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***Project Description And Implementation  
Schedule For Hanging Ice Ranch Ltd  
Type of Study: Primary Production  
Agriculture, Game Ranching  
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AGRICULTURE

1-7-11

CS

Project Description and Implementation Schedule  
for  
Hanging Ice Ranch Ltd.

These notes incorporate the draft project **requirements** developed by EDA in January 1989. Although the **initial** scale of this venture has been altered to that of a pilot demonstration **project** the ultimate scope and **objectives** remain unchanged.

July 19, 1989

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I. Corporate Structure

A. Incorporation

Hanging Ice Ranch Ltd. was registered as a limited liability company in the Northwest Territories on November 23, 1988. It was created to own the bison and other assets and operate lands of a woodland bison ranch established by the Fort Smith Hunters and Trappers Association. The shareholders of this limited company are the members from time to time of the Fort Smith HTA. At the present time all shares are held in trust by the legal counsel to Hanging Ice Ranch Ltd.

B. Directors

It is proposed that the directors for Hanging Ice Ranch Ltd. will include the directors of the HTA plus persons assigned by the principle funding agencies. The Territorial Government Departments of Economic Development and Tourism and Renewable Resources have been invited to name directors to the Company. A Project Management Committee will be formed to manage day to day operations.

The Project Management Committee will be composed of two members from the Fort Smith HTA, one representative each from the Department of Economic Development and Tourism and the Department of Renewable Resources, GNWT, and the project Manager from Hanging Ice Ranch Ltd. The Board of Directors will be responsible for policy and the overall direction of the corporation while the Project Management Committee will be responsible for the day-to-day operations of the company..

*Expression  
of role  
of management  
committee per.*

## II. Management

### A. Financial

All income to Hanging Ice Ranch Ltd. will be deposited to a separate savings account at the Fort Smith branch of the Canadian Imperial Bank of Commerce. This account will be used as a holding account from which operating funds ~~will be~~ transferred to an operating account as required. Signing authority for this holding account shall include members of the Project Management Committee. All transfers must include a signature of either the authorized person in the Departments of Renewable Resources or Economic Development and Tourism, GNWT.

The operating account will be used like a petty cash fund. All funds required to cover monthly operating costs plus capital purchases will be transferred to this account. Signing authority for this account will rest with the members of the management committee plus the project manager. All payments for goods and services.. received by Hanging Ice Ranch Ltd. will be paid by **cheque** drawn on the operating account. All cheques must have two signatures in order to be valid. A director/manager who provides goods/services to Hanging Ice Ranch Ltd. shall not sign the cheques drawn to pay for those goods and/or services.) This is a precautionary measure for perceived conflict of interest.

Management

### B. Operations

1. Annual financial and operational reports will be submitted to the EDA Management Committee.

2. In the event of demonstrated financial and/or herd mismanagement the Government of the Northwest Territories, represented by the Department of Economic Development and Tourism, GNWT, and the Department of Renewable Resources, GNWT, can assume control over the project at any time, **until** such time as the Hanging Ice Ranch Ltd. is capable of generating profits and sufficient cash **flow** to cover the annual operational and capital costs for a period to be agreed upon by the Management Committee. As a condition to receiving funds, Hanging Ice Ranch Ltd. may be required to assign all shares to be held in escrow.
3. Criteria and qualifications of senior staff for ranch operations will be reviewed from time to time by the Project Management Committee. A preliminary staffing specification for senior herdsman is provided in Appendix 1.

### III. Land Management

#### A. Grazing Lease

*Lease must be changed to reflect new proposal*

A revised grazing lease application was **filed** with the Department of Indian Affairs and Northern Development on 28 October 1988. Application is for 10 **square** miles, the **maximum** allowed in the Territorial Lands Act without reference to the Privy Council.

