

AN ECONOMIC SURVEY OF THE BIRDTAIL SIOUX
INDIAN RESERVE

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AN
ECONOMIC SURVEY
OF
THE BIRDTAIL SIOUX INDIAN RESERVE

March 1967

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ECONOMIC SURVEY OF BIRDTAIL INDIAN RESERVE

INTRODUCTION

The study has been undertaken to investigate and evaluate the economic development potential of the Birdtail Indian Reserve.

The study consists mainly of an inventory of all social and economic resources on the Reserve and an evaluation of these resources and those of the surrounding area, to determine the economic potential for the members of the Birdtail Band.

The study also examines the economy of the Region in which the Reserve is located, to assess whether the economic activities in the area can have a significant effect on the Reserve and provide Band members with employment opportunities.

Finally, a number of recommendations are made as to steps that should be taken to deal with the situation on the Reserve, based on the findings of the study.

The study is divided into several sections. Details of each follow:

1. Section one reviews the Reserve itself, its economy and the economy of the area in which it is located. The relationship of the Reserve to the area is also outlined.
2. The second section contains information about the people, their ages, education and occupations and indicates the future population trends. Details of the labor force and attitudes of the people are provided.
3. This section reviews the primary resources of the Reserve and the area - agriculture, forest, mineral and recreation. The commercial and industrial potential of the Reserve and the area are also considered.
4. The fourth section of the report examines the Reserve as a community. A description of the present community, its facilities and services, housing characteristics, roads and other facilities are outlined.
5. The fifth and final section of the report contains an evaluation of the Reserve and its resources and considers the potential for development. Some ways in which the resources of the Reserve might be better used are suggested.

Finally, a synopsis of the economic conditions on the Reserve is provided. For convenience, this has been placed at the beginning of the study. This synopsis summarizes the Reserve's economic situation and puts forward some specific recommendations.

SYNOPSIS

The primary natural resource potential of the Birdtail Sioux Indian Reserve is negligible when measured against the needs and size of population of the Reserve.

Agriculture is the only major resource area for which economic factors at this point can be projected. These resources in themselves, can only maintain 2 to 3 family units. The agricultural resources could, if used by Indian people, return to the Reserve some \$16,228 in labor return and \$9,812 to the Band in lease rental payment based on a quarter crop share formula.

There are some 200 people living on the Reserve or approximately 40 family units. From these figures, it can be seen that agriculture offers little hope for the vast majority of the Reserve.

We have attempted in the report, to look with some degree of optimism towards other development such as handicrafts and tourism. Although some potential for expansion in this connection does exist, realistically, we must conclude that the future prospects of these people is indeed bleak.

Our population projection indicates that by 1971 the population of the Birdtail Reserve will be 250. If present population trends continue, the population of the Reserve could reach 450 by the year 1985.

Employment opportunity in the area around the Reserve is and has been diminishing for some time. Historical employment patterns of farm labor, land clearing, etc. have reduced as mechanization has increasingly taken over previous job opportunities. As farm units have grown larger and continue to do so, local towns and villages have played a diminishing role as an employment factor.

This continuing outflow of farm and small urban population has shifted employment opportunity to larger centers such as Virden and Brandon, particularly Brandon. Unfortunately, Brandon is outside the effective employment range of the Birdtail Reserve under present circumstances.

Unemployment on the Reserve is consistently high. We estimate that up to 75% of the population is unemployed most of the time. Of the estimated labor force of 61, thirty earn less than \$600 per year, a further 10 earn less than \$800. Average income levels for the area as a whole is \$2,500 per year.

The lack of economic opportunity, coupled with diminishing labor potential, has created an atmosphere of discouragement and frustration. Our interviews indicated that the people simply live in hope that someone, somewhere, has an answer. Expanding population and increasing dependency on the state is slowly destroying the hopes of the adult population and frustrates the future of the young.

Eighty-seven out of a population of 184 on the Reserve are under the age of 15. A further 41 are between 16 and 35. The group under 15 can be educated to assume a role away from the Reserve. The group between 16 and 35 could and should be up-graded and given courses in skills development.

This study of the Reserve leads us to conclude that the limited agricultural resources might be developed to support the 2 - 3 family units. For the balance, relocation would seem to be the most logical solution. To perpetuate the present situation would damn the people to a virtual prison with walls of frustration, state dependency, inactivity and social disintegration.

A program to facilitate relocation either individually or mass, is beyond the terms of reference of this study. If help is to be provided to assist the members of the Birdtail Band to achieve a place in Canadian society, it should be started now.

We would recommend that a sociological study should be undertaken that would establish a basis for assistance. Meetings should be held with the people to discuss the situation, alternatives and future potential.

Specific Recommendations

- 1) A Farm Advisory Committee should be set up to plan, organize and assist in carrying out recommended farm program.

The Committee should consist of Band members, with farming experience, and non-Indian technical advisors.

- 2) A sociological study should be undertaken aimed at determining the following:
 - (a) the attitude of the people to relocation
 - (b) the need and the basis for an intensive program of guidance counselling for students, up-grading for adults and acceleration of technical training.
 - (c) to establish a basis of meaningful incentives and services to facilitate the relocation of people and the decisions required of the people in this connection.
 - (d) to evaluate the potential of people in relationship to possible future developments in the area.

Economic Survey of the Birdtail Sioux Reserve #57

1. General Background

Location

The Reserve is located about 60 miles northwest of Brandon on the north bank of the Assiniboine River. It is about 5 miles west of Beulah and 12 miles from the Saskatchewan boundary.

History

The Reserve was established in 1875. The Band members are part of the Sioux who came to Canada following the uprising in the United States in the early 1870's. While not part of the original treaty of 1871, the Reserve was established under treaty Number 2.

Relationship of the Reserve to the Area

The Reserve is located in the heart of a prosperous agriculture area where cereal grains and oil seeds are produced. Yields are generally high and soil conditions well suited for this type of production. The demand for land is strong in the area, and the Band has no difficulty in leasing any of the land it wishes to from the Reserve. The Reserve itself tends to reflect the agricultural industry in the area, for its potential for agriculture for its size, is quite good. There are now 2 Indian farmers operating on the Reserve.

The Reserve is located in the oil basin of western Manitoba. In the early 50's, there was a good deal of exploration and drilling activity, this has generally died out. Two wells were drilled on the Reserve and a small oil showing found in one. No further interest has been shown in the Reserve including an offer for sale made by the Branch in 1966.

There is little other economic activity in the area other than that found in the communities serving as trading centres for the surrounding agricultural population.

The nearby towns - McAuley, Beulah and Miniota, are all very small and offer little in the way of economic opportunity or growth potential. As the population of the agricultural area has declined, the importance of these communities has declined as well. There is a continuing relationship, particularly with Beulah, for the school children attend school in that community. In addition, some students now also attend schools in Birtle and Brandon.

None of these communities have had anything to offer in the way of job or economic opportunities other than on a casual basis for, there has indeed, been little employment available for the white population. However, in recent years, the economy of Brandon and Virden particularly have strengthened and job opportunities have opened up. The situation has deteriorated somewhat in Virden as the oil industry activity has declined, but in Brandon it has continued to improve as new industry has been attracted there. Even further away, a potato processing plant in Carberry has provided jobs for many on other Reserves, particularly the Oak River Reserve.

There is now a program available to assist Indians to up-grade their skills through technical training in Brandon and to assist those acquiring such skills to become gainfully employed there or elsewhere. It is too early to fully assess the impact of this, but it is expected to enhance Indian employment opportunities in western Manitoba to a considerable degree. This is essential as agriculture is no longer a labor intensive industry and the opportunities for employment in this industry and others requiring casual labor, is declining for Indians and whites alike.

The Reserve itself offers little in the way of employment or economic opportunity and Band members over the years, have sought employment elsewhere. At the present time, employment is found mainly in the agricultural, railway, and construction industries, largely on a casual, seasonal basis. It is in these industries that the opportunity for unskilled employment is the greatest. Band members are generally employed in these industries in a radius of about 50 miles out from the Reserve.

Economic Background of the Area

The principal, though extremely limited, economic opportunity on the Birdtail Reserve is more intensive use of the land. A detailed examination of the agricultural potential and recommendations for future land use, are contained in this report. Because of the lack of other economic potential on the Reserve itself, it is necessary to consider the economy of the surrounding area and of western Manitoba generally.

Economic activity in western Manitoba other than agriculture, is located with one exception, in the communities that serve as trading centres. The one exception of course, is the oil industry which, since the early 1950's, has been a fairly important source of income and has provided a good deal of economic stimulus for the area.

