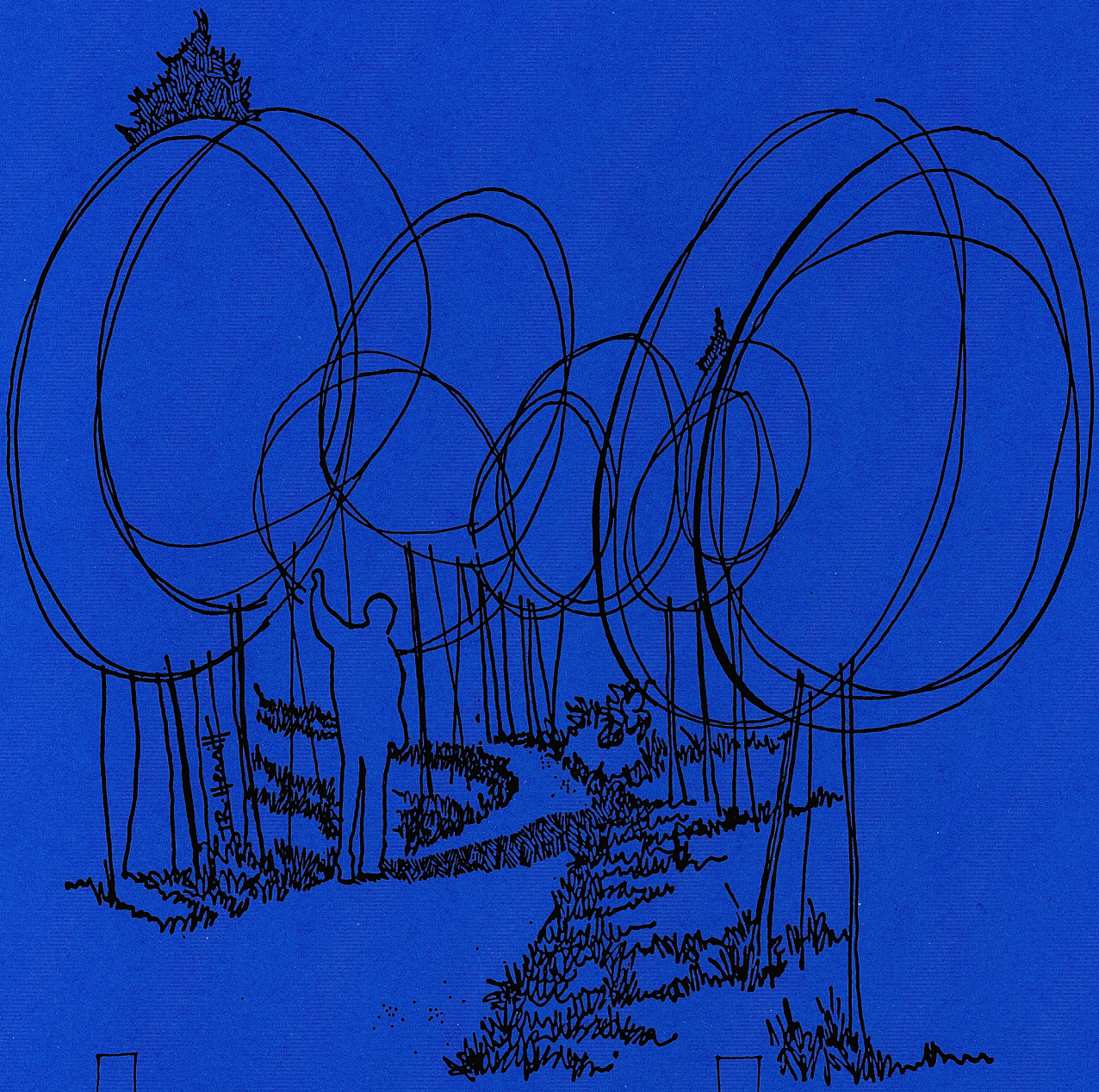

alexander

RESERVE

GE DEVELOPMENT prepared for

Indian and Northern Affairs

Lombard North Group

March 10, 1980

Alberta Regional Office
Indian Affairs
Engineering and Architecture
3rd Floor, 9942 - 108 Street
Edmonton, Alberta
T5K 2J5

Attention: Mr. Peter Hecht, Physical Planner

Dear Mr. Hecht:

We take pleasure in submitting our study "The Alexander Reserve Village Development". Within the text we have outlined the processes followed and recommendations made in the course of this study. The suitability for residential and commercial development as indicated on the enclosed maps and described in this report is based entirely on the ability of the land to physically support the various land uses. The decision to proceed with any development, in our opinion, must be based on more detailed site evaluation and the Alexander community's approval.

We trust this study meets with your approval.

Sincerely,
Lombard North Group Ltd.

D.H. Walters
Study Co-ordinator

Tony R. Herritt
Project Landscape Architect

TH:jm

Address • 103, 11904 - 113th Avenue, Edmonton, Alberta. T5G 2X4. Ph. (403) 452-6901.

PREFACE

It is the intent of this study to map land characteristics in the village vicinity and to generate development alternatives for the Band Council's review. In conjunction with the Band Council and Indian and Northern Affairs a Village Physical Development Plan is presented for community discussion. Respectfully submitted to the Alexander Reserve Band Council and Indian and Northern Affairs by Lombard North Group Limited. March 1980.

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back pocket
Soil Map . . . . . back pocket

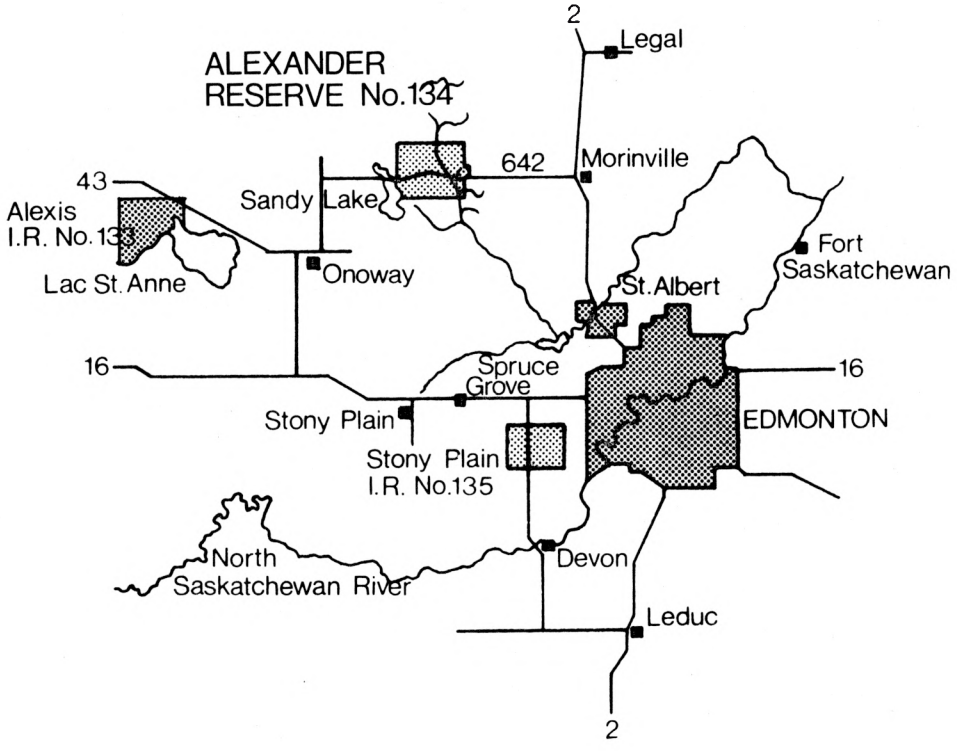
1.0 ACKNOWLEDGEMENTS

Much of the background study, including the traditions and obstacles facing the Indian Reserves in Alberta, has been derived from Federal and Provincial Government information. The assistance and cooperation of government personnel in extending this information to this study is very much appreciated. Particular appreciation is extended to representatives of Indian and Northern Affairs and the Band Council for their interest and advice which proved invaluable in the preparation of this study.

2.0 STUDY OBJECTIVES

The study objectives as outlined by Indian and Northern Affairs to Lombard North Group in its terms of reference are as follows:

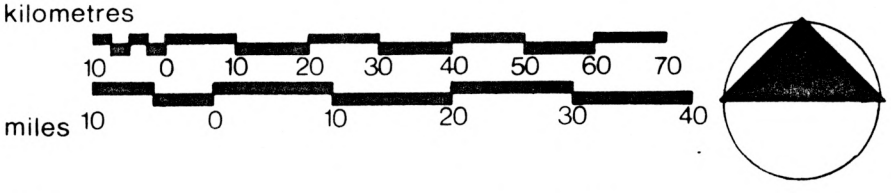
1. The purpose of the Village Physical Development Plan is to provide problem oriented design for pre-engineering purposes and for the Department of Engineering and Architecture, Indian and Northern Affairs to analyze infrastructure feasibilities.
2. As the Village Physical Development Plan is primarily a bio-physically oriented development plan, demographic, economic and social studies and data should be minimal.
3. Band historical development and present lifestyle shall be taken into account so that a sensitive solution relating to a typical local theme may be developed.
4. All planning and design shall be based chiefly on the development capabilities as outlined by the bio - physical analysis.
5. The consultant shall take into account engineering feasibilities when preparing the design solutions.



ALEXANDER RESERVE No. 134

Distances to:

Morinville	10mi	16km
St. Albert	20mi	32km
Edmonton	25mi	40km



location

figure 1.

3.0 STUDY PROCESS

The study proceeded as per the Indian and Northern Affairs recommended phasing:

1. Phase One - Research and Site Inventory
2. Phase Two - Concept Development
3. Phase Three - Village Physical Development Plan

In the initial phase existing resource information was gathered to include the entire Alexander reserve. Examination by air photo interpretation and review of existing reserve scale mapping verified a reasonable village development study area. Further air photo interpretation, soil surveys and field investigations were done to supplement the existing resource information.