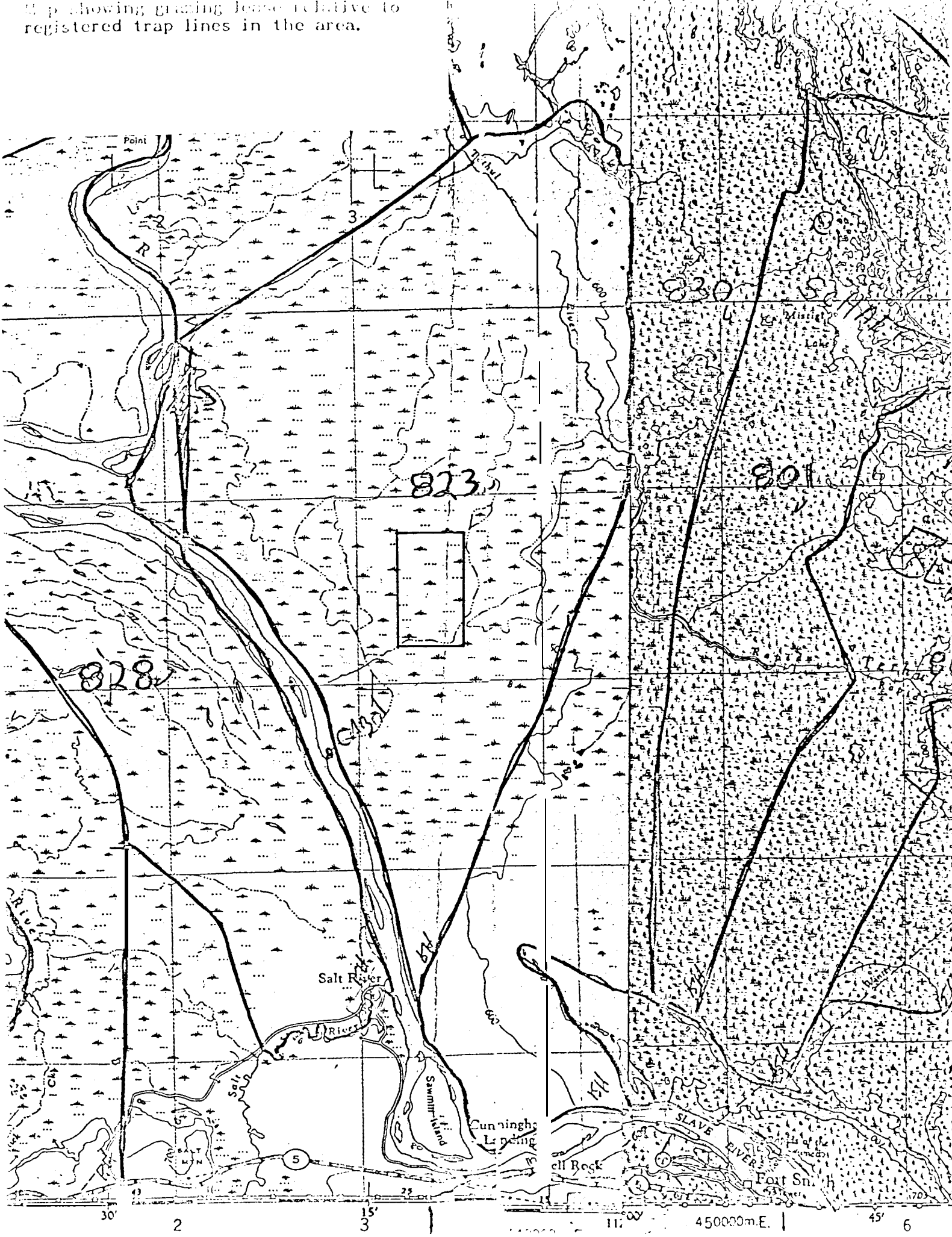
All parties with aboriginal interests in the lands endorse the proposed form of land use and support withdrawal for the purposes of establishing a grazing lease. ( The draft lease prepared by DIAND and which is ready for signing appears as Appendix 2. )

*not entirely accurate  
see FT  
land SA/THA  
appears*

#### B. Access

The lands contained in the grazing lease are part of a registered

Map showing grazing lease relative to registered trap lines in the area.



trapline as shown on the attached map. Access is addressed in the Wildlife Act and Regulations for Game Farms Licences.

Access by the public to lands under lease to Hanging Ice Ranch Ltd. shall be by permission only as per section 4 of Wildlife Business Regulations dated 24 September 1984.

*Keep - Some Logging*

Game Farms

*not not in my account  
leave will take precedence over this*

9. (1) The holder of a game farm licence shall keep such books and records as will at any time show the total number of wildlife animals held in captivity and particulars of how the animals were acquired.
- (2) The holder of a game farm licence shall make every endeavour to ensure the good health of all captive wildlife animals on his farm and shall provide, at his expense, the services of a veterinarian for any sick or injured animal.
- (3) Enclosures must be constructed so that the security, biological and aesthetic requirements of all the wildlife animals are provided for.
- (4) Where a notice prohibiting trespassing
  - (a) is affixed to the enclosure of a wildlife animal on a game farm, and
  - (b) is clearly visible at a distance of 25 m therefrom, no person, other than an officer, shall go within 25 m of the enclosure without the permission of the operator of the game farm.
- (5) The operator of a game farm may, where the enclosure contains live wildlife, kill any wildlife animal within 25 m of the enclosure.
- (6) Game farm licences expire June 30 next following the date of issue.

In order to service the construction crew by boat, a rudimentary trail will be needed from the Slave River. This will be done by brushing the roadway that was described in the land use permit that



*AND use for a waste and requirement applicable for waste summer use - reviewed.*

was issued in December 1988. Amendments required for this land use permit to accommodate the 1989 summer construction program have been discussed with the land use inspector for the area. Please see Appendix 3 for Land Use Permit #N88E037 currently in effect. All materials that can be salvaged from trail brushing will be used for corral construction.

