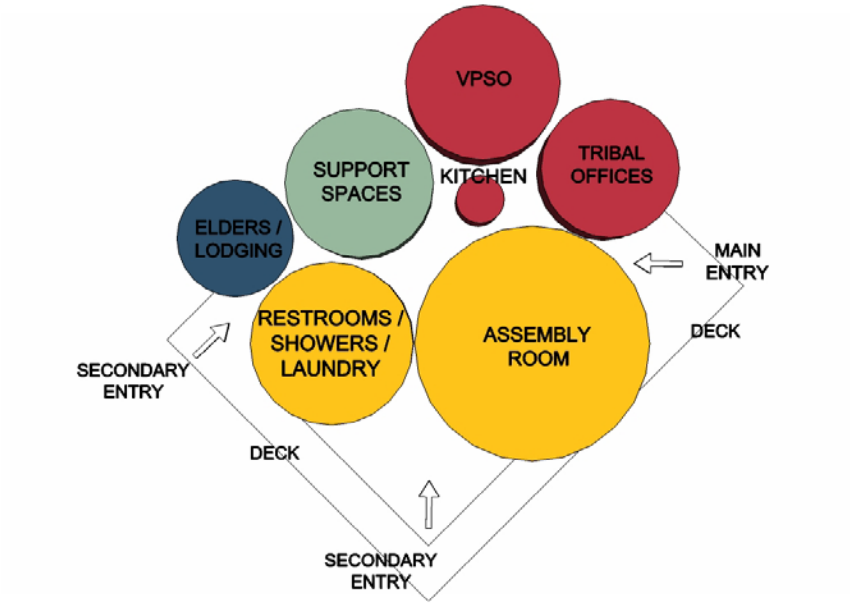
4.2.3 Concept 3

Coming Together: In this concept, the main and secondary entries are located off a large deck space. The main entry separates the public from the semi-public uses. Secondary entries connected by the deck serve the private Elders/lodging and the other semi-public spaces. The deck serves as the connecting link that organizes access throughout the facility.



4.2.4 Concept 4

Community Civic Gathering: In this concept, the main entry provides separation between the public spaces and the semi-public spaces. The utility/support spaces serve as a buffer between the private spaces and the public and semi-public spaces. A larger and higher prominence is given to the Assembly Room in the hierarchy of program spaces identifying the important civic function of this space.



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5 DRAFT OPERATIONS PLAN

5.1 Narrative

The following tables are referred to as worksheets. The tables originate from an Excel workbook that includes a series of linked spreadsheets. Communities and prospective facility owners can use this tool to weigh the costs and benefits of design decisions at the early stages of the design process. This tool will help to determine a workable balance between what the community needs and what the facility owner can afford to construct and to operate.

5.1.1 Program + Capital Costs Worksheet:

The first sheet (Table 9) provides a summary of the spaces identified in the community workshop, the functions of these spaces, both emergency and non-emergency, and the range of sizes for these spaces in square feet. The set of columns labeled 'Estimated Operating Costs' provides a $ per square foot estimate for the cost to operate each space for one year. A low and a high estimate for operating cost per square foot are based on comparable facilities. See the 'Comparable O + M' worksheet for details.

The row titled 'subtotal areas above' gives the total net square feet based on the figures in each column. The row beneath calculates the 'net to gross factor' which adds a percentage to the total net square feet to account for hallways, walls, and spaces not itemized above. When total net square feet and the net-to-gross factor are combined, it equals the 'gross estimated square feet' for the facility.

The final row of this worksheet uses a comparable facility per square foot cost to calculate the estimated project cost for constructing the facility.

5.1.2 5-year Projection:

This worksheet (Table 10) is a summary sheet that is linked to the 'User Fees' and the 'Tenants' worksheets. It summarizes total revenue and expense over five years and calculates the surplus or deficit.

5.1.3 User Fees:

User fees (Table 11) for the Koyukuk Community Shelter are estimated from two sources. 'Lodging' is for itinerate workers or tourists who rent a room on a short- or long-term basis. The estimate projects 36 nights per year for year one increasing to 39 visits per year for year five. The nightly rate for lodging is set at $115 per night for years one through three increasing to $125 per night in year five.

The Assembly Area + Kitchen may be used for community events, some of which may pay a fee for use. This is very conservatively estimated at six uses per year in years one through five, for a fee of $75 per event, increasing to $100 per event in years four and five.