The next step in the study analysed all existing and new resource information and developed constraint guidelines for potential residential land-uses. The term "constraint" was used to indicate those aspects of the study area which might restrict residential development, i.e. areas in which excessive design modification or engineering requirements might greatly alter the "natural" character of the area or be excessively expensive. The study has outlined areas of potential conflict between existing village development and potential residential development and, within the terms of reference mitigating measures were recommended.

Finally, the accumulated results were used to identify those areas worthy of further site-specific investigation. The decision to proceed with any residential development should be based upon more detailed site evaluation, engineering feasibility studies and an evaluation of the impact of the proposed development on the social and economic structure of the existing Alexander community.

Pasture
Agriculture
Agriculture
Agriculture
Existing Farm Enterprise
Agriculture
Pasture
Agriculture
riviere qui barre
Agriculture
Agriculture
Agriculture
bard lake
Agriculture
Existing F.F.R.A. Farm Enterprise
Asphalt district road No. 642 linking Sandy Lake and Morinville
Existing Sewage Lagoon
Administrative /Residential site
School/ Arena site
Agriculture
Pasture
Sandy Lake Beach Development
Pasture
low water lake
Agriculture
STUDY AREA
Hall/church site
Cemetery
Agriculture
sandy lake
Agriculture
Recreation
short lake

EXISTING LAND USE

Marsh, swamp, bog

Treed Areas

metres 500 0 1000

feet 1000 0 1000 3000 5000

alexander

figure 2.

4.0 STUDY CONSTRAINTS

In order to evaluate this report as a working document it is necessary to understand the framework within which the study proceeded. The study is primarily a document which researches the study area's bio-physical characteristics and evaluates the area's carrying capacity in terms of residential construction. This study, the soils survey included, is intended to provide a basis for area planning, to identify problem areas and to assist further investigations by reducing the need to undertake background studies. It is intended for use by the Alexander Band and Indian and Northern Affairs in planning for future development.

5.0 STUDY SUMMARY

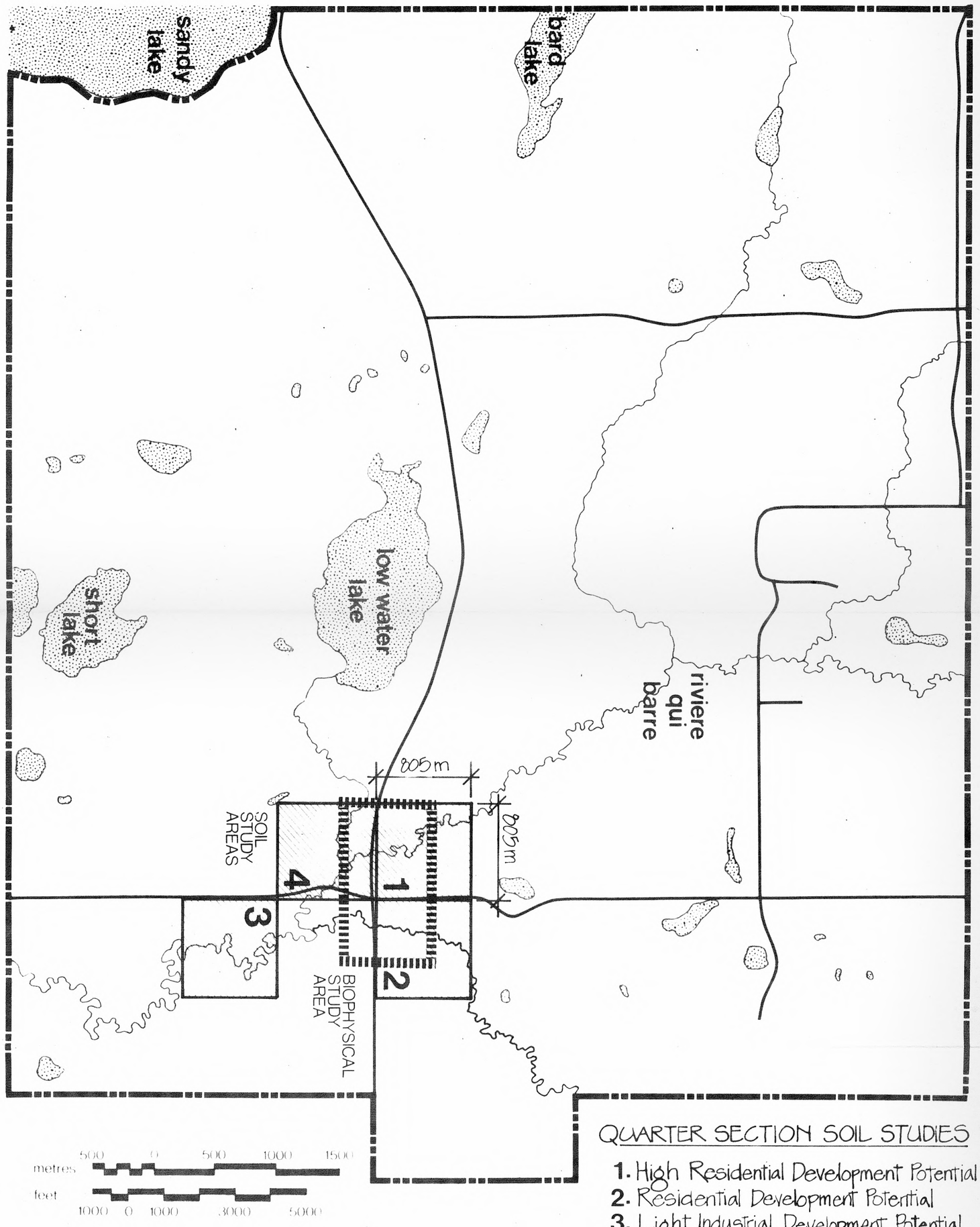
The study is composed of three principal sections; phase one research and site inventory, phase two concept development and phase three the Village Physical Development Plan.

5.1 Research and Site Inventory

The inventory section relying on existing documentation, commissioned soil studies and field investigations has recorded the range of bio-physical site characteristics. For example, the dominant river ravine edges have a bio-physical classification of rough broken lands. Because of the excessive slopes, this unit is rated restrictive for building sites, septic tank fields and sewage lagoons. It should be kept vegetated to reduce erosion and stream siltation. Should new information and new Band policy necessitate a revamping of Village Development plans, the inventory section can be re-utilized as an accurate recording of the study area's potential.

5.2 Concept Development

The phase two concept development analysed and synthesized the bio-



QUARTER SECTION SOIL STUDIES

1. High Residential Development Potential
2. Residential Development Potential
3. Light Industrial Development Potential
4. Residential Development Potential

alexander

figure 3.

physical units into constraint maps directing attention to favorable development areas. Bio-physical land units are weighted to provide a value judgement in terms of residential development. Views and access to the ravine edges for example are evaluated with respect to woodlands and clearings. Besides bio-physical considerations the constraint maps have included such parameters as band ownership of land, engineering feasibility, influence upon existing agricultural landuse and the economic/social realities of development phasing. Subsequently, concept alternatives were generated from the synthesized study area and band profile information. The Band has estimated a need for one hundred houses over the next 25 years with provision for single mothers and the elderly included. With three to four housing starts per year, the Band is striving towards a twenty five year construction horizon. Traditional reserve housing is composed of single family detached housing without basement or garage on a semi-serviced lot. At present the Band prefers to consider residential development of single family detached housing, with full services.

5.3 Development Phasing

It is suggested that the planned housing development proceed in three distinct steps to allow community input. Phase one would require that the existing village housing be upgraded to standards proposed for the new developments. For example, selective road grading, and provision for adequate parking would begin to increase privacy which is non-existent at present. With revitalization under way, plans to expand north of the existing village can proceed. In this manner, sanitary sewer and water services can be provided for both new and old areas simultaneously. The result would be revitalized housing on larger, serviced lots at the close of phase one and new single family detached units with completion of phase two. Single family, detached units on

individual lots are recommended in the immediate village vicinity where cleared land is not suitable for cluster housing. The individual lot concept would also be in character with the revitalized village plan. The final development phase should implement all servicing plans for the new residential areas west of Riviere Qui Barre.

The abundant woodland cover on the study area suggest the wise use of higher density housing in contrast to the treeless village centre. The proposed bridge in linking all three phases of residential development will help to strengthen the village character. Pedestrian attention, play space and residential orientations would be directed away from the busy Sandy Lake/ Morinville road. The new Village Physical Development Plan would take maximum advantage of improved inter-village circulation and the Riviere Qui Barre ravine edges.

5.4 Conclusion

In conclusion, this study records bio-physical mapping and recommendations for residential development over the next quarter century. Continuous reassessment of changes in band life styles and engineering feasibilities, will assist this study's viability in the near future. Recommendations are site specific only to the extent of housing type, layout and vehicular circulation. Supplemental energy considerations and site planning guidelines are included for reference. The study has determined basic area planning, highlighting the high, medium and low suitability of residential building sites. The next step entails site specific examination, in depth engineering feasibility as well as a social/economic impact study of the new development.

6.0 RECOMMENDATIONS

1. The existing sewage lagoon should be examined in terms of provincial and federal regulations. Much of the proposed full service housing is dependant upon these findings. The Alexander Band Development Plan 1977 prepared by Murray V. Jones and Associates Limites suggests the present lagoon is inappropriately situated upstream of the present village in a high water-table vicinity.
2. If the sewage lagoon review substantiates the 1977 (Alexander Band Development Plan) findings, relocation of a new lagoon should be considered in light of full service residential developments. The new lagoon should be located downstream of the village residential areas on land without a high water table and on soil effective as a sealed basin floor.
3. As indicated by the Indian and Northern Affairs terms of reference, the next step following the mapping of bio-physical constraints and recommendations for residential development should be engineering feasibility reviews. The engineering feasibility review would examine site specific house construction with all associated services of roads, bridge and utilities.
4. The final decision to proceed with the residential development rests on the anticipated economic and social implications for the Alexander Band. The Band must be assured of the positive nature of such long term plans. Without band member support, land development, poor building construction and minimal building maintenance would negate all planning intent to strengthen village character.
5. Any housing development should proceed in three phases to minimize the community disruption. During phase one the existing residential area

would undergo a revitalization in terms of road grading,parking allocation and improving of privacy. Phase two would see the expansion north of the existing village. Installation of underground services would proceed simultaneously in the existing and new housing areas. The final step, phase three, west of Riviere Qui Barre, would include servicing, road installation and housing construction. Proceeding in this manner the upgraded village housing should assimilate quickly with the new housing areas.