An appraisal of the existing economy of the area then, is in reality an appraisal of the economy of the communities that are located there. Census Division #13, in which the Birdtail Reserve is located, contains two towns, Birtle and Russell, and four villages, Hamiota, Binscarth, Foxwarren and St. Lazare. In addition, there is a number of hamlets and unincorporated centres such as Beulah and Miniota, which are relatively close to the Birdtail Reserve. Total population of the Census Division was 12,880 in 1961. Of this, approximately 4,200 lived in the previously mentioned six communities.

All these communities are trading centres, serving the surrounding agricultural area. Some have small market-oriented industries such as cabinet works, bakeries, printing shops (usually operated in conjunction with the weekly newspaper), and a number of industries that are agricultural-oriented, such as creameries, dairy and poultry operations. Total employment in these industries for the communities for which data is available, amounted to less than 75 including seasonal employment. Since practically all of these industries have been developed to serve the immediate market, or to process existing agricultural output, there appears very little opportunity for expansion through the industrial sector. The one possible exception might be the development of industries serving the agricultural market locally and elsewhere.

An example is the development of an agricultural equipment manufacturer at Minnedosa, which is now among the largest in the Province. It markets its products in Manitoba, other areas of western Canada and in the United States.

One or two small implement manufacturers are already operating in Census Division #13, and there may be some potential for expansion. The development of such an industry usually depends on the initiative and enterprise of an individual or a group of individuals who see an opportunity and have the ability and means of exploiting it. Further consideration will be given to economic development of the communities in the surrounding area later in this study.

Following are some statistics which give an indication of the size of the market area in the immediate vicinity of the Reserve, and its economic activity. These statistics are for Census Division #13 which is roughly 60 miles from north to south at the Saskatchewan boundary, and about 50 miles wide at the base which extends from Rivers to the Saskatchewan boundary.

CENSUS DIVISION #13

<u>Population:</u>	12,880
Male	6,789
Female	6,091
Rural - Farm	6,710
Non-farm	4,907
Urban	1,263
<u>Age Groups</u>	
0 - 9	2,835
10 - 14	1,412
15 - 19	1,062
20 - 64	6,082
65 & over	1,489
<u>Income</u>	
15 & over with income	2,925
15 & over without income	1,108
Under \$2,000	1,793
\$2,000 - 2999	397
\$3,000 - 3999	301
\$4,000 - 4999	163
\$5,000 - 5999	104
\$6,000 - 9999	129
\$10,000 plus	38
Average Income	\$2,107

Source: Dominion Bureau of Statistics, 1961 census.

LABOR FORCE

Total		4,457
Male		3,675
Female		782
Wage Earners		1,346
Earnings:		
Less than \$2,000		878
\$2,000 - 2999		353
\$3,000 - 3999		297
\$4,000 - 5999		183
\$6,000 - over		27
Average	Male	\$2,194
	Female	\$1,727

GENERAL DATA

Housing - (no.)	3,558
Autos - (estimated no.)	2,950

AGRICULTURE

No. of Farms	1,783
Capital Value	\$30,361,000
Sales	
\$1,200 - 2,499	344
\$2,500 - 4,999	651
\$5,000 - 9,999	517
\$10,000 plus	105

Source: Dominion Bureau of Statistics, 1961 census.

COMMERCIAL & INDUSTRIAL ACTIVITY

Retail Trade:

Stores	122
Sales	\$6,697,800
Average/store	\$55,000

Wholesale:

Outlets	40
Sales	\$4,354,000

Services:

No. of locations	74
Sales	\$1,366,000

Manufacturing:

Establishments	10
Selling Value of Shipments	\$621,600
Value Added	\$150,100
Employment	527

Source: Dominion Bureau of Statistics, census 1961.

II The People of the Reserve

There are 196 people belonging to the Birdtail Sioux Band. Of these, 184 live on the Reserve.

No population data is available before the Indian Affairs Branch took over full responsibility for this Reserve in 1948. It is estimated, however, that the population was about 85 at that time. By 1961, the number living on the Reserve had increased to 124.

The increase before 1961 is somewhat below the rate of population increase of Indians generally, but can likely be accounted for by the lack of employment and economic opportunity in the area which has undoubtedly drawn many away. The increase during the past seven years has been rapid as the figures below indicate.

Population breakdown by age groups and sex is shown in the following table:

POPULATION DATA

	<u>Male</u>	<u>Female</u>	<u>Total</u>	
0 - 5	18	18	36	36
6 - 15	26	25	51	
16 - 25	12	11	23	
26 - 35	9	9	18	
36 - 55	10	10	20	
over 55	12	12	<u>24</u>	
			184	
Living off Reserve			<u>12</u>	
Total Membership			196	

Education

It is difficult to obtain data about education, skills and training for the population as a whole. Some indication of future education, however, may be derived from the following data on present schooling.

There are 51 children in the 6 - 15 age group and about 35 of these are in school. Enrollment in the Beulah school is shown below:

SCHOOLING

<u>GRADE LEVEL</u>	<u>NO. OF STUDENTS</u>
1	4
2	4
3	4
4	6
5	5
6	2
7	3
8	<u>1</u>
Day School Total	29
Residential School Enrollment	<u>7</u>
Total	36

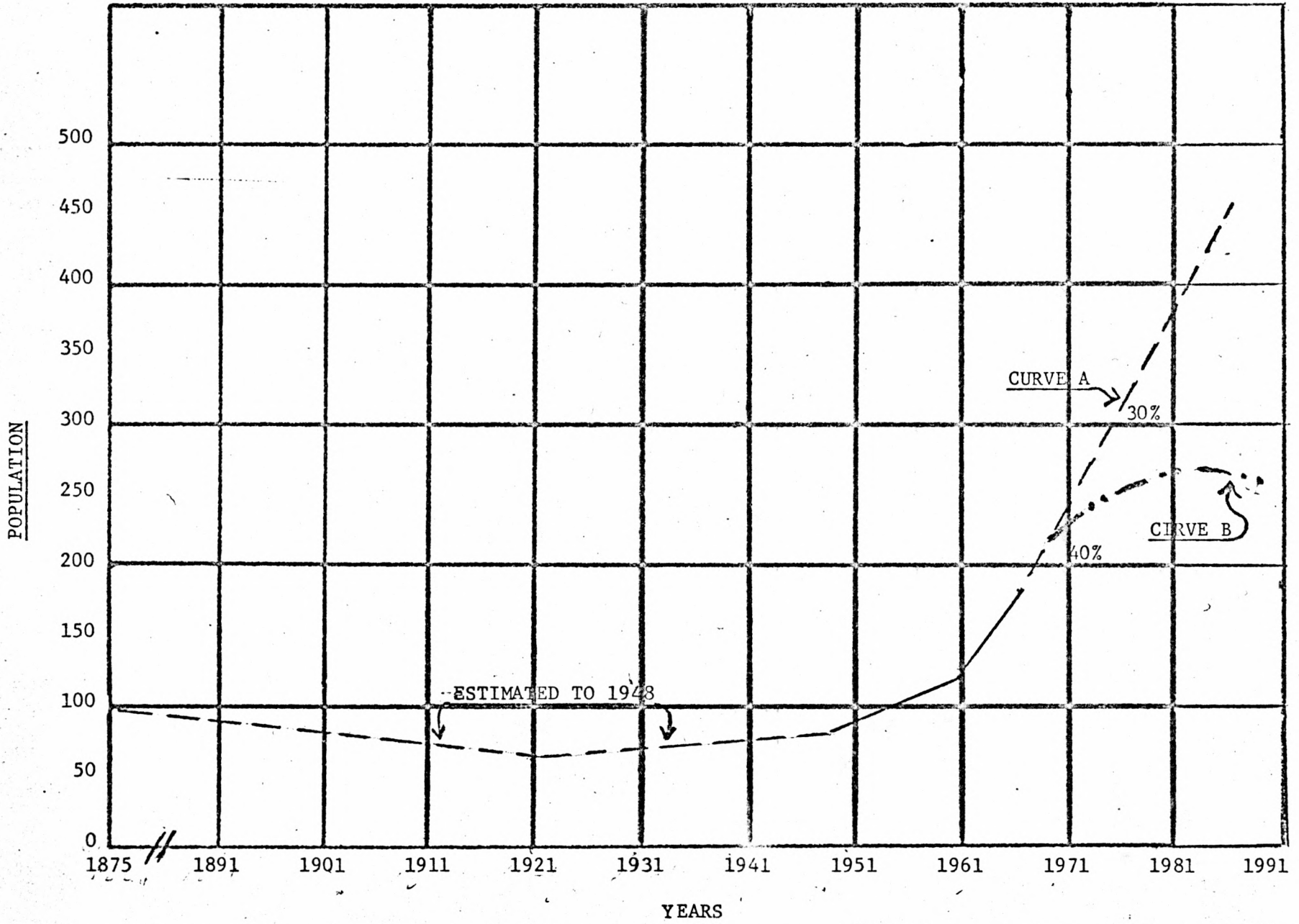
Population Trends and Projections

An examination of population data breakdown by age groups reveals that in the past 15 years, the population of the Reserve has nearly doubled. A total of nearly 200 are now living on this Reserve, which has resources to support only three or four families.