### C. Forest Fire

1. The Forest Protection Act will apply.
2. Hanging Ice Ranch Ltd. will undertake in consultation with the Department of Renewable Resources development of a forest fire management plan which will include but will not be limited to:
  - a. applicable legislation
  - b. plans for forest fire protection
  - c. plans for forest fire detection and reporting
  - d. plans for forest fire pre-suppression activities
  - f. fire management planning

The company will provide the preliminary plan to the Department of Renewable Resources, director of Fire Operations, prior to March 1, 1990 for review and comment.

The company agrees to review the forest fire management plan on an annual basis and when necessary make the appropriate modifications to ensure protection of the captive bison, their range and the physical infrastructure required for their management.

D. Timber Use

*use  
fenced posts*

Timber for posts, rails and dimensional lumber will not be taken from grazing habitat in the lease area except as salvage following fence line and fire break maintenance. Natural cover and shelter of varying densities is needed for year-round herd management. For that reason timber, lumber and fuel wood requirements will be met by harvesting under cutting permits in nearby forests.

The 1989 corral construction program is estimated to require 325 m<sup>3</sup> of local timber. An approval of the project application for a timber permit for this volume will be made to the Department of Renewable Resources at Fort Smith.

E. Land Claims

All aboriginal parties with an interest in the land applied for have committed their support for the project. This support was confirmed independently by DIAND in its review of the grazing lease application.

IV. Herd Management

Many aspects of herd management will be demonstrated in this pilot project and so remain under discussion with numerous parties including Agriculture Canada veterinarians and bison ranch operators. At this time the subject is addressed in terms that permit flexibility as information becomes available. The following subject areas are under discussions and review:

A. Parasites

A service for analyzing manure samples for parasites is available

at the **Fairview**, Alberta Regional Veterinary Diagnostic Laboratory operated by Alberta Agriculture. Staff of this lab have conducted a reconnaissance of parasites in northern free ranging bison herds and have found low parasite loads.

The cost of analyzing samples is \$10.00 for the first and \$2.00 for each additional sample. If it is found that treatment is necessary, a broad spectrum injectable potion, **Ivomectin**, is available that kills many **parasite** species. Treatment costs are approximately \$5.00 per head for animals in the 600-700 pound size. This medication does not **interfere** with any aspect of the reproductive cycle. However, animals that have been treated cannot be marketed for twenty-eight days.

Consultation with veterinarians and bison herd managers as well as herd management experience will provide the necessary knowledge on monitoring and response. Dr. Henderson at the FairView lab suggested that a herd such as that **contemplated** in this project should not expect a **parasite** problem to develop if **basic** herd husbandry **practises** are followed.

#### B. Disease testing and treatment

It is essential that the bison herd be **free** of contagious diseases.

The most effective disease **monitoring** mechanism is to blood test **all** animals prior **to** accepting them. **All** wood bison released from Elk Island Park are disease tested by Agriculture Canada prior to shipment. Subsequent to release animals will be blood tested in keeping with Agriculture Canada's captive wild ungulate policy. Agriculture Canada will conduct this blood testing at no cost to Hanging Ice Ranch Ltd. Agriculture Canada has no criteria or

guidelines for animal containment **facilities**. However, their regional veterinarian, Dr. Petran **confirmed** that all captive ungulates are subject **to** Agriculture Canada **regulations** with respect to named diseases.

#### C. Breeding Stock Procurement

There will be ongoing discussions regarding the source of initial woodland bison seed stock. At the present time there are only two herds that have surplus animals in numbers that justify a new breeding herd.

##### 1. Elk Island National Park.

Preliminary indications are that approximately 40 animals in a 50:50 sex ratio are available in the winter of 89/90. We have requested that the Department of Renewable Resources make a formal request for all woodland bison that are surplus in Elk Island National Park in January/February of 1990. These animals **would** be prepared for shipment at the annual round-up and disease test.

##### 2. The Mackenzie Bison Sanctuary,

Detailed discussions have not begun with the Department of Renewable Resources regarding the capture of bison in the Mackenzie Bison **Sanctuary**. It is felt that the earliest possible date for animals from the sanctuary would be the winter of 1990/91. There are no capturing or holding facilities there nor are any planned in time for a capture in January/February of 1990.

#### D. Elements of Bison Ownership Agreement

The operation of a commercial bison ranch will require that

Hanging Ice Ranch Ltd. holds outright ownership of all animals in its care by way of the Game Farm Licence. In recognition of the source of the breeding stock and as part of an **overall** national wood bison restocking effort it is proposed that bison surplus to the breeding requirements of the Hanging Ice Ranch herd will be available for establishing new free ranging herds by government when exercising a right of first refusal option. The **details** of this feature **will** take the form of an agreement between Hanging Ice Ranch Ltd. and the Government of the Northwest Territories.