6. Provision for singles, the elderly and single mothers are Band requirements. Theoretically all household types can live together, but some separation often makes life more comfortable. Thus, which household types complement each other and which types may cause each other problems if they live side by side, needs to be considered.
7. It is recommended that group parking complete with electrical plug-ins accompany new housing starts. Past parking problems on the Reserve have aggravated the housing situation. Group parking, properly buffered from housing would facilitate snow removal and separate traffic from play zones.
8. The proposed bridge is the major component of establishing inter-village circulation rather than the present reliance on the Sandy Lake/Morinville route. The existing village may manage with the district road. The proposed developments would remain fragmented from the village centre without the bridge link.
9. The Sandy Lake/Morinville route lends itself to adjacent service related commercial lots. The non-reserve, through traffic may potentially support light service industry in the village vicinity. A market analysis of the present and future potential would augment the land plannning process.

10. With any commercial development south of the Sandy Lake/Morinville route a green space buffer should separate lots from the church site.
11. In the new residential areas additional community facilities must accompany the population increase. Land allowances for community gardens, play areas and a future school should be considered from the outset to allow provision of service access.
12. The twenty-five year plan has concentrated housing, circulation and community facilities inward, embracing the Riviere Qui Barre valley and linking the village components. It is imperative that pedestrian green space connections from the new housing areas to the valley be preserved. The careful enhancement of the Riviere Qui Barre valley for visual and recreational use should accompany the twenty-five year maturity of the Alexander Village Plan.

7.0 STUDY AREA

In consultation with Indian and Northern Affairs and Band Council Members, the study area was restricted to a square mile parcel of reserve land. During preliminary site visits and field inventory, the study area was further reduced to a quarter section in area. Key factors in the selection of potential housing concentrations rest on Band ownership of lands, proximity to existing village, and appropriate mix of cleared and wooded land without an agricultural land use classification.

8.0 COMMUNITY OVERVIEW

Alexander Indian Reserve #134 is located approximately 30 miles northwest of Edmonton, Alberta. Supporting roughly 600 people, it is typical of many Indian reserves in Alberta and shares their problems, history and traditions. The Alexander Band is striving to establish a self-sufficient economic base by means of cattle operations, farming and lakeshore recreation developments. Attempts at improving the physical community facilities have concentrated on sports, administration and religious needs. Relative to the arena, band administration offices and church, the housing at the village centre is felt to be inadequate. No measure of community spirit has been able to overcome the lack of privacy, poor buidling layouts and poor vehicular circulation of the village centre. This dissipation of any sense of community and the limited economic status of those living in the village centre has contributed to the present level of disrepair. Otherwise the strong sense of community togetherness is apparent during special sports events and Indian Days celebrations.

9.0 INVENTORY

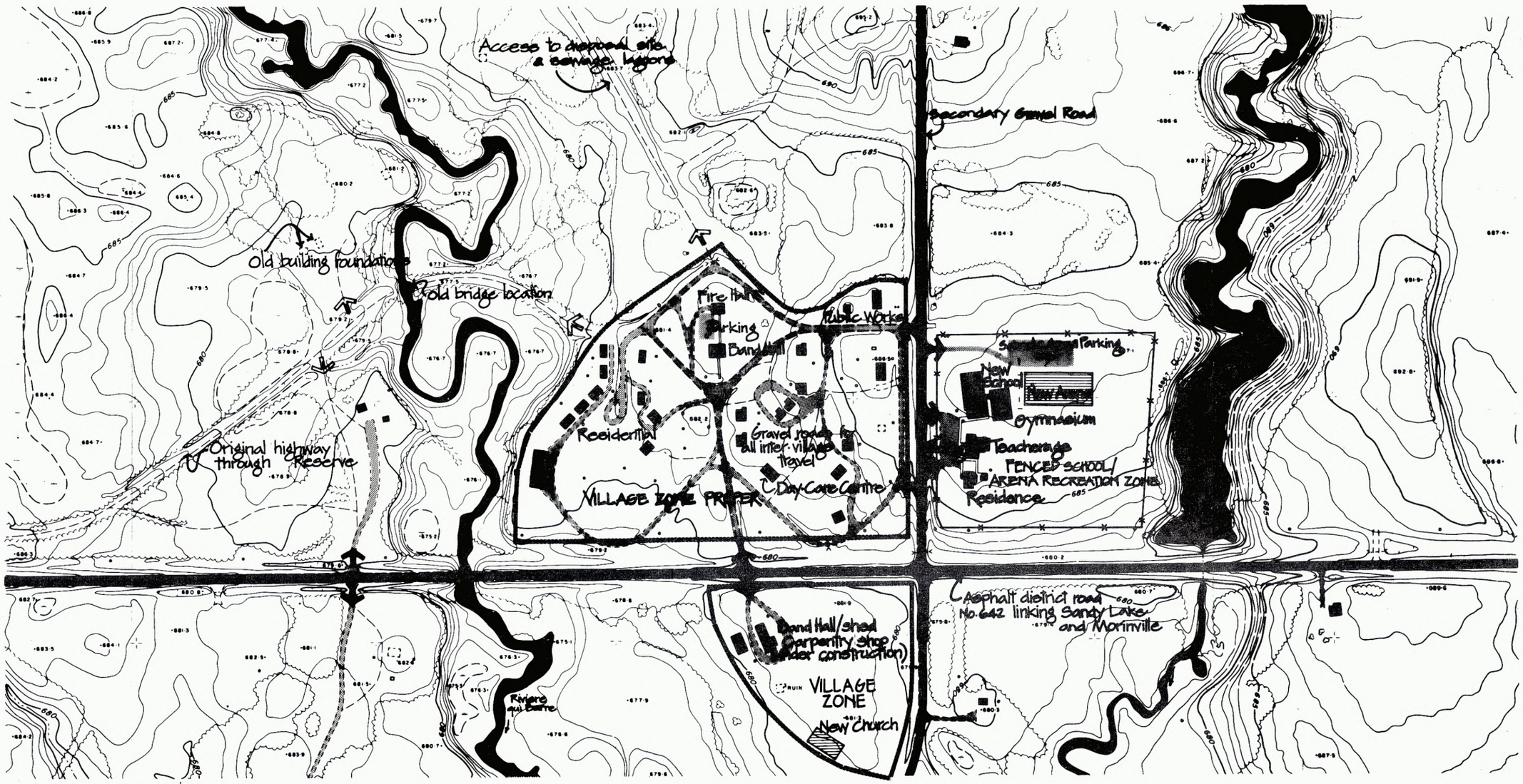
Phase One inventory utilized a collection of material from various

agencies private and government. Much of the insight into the Alexander Indian Band was provided through the Alexander Band Development Plan (1977). Prepared by Murray V. Jones and Associates Limited and Western Original Peoples Research Limited, the development plan required minimal updating. Through Indian and Northern Affairs, Engineering and Architecture, the village vicinity was surveyed and mapped, providing an accurate base drawing in conjunction with air photos. Field investigations were carried out by Lombard North group, and Pedology Consultants, November 1979. Lombard North Group investigations have recorded an overall landscape character, assessing topographical changes, specific landscape features for possible incorporation into housing developments. Pedology Consultants were commissioned by Lombard North Group to conduct a soil survey and land suitability evaluation of four quarter sections of the reserve.

9.1 Inventory Mapping

The inventory phase, was organized in map form on three sheets. Sheet one is titled Inventory: Existing Village, sheet two: Bio-physical Inventory and sheet three, Inventory: Site Potential. Working towards a 25 year plan, the concept and Village Physical Development Plan exceed the study area by using available air photo information. The Study area is bounded on the north by the existing disposal site, sewage lagoon and agricultural land. The south boundary is composed of the confluence of the Riviere Qui Barre tributaries, and the Low Water Lake drainage channel into the Riviere Qui Barre. The marsh-land to the west forms the western study area boundary. To the east, a wooded ridge and agricultural landuse form the study area eastern edge. The Existing Village map outlines the study area of a quarter section.

inventory: existing village



legend

← MAJOR Vehicular Access Points
← MINOR Vehicular Access Points

scale 1: 2000m
0 50 100 150m

9.1.1 Existing Village

The existing village zone is sited on a treeless plateau sandwiched between the Riviere Qui Barre and a secondary gravel road. Minor expansion across the gravel road and the asphalt Sandy Lake/Morinville road accommodates administrative, residential, public works and daycare functions. The school/recreation zone supports elementary school facilities and a recently completed arena. The southerly expansion supports a new church and a carpentry shop which is now under construction. Interesting and potentially important observations outside of the village boundary include past building foundations to the west of Riviere Qui Barre, a former highway/bridge link through the Reserve. Careful attention to existing circulation has identified several major and minor vehicular access points to finalize the existing village inventory.