5.1.4 Tenants:

Lease paying tenants (Table 12) that include the Koyukuk Traditional Council, the VPSO Office, and a café or restaurant may generate potential revenue. The Koyukuk Traditional Council is estimated to pay $850 per month in lease; the VPSO Office is estimated to be leased for $450 per month. These estimates should be further

discussed and validated with the community. In this projection, revenues from a café or restaurant have not been included. All of these lease rates are projected to increase at a rate of 3% per year.

5.1.5 Comparable O + M:

This worksheet (Table 13) provides a baseline for facility costs from a similar facility in a rural village, in this case the Ikaiyurvik Family Resource Center in Togiak, Alaska. The facility is 7,600 square feet and the actual facility costs for 2009 are itemized on this sheet. The cost per square foot for these expenses is used as the 'high cost' scenario in the 'Program + Capital Costs' worksheet.

To provide an estimate for a facility with a very energy efficient design we have included fuel and electricity costs based on projected usage from the energy model of the 35% design of the Mertarvik Evacuation Center, currently being designed by the Cold Climate Housing Research Center with the village of Newtok, Alaska. For the 'low cost' scenario in the 'Program + Capital Costs' worksheet, the fuel and electricity costs are based on the Mektarvik model and the other facility costs are based on the Ikaiyurvik Family Resource Center in Togiak, Alaska.

5.1.6 Capital Replacement:

This worksheet (Table 14) provides an estimate of the annual contribution to a repair and replacement fund that will be required, based on the estimated capital cost of the facility. The facility owner deposits the annual amount each year into a dedicated fund to be used for major repair or for a down payment on financing for an eventual replacement of the facility.

Table 9 Program & Capital Costs

FACILITY PROGRAM				ESTIMATED SQUARE FEET			ESTIMATED OPERATING COSTS (Based on LOW cost)		ESTIMATED OPERATING COSTS (Based on HIGH cost)				NOTES
Interior Space Description	Emergency Use Functions	Non-Emergency Use Functions		Low	High		Low SF	High SF	Low SF	High SF	Low cost (based on Metarvik rates for fuel / elec)	High Cost (based on 2009 op costs for Togiak facility)	Based on comparable facility in Togiak - see 'comparable O & M' tab for details
Tribal Offices											$ 4.25	$ 5.63	
Workroom	Command Center	Tribal Offices		200	300		$ 850	$ 1,275	$ 1,126	$ 1,689			
Office space (2 offices)				240	300		$ 1,020	$ 1,275	$ 1,351	$ 1,689			
Communications room (data/phone)				30	50		$ 128	$ 213	$ 169	$ 282			
Storage				50	80		$ 213	$ 340	$ 282	$ 450			
SUBTOTAL				520	730		$ 2,210	$ 3,103	$ 2,928	$ 4,110			
Kitchen / Serving / Meal Storage	Group + Family meal prep	Elder meals program, potlatch + special events, café restaurant, community food storage		250	350		$ 1,063	$ 1,488	$ 1,408	$ 1,971			Capital cost will vary depending on whether kitchen is commercial grade or not.
Assembly room	Family shelter / housing / dining	Community activities, dining		1500	2100		$ 6,375	$ 8,925	$ 8,445	$11,823			Sleeping for 60 @ 25 - 35 sf / person
SUBTOTAL				1,750	2,450		$ 7,438	$10,413	$ 9,853	$13,794			
VPSO office				150	200		$ 638	$ 850	$ 845	$ 1,126			
SUBTOTAL				150	200		$ 638	$ 850	$ 845	$ 1,126			
Lodging / sleeping rooms	Elder Shelter / housing	Transient + Visitor lodging		400	800		$ 1,700	$ 3,400	$ 2,252	$ 4,504			2-4 units @ 200 sf each
SUBTOTAL				400	800		$ 1,700	$ 3,400	$ 2,252	$ 4,504			
Public / private restrooms / showers / laundry				720	1190		$ 3,060	$ 5,058	$ 4,054	$ 6,700			
Support spaces				600	1350		$ 2,550	$ 5,738	$ 3,378	$ 7,601			
SUBTOTAL				1,320	2,540		$ 5,610	$ 10,795	$ 7,432	$ 14,300			
SUBTOTAL AREAS ABOVE				4,140	6,720		$ 19,720	$ 31,748	$ 26,123	$ 42,056			
ADD 15% FOR CIRCULATION				621	1008								
GROSS EST'D SQUARE FEET				4,761	7,728								
Capital Cost Est $ / SF	$ 322.00						$1,533,042.00	$2,488,416.00		based on Mertarvik			