While the bison **will** be the property of the Hanging Ice Ranch Ltd., their management and disposal shall be subject to consultation with the Management Committee for the period that this committee is in place. Items covered by the agreement **will** include:

1. All bison in the care of Hanging Ice Ranch Ltd. shall be woodland bison.
2. **All** bison in the care of Hanging Ice Ranch Ltd. shall be the property of Hanging Ice Ranch Ltd. under a Game Farm Licence issued by the Department of Renewable Resources, GNWT. **Wildlife** regulations **in** effect from time-to-time shall apply.
3. The import and export of live bison shall be in accordance with regulations in effect from time-to-time with respect to bison owned by Hanging Ice Ranch Ltd.
4. Hanging Ice Ranch Ltd. shall annually provide a report **covering** the number of bison bought, sold, killed, born, and held in its possession as of June 30th of each year.
5. Hanging Ice Ranch Ltd. shall, in consultation with the Management Committee, determine the bison that are surplus to breeding and

rearing purposes.

6. The import and export of bison by Hanging Ice Ranch Ltd. shall be subject to the Wildlife **Act** and regulations in effect from time-to-time. Hanging Ice Ranch Ltd. shall at all times provide adequate notice of their desire to import and/or export bison to the Superintendent of **Wildlife**, Department of Renewable Resources, GNWT.
7. Government shall have the right of first refusal to bison declared surplus to breeding and rearing needs for a period to be determined by the Management Committee. **Any bison taken by government shall be at government expense.**
8. Disposal by slaughter for commercial sale **shall** conform to laws and standards of general application established by Agriculture Canada in the case of sale and trade outside the Northwest Territories and by NWT Department of Health for commercial distribution inside the North west Territories.
9. Harvesting of wood bison by hunting within the fenced areas of the ranch shall be in accordance with the legislation and **regulations** in effect 'from time-to-time.

#### V. Range Management **Plan**

The lease will initially be fenced into several basic grazing areas to serve as pastures as the herd grows. (See figures that follow.)

Sufficient hay will be brought in on the winter road to provide supplementary feed for critical winter periods. Hay can be provided locally at prices competitive to those of importing from Fort

Vermillion in Alberta.

#### VI. Regulatory Concerns

No bison stock may be introduced to the ranch prior to the written authorization being provided by the Department of Renewable Resources, GNWT.

#### VII. Manpower

The Department of Economic Development and Tourism, GNWT, and the Department of Renewable Resources, GNWT, will participate with the Management Committee in the selection and hiring process of the senior management personnel, i.e., herdsman and project construction manager.

#### VIII. Fence Design and Placement

In all studies and statements on fencing to date for a bison ranch on the Slave River Lowlands, there has been a preoccupation with fence design serving as a guarantee against disease transmission from wild bison to ranch bison. It should be stated at the outset, - - that there is no absolute guarantee against disease transmission. There is also the question of cost effectiveness of the second fence in a double fencing system.

Less than 200 bison remain in the Hook Lake herd whose recent distribution has been observed to be along the Taltson River. No bison or sign has been seen at the proposed ranch location for many years. The probability of a wild bison wandering into the area of the ranch is low. That, combined with an active monitoring effort of the pasture perimeter further reduces the risk of contact between the wild and ranch bison. Also, all animals in the care of the ranch

*Very important  
to discuss  
fencing in  
the attachment*

will be tested for disease in accordance with the Captive Wild Ungulate Policy by Agriculture Canada. This will further indicate the success/failure of the fence line monitoring efforts.

Added security from the wild bison at Hook Lake could be gained by the construction of a barrier from the **Taltson** to the Slave River. A further barrier cutting off Grand Detour would reduce the risk of bison immigrating from the Grand Detour prairies west of the Slave **River**. It must be stressed that these measures are not needed to establish this ranch herd as a pilot project.

#### IX. Project Timing and **Schedule**

The development strategy for Hanging Ice Ranch Ltd. and this pilot project is to expand the physical plant as the bison herd grows. Table 1 shows the anticipated herd growth beginning with the first calves born on the ranch in the spring of 1990.

*Construction*  
-The initial delivery of bison will be released into a 20 acre holding corral in February 1990 and held there **until** a summer construction program has built fences to contain pasture **sufficient** to provide initial **grazing** requirements. The 20 acre corral **will** be constructed in August/September 1989 using locally cut rails and posts. The design will be identical to that used at Hook Lake in 1963. It will be sited so that as the herd grows, this corral can be modified and used as the main animal handling and disease testing facility.

Sufficient feed will be brought to the site **in** February 1990 to carry the animals to the time that the pasture is fenced. The required feed can be provided by Fort **Smith** farmers provided they are



given notice by the end of **July** 1989. Failing that the hay may have to be imported from Fort Vermillion.