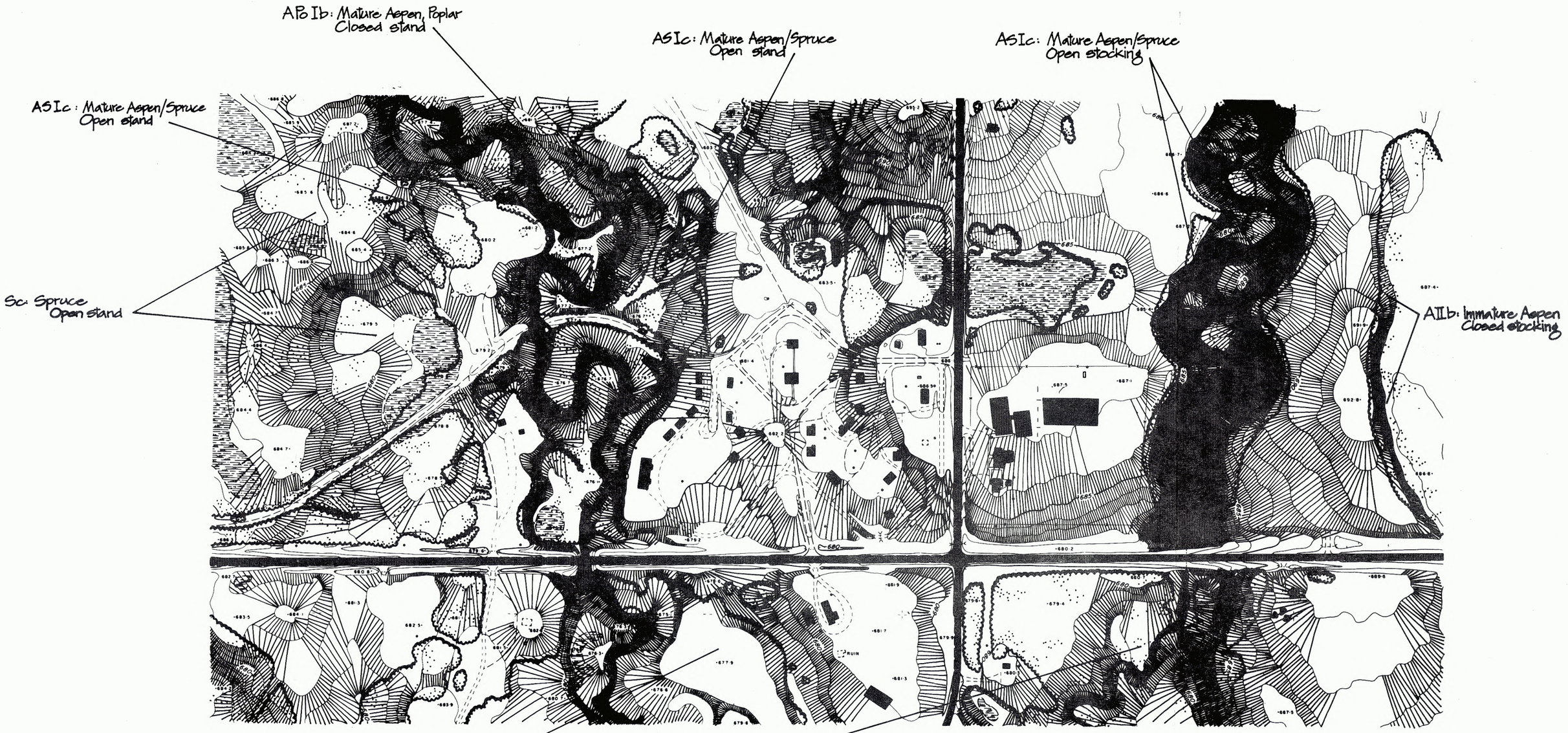
9.1.2 Bio-physical Inventory

The second sheet titled Bio-physical Inventory is essentially information about the land. The major catagories of investigation were vegetation and topography. The soils investigation is documented in a separate report from Pedology Consultants included as an appendix to this study. The climate review consists of notes rather than map notation considering the scale of the study area.

Vegetation

The vegetation category classifies the forest cover into three sub-groups, namely species, maturity and density. Further sub groups break down species into aspen, poplar and spruce, maturity into mature and immature; density into closed and open. As mentioned previously the existing village is treeless. Aspen, poplar interspersed with spruce dominate the higher ground whereas balsam, poplar spruce, willow and birch are common in low lying areas.

biophysical inventory



scale 1:2000m

0 50 100 150m

legend

VEGETATION

- Forest Cover
- Marsh

Forest Cover Classification

ASIc

SPECIES MATURITY STOCKING

SPECIES: A - Aspen
Po - Poplar
S - Spruce

MATURITY: I - Mature
II - Immature

STOCKING: b - closed
c - open

SLOPE

- 5-15%
- 15-25%
- Greater than 25%

The Riviere Qui Barre valley vegetation is the most predominant vegetation feature in the village vicinity.

Topography

In terms of the topographical investigation the Riviere Qui Barre valley is once again the dominant land feature. Excepting the steep valley banks the topography is undulating and gently rolling. Major landforms within the study area are cleared gently rolling fields, wooded highlands, marshlands and two major wooded ravines. The marshlands character varies from seasonal ponding of water to extensive areas of high water tables and flooding hazards. The topography has been classified into three slope categories of 5 - 15%, 15 - 25% and greater than 25%.

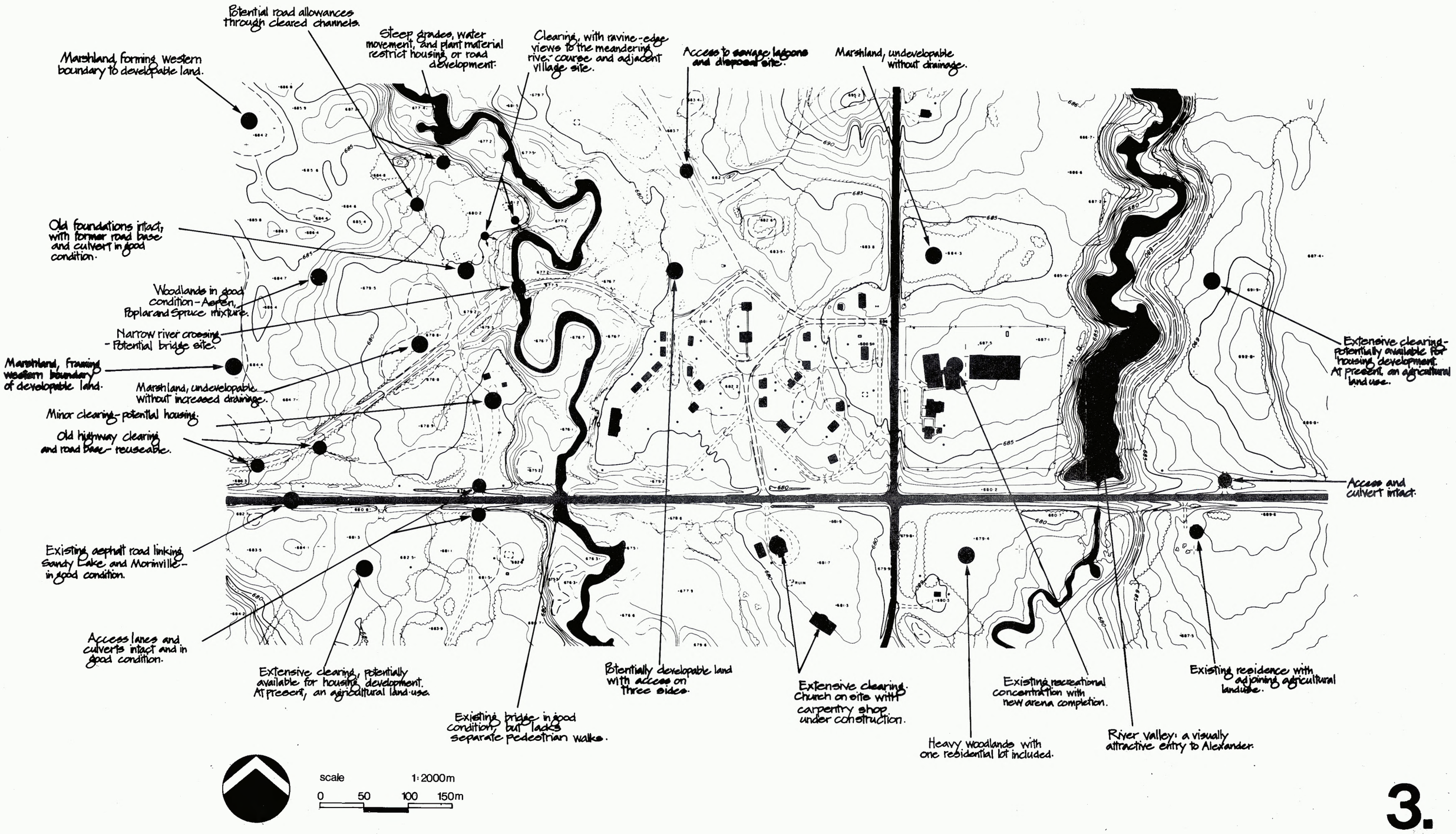
Soils

As part of the bio-physical inventory, the soils investigation is summarized as follows. Three major kinds of soil parent materials occur: 1) fine and very fine textured lacustrine sediments usually 50 - 80 cm. deep overlying till, found throughout; 2) fine textured alluvial deposits in the valley and tributaries of Riviere Qui Barre; and 3) organic deposits in marshy areas. Seventy-five sites were examined in the study area. The areas delineated on the Soil Maps are called map units. The label on a map unit identifies the soil series and the topographic class. For example the notation $\frac{MC}{C}$ identifies an area containing soils dominantly of the micro series on undulating topography. In this survey the mapping phase is used to denote soil characteristics which are considered to be potentially significant to use and management of the land.

Climate

The final component of the bio-physical investigation is a review of

inventory: site potential



the study area climate. The climatic data is summarized from information collected for the Alexander Band Development Plan - 1977. In general, the climate is continental, characterized by warm summers and cold winters. Annual precipitation on the Reserve is about 16 - 20 inches a year. Most of this falls in the form of rain during the summer months with June and July having the highest falls. An annual snowfall of between 50 - 60 inches is about normal with the heaviest falls in December, January and February with snowfalls as late as May, and as early as September. An indication of the capability of the area to support plant growth is provided by the use of accumulated temperatures in "Growing Degree Days". The Reserve can average 2,270 growing degree days. For comparison, a 2,000 growing degree day standard is the minimum for growing wheat on the prairies.

9.1.3 Site Potential

The final inventory sheet is titled Site Potential. This sheet is an amalgamation of field notes and air photo interpretation. Familiarity with the Band's requirements and the Landscape Architects development experience has influenced the following observations. The study area landscape contains a variety of visual conditions that place both positive and negative impacts on the development potential of the area. These visual conditions range from the nature of the overall landscape to the scale and character of the Riviere Qui Barre ravine. The general landscape in the area is slightly undulating, forested and lacking in significant variety excepting the river ravines. As a result:

a) landscape cognition that is, the ability of a person to identify his location in a landscape, is low;

b) the small height differences limit opportunities for viewing;

c) the enclosed landscape creates a sense of continued confinement which, coupled with lack of views, creates monotony.