Population data for earlier than 1948 is not available, but the trend in other Reserves has been for a population decline steadily until the mid twenties, then stabilize and begin to increase slowly in the thirties and forties and rapidly thereafter. If this trend continues, and at the same rate, it is likely population could reach nearly 450 by 1985. (roughly 20 years). This trend is shown by the accompanying graph (Curve "A"). This growth is based on the assumption that the rate of emigration from the Reserve will continue at the same rate as at present.

This is somewhat unlikely and, in order to give a more accurate estimate, it is felt to be more realistic to assume a population that stabilizes at close to 275 (by 1981), and that perhaps ultimately, declines as residents move elsewhere to take advantage of greater opportunities for employment. The effect of this is shown as curve "B" on the graph, extending from 1967 to 1991.

BIRDTAIL ST. RESERVE #57
POPULATION FORECAST TO 1991



Work Force

As a result of a survey of the people of the Reserve, it has been possible to develop a considerable amount of information about the people between the ages of 15 and 55.

Following are tables showing data about the size of the labor force and its education by grades and age levels, its skills and training, and information about income levels.

LABOR FORCE

	<u>Male</u>	<u>Female</u>	<u>Total</u>
16 - 25	12	11	23
26 - 35	9	9	18
36 - 55	<u>10</u>	<u>10</u>	<u>20</u>
Totals	31	30	61

EDUCATION OF WORK FORCE

<u>GRADE - LEVEL</u>	<u>SAMPLE</u>		<u>PROJECTED TOTAL</u>	
	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>
0 - 2	1	-	2	-
3 - 6	6	5	18	15
7 - 10	3	5	9	15
10 +	1	-	2	-
	—	—	—	—
	11	10	31	30
Total Work Force Sample				
	11	10		
Total Work Force	31	30		
Sample - 30%				
SKILLS	4	1	12	3
TRAINING	-	2	-	6

LABOR FORCE EDUCATION BY AGE GROUPS - (PROJECTED)*

NUMBER AT EACH GRADE LEVEL

AGE	0 - 1		2 - 6		7 - 10		10 - +	
	M	F	M	F	M	F	M	F
15 - 25	0	0	3	0	6	6	0	0
26 - 35	0	0	3	6	0	0	3	0
36 - 55	0	3	9	9	0	6	0	0

* Basis - 30% sample.

This data indicates that while education levels range from grade 2 to 10, most Band members do not go beyond grade 6.

Training courses have been available to Band members in the past and there are a few Band members with skills, mainly auto mechanics and welders. Up-grading courses and opportunity to attend the technical school at Brandon is being offered to Indians in the area. It is not known how many have taken advantage of this, but the Province has a program for relocation underway in Brandon through its Vocational Opportunities Services Branch.

Labor Rates and Work Force Attitudes

Wage levels in the area are \$1.00 to \$1.50 per hour for unskilled and semi-skilled workers. The minimum wage has recently been raised to \$1.25 and this should raise incomes somewhat.

Wages for agricultural work have not been subject to minimum wage laws and many Indians have been earning much less than the minimum wages that apply in other industries. This is reflected in the following income projections which reveal extremely low incomes for the Band. Over 75% earn less than \$1,000 per year. This compares with an average income of \$2,107 for the area in 1961. Based on Provincial data for 1966, this figure for the area has now increased to an estimated \$2,500 per year.

BIRDTAIL LABOR FORCE

PROJECTED INCOMES*

<u>INCOME</u>	<u>MALE</u>	<u>FEMALE</u>	<u>TOTAL</u>
\$200 - \$400	10	-	10
401 - 600	15	5	20
601 - 800	5	5	10
801 - 1000	5	0	5
1000 +	<u>16</u>	<u>0</u>	<u>16</u>
Total	51	10	61

* Based on 20.8% sample (12 of 61 in 16 - 55 age group)

In addition to the rates of pay, the income levels reflect the seasonal nature of the work done by Band members. Most work in the summer at railway maintenance, construction and farm work - all high seasonal. In addition, work habits and attitudes toward the white man's work patterns, undoubtedly have a bearing.

The potential for increasing duration of work over the year and raising income levels, lies in the attitudes of the Band toward remaining on the Reserve and toward training and skills.

The following survey data and projection for the work force shows present attitudes.

LABOR FORCE SURVEY OF ATTITUDES

REPLIES BY AGE GROUP AND SEX

QUESTION	AGE		AGE		AGE		AGE		AGE		TOTALS		
	15 - 25		26 - 35		36 - 45		46 - 55		56 - 65		MALE	FEMALE	
	M	F	M	F	M	F	M	F	M	F			
Do you wish to stay on the Reserve?	Yes:	0	1	1	0	0	1	3	0	1	1	5	3
	No :	1	1	1	0	1	4	0	1	0	0	3	6
Do you wish your children to stay?	Yes:	0	0	0	0	0	1	0	0	0	0	0	1
	No :	0	0	1	0	0	3	0	1	0	0	1	4
Are you satisfied with your life?	Yes:	0	0	1	0	0	1	0	0	0	0	1	1
	No :	3	1	1	0	2	4	1	0	1	0	7	8
Would you work at a new project?	Yes:	3	2	2	2	2	3	2	1	1	0	10	8
Would you take training?	Yes:	3	2	1	2	2	3	1	1	1	0	8	8

The survey reveals a general desire for those under 45 to leave the Reserve and for those older, plus a few women under 45, to remain. This is natural and expected.

The question about the children was not well answered as it was misunderstood. The general feeling seemed to be to encourage children to get a good education (stay in school) and then it is up to them to decide what to do. There would seem to be a very real need for student counselling.

Extreme dissatisfaction with their lot in life was shown by the Band members interviewed. Fifteen out of 17 expressed dissatisfaction. Projected to the whole work force, this would be about 53 out of 61.

Desire to work at any new projects was shown by the members. Eighteen favorable responses were received and as would be expected, this was strong among the younger men and groups.

Nearly as large a group expressed interest in taking training to obtain such employment. From this one might judge that lack of motivation is a strong factor where interest is not shown in taking special training and courses.

III Resources of Reserve and Area

The Reserve itself has very limited economic potential except for agriculture which, of course, offers little employment opportunity. Agricultural potential, however, has been reviewed in detail in this chapter of the report. The balance of the report is devoted to an assessment of the economic potential of western Manitoba, the impact this could have on the Reserve and the opportunities it may afford for employment.

1. Agriculture

The agricultural land on the Reserve represents its most important resource. This land offers some potential for agricultural development. This potential has been given careful examination in this study, the best uses to which the land can be put have been outlined in some detail. The potential return from agriculture has also been reviewed.

It will be noted that, of the total arable land on the Reserve, all but 260 acres along the Assiniboine Valley has been cleared and broken. When all land has been developed, there will be approximately 1,585 acres that offer immediate potential and a further 2,000 acres that could also be cropped if fertilized heavily. However, for the purposes of this review, economic returns have been provided only for the area of immediate potential.

Description of the Reserve

The Reserve contains approximately 6,880 acres of land. The Reserve is roughly in the shape of a triangle, covering the Assiniboine Valley floor on the northeast of the Assiniboine River with the remainder of the acreage on, and above, the escarpment. The precipitation of the area is about 18.10" annually* and the frost free season is around 100 days.**

Soils of the Reserve ***

Slightly more than ½ of the 6,880 acres of land on the Reserve is suitable for cropping. The remaining acreage is either too isolated to crop or has undergone extensive erosion that has severely reduced its productivity and manageability.