*Supplement feeding*

Pasture requirements are based on a stocking rate of nine acres/adult bison. This stocking rate assumes year round grazing. The hay supply in subsequent years is a precaution against severe winters and a guaranteed winter supplement for pregnant cows. Supplemental feeding will reduce grazing pressures significantly.

Project Milestones

1989	August	brush access trail
		Supply contract for 1990 hay requirements.
	August/September	Construct 20 acre paddock and basic receiving and handling facilities,
1990	January	Construct ice bridge and winter road,
	February	Receive/place herdsman's shelter, supplies, fencing materials for summer construction program.
		Take delivery of 25 Ton hay
		-Take delivery of 40 woodland bison.
	April/June	First bison calves arrive
	July/August	Construct 980 acre pasture for herd expansion to 109 head for first 3 years operation and herd growth,
	August	Release bison to pasture.
		supply contract for 1991 hay requirements.
1991	January	Winter road and resupply of hay, POL etc.
	November	<b>Order</b> fencing for range expansion.
1992	July/August	Double pasture by construction of 3.6 miles fence. Increases grazing capacity for 100 additional bison.

*must watch for  
to arrive*

1989 Corral Construction Program

Specifications:

Dimensions:

Area	20 acres	Holding pen	- 100' x 100'
Radius	527 feet	Alley	- 150' x 3' wide
Circumference	- 3,310 feet	Larger paddock	- 14.75 acres
Ext. height	- 7 feet	Smaller paddock	- 5.25 acres
Int. height	- 6 feet		
	- 1,254 lin. ft.		

Design:

Posts inside & outside every 16' with wire bridging at ground level and at top of rails - 420 posts required

Additional posts outside in middle of each 16' span - 210 posts required

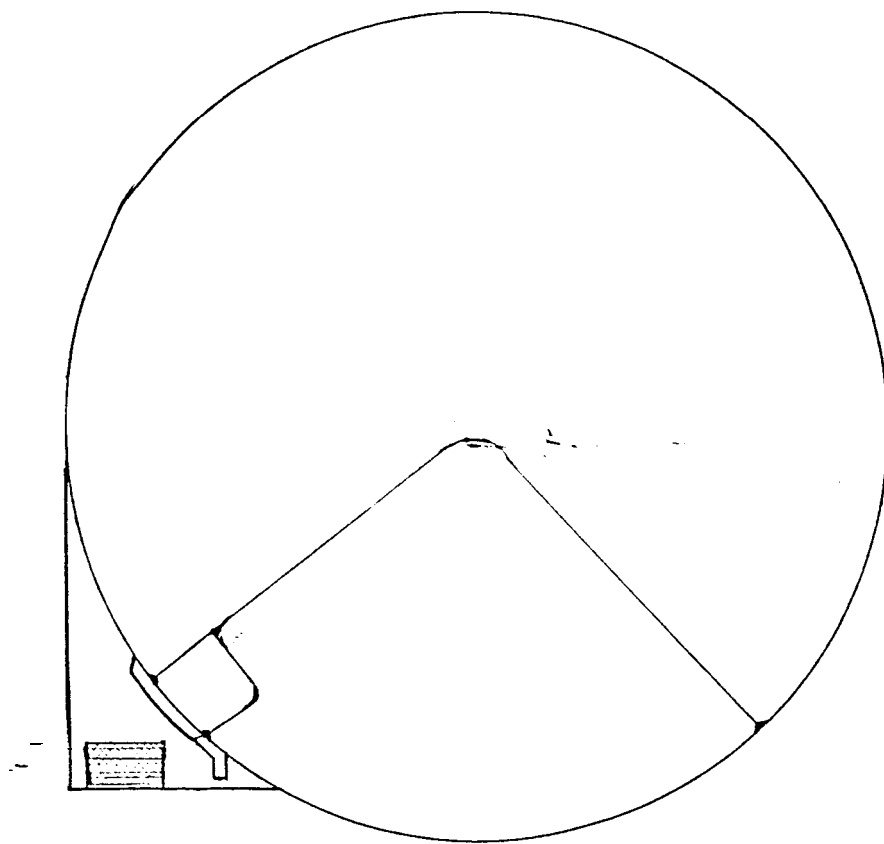
Interior partitions: posts inside/outside every 16' with wire bridging.

All posts 6" minimum diameter planted to 3' minimum depth.

Rails 3" min. spiked to outside post at mid point of span.

Materials:

All posts and rails from local spruce, jackpine or tamarack stands.



Deferring **first** delivery of animals to February 1991 would not alter capital costs very much. The only aspect that would change is the initial size of the corral. This would reduce costs by less than \$30,000.