Table 10 5-year Projection

Revenues	Year 1	Year 2	Year 3	Year 4	Year 5	
Tenant Lease	$15,600	$16,068	$16,550	$17,047	$17,558	
User Fees	$4,590	$4,604	$ 4,617	$ 5,350	$5,493	
Local Contributions + Grants	$-	$-	$-	$-	$-	
Total Revenues	**$20,190**	**$20,672**	**$21,167**	**$22,397**	**$23,050**	
Expenses						
Personnel	$ -	$ -	$ -	$ -	$ -	
Facility Operations & Maintenance	$ 28,560	$ 29,702	$ 30,890	$ 32,126	$ 33,411	Program + Capital Costs high SF, low cost
Total Expenses	**$28,560**	**$29,702**	**$ 30,890**	**$ 32,126**	**$ 33,411**	
Surplus (Deficit)	**$(8,370)**	**$(9,031)**	**$ (9,723)**	**$(9,730)**	**$(10,361)**	

	Year 1	Year 2	Year 3	Year 4	Year 5
Total Revenues	$ 20,190	$ 20,672	$ 21,167	$ 22,397	$ 23,050
Total Expenses	$ 28,560	$ 29,702	$ 30,890	$ 32,126	$ 33,411

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Table 11 User Fees

User Fees	Estimated Volume	Estimated Fee	Estimated Revenue Yr 1		Estimated Volume	Estimated Fee	Estimated Revenue		Estimated Volume	Estimated Fee	Estimated Revenue
	Year 1				Year 3				Year 5		
Lodging		Per Use Fees				Per Use Fees				Per Use Fees	
Per night fee	36	$115	$ 4,140		36	$ 115	$ 4,140		39	$ 125	$ 4,893
Assembly Room + Kitchen		Day Use Fees								Per Use Fees	
Potlatches, Community Events	6	$75	$ 450		6	$75	$ 477		6	$ 100	$ 600
TOTAL REVENUE			$ 4,590.00				$ 4,617.41				$ 5,492.50

Growth Assumptions	Years 1-5
	1.03

Table 12 Tenants

Tenant Lease		Year 1	Year 2	Year 3	Year 4	Year 5
Koyukuk Traditional Council		$ 10,200	$ 10,506	$ 10,821	$ 11,146	$ 11,480
VPSO Office		$ 5,400	$ 5,562	$ 5,729	$ 5,901	$ 6,078
Café / Restaurant proceeds*		$ -	$ -	$ -	$ -	$ -
		$ 15,600	$ 16,068	$ 16,550	$ 17,047	$ 17,558
TOTAL TENANT LEASE		**$ 15,600**	**$ 16,068**	**$ 16,550**	**$ 17,047**	**$ 17,558**
Annual increase Rate	1.03					

Table 13 Comparable O&M

Comparable O & M Costs	Annual*	SF	$/SF	Alternative using Mertarvik rates for fuel / elec
Utilities				
Electricty	$11,000		$1.45	$ 2,063.40
Fuel Oil	$6,000		$0.79	$ 4,430.80
Water + Sewer	$1,680			$1,680
Telephone	$1,200			$1,200
Maintenance Personnel	$7,102			$7,102
Maintenance Supplies + Equipment	$800			$800
Custodial Materials	$1,500			$1,500
Building Insurance	$7,500			$7,500
Contribution to Renewal + Replacement Fund	$6,000			$6,000
TOTAL	$42,782			$32,276
*Based on 2009 costs to operate Togiak Family Resource Center		7,600	$ 5.63	$ 4.25

			unit / sf		
Mertarvik Evacuation Center	10,500	$ 3,381,000		$ 322.00	capital cost / sf
Fuel	$ 5.50	1113	0.11	$ 0.58	fuel cost / sf / yr
Electric	$ 0.45	6335	0.603333333	$ 0.27	electric cost / sf

Table 14 Capital Replacement

CAPITAL REPLACEMENT WORKSHEET

Enter the appropriate cost information only in the WHITE cells.
The BLUE cells will automatically be calculated.

Capital Replacement Expense			
	Facilty Cost:	$ 1,533,042	
	Inflation Rate:	1.5%	
	Expected Life in Years:	30	
	Future Value of Facility (Cost with inflation):	$2,396,268	(formula for future value of an asset)
	Percent Local Cash Required for Replacement:	10%	
10%	Capital Replacement Amount:	$239,627	(future value multiplied by % local cash required)
	Expected Interest Rate:	5.0%	
	Annual Capital Replacement Expense	$3,607	(formula for determining annual capital replacement amount)

CAPITAL REPLACEMENT WORKSHEET

Enter the appropriate cost information only in the WHITE cells.
The BLUE cells will automatically be calculated.