*Annual precipitation at Brandon is 18.76", Birtle 18.14"
(Meteorological Branch, Dept. of Transport, Ottawa)

**Frost Free period at Brandon-96 days, Virden-105 days.
(Meteorological Branch, Dept. of Transport, Ottawa)

***See Appendix for breakdown.

There are two major soil types on the Reserve. These have many opposite characteristics. In the Assiniboine and Birdtail Creek Valleys, there is clay soil that has a high moisture retention and slow internal drainage. Consequently, this area often suffers from excessive moisture in the springtime. Above the escarpment, there is sandy loam textured soil which has low moisture retention and rapid internal drainage. Consequently this land often suffers from drought. The land above the escarpment, some 2,000 acres in all, is of doubtful value for growing cereal grains. Tests have shown that it will give fairly good yields but it requires a great deal of fertilizer. Since the management of this area will determine its economic value, and it is impossible to assess this at this point, no attempt has been made to determine its economic potential. The balance of the arable land - about 1,500 acres, has been examined for its economic potential and has been found to offer good potential returns.

Development and Size of the Agriculture Resources

Development

Since all of the land above the escarpement has been broken, the only area requiring development is that remaining under tree growth in the Assiniboine Valley along the Assiniboine River. The tree growth is heavy and should require a cost of approximately \$70 per acre for clearing and breaking. There is approximately 260 acres requiring clearing and breaking which will cost a total of \$18,200. It should be noted that the drainage of the valley plain is very slow in many areas and as the clearing is done, provision of ditches and field drains should be made to ensure an early and consistent return to the cleared and broken land.

Use

After the drainage, land clearing and land breaking has been completed, there will be approximately 1,585 acres of Assiniboine clay in the Assiniboine valley that can be used for producing cereals and oilseed. There will also be small areas of this 1,585 acres that will provide too great a drainage problem and should be sown down to forages, either for hay or for seed purposes.

The second area that is suitable for arable culture is that located above the east of the Assiniboine Valley escarpement. The soil texture is of a sandy loam texture and has suffered from wind erosion and over-cultivation in the past. This area can become productive again if managed correctly. We would recommend that most of it be sown down to grass species for an initial period so that the soil structure and tilth may improve.

Field trials have indicated that this type of soil can be continuously cropped if fertilized heavily and the correct rotation used and also if cultivation is kept to a minimum. If a large enough acreage is used, and if production expenses per acre can be kept below a certain point, it can be economic to use this program. At the present time, however, there is not substantial evidence to conclusively prove this method to be feasible over a long term. There are approximately 2,090 acres included in this area.

There are an additional 230 acres of Assiniboine soil found along the Birdtail Creek. This soil is found in narrow patches often isolated from each other and consequently we have recommended that this area be left unbroken. There may be small acreages that could be cleared and used for forage or gardens if the need should arise.

The remaining acreage of the Reserve has been considered non-arable and not suitable for pasture. There is, however, a small acreage (95 acres) of sandy loam soil which supports harvestable native hay around its margin (the interior is too poorly drained), and 135 acres of flooded ox-bows and depressions in the Assiniboine valley which may also produce native hay in their better drained sites. This non-arable area has suffered extremely from erosion and does not have a high enough carrying capacity to repay the cost of fencing if it were to be pastured. There may be a demand for such areas in the future for recreation purposes.

Birdtail Hay Lands

We would recommend that the Assiniboine soil in this area be used for native hay production since it is all poorly drained and saline in some areas. The remaining soils are too stony and eroded to cultivate.

POTENTIAL ECONOMIC RETURNS (See Appendix B & C)

Since the productivity of the sandy loam soil will depend on the management of the operators, no attempt has been made to project returns for this area. It is expected however, that the profit margin would be small and that an economic unit would be at least twice as large as those of the Assiniboine clay.

<u>Acreage*</u>	1,585 (1,188 or 3/4 seeded)
Gross Return**	\$39,287
Net Return to Operators***	\$16,228
Net Return to Band****	\$9,812

SUMMARY AND CONCLUSIONS

Although the soil resources of the Birdtail Creek Indian Reserve are limited, it appears that an annual net revenue of \$26,040 can be brought to the Reserve in the form of Band payments and operators' returns for this labor and management.

It would also appear that two to three family units could be sustained on the Assiniboine valley soils and that 1 to 2 units could be sustained on the sandy loam soils east of the valley provided that a cow-calf operation was used utilizing the Birdtail Hay Lands.

* Based on a rotation of three crops followed by a year of summerfallow hence, only 3/4 of cultivated land seeded at one time.

** Based on a gross return per acre of \$33.07.

*** Based on the revenue and expenses incurred on a 600 acre unit on clay soil.

**** Based on a 1/4 share paid to the Band in payment for the use of the land.

2. Other Primary Resources

Primary resources have made little contribution to the economy of southwestern Manitoba. Small deposits of brick clay and small timber stands provide building materials and fuel for the farming community and the forest reserves to the south and west have provided some timber. The only major economic development has been the oil activity which started in 1952 centred around Virden. The peak of activity had passed by 1955, when the initial optimistic outlook was not confirmed.

Large scale potash deposits in Saskatchewan, immediately adjacent to the southwest region of Manitoba, raised hopes for commercial production of this resource. There has been substantial development of Saskatchewan deposits once underground difficulties had been overcome, but to date, the Manitoba potash potential has not been realized.

Resource Inventory

Salt

Thick beds of rock salt occur along the western boundary of Manitoba at a depth of about 2,500 feet. Consideration has been given in the past to the use of this salt for a chemical complex. The salt could be recovered by a process of solution, pumping to the surface and evaporation. It could also be produced as a bi-product of potash operations.

Potash

The potash minerals occur in thin beds along the western boundary of the region. These deposits are a continuation of the vast potash reserves now known to exist in Saskatchewan. The Manitoba deposits are generally closer to the surface and, because of a low carnallite content, are regarded as better quality than the Saskatchewan deposits. None has been found on the Reserve.

Petroleum

The situation on the Reserve for oil production appears very poor. Two wells were drilled to the Winnipegosis formation and abandoned. A small show of oil was obtained from one in the Mississippian Formation. In 1966, oil and gas rights were offered for sale by public tender. No tenders were received for the Birdtail Reserve.

Minerals

Sand, gravel and clay are found in the area. Clay formed the basis of a fairly large brick industry when the area was being opened up, but all of the 19 brick plants formerly located in southwestern Manitoba have now closed, and no brick is produced in the area. The reason for this is not known but it is assumed that it is due to low quality and low volume. Sand and gravel deposits are wide-spread and some sand in the area has potential for molding purposes.

Other Primary Resources

The area has very little in the way of other primary resources such as forest production, fish and fur.

Development Potential - Reserve and Area

Agriculture

The Reserve, partly because of its size, holds very little opportunity for development based on any of the primary resources. The only exception is agriculture which offers opportunity for three, perhaps four viable farming units.

Development potential for the surrounding area is also considered to be limited. While there was hope in the past that agriculture could be diversified by intensifying its operations in southwestern Manitoba, this has not occurred and is now considered unlikely in the future. Markets for existing cereal grain products are strong and should continue so for many years and it therefore may be expected that agriculture will continue on its present basis. There may be some increase in livestock activity and, possibly as demand grows, an increasing interest in row crop production. Cucumbers have been produced successfully on one of the Reserves in the area. Further output of this kind may evolve in the future but generally agriculture operations will not change greatly from their present pattern.

Petroleum

The Manitoba oil industry has now reached a stage where production is declining with very little exploration activity. Only a few proven wells are being brought in each year and no new fields have been proven up. Attention of the petroleum industry has been drawn elsewhere where potential is much greater. There may be, however, a possibility that increased exploration and drilling will result through the use of newly developed seismicograph techniques. This could mean re-working of areas previously explored by less accurate methods and possibly re-examination of existing fields.

Potash

Potash appears to be the primary resource offering the most potential for the area. There are substantial reserves of potash in the St. Lazare area but they have not yet been developed. If a potash project is not developed in Manitoba it is possible one could be undertaken in Saskatchewan in the same general area.

Potash development in Saskatchewan for the present however, has slowed its earlier pace for a surplus of potash production capacity is expected by 1970. It is estimated that committed projects will have a capacity of 12 million tons

per year by then 2 million tons in excess of anticipated demand. Before 1980, however, production is expected to expand to meet increased demand.

The effect on Manitoba is difficult to determine, but likely in the next 10 or 15 years, one or more potash projects will be developed in western Manitoba or in the adjacent area in eastern Saskatchewan.