X. 1989/90 Capital requirements

A. Access Trail and Corrals

The capital requirements for the 1989 summer construction effort is based on the experience of the Hook Lake Project in 1963.

**Brushing access trail** , .

Crew boss: 4 weeks x 6 days @ \$150./day	3,600.00	
4 men for 3 weeks @ \$120./day	6,600.00	
Grub est. \$30/pers on/day	<u>2,880.00</u>	
		13,080.00

Corral construction

Crew boss: 6 weeks @ \$150./day	5,400.00	
10 men for 6 weeks @ \$120./day	43,200.00	
Grub @ \$30/person/day	<u>11,800.00</u>	
		60,400.00

Chainsaws and spare parts 5@ \$500	2,500.00	
Timber permit	100.00	
<b>Bombi</b> or equivalent	30,000.00	
Argo	4,500.00	
POL	1,800.00	
Power post hole digger	1,000.00	
Miscellaneous hardware	2,500.00	
Boat/kicker	12,000.00	
Construction Camp/Mess (4 tents/propane range/accessories)	7,500.00	
Project Management & Administration	5,000.00	

140,380.00

B. Winter Road, Equipment and Materials  
 (to be put in place on winter road in February 1990)

Winter road and ice bridge	25,000.00
Tracked bombardier	35,000.00
post driver	7,500.00
Snowmobile & toboggan	7,500.00
Tractor with loader/hay fork	25,000.00
Radio/telephone system	10,000.00
Stock water system for corral	2,500.00
Bison chute/squeeze	15,000.00
Project Management and Administration	5,000.00
	<hr/>
	132,500.00
	<hr/> <hr/>

*Archer  
for track  
stake*

C. Buildings

These items will be moved in on the winter road in February 1990.

Herdsmen's quarters (oilfield skid shack)	25,000.00
Shop - materials for construction on site	10,000.00
aggregate pad'	5,000.00
tools/equipment/power plant	30,000.00
	<hr/>
Total :	70,000.00
	<hr/> <hr/>

D. Live Bison Transport

An initial herd of forty bison will require two loads of animals from Elk Island Park near Edmonton. Experience with previous shipments of live bison for transplant has shown that costs of \$3.20/loaded mile should be expected. The trip of 900 miles will cost \$5,760.00.

*Mention - development field to Supplement feed within the 1000 acres.*

E. Hay

*is this the total requirement or in addition to natural occur feed.*

The feed requirements for the first seven months of the herd's captivity must be provided with 1989/90 monies. Feed requirements are based on 2.5% body weight per day from the time of release in February to the time that the first pasture is enclosed by fence in August 1990. The feed requirements for a full seven months will be 125 Ton of hay. At \$150/T the cost will be \$18,750.00.

F. 1990 Fence Construction Program

The major item in the 1990 construction program will be fence construction. Applications for cutting tamarack fence posts in Alberta and export will be reactivated. (Both cutting and export permits had been issued by Alberta Forestry for the winter of 1989.) The fencing requirements for the first years are some 6.1 miles of fence be built in the summer of 1990.

Fencing material - wire	21,500.00
- posts	10,065.00
miscellaneous hardware	1,000.00
Construction labour (est. 240 man days @ \$150.)	36,000.00
POL (40 days @ 15 gal/day)	1,650.00
Freight	2,500.00
Management and Administration	4,000.00
	<hr/>
	76,715.00
	<hr/>

*Why not locally however it would change little*

Note: If it is determined that this pilot project must have the added protection of a double fence, fencing costs must be doubled to **\$153,430.00.**

Fence construction Schedule: (See also forest type map next following)

