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RECOMMENDATION TO COUNCIL
NO. 8-30

TABLED ON JUNE 14, 1965



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NORTHWEST TERRITORIES

RECOMMENDATION TO COUNCIL NO. 8
(Second Session, 1965)

SELECTION OF A SUITABLE SITE FOR THE NEW SCHOOL
AND PUPIL RESIDENCE IN THE YELLOWKNIFE-RAE AREA

DISPOSITION

JUN 24 1965

Accepted as Read.....

Amended..... See Text

Rejected..... See Text

Deferred..... See Text

Not considered.

SELECTION OF A SUITABLE SITE FOR THE NEW SCHOOL
AND PUPIL RESIDENCE IN THE YELLOWKNIFE-RAE AREA

Proposed School and Pupil Residence at Rae

Health and Sanitation Aspects

In June, 1964, the Council of the Northwest Territories considered a Reference for Advice entitled, "Selection of a Suitable Site for the new School and Hostel in the Yellowknife-Rae Area", and made a decision to accept Rae as the best possible site for accommodating the elementary school population of this area. On February 22, 1965, the Public Health Engineer, Department of National Health and Welfare, Edmonton, issued a report condemning, on sanitation grounds, the proposed Rae site for a school and pupil residence. A copy of this report is attached.

In view of the Health Engineer's Report and concern for public health, it is now desirable that Council review this matter. The following points have been raised as objections to the proposed site:

1. No site of adequate size and of suitable land is available in the immediate vicinity of Rae.
2. The staff of the school and residence will face the hazard of becoming "bushed" at Rae.
3. The water supply will be inadequate and expensive.
4. The inadequacy of water supply will pose a serious fire safety problem.
5. Sewage cannot be disposed of satisfactorily.
6. The problems of water supply and sewage disposal will be accentuated by the population increase encouraged by establishment of a school and pupil residence at Rae. Rae already has a bad public health record.

Since all the above questions with the exception of 2 are related to engineering services, an assessment of the report has been made by the Engineering Division of the Northern Administration Branch who report:

1. Sufficient playground area will be available for the school even though it will not be the best of land.
2. As far as can be judged at this time, water rationing will not be necessary, neither will it be excessively costly to develop the existing water source. During the past winter an area of about 20 feet wide around the south-west corner of the water reservoir was completely free of ice, presenting a somewhat more promising picture of the winter water supply facilities than had heretofore been the case.
3. An investment has already been made in water and sewage facilities in Rae. These can be further developed to serve the new school and pupil residence.
4. The matter of fire prevention is a serious problem but the difficulties can be overcome.
5. Rae now has a power plant and distribution system, using diesel generators for the generation of power. The additional load that would be imposed by the school and pupil residence would warrant the construction of a power line from Yellowknife and the introduction of hydro power at lower cost.

The Engineering Division also advises that:

1. The water supply and sewage disposal plants at Rae are basically satisfactorily. Some modifications and repairs to the existing plants are however required to make them entirely satisfactory.
2. There is a need for additional water outlets in the community so that all people may make use of the treated water turned out by the plant. These improvements and repairs are needed whether or not a hostel is established.
3. It is impossible to estimate what the cost will be to install water supply and sewage disposal systems capable of handling both the existing population and the new proposed school and hostel facilities. Much depends on what needs to be done to ensure a reliable winter water supply. The present reservoir is not big enough to handle any additional facilities that may be placed at Rae.
4. There are indications, however, that water is infiltrating into the reservoir as fast as it is being taken out. If these indications are supported in fact, then the cost of servicing the school and hostel facilities will be comparatively low. If these indications are not supported, then a fair amount of capital may have to be spent to ensure an adequate water supply.

The ideal solution from the engineering and planning standpoint, if it were not for the social and economic problems involved, would be to move the whole settlement to a new and better site, but this solution has never been proposed. Rae does have several disadvantages as a site for future construction. The present settlement is located on a low-lying rocky outcrop which is difficult to drain and costly to level. The water supply source is not the best and to obtain pure water has been costly. It is surrounded by low-lying land, much of which is marshland and unsuitable for building. These are the chief disadvantages. In general, the engineers have recognized these disadvantages but believe they can be overcome and advise that construction proceed in the Rae location.