Secondary Industry Potential

The availability of salt in beds and brine in the area offers potential for the development of a chemical manufacturing complex in southwestern Manitoba. This salt, if combined with low cost electricity, could result in an important industry producing chlorine and caustic soda. This industry could attract other chemical operations utilizing chlorine to produce chemicals such as methyl chloride, methylene chloride, chloroform and carbon tetrachloride.

With the exception of agriculture and the resource-based industries mentioned above, the general economic potential of the area is not promising. An economic survey of the area 8 years ago, indicated that quite a number of so-called "foot loose industries" producing such products as meat, canned goods and other food products, building materials, aluminum products, wood products and souvenirs and many others, could be established.

However, none of these industries have developed since the report was released and it now seems unlikely that many will, with perhaps some special exceptions. In the immediate area of the Reserve, there has been no increase in industrial activity in any of the nearby communities in the past 10 years.

It is not until the industrial and economic growth of the Brandon-Minnedosa-Carberry area is included that the economic prospects for Band members brightens. These three communities, after many years of intensive promotion and development work, have succeeded in attracting successful industrial enterprises. The industrial growth now started in these communities should continue.

In Brandon, the most important development has been the establishment of the Simplot fertilizer and chemical complex. This is a \$35 million project which will not only provide direct employment for 400 to 500 workers, but will likely attract other industrial enterprises

based on the output of the plant. A number of other industries including a garment plant, have established there recently and there seems to be opportunity for other labor intensive industrial operations.

At Minnedosa, a farm implement manufacturing firm that established there some years ago, has expanded rapidly and now employs close to 200 workers at peak periods. It markets its products in Canada and in the U.S. Minnedosa should attract other plants in the future.

A potato processing plant was established at Carberry several years ago. It now employs over 100 workers at peak periods. There are over 50 Indians working at the plant and it is likely that more could be employed there. A straw board plant has also established there, and efforts are being made to attract more industry.

Economic development has been stimulated by the establishment of the Westman Regional Development Incorporated. This organization, supported by municipalities and towns of southwestern Manitoba, serves as the development arm for the entire area. The co-ordinated approach to economic development exemplified by this organization, could bring substantial results to the area. Certainly, the economic development of one part of the region will benefit the region as a whole.

Perhaps, of greatest importance to the area, has been the inclusion of southwestern Manitoba in the Designated Area program. Under this program, Federal tax exempt, non-repayable development grants of up to 1/3 of capital expenditure for new plant construction are available with a ceiling of 5 million dollars. These grants have played an important part in attracting industry to the area and encouraging expansion of existing industry.

Handicrafts and Tourism

There are two industries which have been given special mention in this study. There are the handicraft industry and the tourist industry. Because they are somewhat interrelated, they have been dealt with together in this section.

Handicrafts

The economic study of southwestern Manitoba suggested that a handicraft-souvenir industry offered some potential for expansion. The tourist traffic moving through the area and stopping within the region represents an apparent market for handicrafts. The principal tourist attractions in the area are the Riding Mountain National Park, International Peace Gardens, the City of Brandon with the annual Provincial Exhibition, and various historical and scenic sites. All of these might offer local markets for handicraft production. In addition, there is a growing demand in Manitoba and throughout Canada for genuine Canadian souvenirs including Indian handicrafts.

The development of the industry would require training and supervision and, of course, proper organization. There are facilities in the area such as the Indian school at Birtle where a training program might be undertaken to develop special skills.

It would be essential to determine specific products to manufacture. There is the beginning of an industry in the area now, and beaded jackets, rag mats, willow baskets and similar items now being produced in very limited quantities could be developed and output increased. Securing adequate supplies of moose and deer hides might be a problem but there is a tannery in Winnipeg which could process hides for the project.

"Do-it-yourself" moccasin kits now being produced in other areas of Canada might also be considered. This type of product should find acceptance, in the local tourist markets and perhaps in eastern Canada and the United States. It would be particularly important to utilize authentic Indian art in producing kits for this market.

A study of the potential for the handicraft industry should be undertaken with particular reference to markets and distribution.

Tourism

There is also an opportunity to capitalize on the rapid growth of tourism and recreation in Canada and Manitoba. The southwestern region of Manitoba generally has both tourist attractions and recreation facilities. These represent a wide range of attractions upon which a much greater tourist economy can be based.

The growth of recreation and tourist activity is continuing at an increasing rate. Shorter work weeks, increased holidays with pay, higher incomes, and greater automobile ownership, have all contributed to the development of the industry. Likewise, new and better roads have given access to areas not previously considered to have recreation potential.

The Manitoba Government has done much to promote the industry in the past decade and it remains for local areas to take advantage of this promotion and try and attract tourist traffic. Attractions can be found in the Birdtail area. Historic sites are located at Oak Lake, St. Lazare, and potential sites at Shoal Lake and Russell. Equally important, Highway 83, which runs through Beulah, is often included among tourist tours, extending from the U.S. border to northern Manitoba. There is a number of other tourist resources in the area, ranging from picnic grounds to duck and upland game hunting areas, golf courses and swimming facilities.

The possibility of developing tourist attractions such as camp grounds, right on the Reserve itself, should not be overlooked, particularly with the Assiniboine River nearby.

Tourist Market Potential

It has been estimated* that there are 125,000 people within a 100 mile radius of the Reserve in Manitoba alone, with perhaps another 30,000 in Saskatchewan, giving a total potential tourist market of 155,000 people. In addition, it has been estimated that over 75,000 tourists from the United States entered Manitoba along

* This data is based on an Economic Study of Southwestern Manitoba conducted several years ago. Tourist traffic volumes and income will have grown somewhat since that time.

the Saskatchewan border and over 100,000 left the Province the same way. Allowing for 10% two-way travellers, a further 5% for tourists entering and leaving the Province south of the Trans-Canada Highway, leaves a total of 145,000 U.S. tourists. Canadian tourists entering the Province by the Manitoba-Saskatchewan border total well over 200,000 with a like number leaving. Reducing this total by 15% again as above, an estimated 340,000 to 350,000 Canadian tourists are available to the area.

Thus, total potential tourist traffic would be:

Local population	155,000
U. S. Tourists	145,000
Canadian Tourists	<u>340,000</u>
Total	640,000

It is estimated that tourists spend an average of between \$30 and \$40 per person per day in the Province. Based on the figure of 640,000, tourists, assuming that these tourists could be persuaded to spend 25% of their expenditures in the area, tourism represents a market of nearly \$6½ million in western Manitoba.

No mention has been made about winter recreation which is also increasing in intensity and interest. In Manitoba, major ski facilities have been developed at La Rivere in the south and in the Riding Mountain National Park in the north. Ski facilities are being developed in the Russell area and in Brandon, with other areas under consideration. The existence of these facilities indicate that the area holds some potential for winter recreation and it should be considered as part of any program for development of summer tourist and recreation facilities. It is doubtful that the Reserve itself holds much attraction for winter recreation but, if the area generally can draw visitors in the wintertime, the Band members could benefit through employment opportunities.

IV The Community and Its Services

The Birdtail Reserve, like many others, has no community centre or focal point. The houses are generally scattered throughout the Reserve and no shopping or other gathering point (other than a church) exists.

Housing

A house building program was started in 1953 and by 1959, 11 new homes had been built on the Reserve. These were financed by Band funds, largely derived from oil lease revenue. In 1959, the Federal Government started a house building program and since then, a further 22 have been built. A further 6 are needed for there are 39 families on the Reserve.

Services

There are no sewer or water services on the Reserve, but individual wells are being drilled and running water will be available in all modern homes by the end of 1967. Water in the area is of medium quality and medium hardness (6 - 800 p.p.m.)

Power is supplied by the Manitoba Hydro. Rates are standard residential rates. Commercial and industrial services are available if required. All homes built since 1953 have electricity.

Roads

There are several miles of roads through the Reserve including access roads to Birtle and Beulah. These roads are in fair condition, being light gravel surfaces. They are maintained by the Band from limited Band funds.

Other Services

There are no other services on the Reserve. Shopping is done in Beulah or Birtle and other necessary services, schooling, etc. are also available there.

The Reserve has no police or fire protection except as available from Beulah and Birtle.

Band Finances

The Birdtail Sioux Reserve operates under Section 68 of the Indian Act which provides for the Band to manage its own financial affairs and resources. Band funds, however, are quite limited. A total of the capital fund of the Band is \$17,516 as at January 1967. It has been relatively stable since 1948. Most of this money was derived from the sale of oil rights.

Annual revenue is about \$3,000. This money is derived from leases held on the Reserve.