Capital Replacement Expense			
	Facilty Cost:	$ 2,488,416	
	Inflation Rate:	1.5%	
	Expected Life in Years:	30	
	Future Value of Facility (Cost with inflation):	$3,889,594	(formula for future value of an asset)
	Percent Local Cash Required for Replacement:	10%	
10 %	Capital Replacement Amount:	$388,959	(future value multiplied by % local cash required)
	Expected Interest Rate:	5.0%	
	Annual Capital Replacement Expense	$5,854	(formula for determining annual capital replacement amount)

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Appendix A
Sign Up Sheet from Work Session Number 1

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Appendix A - Attendee Sign up List

USKH

SHARED VISION. UNIFIED APPROACH.

ARCHITECTURE • ENGINEERING • LAND SURVEYING • PLANNING
Anchorage Fairbanks Juneau Wasilla Walla Walla
Spokane Lewiston Ferndale

KOYUKUK COMMUNITY SHELTER
WORK SESSION NO. 1 JUNE 15, 2010

NAME

Cindy Pilot
Marilyn Roberts
Hazel S Lolnitz
Melinda Roberts
Lyndia A. Jimmie
Mary Malemute
Morgan Malemute — AKA [signature]
~~Alec Malemute~~ Alec Malemute
Lecia Mayfield
Margie Dayton
Sharon Pilot
Bodent
Agnes S Dayton
Rachael Lolnitz
Barbara Fleming
Kalene [illegible]
Rochelle Albert
Benedict Jones
Antwan
Maudrey Kuska
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Pat Edwin
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Julia Amant
SHANDA KUSKA

Marie Dayton
Damien Dayton
Josie R. Dayton

Project Title Koyukuk Emergency Shelter Page Title

W.O. # 1238800DN Date By Checked By

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Appendix B
Plan from 1994 of Multi-Purpose Building

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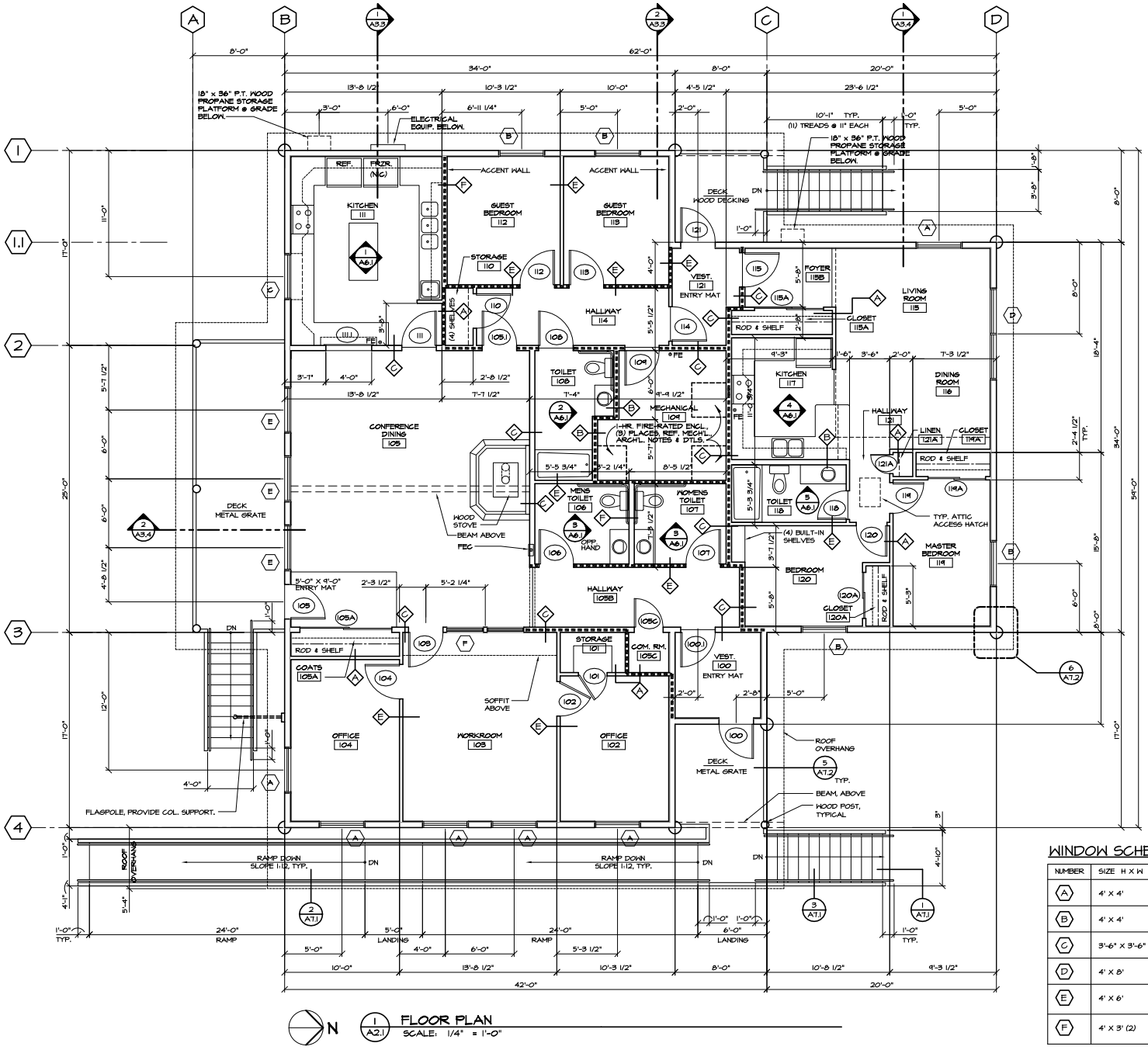
Appendix B - Plan of 1994 Design for Koyukuk Multi-Purpose Building