The psychological factor as it affects staff in a small settlement would be more if the school were located in a remote area, for example on the northern shores of Great Slave Lake, as suggested in the Health Engineer's report. Rae is an established community with a considerable group of people to provide companionship for the school personnel. It has a doctor, hospital staff, clergy, R.C.M.P. and Hudson's Bay Company employees. The points raised in the report referring to the advantages of gardening and fruit growing are also invalid. There is little to choose between a site at Rae and one on Great Slave Lake from this point of view. Rae is also on an all-weather Highway, accessible to the larger communities of the Northwest Territories. Personnel will be able to journey to Yellowknife by car for recreation and shopping.

A most important factor that must be considered is the expressed desire of the Indians for a school at Rae, and their opposition to sending their children away to school on a regular basis. If a school is built at a site outside Rae, daily transportation will have to be provided for Rae children. Since there are over 100 school children in the community, it would require at least two large busses and the cost would be great indeed.

The Commissioner, therefore, recommends that, because of reasons given above, Council confirm the selection of Rae as the most suitable site for this project.

REPORT BY PUBLIC HEALTH ENGINEER

on the

SITING OF PROPOSED SCHOOL

at

RAE, NORTHWEST TERRITORIES

PURPOSE OF REPORT

The purpose of this report is to point out the insanitary living conditions existing in Rae and reasons why the proposed school complex should not be located nearby. Other suitable settlement sites in the general vicinity are described, particularly an excellent site on the main highway, four miles from the existing site.

SUMMARY

Living conditions in Rae are basically so insanitary that if the population is doubled, as will be the case if the proposed school is located nearby, serious epidemics could occur. The consequences could be most serious and many deaths could result. It behoves us not to forget the severe epidemic of 1962 in which 100 persons were hospitalized with gastro-enteritis with eight deaths.

This dangerous situation could be avoided by choosing a more suitable site for the proposed school. An excellent alternative site for the proposed school is located on the highway, on North Arm of Great Slave Lake, five miles by water from the existing site.

In the past, there have been four burgeoning communities in which serious public health hazards were looming ahead, namely Rae, Old Yellowknife, Aklavik and Hay River. Major public health problems at three of these have been averted by positive action in diverting major population growths away from these settlements which are either on rock outcrops or poorly drained, delta soils. Potentially, the worst of these four communities is Rae, and positive steps should be taken now. An increase in the population of this rock outcrop should not be encouraged.

We must accept the fact that the provision of water delivery, sewage and garbage collection services may not be sufficient to prevent serious outbreaks of disease at the existing site. Kitchen, human and dog wastes will continue to be discharged on the ground, even if these services are provided and children will continue to play on this polluted ground and in the polluted shallow water around. People will probably continue to take most wash water and some drinking water from the lake. For example, in Yellowknife a few people continue to use water from the polluted Back Bay even after a most intensive publicity campaign to prevent it; and two families at Inuvik used water from Duck Lake when it was the community sewage lagoon, in spite of strong persuasion to have them do otherwise.

If the school is located near this insanitary settlement, the extremely poor living conditions of the natives will stand out in sharp contrast with those of the school staff, even if only minimal living standards are provided for the latter. This anomaly will likely become a matter of criticism as has been the case at Inuvik.

The native population of this community may not continue to be contented with these insanitary living conditions, and they may, in the not too distant future, want to move to a better site. Long-term planning for this settlement is desirable as, if the school complex is located near Rae it may anchor the community to this most undesirable site.

An excellent site is located between the Yellowknife-Fort Providence road and the North Arm of Great Slave Lake, four miles from the present site. It is large enough for both a school and a large settlement. It could also be an excellent location for a roadside restaurant, store, service station, handicraft sales, etc.

INSANITARY LIVING CONDITIONS IN RAE

Living conditions in Rae are insanitary for many reasons, the most important being the fact that the settlement is situated on a rock outcrop which is 80% surrounded by a polluted, turbid shallow lake and 20% by mosquito-infested swampland. The parts of the existing site which are not rock outcrops are themselves swampy mosquito-breeding grounds. Kitchen, human and dog wastes are discharged on the rocks on which the children play, residents walk and the dogs live. This pollution washes into the lake which is a water supply and it is tracked into the lake, houses, schools, etc. Under these circumstances, it is almost impossible for anyone in the community to avoid contact with gross quantities of bacteria of intestinal origin. Many of the native population develop gastroenteritis throughout the summer months and this is a particularly debilitating disease in infants and old people and deaths are likely to occur in these age groups.

Playgrounds are desirable in any community but there are no suitable sites at Rae which could be so used without a very heavy expenditure of funds.