The funds are spent for road maintenance, house repairs, house wiring and for provision of flour to families on the Reserve.

V Evaluation of Reserve

Economic opportunity for people in southwestern Manitoba has not increased appreciably for many years. Population has been generally static as surplus labor has migrated elsewhere in search of opportunity and employment. Most economic activity in the area has a low labor-input factor. In the past year or two, there has been some improvement with the expansion of industry in the Brandon area. The recent increased demand for cereal grains has also helped by stimulating the demand for goods and services.

There has been a net migration of nearly 4,500 persons from southwestern Manitoba in the decade from 1951 to 1961. If increases at Brandon and Virden are excluded for this period, the loss of people amounted to over 7,000. Thus, the only growth of significance has been in the cities and larger towns. There has also been a continuing shift from farm to urban areas where there is more opportunity for work.

It is against this economic background that we must measure the future of the Indian peoples on Reserves such as this.

While the population on the Reserve has been increasing steadily (nearly 50% since 1961), the immediate opportunity for economic endeavour and employment is confined to a modest expansion in farming, which can support 2 or 3 families reasonably well on the Reserve farm land. The immediate area around the Reserve where intermittent employment is found by some Band members, offers little expectation for future economic growth and employment.

It is hoped that there may be some future opportunities, however. The efforts to attract industry to the region, the potential growth of such resource industries as potash and the possible development of the handicraft and tourist industries, all hold some promise for employment of Band members and perhaps even in the case of handicrafts, and tourism, direct involvement. These latter possibilities have been appraised in some depth and seem to offer some potential.

Projects of this kind will not, however, provide enough employment for all who will require it in the future if they remain on the Reserve. It is thus unrealistic to anticipate anything but a continuation of the existing economic status based on intermittent employment and below average wage levels in the immediate future.

It is therefore suggested that the future for the younger men and women of the Reserve and certainly for those not yet part of the labor force, lies principally in other areas where job and business opportunity are greater.

The only realistic opportunity for most of the peoples of the Reserve who comprise the labor force, is to seek employment elsewhere. This will mean, in most cases, working more than 50 miles away. This in turn, will mean relocation.

There are 110 Band members on the Reserve 25 years and under; 87 of these are not yet in the labor force. Yet substantial unemployment and underemployment already exists.

How and where are these people to find work in the future?

The "how" will involve education and training much beyond that now being received by members of the Band.

Average level of education of the work force at present is not much beyond grade 6. It is improving somewhat, but not enough.

In today's society, a grade 6 education is of no use at all. Students now in school must stay there at least until grade 10. This is necessary to permit attendance at technical school to learn a trade or vocation.

It will only be by acquiring training and skills that it will be possible to get jobs in the area and elsewhere and the opportunity to obtain such training has never been better. A new technical school has been built in Brandon, and the Provincial Government has set up a program to help Band members attend school in Brandon including assistance in finding accommodation and, more important, jobs where the newly acquired skills can be applied.

For those without sufficient schooling now, there are up-grading courses available and the older men and women should be encouraged to attend these courses when they are available.

The "where" must remain in doubt at present. There will be some increase in economic activity in the western part of Manitoba, but where it will take place is not so easily determined. The more immediate opportunities, however, seem to be in Brandon, Carberry, Minnedosa, and perhaps Virden.

Those who wish to move to such locations and have the skills to do so, should be assisted both by the Band where possible, and by the Indian Affairs Branch.

An off-Reserve house financing program is under consideration. This is a first most necessary step. A second is the provision of counselling and guidance in becoming a part of a new way of life and in working at a new job.

All of this will not be easy but it must be started and continued at an increasing rate over the next ten to fifteen years. Its continuation beyond that will be determined by the growth of economic opportunity in the more immediate vicinity of the Reserve.

Tourism

It has been indicated in this study that employment and income from tourism and handicraft activities could offer some promise. It will require detailed study and planning, however, and this should be undertaken without delay.

Some types of projects the Band might consider, and matters that must be considered have been outlined here in a general way.

Initially at least, the Indians' participation in a tourist development program would, of necessity, be very limited. If the industry is growing in the area and, as it would seem, offers further potential, the Band should first assess its immediate physical resources and those of the area in terms of tourist and recreation potential. Development of those offering possibilities should be undertaken and a promotion program should be undertaken using where possible, existing provincial, area, and local, tourism organizations and facilities.

Attention should be given to developing special Indian attractions sufficiently unique or different to draw the tourists from the regular tourist routes.

Finally, accomodation and services should be developed. These, of course, must be of a scale which the Band could provide and maintain and in line with anticipated demand.

There are a number of promotional programs serving the area which could be utilized by the Band to enhance their area's tourist potential. Circle tours have been developed, one of which utilizes Highway #83, linking it up with Highway #10 to Riding Mountain National Park on the north and at the U.S. border on the south.

Among those facilities which might be required to develop the area's recreation potential, include camp sites for trailers, tenting and youth camps, beaches, and other swimming facilities, picnic areas, and, of course, the commercial services which all tourists require. These include motels, overnight cabins, and restaurants, and, of course, grocery stores, service stations, etc. Highway-oriented type facilities should first be considered, but development of off-highway services and facilities in attractive settings and where boating, swimming and camping facilities would induce residents of the area to spend their vacation dollars locally, instead of farther away.

The economic benefit of the tourist industry is obvious. It provides employment for those seeking it, for it is a fairly labor intensive industry. It also provides an important injection of money to the area. Thus, benefits accrue to farmers, tradesmen, and craftsmen alike.

Establishment of tourist projects and programs will be difficult and in the initial stages, should likely be done in co-operation with others with similar interests in the area.

Joint development of a park, and camp grounds and joint promotion of these facilities and those of the general area, might be undertaken with the Chambers of Commerce of the towns in the area. Ways of co-operating with regional bodies (the Westman Development organization and the Highway 83 committee, for example), should be sought.

The success of such relatively simple endeavours could determine involvement in more complex projects either independently or in association with other groups.

Handicrafts

It has also been suggested that handicrafts could be a source of income and employment. Certainly, there

is a potential market for good quality handicrafts, Indian or otherwise, and with the growth of tourism, this market is increasing. If a successful tourist promotion program for the area is developed by the Band alone or in concert with others, a local market for handicrafts will be generated.

The key to this industry however, is organization. There is increasing signs that the Indian handicrafts industry will be expanded at the national, provincial and regional level and efforts to do so could be of benefit to a local effort.

In order to take advantage of available assistance and to develop an effective handicraft project, an organization must be set up and a plan prepared establishing aims and objectives and outline how these can be accomplished.

The Band members wishing to be involved must be prepared to take training in all phases of production and distribution of handicrafts. Finances must be arranged for, production facilities set up and markets developed.

The benefits - employment and supplementary income - can be worthwhile but the Band must be prepared to put forth the effort to achieve them and co-operate with those able to help in developing such a program.

Project Financing

Funds for tourist and handicraft projects would have to be obtained from external sources. The most likely source is the Indian Affairs Branch. Since the Reserve is largely lacking in other productive resources, it seems reasonable to suggest that funds should be made available to develop specific projects whose viability have been evaluated. ARDA funds might also be sought for such purposes for they could seem to fall within the terms of reference of this important federal program.

APPENDIX A

Soil Association	Acreage	Productivity Rating*	Recommended Use	Limitations
<u>Arable:</u>				
Assiniboine silty clay to clay	1885	8	-cereals -oilseeds	-heavy texture -impeded drainage
Miniota sandy loam	2090	2	-forage crops for seed -or forage -possibly cereal and -oilseed production	-low fertility -low moisture retention -subject to erosion

None-arable:

Eroded channels and Miniota sandy loam - 2445 acres

Poorly drained Miniota sandy loam - 95 acres

Newedale clay loam - too stony for cultivation - 300 acres

Assiniboine clay - too isolated to cultivate - 230 acres

Birdtail Hay Lands:

Oxbow clayloam - too stony to cultivate - 80 acres

Eroded slopes - 80 acres

Assiniboine clay - too poorly drained and saline for cultivation - 160 acres.

* A rating of the soils of Manitoba in their ability to grow a crop of wheat using no fertilizer and after one year of summerfallow.