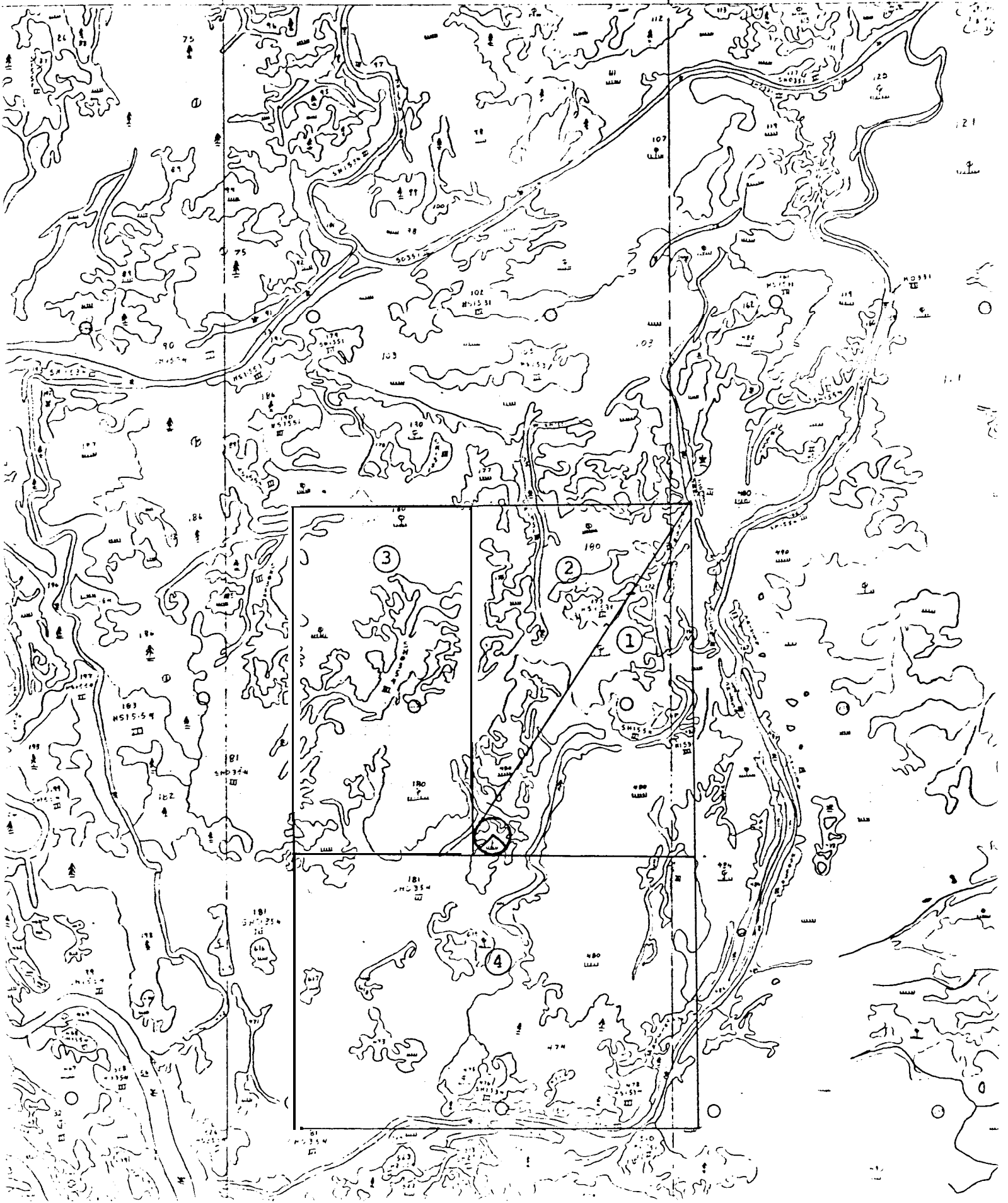
1. 1990 - 6.1 miles fence - carrying capacity for -109 bison
2. 1992 - 3.6 miles fence - carrying capacity for - 100 additional bison (est. cost 45,275.00)\*
3. 1996 - 4.4 miles fence - carrying capacity for - 172 additional bison (est. cost 55,335.00)\*
4. 1998 - 6.1 miles fence - carrying capacity for - 320 additional bison (est. cost 76,715.00)\*

Total of 20.2 miles fence for a capacity of 701 bison on 6400 acres.





























\* in 1989 dollars.

*Perhaps with small*

Fence lines in relation to forest cover types



NORTHERN FOREST INVENTORY MAP SYMBOLS AND LEGEND

MOSS BUILD-UP . . . . .	M
STREAM . . . . .	
JOINS SIMILAR STANDS. . . . .	
WINDFALL . . . . .	
SWAMP; MARSH (SURFACE WATER PRESENT) . . . . .	
TREED MUSKET . . . . .	
GRASSLAND DRY . . . . .	
GRASSLAND WET . . . . .	
GRASSLAND (TREED SPARSELY) . . . . .	
SHRUBLAND . . . . .	
ROCK (BARREN)- . . . . .	
ROCK (TREED ON SHALLOW SOILS - LESS THAN 20% CROWN CLOSURE)	
MUD; SAND OR GRAVEL . . . . .	
WATER . . . . .	
SLIDE (SOIL, ROCK) . . . . .	
OPEN OR IMPROVED LAND (MAN-MADE) . . . . .	
BURN . . . . .	
BURN PARTIAL . . . . .	
LOGGED: > . . . . .	
LOGGED PARTIAL . . . . .	
FLOODED (BEAVER) . . . . .	
BRIDGE . . . . .	
TRAIL OR SKID ROAD . . . . .	
SINGLE LANE ROAD . . . . .	
TWO LANE SECONDARY ROAD . . . . .	
FOREST TYPE LINE . . . . .	
HARVESTING ZONE BOUNDARY . . . . .	
FOREST MANAGEMENT UNIT BOUNDARY . . . . .	
PHOTO CENTRE (WITH NUMBER WHERE APPLICABLE) . . . . .	