Inexpensive underground water mains and sewers can never be utilized at this settlement. Utilidors, which are expensive to construct, will be required and it is doubtful if sufficient funds would be available to extend such a service to the scattered native households.

PUBLIC HEALTH FACTORS

If the proposed school is located near Rae, the population will probably double. Four basic public health factors are significant under those circumstances.

1. The number of cases of communicable disease is in geometrical relationship with the total population. In other words, if the population is doubled, which is a likely result of the school being located there, the number of cases of communicable diseases may more than double, although this surmise could be modified by improved sanitation.
2. Disease germs, which are at present foreign to this population may be introduced by an itinerant, albeit small, fraction of that population consisting of the school employees, their families, visitors, etc.
3. From time to time, Rae will likely become a reservoir of intestinal diseases which may spread to other communities in the Northwest Territories.

4. The insanitary conditions at Rae have resulted in sporadic outbreaks of gastroenteritis (diarrhoea) and occasional deaths, especially among the infant population. Following the completion of the access road to Rae in 1961, there was an increased number of visitors to the settlement and predictably an outbreak of bacillary dysentery occurred soon afterwards in 1962. In that outbreak eight people died, more than a hundred were hospitalized, and many more were less seriously ill. A much more serious situation could arise if say typhoid germs were introduced into this settlement.

CONSIDERATION FOR SCHOOL STAFF AND FAMILIES

The physical and mental health of the school staff and their families must be considered in the siting of a permanent school. The mental health of those people is often affected by their living conditions and it is suggested that it may be easier to recruit and retain suitable staff if the surroundings are pleasant and the facilities in keeping with southern standards.

GEOGRAPHY, HISTORY AND ECONOMY

Rae is an Indian settlement located 70 miles by road northwest of Yellowknife, seven miles by road from the Yellowknife-Port Providence highway. It is situated on a rocky island and peninsula on the west shore of Marian Lake, which is connected via Frank's Channel and West Channel with the North Arm of Great Slave Lake. It is the trading post and meeting place of the Dogrib Indians who for more than two centuries have hunted, trapped and fished the area between Great Slave and Great Bear Lakes.

The original settlement, known as Fort Rae, was situated on Rae Point, a peninsula on North Arm. It came into existence with the establishment of a Hudson's Bay Co. post over a century ago. An R.C. Mission was established there in 1858.

Some sixty years ago the Northern Trading Co. established a trading post at the existing site, now known as Rae, 15 miles closer to the vast Dogrib hunting grounds. The Indians stopped at the nearest trader and so the Hudson's Bay Co. and the Mission moved there too.

In 1934 the only buildings were those of a R.C. Mission, a radio station and residences of the R.C.M.P. and three traders including the H.B.C. At that time, the native population lived in tents.

Soon thereafter the settlement began to grow and the Mission built a 40-bed hospital in 1939 and doubled its capacity by making extensions in 1950 and 1955. Soon after the war, residences were built for a doctor, game warden and a teacher. A two-room school was built in 1956 replacing a temporary one-room school and later two portable one-room school buildings were added.

DESIRABLE FEATURES OF A SCHOOL SITE

The best school site has 30 to 35 acres. There should be plenty of space for all school buildings including a large gymnasium and assembly hall. There should be well-drained playgrounds with the various age groups separated for their safety while playing. There should be space for an outdoor hockey rink and a playing field large enough for football, soccer and baseball. The staff residences should be separated from the school so that there is little noise interference. There should be space for lawns, related buildings and future expansion.

Piped water and sewage utilities are a necessity for a large building complex such as this. Underground pipelines are preferable because (1) they do not interfere with roads, and playgrounds, etc., (2) they are not subject to damage by weathering and vandalism, (3) they are very much less expensive both to construct and to maintain, and (4) heat losses are much less. The cost of underground pipelines is relatively low so that they could possibly be extended to the native sections of the community, which will inevitably develop.

There should be unlimited space nearby in case the settlement moves to the school. For the benefit of these people, the site would be accessible by both road and water, and suitable to their economy.

SUITABLE SCHOOL SITES AVAILABLE

1. Lakeside Site

The most suitable site is located on a broad sandy plain on the shore of Great Slave Lake, four miles by winter road south of Rae, and four miles west of the junction of the Fort Providence-Yellowknife road and the access road to Rae. It is a large, picturesque, well-drained site and soil conditions are such that lawns, playgrounds, etc. could be easily constructed and maintained.