APPENDIX A

POTENTIAL ECONOMIC RETURN

Yields and Returns

The average yeilds* for the 26 year period of 1936 - 1961 for crop district #10 of which Birdtail Creek is a part, are as follows:

Wheat	23 bus/A
Barley	28.6 bus/A
Oats	36.1 bus/A
Flax	9.1 bus/A

Since this crop district includes a large area of soils with a higher productivity than the soils considered on the Reserve, we have adjusted these figures as follows:

	<u>Yield</u>	<u>Price</u>	<u>Gross Return/Acre</u>
Wheat	20 bus/A	\$1.60/bus	\$32.00/Acre
Barley	27 bus/A	\$1.10/bus	\$29.70/Acre
Oats	35 bus/A	\$.60/bus	\$24.57/Acre
Rapeseed**	750.3 lbs/A	\$.05/bus	\$37.51/Acre

* Taken from Manitoba Yearbook of Agriculture - 1965

** Past 14 year provincial average.

APPENDIX B

FARM OPERATING COSTS

Per Acre:

<u>Revenue</u> (wheat, barley, rapeseed and summer-fallow in 4 year rotation) <u>per acre</u>	\$33.07
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<u>Expenses</u> seeded acreage: machinery costs and running expenses (See Appendix D) \$6.91/acre spraying 11.10/acre seed (average) <u>2.00/acre</u>	
Total	<u>\$10.01</u>

Net Return per acre	\$23.06
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Return to Band	<u>\$ 8.26</u>
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Net Revenue	\$14.80
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600 Acre Unit:*

Gross Revenue = 450 x \$33.07	<u>\$14,881.50</u>
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Gross Expenses: seeded acreage = 450 x \$10.01	\$ 4,504.50
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summerfallow = 150 x \$3.42	<u>513.00</u>
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Total	<u>\$ 5,017.50</u>
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Band Revenue:	\$ 3,717.00
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* This acreage was not selected to indicate the most economic unit but merely shows returns based on a profitable size of unit.

APPENDIX C

NET RETURN TO OPERATOR'S LABOR AND MANAGEMENT

Gross Revenue		\$14,881.50
<u>Less=</u> Expenses	\$5,017.50	
Band Share	<u>3,717.00</u>	
		<u>8,734.50</u>
Balance		\$ 6,147.00
Return per acre	$\frac{6,147}{450} = \$13.66$	

NOTE:

Fertilizer - For the purpose of projecting yields, the only data available was the 26 year averages from 1936 to 1961. It is assumed that these past averages included no or negligible amounts of fertilizer applications and hence, fertilizer is not included as a production expense. It is anticipated that yields could be increased by as much as one-third of the past average using the recommended amounts of fertilizer. This would increase returns to \$40 - \$45 per acre and expenses would increase as much as \$8.50 - \$9.00 per acre.

Continuous Cropping - With technology accumulating as it is, it is possible to grow crops continuously. There are many management factors involved in this, but the increase in revenue can be quite large since there is no summerfallow, and also fewer, but more highly priced crops, can be grown in larger acreages. The farm operators at Birdtail Creek should attempt to adopt this method of cropping since it utilizes the seasonal moisture where there are drainage problems, and helps to convert soil by improving the soil cover where erosion is a problem.

APPENDIX D

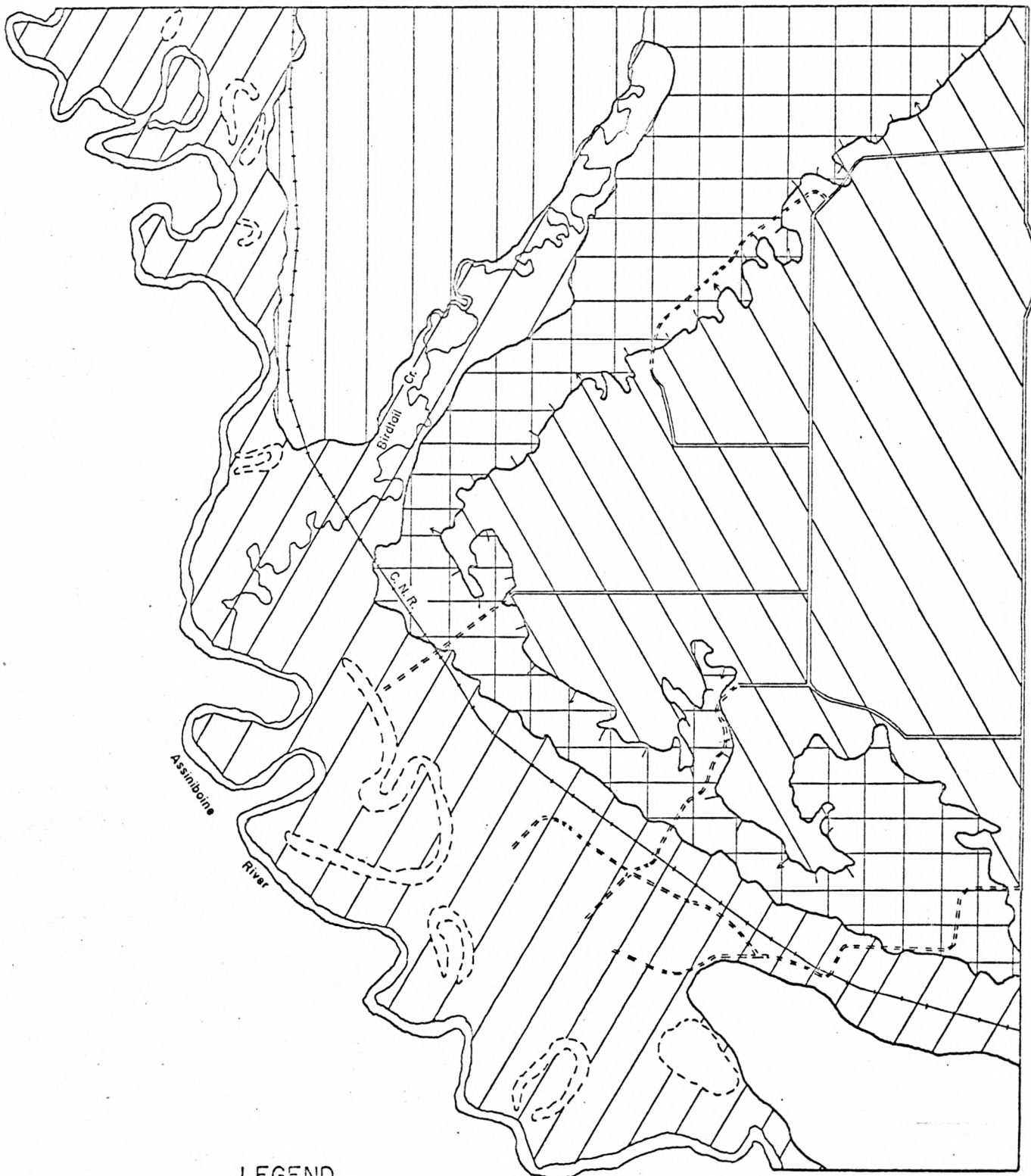
MACHINERY AND MACHINERY OPERATING COSTS*

<u>Machine</u>	<u>Cost/hour**</u>	<u>Acres/hour</u>	<u>Hours req'd.</u>	<u>Total cost/yr</u>	<u>Cost/acre</u>
<u>450 acres of crop:</u>					
Tractor 5-6 plow	\$2.40		447	\$1,072.80	\$2.38
Disc- harrow 15'	\$4.32	6.2	73	\$ 315.36	\$.70
Swather	\$6.45	7.8	58	\$ 374.10	\$.83
Combine	\$8.21	4	113	\$ 927.73	\$2.06
Heavy duty cultivator 12'	\$.97	4	113	\$ 109.61	\$.24
Wide spring tooth cul- tivator 20'	\$1.41	7.8	116	\$ 163.56	\$.36
Harrow 30'	\$1.18	14.5	32	\$ 37.76	\$.08
Trailer	\$.85		50	\$ 42.50	\$.09
Auger	\$1.56		50	\$ 78.00	<u>\$.17</u>
Total cost per seeded acre					<u>\$6.91</u>
<u>150 Acres of summerfallow:</u>					
Wide tooth cultivator 20'	\$1.41	7.8	135	\$ 190.35	\$1.26
Tractor	\$2.40		135	\$ 324.00	<u>\$2.16</u>
Total cost/acre of summerfallow					<u>\$3.42</u>


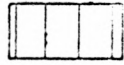
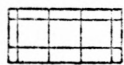
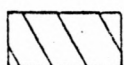
* Source: Farm Economic Branch Publication FM.D-403-28, 1966.

** The cost per hour includes all costs of the machine such as depreciation, interest, insurance, housing, repairs, lubrication and fuel and oil costs.