Those areas which offer the greatest visual interest occur when:

a) a variety of vegetation and steep slopes are found in association with the meandering river edge. The ravine and water edge provides relief to an otherwise enclosed woodland experience and offers the user an opportunity to sense position and direction in the landscape.

b) the edge of the woodlands areas break into wild grass zones in close proximity to the edge of ravines.

9.1.4 Inventory Summary

The inventory phase in written and map form, is an accurate record of existing conditions in the Alexander Village and immediate vicinity. Analysis and synthesis was related to the Band's requirements and to the Indian Affairs terms of reference. Should the Band requirements and/or the terms of reference change in the future, the inventory phase will remain a reference of 1979-1980 village conditions. In contrast, the concept development phase remains valid only in terms of the Band's 25 year housing policy and the Indian Affairs terms of reference.

10.0 CONSTRAINT MAPPING

Discussions with Band Council Members by the Indian Affairs Physical Planner and Lombard North Group, have outlined a Band Development program as follows:

1) a Village Physical Development Plan will outline potential renovations to the existing village housing ensuring connections to new housing concentrations.

2) one hundred fully serviced housing units, 3 to 4 construction starts per year.

3) elders, pensioners and single mothers accommodation with playgrounds

4) possible relocation of existing sewage lagoon.

5) outline potential sites for light industrial application.

10.1 Existing Landuse Constraints

In light of the development objectives, the analysis and synthesis of inventory information has produced two constraint maps. Sheet one titled Existing Landuse Constraints, catagorizes the land in terms of ownership and current housing patterns. The catagories are ranked from 'most available for immediate development' to 'least available for immediate development'. The majority to be flexible, taking into account building age and possibility of demolition or relocation. Land presently under agricultural classification is assumed to be available for housing development if adjacent to current housing in the village vicinity.

10.1.1 Zone One

Therefore, the prime area for new housing, ranked most available for immediate development, is the existing village north of the Sandy Lake/Morinville road. Limited residential infilling may occur in the village proper to utilize available power, circulation and administrative facilities. As infilling occurs other buildings should be phased out of use and removed to improve privacy and vehicular circulation.

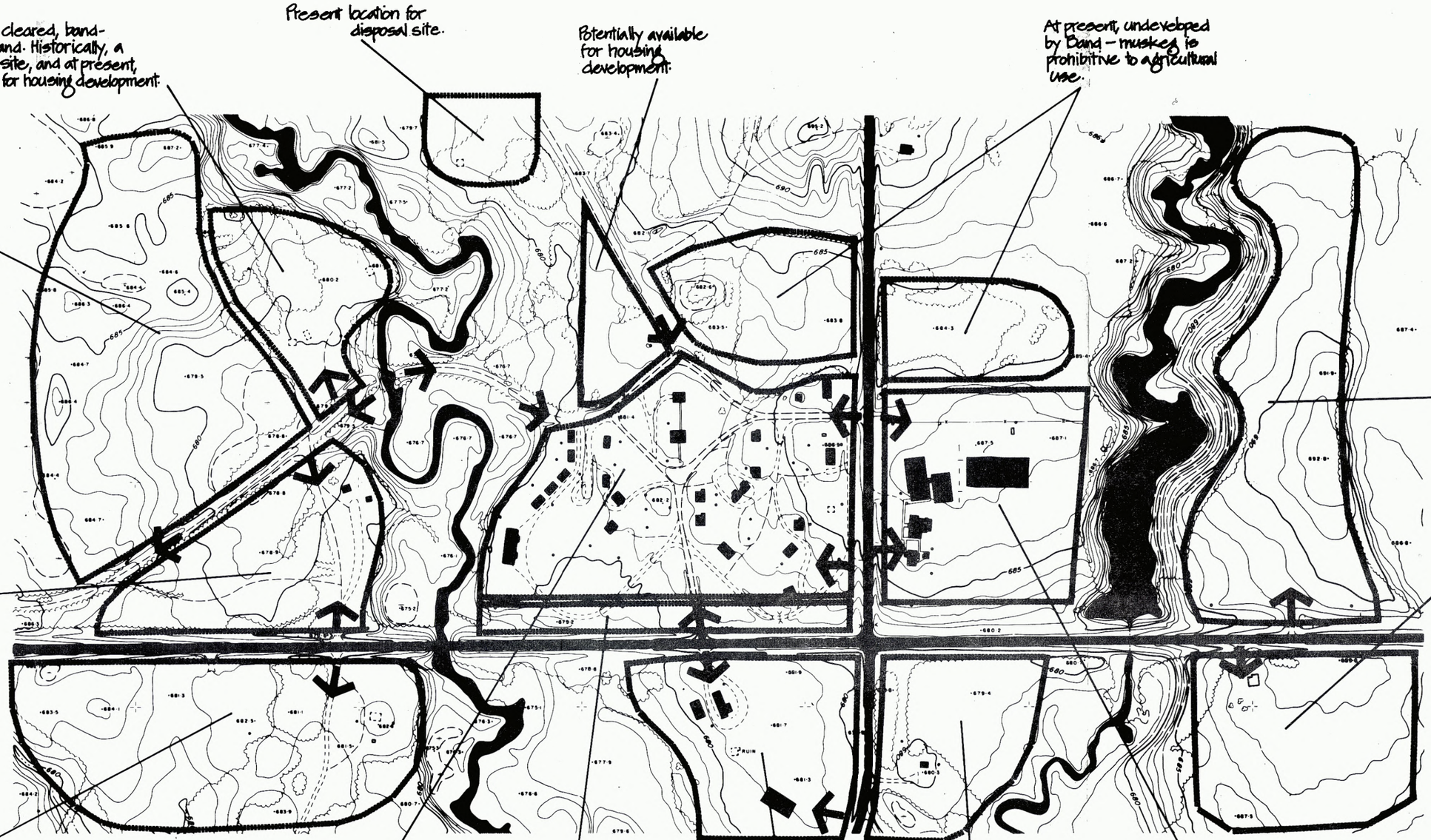
10.1.2 Zone Two

A triangular piece of land north of the village was ranked second as available for immediate development. The site which is adjacent to the band office is bound by roads to the east and south. Little if any additional roads would be required to connect this area north to the existing village.

10.1.3 Zone Three

Ranked third as available for development was the substantial land area west of the Riviere Qui Barre lying north and south of the Sand Lake/ Morinville road. Existing roads, band ownership and a potential new bridge linkage with the existing village indicate that this zone is favourable for

existing landuse constraints



housing development.

10.1.4 Zone Four

The final zone ranked fourth as available for development, is east of the Riviere Qui Barre tributary. At present the land is occupied by two residences and limited agricultural use. This zone could support residential development within walking distance of the village and educational/recreational facilities.

10.2 Bio-physical Constraints

The second sheet of inventory analysis and synthesis is titled Bio-physical Constraints. Sheet two identifies and ranks the land characteristics. The map legend identifies five critical land characteristics as follows:

1) Drainage patterns and direction
2) Marshland
3) Steep slopes
4) Clearings
5) Scenic features

10.2.1 Drainage

Identifying the existing drainage patterns and directions facilitates the planning of roads and lot grading. The major drainage patterns comprise the meandering river tributaries of the Riviere Qui Barre and the outflow stream from Low Water Lake. Planning must ensure the preservation of these natural waterways. Should large quantities of water need to be carried off these natural waterways would suffer erosion, sedimentation and loss of vegetation. Swale grading should connect with the natural drainage direction wherever practical. Utilization of natural runoff eliminates the need for an expensive and potentially destructive underground storm sewer system. Therefore, housing development should utilize the existing lowlands to hold and slowly release the water

biophysical constraints

legend

Drainage direction

Scenic features

Marshland

Steep slopes

Clearing

scale 1:2000m

0 50 100 150m

over a period of time. Where roads interesect drainage patterns, effective swale grading will permit runoff. The predominant marshlands to the west of the Riviere Qui Barre suggest careful coordination of road layout, grading and drainage.

10.2.2 Marshland

The second land type is marshland. It dominates the west and north border of the study area. As discussed above drainage patterns have suggested the importance of marshlands as water storage basins. Beyond this holding function marshlands are critical as a flooding hazard check. Planning often denotes marshlands as visual amenities and holding basins. The marshland functions in any development would necessitate separation from adjacent landuses. On site investigation could establish a flood zone restriction for road and building construction.

10.2.3 Slopes

The next bio-physical constraint is steep slopes, greater than 25%. Because of excessive slopes, these areas are rated restrictive as building sites, septic tank fields and sewage lagoons. The slopes should be kept covered with natural vegetation to reduce erosion and stream siltation. Of particular importance is the possibility of surface runoff from the upland plains running overland and discharging over the top of the slope. The proposed drainage pattern must not concentrate runoff at the top of slopes to reduce the hazard of instability in the upland area.

10.2.4 Clearings

The fourth bio-physical constraint identifies major cleared lands both agricultural, non-agricultural and private. The combination of woodland and clearing provides open building sites. The intrinsic value of woodlands in

comparison to the costs of clearing and grading necessitates the wise management of existing clearing. Grassed clearings can serve as pedestrian corridors, open space play areas or community garden space according to adjacent needs.

In contrast, the critical character of woodlands is its visual absorptivity. In essence this is the study of how many building units may be developed in the various woodlands without being readily visible from nearby units. West of the Riviere Qui Barre ravine, vegetation plays an important part in visual absorptivity. In this regard, the following observations may be made:

a) Units require a minimum of 100 feet of uncleared forest in order to provide moderate screening of any development from adjacent roads and additional units.

b) The mixed forest types in the area, provide the greatest visual absorptivity. Depending upon the method of unit construction and the clearing undertaken, the mixed forest types can visually absorb two to four units per acre.