N

1 A2.1 FLOOR PLAN
SCALE: 1/4" = 1'-0"

GENERAL NOTES:

1. PROVIDE MOISTURE RESISTANT GYPSUM BOARD AT ALL BATHROOMS, EXCEPT ON CEILINGS.
2. PROVIDE VESTIBULE 100 INTERIOR WALLS WITH TYP. EXTERIOR WALL CONSTRUCTION.
3. PROVIDE PLYWOOD UNDERLAYMENT ON SUBFLOOR OF DINING AND CONFERENCE ROOM 105. PROVE SAME AT 100, 105B, 106 AND 107.
4. PROVIDE WALL DETAIL 6/ A6.2 AT ALL WALLS IN APARTMENT PORTION OF BUILDING.
5. ALL GWB SHALL BE 5/8" TYPE "X" UNLESS OTHERWISE NOTED.
6. PROVIDE (3) 5/8" TYPE "X" GYP. BD. ENCLOSURES ON METAL FRAMING IN MECHANICAL ROOM WITH 1-HR. FIRE-RATED ACCESS PANELS. ALSO PROVIDE UNDER-FLOOR ACCESS VIA 1-HR. RATED ACCESS PANEL TO 8/20 MECH'L. DUCT. REF. A2.1, A3.3 AND M2.1. 1-HR. RATED ACCESS PANELS SHALL BE MINIMUM 24" X 24" SIZE OR AS REQD. BY MECH'L.

WALL TYPES:

- A: 2x4 W/ 5/8" TYPE 'X' GWB EACH SIDE
- B: 2x6 W/ 5/8" TYPE 'X' GWB EACH SIDE
- C: 2x6 W/ 1/2" SHEATHING ONE SIDE W/ 5/8" TYPE 'X' GWB EACH SIDE
- D: 2x4 W/ 1/2" SHEATHING ONE SIDE W/ 5/8" TYPE 'X' GWB EACH SIDE
- E: 2x4 W/ 5/8" TYPE 'X' GWB EACH SIDE PLUS SOUND BATT INSULATION
- F: 2x6 W/ 5/8" TYPE 'X' GWB EACH SIDE PLUS SOUND BATT INSULATION

WINDOW SCHEDULE:

NUMBER	SIZE H X W	TYPE	REMARKS
A	4' X 4'	TILT & TURN	N/A
B	4' X 4'	TILT & TURN	EGRESS WINDOW PROVIDE EGRESS HARDWARE
C	3'-6" X 3'-6"	TILT & TURN	N/A
D	4' X 8'	FIXED	N/A
E	4' X 6'	TILT & TURN	FIXED TRANSOM
F	4' X 3' (2)	FIXED	REF 4/A6.1

STATE OF ALASKA 49th
GARY H. POE, #A-4645
REGISTERED PROFESSIONAL ARCHITECT

Date Stamped:

By / Revision / Date

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Project:

KOYUKUK MULTI-PURPOSE CENTER FOR KOYUKUK TRIBAL COUNCIL

Project Mgr.	GHP	
Drawn	GA	
Drawn		
Checked		
Date	12/29/95	

Sheet Contents:

FLOOR PLAN, WALL TYPES & WINDOW SHEDULE

Sheet No.:

A2.1

USKH W.O. 4668

FILE NAME 4668A2-1 | PLOT SCALE (=)