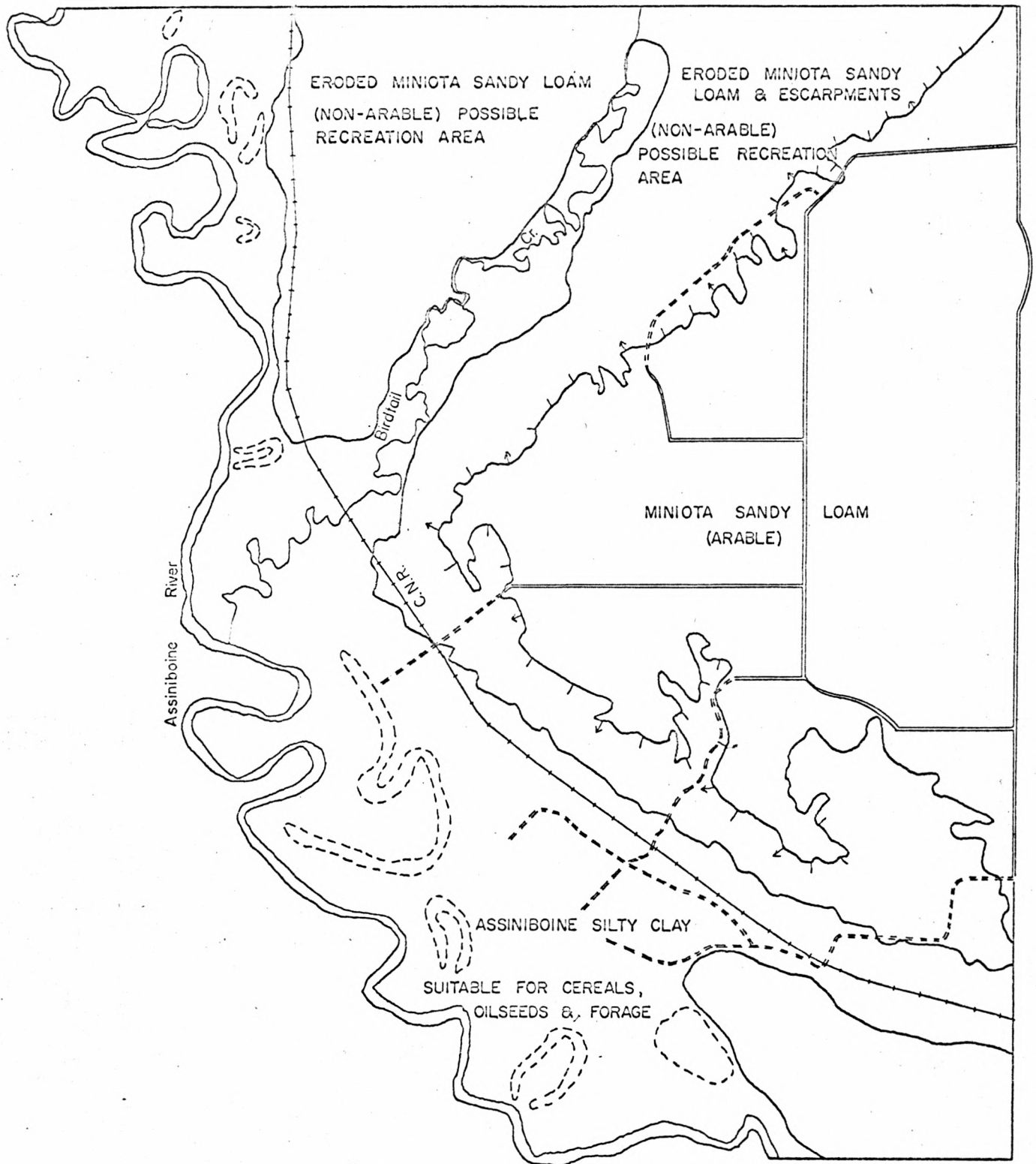
LAND-USE MAP of BIRDTAIL INDIAN RESERVE



LEGEND

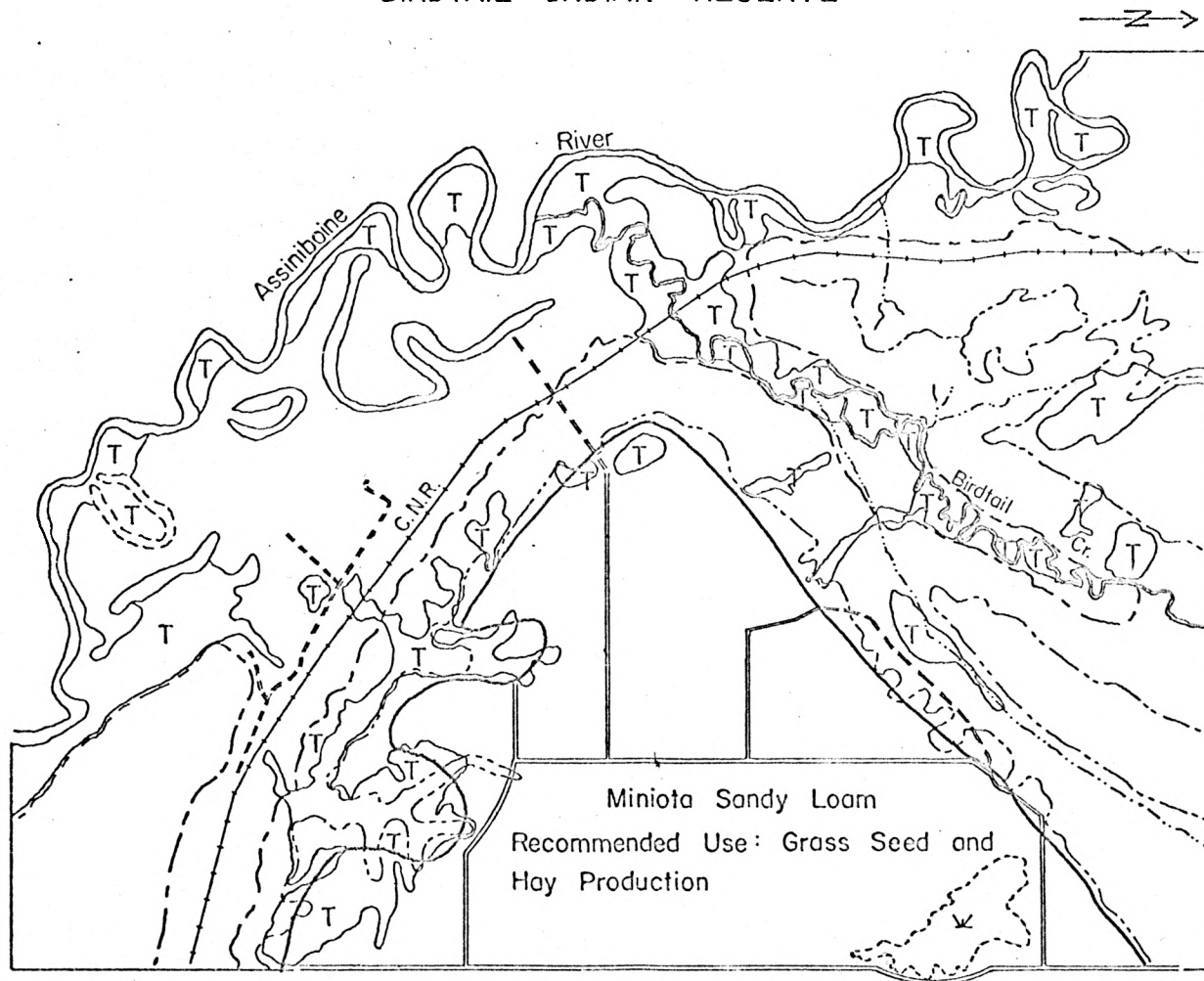
-  Assiniboine Silty Clay — Suitable for Cereals, Oilseeds and Forage
-  Eroded Miniota Sandy Loam — (Non-Arable) Possible Recreation Area
-  Eroded Miniota Sandy Loam and Escarpments — (Non-Arable) Possible Recreation Area
-  Miniota Sandy Loam (Arable)

LAND-USE MAP of BIRDTAIL INDIAN RESERVE



Handwritten note: Hatch - ...

LAND-USE MAP
of
BIRDTAIL INDIAN RESERVE



LEGEND

- Top of valley.....
- Bottom of slope.....
- Tree line.....
- River.....
- Intermittent stream.....
- Road.....
- Trail.....
- Railway.....
- Marsh.....