10.2.5 Scenic Features

The remaining bio-physical constraint indicated on the constraint map is scenic features. These may be defined as views, landmarks, topography, vegetation, cleared areas and water bodies. The dominant first impression of the Alexander Village is the river ravine meandering north and south of the highway and the mass of valley vegetation. The meandering water course draws the viewer north and south of the highway and the mass of valley vegetation. The meandering water course draws the viewer north and south for as far as one can see and beyond. Outside of these ravine areas, the landscape lacks any significant variety. There are isolated stands of conifers worthy of preservation.

The remaining scenic features consist of small scale open spaces, minor changes in forest types and isolated rock features. It is the accentuation and linkage of these featues which can generate a green space corridor through a

development.

10.2.6 Soils Constraints

As mentioned previously the Soil Survey and Land Suitability Evaluation by Pedology Consultants forms an integral part of the study. The bio-physical constraints must be reviewed together with the soils constraints information. The information provided by the soil survey is not intended to be site specific nor does it serve as a substitute for on-site investigations.

11.0 CONCEPT DEVELOPMENT

In light of all the proceeding processes, the concept development phase diagrams possible community inter-relationships. The diagramatic outline as provided by the Village Physical Development Plan should be studied and approved by the Band prior to the design of specific building sites and road layouts. Thus, the Village Physical Development Plan must be considered as a conceptual master plan; an illustrated diagram of relationships.

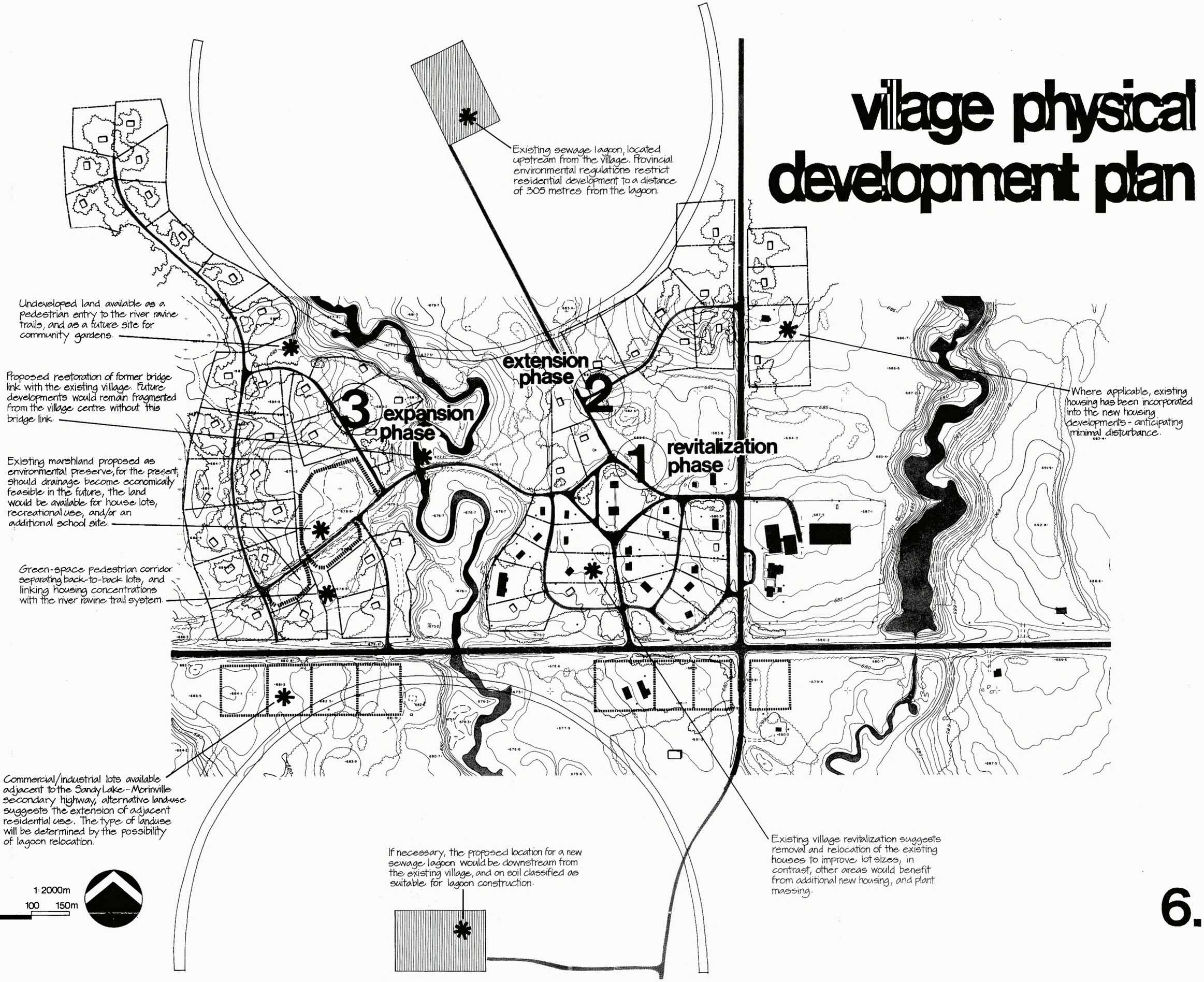
12.0 VILLAGE PHYSICAL DEVELOPMENT PLAN

12.1 Housing Development

This concept alternative provides for 40 housing units accommodating a cross-section of band family groups including single mothers and the elderly. The Band anticipates the improvement of roads and sanitary sewer services in conjunction with housing starts over the next 20 - 25 years.

The existing village has been identified as a treeless plateau sandwiched between the county road and the river ravine. Housing density and an inadequate road pattern in this area contribute to the present state of disrepair. The relationship of building separation and privacy space suggests a density reduction as well as limited infilling in the village vicinity. Areas lacking neighbours could benefit from views of adjacent family groups. The

village physical development plan



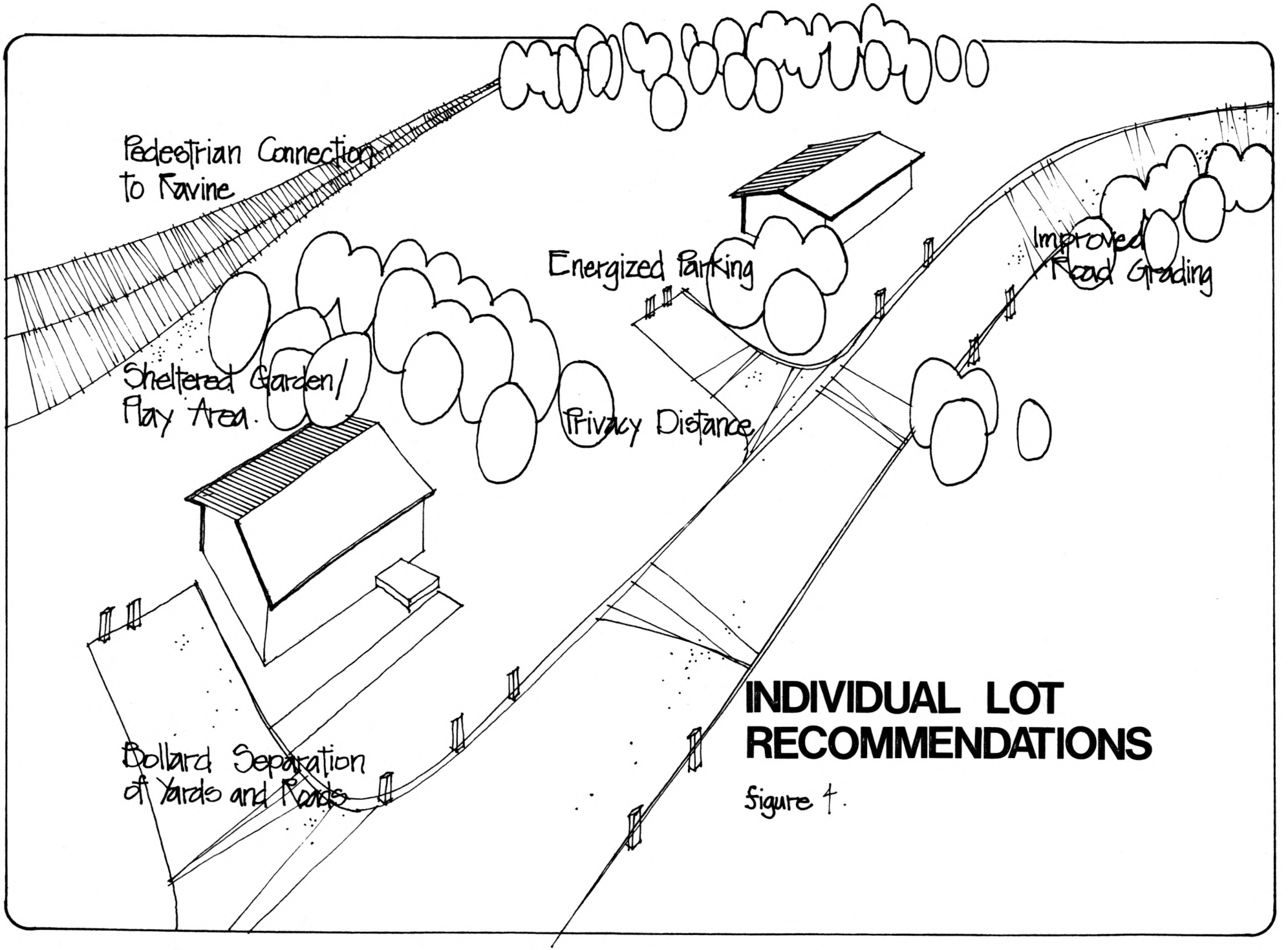
concept therefore, suggest house relocation and infilling to strengthen the existing village character. Accompanying road improvements would relieve the present reliance on the Sandy Lake/Morinville road. This concept utilizes the existing administrative building as a community focus.

The natural northerly extension of the existing village would facilitate incorporation of old and new housing. Both the existing and the extension of the village housing would necessitate additional sewer and water services.