The costs of the water and sewer utilities at this site would be comparatively low. The water is of excellent chemical quality although it is understood to be turbid during a south wind.^{*} There would be sufficient water available near the school so that no water reservoir would be required either for domestic or fire requirements, although it may be desirable to provide storage so that water need be pumped only when the water is not turbid. All pipes could be buried, and sewage treatment and disposal would be a simple matter of providing a sewage lagoon in a sandy area from which the contents would seep away. The layout could be such that the lagoon could be located remote to the rest of the community.

Development of playgrounds would be of negligible cost, because it is well-drained level land. There is an excellent sandy beach and boating and fishing would be excellent sports for the children.

Power could be obtained by running four miles of power line to the proposed line to Rae, cost approximately \$60,000.

The foundation soil appears to be excellent so that the cost of building construction would be minimum at this site. The soil is such that all buildings could be provided with basements.

Space is adequate so that beautiful view lots could be available for all staff residences. Undoubtedly, boating and fishing would be a common sport. This school might become the most preferred teacher posting in the Northwest Territories.

* Information provided by guide, Ed. Zoo, who stated that in summer when the south wind blows, the bottom of the lake is stirred up so that the water is almost as turbid as is the water at Rae at all times throughout the summer regardless of the wind direction.

Natives who moved to the site could dock their boats on the sandy beach. They would be closer to the good fishing areas, the main highway, and only four miles farther by dog sled from their vest trapping and hunting grounds.

2. Site Nerr Rae

Probably the one point in favor of the only available site near Rae is its proximity to Rae. There are eleven acres of fairly good land a half mile from the settlement, but it is surrounded by rock outcrops and swampland. It would be very expensive to haul earth to fill in the surrounding swamplands for playgrounds, and in fact this would not be done.

Water mains and sewers would need to be in aboveground utilidors which are not as good as when underground and are very expensive to construct and to maintain.

A water system would be very expensive. The only reasonable solution is the construction of a water reservoir which would provide winter storage of water in an area where much rock blasting would be required and no clay is available for embankment material. The cost would probably be around \$40,000.

The best method of sewage disposal would be to a lagoon in the swampland southeast of the settlement. Construction would be expensive, because bulldozers cannot operate in swampland and embankment material would be scarce. The sewage lagoon would discharge back into Marian Leko.

3. Stagg River

A site is available along the east shore of Stagg River, seven miles by road east of the junction of the Fort Providence-Yellowknife road and the access road to Rae.

The most striking features of the Stagg River site is that (1) it is surrounded by mosquito-infested swamplands, and (2) it is restricted between the river and a series of sloughs. The area is large enough for the school complex, but a townsite in the vicinity would be confined. The soil is unstable and this would boost building construction costs considerably.

The only water available at this site is from Stagg River which is ample but highly coloured, which colour can be removed by alum and filtration treatment. A concrete treated water storage reservoir should be provided for fire protection.

Sewage could be disposed of to a sewage lagoon developed in the swampland northeast of the site. This would discharge via a large slough east of the site to Stagg River, downstream from the highway bridge. The water in the lake is not used in this vicinity.

The one advantage of this site is that it would be on the power line from Snare, which would parallel the Yellowknife-Fort Providence highway to Rae.

POSSIBILITY OF SETTLEMENT MOVING

The location of the settlement of Rae at this site is an historical accident. The site has no merits whatsoever. Living there may have been tolerable for an isolated small group of natives, but this cannot continue now that there is an itinerant population. The settlement will move eventually, and it is important to recognize this fact now.

As mentioned previously in this report, the settlement site is either swamp or rock and there is no soil absorbency. Excreta from dogs and humans do not filter into the soil. It remains on the surface until it is either tracked away (often into a dwelling) or washed into the water supply. There are actually few locations where privy pits can be dug. The swampland cannot be raked easily so that in many places it is strewn with *perbago*.

The existing water system is not satisfactory and maintenance costs are likely to be high.

The sewage disposal plant is a type which is uneconomic to operate in those cold weather conditions, and the effluent therefrom is likely to contaminate the water supply. The R.C.M.P. building is the only one serviced by the existing utilidor.

There is a great need for new houses for the native population of Rae, and in the past building programs have been deferred because of lack of decent building sites. A decision to move Rae to a new site would help to solve this problem.

The cost of moving Rae would not be excessive because most of the buildings are small. More than \$100,000 would be saved by not running a power line into the settlement. Probably another \$10,000 to \$20,000 per year would be saved in road maintenance and reconstruction (because it is a poor section of highway). The Mission-owned hospital and church are the only two buildings which would be expensive to move.