Expansion to the west would strive to maintain the administrative focus. This would entail the restoration of a bridge at the former river crossing. The expansion west incorporates individual lot single family detached housing similiar to the existing village housing. The new housing areas have been arranged with an acre to an acre and a half lot sizes. Available land west of Riviere Qui Barre can reasonably support 29 fully serviced detached housing units at this density. "Can reasonably support" refers to the landscape ability to ensure visual privacy. At this lot size, care in clearing and grading is necessary to ensure individual privacy. Large loop roads link up with the existing village by utilizing existing road clearings where practical. The green space corridors separating back to back lots provide pedestrian connections to the existing village and ravine.

The final housing expansion, to be considered in the future, is within walking distance of the recreation/education centre, located at the east entry to the village. Land presently under an agricultural landuse classification has been examined and found suitable for housing. Slightly larger lot sizes and proximity to the ravine would offset the lack of trees.

In conclusion it may be pointed out that green spaces and simple loop road circulation improve the community sense of space. Careful revitalization of the existing village and northerly expansion would allow community input



INDIVIDUAL LOT RECOMMENDATIONS

Figure 4.

into the entire master plan. The inherent disadvantages of the concept should not be overlooked in light of the several advantages. Single family detached housing requires individual drives, water, sewer and power facilities as well as all associated maintenance. Snow removal, pedestrian travel time to school and sport facilities and initial development costs are all factors worthy of consideration in the evaluation of this concept.

12.2 Commercial and Industrial Development

The concept alternative has suggested land areas for light industrial use. As inventory and constraint information indicates, potential service related industry may thrive along the Sandy Lake/Morinville road. A commercial strip has to be considered in terms of water and sewer facilities as the housing development progresses. The commercial strip development must be designed taking into account set backs and visual disturbance standards so that the character of the existing village is enhanced and not destroyed. Signage, lighting, planting and noise control must be considered. To the south, the church site would require a separation from the commercial lots.

12.3 Sewage Lagoon Relocation

Although beyond the terms of reference of this study it may become necessary to relocate the sewage lagoon downstream of the existing village. A site south of the church is recommended as part of the Village Physical Development Plan. Soil surveys have identified sufficient land area with an adequate soils classification to support sewage lagoons. Beyond this recommendation the existing sewage lagoons must be assessed by qualified consultants.

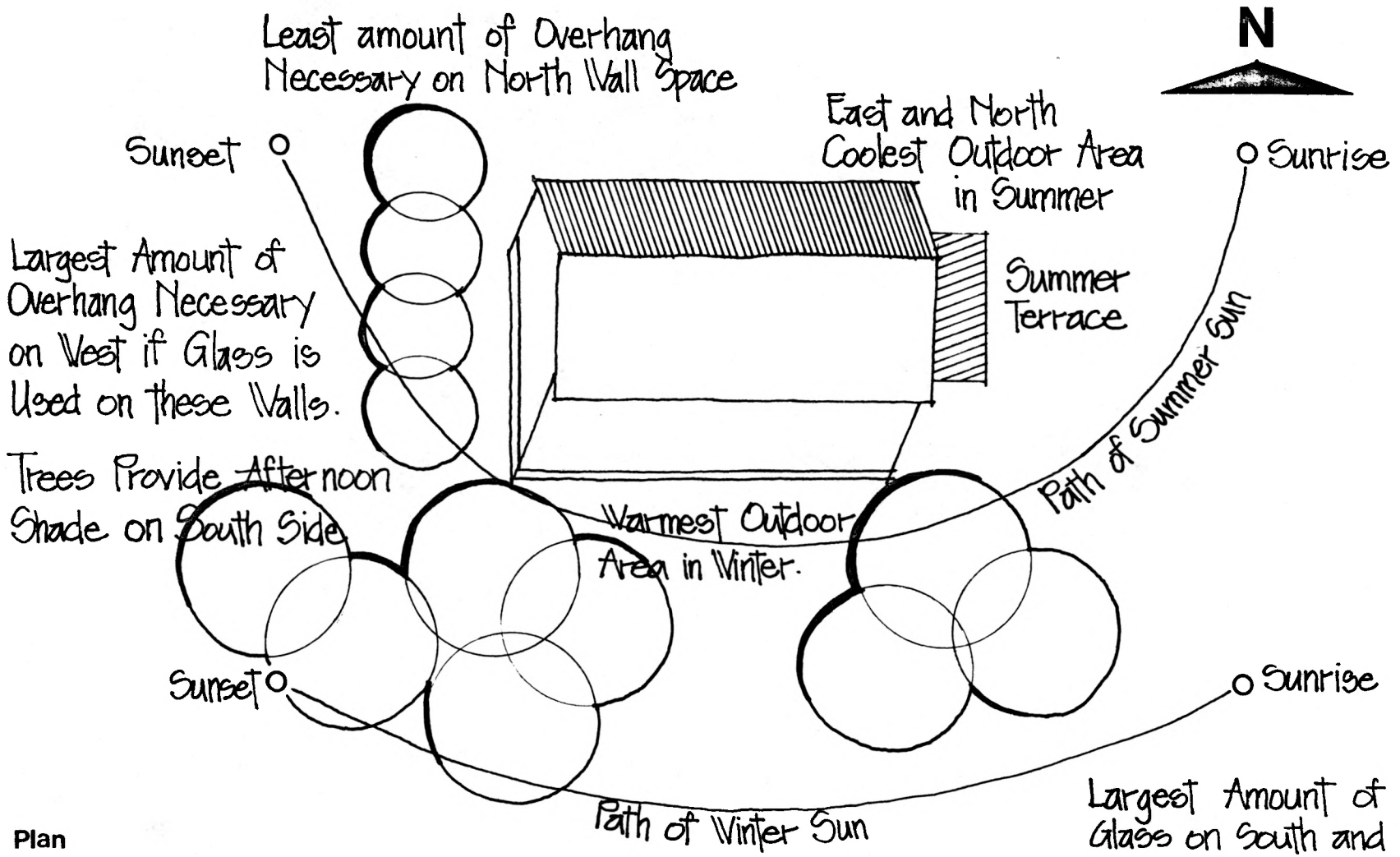
13.0 SITE PLANNING GUIDELINES

Energy efficient design takes advantage of the site's favourable qualities. It is imperative that the buildings are sited and constructed to respect their individual lots. The designers of these buildings must consider site specific ecology landforms and climate. They must be aware of the micro-climate created by other buildings adjacent to their own location and the unique situations created by interaction of adjacent buildings with the existing landscape.

Existing landscape can act to moderate the micro-climate of the area by blocking wind, cutting direct or reflected solar radiation and by increasing or lowering the temperature in relation to the general area.

Generally east-west sun is more difficult to deal with than southern light. A rectangular building should be oriented, generally speaking, with its long axis running east-west (see figures 5 and 6). West sun can bring about the most intense solar gains and is the most difficult to control. Again, the changes in sun exposure brought about by the seasons and the time of day should be fully described for each site.

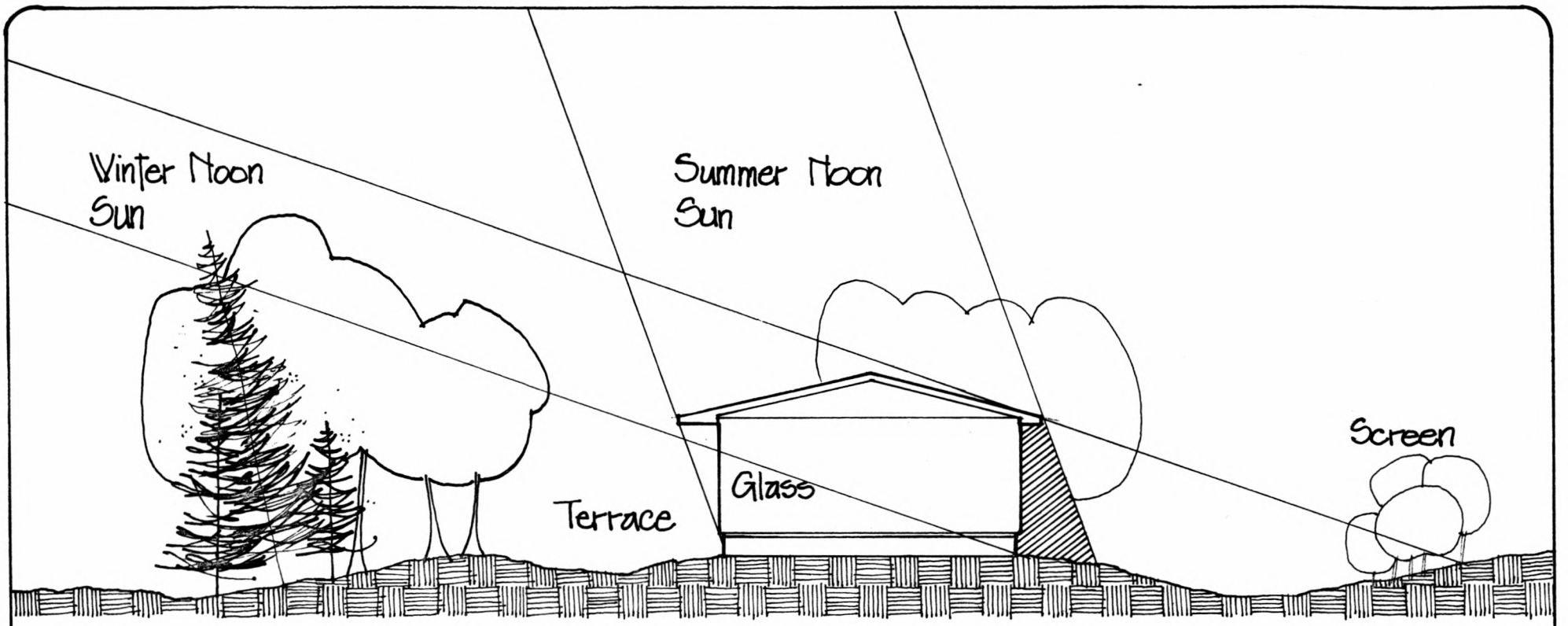
It is recommended that building locations take maximum advantage of natural clearings or minimize removal of vegetation. In this manner personal privacy and proximity to woodlands are maintained. Successful building siting can reduce, to some degree, the amount of exposure to neighbours. It is important to realize that factors that work well in one season, such as a grove of trees blocking winds or shading of buildings, do not necessarily work well in other seasons. Due to these complexities of each building/site interaction house orientations are best determined on site.



Plan

SITE/SUN ORIENTATION

figure 5.



Warmest - Sunset Areas in Winter

Coldest - Dampest Areas in Winter.

Warmest - Sunniest Areas in Summer, Summer Shade Needed.

Coolest - Shadiest Area in Summer N. or N.E. Terrace May Be Desired

SITE/SUN ORIENTATION

Figure 6.

Elevation

14.0 USE CONFLICTS AND RESOLUTIONS

14.1 Possible Use Conflicts - Phase One

The Village Physical Development Plan anticipates community disruption during the following processes; the upgrading and provision of additional underground utilities and grading for roads, lanes and drainage swales. The existing village renovations suggest three new houses as well as the removal and/or relocation of five existing houses to complete the neighbourhood character. Suggested house renovations recommend level step entries front and rear complete with walk connections to an energized parking stall. Refurbishing of the existing duplex into a home for the elderly would proceed in conjunction with village topsoiling, seeding and mass planting programs. A use relocation is recommended for the Public Works facilities to the industrial landuse area. This change would concentrate maintenance and tool related functions in the new carpentry shop vicinity.

Recommended Resolutions

Prior community acceptance of the Village Physical Development Plan will ensure continued band support throughout the construction programs. Regularly posted progress reports would facilitate community involvement when feasible. For example the limited use of school time for students to assist in tree planting and play ground construction. The revitalization of the existing village area must discourage band members from leaving the village centre housing and provide impetus for the continued extension of housing to the north.

14.2 Possible Use Conflicts - Phase Two

The proximity of the garbage disposal area to the proposed residential extension may be objectionable to individual residents. As well the incorporation of existing residences into the proposed developments must satisfy the existing

owners. The environmental implications of this north housing development suggest careful siting of buildings to ensure positive drainage on the steep topography.

Recommended Resolutions

Once again the prior community acceptance of the Village Physical Development Plan would promote existing owner agreements and permit discussion of issues such as the dump relocation and site specific building locations.

14.3 Possible Use Conflicts - Phase Three

Residential expansion west of Riviere Qui Barre brings with it several environmental and social implications. Every effort must be made to sensitively clear and grade for roads, services and buildings. The existing woodlands are an essential asset and mismanagement during the development phases can potentially negate all planning intentions for lot privacy. The existing marsh is recommended for future development remaining as an environmental preserve until economically feasible. All road and servicing allowances must provide for the future development of this preserve.

The proposed bridge connection is essential to promote inter-village pedestrian and vehicular circulation. Any delay in the construction of the bridge would fragment the new development from the existing village diminishing the intended village character.

The proposed green space allowances separating back to back lots are considered important. These corridors to the river ravine are intended as community property. Individual resident pressure to utilize this green space would negate connection of pedestrian corridors. As well the river ravine must be managed so as not to deteriorate from overuse. The river ravine walking trail, recreational potential must mature in conjunction with the village character.

Recommended Resolutions

The western expansion, phase three, requires stringent management during construction and maintenance to create a successful residential environment. Every effort must be made to preserve and to accommodate future facilities such as community gardens and play zones. Maximum woodland preservation and the maturity of the river ravine recreational potential will ensure a quality residential neighbourhood.

15.0 REFERENCES

!. Barrhart, H.W. and Associates Limited, Alexander Indian Reserve, Forestry Sheet, Sheet number 6A32-134, Manotick, Ontario, 1975.

2. Barrhart, H.W. and Associates Limited, Alexander Indian Reserve, Soil Sheet, Sheet number 6A32-134, Manotock, Ontario, 1975.

3. Jones M.V. and Associates Limited, Alexander Band Development Plan - 1977, Edmonton, 1977.

4. Lombard North Group Limited, The Manigotogan Seymourville Area, Resource Analysis and Recreational Potential, Winnipeg, 1975.

5. Lynch K. Site Planning, Second Edition, Cambridge, Massachusetts: The M.I.T. Press, 1974.

6. Pedology Consultants, Soil Survey and Land Suitability Evaluation of the Sandy Lake-Nakamun Lake Study Area, Edmonton, 1976.

7. Pedology Consultants, Soil Survey and Land Suitability Evaluation of the Alexander Indian Community, Edmonton, 1980.

8. University of Manitoba, Department of Environment Studies, Vogar: A Community Proposal, Winnipeg, 1974.

village physical development plan

Existing sewage lagoon, located upstream from the village. Provincial environmental regulations restrict residential development to a distance of 305 metres from the lagoon.

Undeveloped land available as a pedestrian entry to the river ravine trails, and as a future site for community gardens.

Proposed restoration of former bridge link with the existing village. Future developments would remain fragmented from the village centre without this bridge link.

Existing marshland proposed as environmental preserve; for the present, should drainage become economically feasible in the future, the land would be available for house lots, recreational use, and/or an additional school site.

Green-space pedestrian corridor separating back-to-back lots, and linking housing concentrations with the river ravine trail system.

Commercial/industrial lots available adjacent to the Sandy Lake - Morinville secondary highway; alternative land-use suggests the extension of adjacent residential use. The type of landuse will be determined by the possibility of lagoon relocation.

3 expansion phase

extension phase 2

1 revitalization phase

Where applicable, existing housing has been incorporated into the new housing developments - anticipating minimal disturbance.

If necessary, the proposed location for a new sewage lagoon would be downstream from the existing village, and on soil classified as suitable for lagoon construction.

Existing village revitalization suggests removal and relocation of the existing houses to improve lot sizes, in contrast, other areas would benefit from additional new housing, and plant massing.

scale 1:2000m
0 50 100 150m

6.

DRAWING NO. 6
SHEET TITLE VILLAGE PHYSICAL DEVELOPMENT

alexander RESERVE
VILLAGE DEVELOPMENT PLAN prepared for
Indian and Northern Affairs engineering and architecture

JOB NAME

Lombard North Group
The Lombard North Group Limited
Winnipeg Regina Edmonton Calgary

NO. | DATE | BY | REVISION

SCALE 1:2000 m
50 25 0 50 metres

DRAWN Selby
CHECKED
DATE March 1980
FILE 621-79-02

SE 1/4 Sec. 3 - TP. 56 - R. 27 - W. 4th Mer.

SW 1/4 Sec. 2 - TP. 56 - R. 27 - W. 4th Mer.

NE 1/4 Sec. 34 - TP. 55 - R. 27 - W. 4th Mer.

SW 1/4 Sec. 35 - TP. 55 - R. 27 - W. 4th Mer.

Soil Map: ALEXANDER INDIAN RESERVE

SOIL LEGEND:

MATERIAL	SOIL SERIES	SYMBOL	DOMINANT SOILS	DRAINAGE
fine to very fine textured Lacustrine deposits overlying TILL	MICO	Mc	Orthic Dark Gray Chernozems	Moderately Well
	WETASKWIN	Wkn	Black Solodized Solonetz	Moderately Well
	RAVEN	Rv	Orthic Humic Gleysol	Poor
		Rv/p	Peaty phase of Raven	Poor
ORGANIC DEPOSITS	EAGLESHAM	Eg	Typic Humisol	Very poor
	KENZIE	Kz	Typic Mesisol	Very Poor
FINE TEXTURED	ALLUVIAL	Av	Regosols and Gleysols	Imperfect to poor
	ROUGH BROKEN	RB	Undifferentiated	Well

TOPOGRAPHIC CLASSES:

b : 0 - 2 % slopes
c : 2 - 5% "
d : 5 - 9% "
e : 9 - 15% "
f : 15 - 30% "

CONVENTIONS:

Map Unit = Mc (soil series) / c (topographic class)

x 55 — soil inspection site

~~~ map unit boundary

SOIL SUITABILITY INTERPRETATIONS:

MAP UNIT	PERMANENT BUILDINGS: With Basements	PERMANENT BUILDINGS: Without Basements	ON-SITE SEWAGE DISPOSAL	SEWAGE LAGOONS	SOURCE OF SUBGRADE MATERIAL	AGRICULTURE CAPABILITY
Mc c	M22	M22	M10	S	P	2D
Mc c-d	M22	M22	M10	M3	P	2D
Mc d	M22	M22	M10	M3	P	3^{T}_{D}
Mc e	M3,22	M3,22	M3,10	X3	P	4^{T}_{D}
Mc f	X3	X3	X3	X3	P	5^{T}_{D}
Wkn c	X13,23	X13,23	X11,23	M13	P	3D
Wkn c-d	X13,23	X13,23	X11,23	M13	P	3D
Wkn e	X13,3,23	X13,3,23	X11,3	X13,3	P	4^{T}_{D}
Wkn-Mc c	X13,23	X13,23	X11,23	M13	P	3D
Wkn-Mc e-f	X3,13,23	X3,13,23	X13,23	X3,13	P	5^{T}_{D}
Rv b	X2	X2	X1,2	X1,2	P	4W
Rv/p b	X2	X2	X1,2	X1,2	P	5W
Eg b	X19	X19	X1,2	X1,2,19	U	O
Kz b	X19	X19	X1,2	X1,2,19	U	O
Av	X1,2	X1,2	X1,2	X1,2	P	6^{I}_{W}
RB	X3	X3	X3	X3	P	6T

DEGREE OF LIMITATION

S - slight limitation
M - moderate limitations
X - severe limitations
P - poor suitability
U - unsuitable

KIND OF LIMITATION

1 : flooding hazard
2 : high water table
3 : excessive slope
10 : moderate permeability
11 : slow permeability
13 : high shrink - swell
19 : organic soil
22 : moderate shrink - swell
23 : sulfate attack

CAPABILITY CLASSES:

2 : moderate limitations
3 : moderately severe limitations
4 : severe limitations
5 : very severe limitations
6 : extreme limitations
O : organic soil

KINDS OF LIMITATIONS:

D : adverse structure
I : inundation (flooding)
T : topography
W : wetness

COMPILED ON UNCONTROLLED MOSAIC

BY

PEDOLOGY CONSULTANTS

January , 1980
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