COMPLEX NON-FORESTED STANDS ARE DESCRIBED IN PER CENT

"EXAMPLE "       5       3       2



XI. Operations

operating costs are based on one full time herdsman being resident on site assisted with seasonal help as required. Seasonal assistance is foreseen for three distinct activities:

1. Winter resupply
2. Winter round-up and disease testing
3. Summer fencing and physical plant maintenance

Operating costs also assume that hay will be purchased yearly for the first five years rather than harvested on site. *This could save cost if local hay cut in this area*

The following table presents a five year projection for operating costs based on 1989 dollar values (with no adjustment for inflation or price increases.) There is also no adjustment for disposal of surplus stock due to the right of first refusal by government of surplus animals (See Item IV.B.7 Page 9).

Estimate of Annual Operating Costs 1990 - 1994

Cost Centre	1990 (52 head) <sup>1</sup>	1991 (65 head)	1992 (81 head)	1993 (100. head)--	1994 (123 head)
Grazing Lease	2,000.	2,000.	2,000.	2,000.	2,000.
Feed	18,750. s	14,625. <sup>3</sup>	18,225. <sup>4</sup>	2,550. <sup>5</sup>	27,675. <sup>s</sup>
Staff	42,000.	42,000.	42,000.	42,000.	42,000.
Seasonal Help <sup>4</sup>	18,750.	18,750.	18,750.	18,750.	18,750.
Veterinary care/ supplies	256.	345.	443.	500,	619
Mineral block	78.	98."	122.	150.	185.
POL -power plant <sup>5</sup>	8,250.	8,250.	8,250.	8,250.	8,250.
-equipments	2,860.	3,575.	4,290.	5,005.	5,720.
Plant equipment maintenance	1,000.	1,500.	2,000.	2,500.	3,000.
Financial Admin. Services	2,500.	2,500.	2,500.	2,500.	2,500.
	96,444	93,643	98,580	104,205	110,699

- 1 number in parenthesis is estimated herd size assuming no disposal of surplus males
- 2 feed costs for 1990 based on adult daily consumption for 180 day feeding period
- 3 feed costs for 1991-1994 based on adult daily consumption for 100 day feeding period (to be adjusted with experience gained)
- 4 seasonal help based on 150 days/year @ \$125./day
- 5 based on 300 generator days/year and 15 gal/day (see note that follows)
- 6 based on 20 gal/week in 1990 and increasing 5 gal/wk/yr.

*Bulls do not have to be feed*

Energy for electrical generation **will** be an ongoing cost of significance. Installation of a solar/diesel hybrid system will reduce energy costs by 60 to 80 percent. This would however, add \$15-20,000. as capital to install a solar array and storage batteries. The effect of this added technology would result in the diesel unit running 1500 hours per year with a 75% load instead of 3500 hours with a 20% load. The difference is the load taken up by the solar panels and storage batteries which buffer both systems. This would be a fully automated system. The payback for the extra capital cost for a hybrid energy system would be about three years.

( Hiring and training of the herdsman is eligible for funding under the **National** Research Council IRAP program.) This program will fund 65% of all approved technical staff requirements and 75% of consultant fees that may be required to establish a viable venture.

## XII. Herd Growth and Value

This bison herd is expected to show a productivity rate that will have a three year doubling period. For the purposes of assessing economic viability two aspects should be projected:

1. cash flow
2. asset value

The cash flow **will** be negative for several years. The asset value however, when measured against capital and operating costs shows a positive bottom line from the moment the animals are released.

In valuating the slaughter value of the herd and the surplus bulls, the wholesale jerky value is used for two reasons:

1. The Cambridge Bay Central Arctic Meats has shown the product

--

has a market and consumer value at these prices. (Retail values are 30% higher. )

2. The value of the ranch and its product is shown in the context of the NWT GDP. The cash value to the producer would be about one third the wholesale value.

A pro forma statement showing greater financial details for Hanging Ice Ranch Ltd. would not be appropriate for a pilot project.

( Also, since government holds right of first refusal to all surplus animals it is premature to suggest how surplus animals will translate into cash value for Hanging Ice Ranch Ltd. )

Projected Growth of Hanging Ice Ranch Bison Herd

Assumptions:

1. 20 females in first stock
- 80% conception and birth rate
- 90% survival of calves to breeding age
- Females breed at 27 months
- 50:50 sex ratio at birth

Year	Breeding Females		Calves born		Yearlings		2 year old		Adult Males	Total Females	Total Males	TOTAL HERD	Surplus Adult Males	Breeding Ratio
	Females	1	Females	Males	Females	Males	Females	Males						
Feb. 90	0	15	0	0	2	2	3	3	15	20	20	40		
July 90	1	15	6	6	2	2	3	3	15	26	26	52	10	3:1
	2	18	7	7	6	6	2	2	18	33	33	65	12	3:1
	3	20	8	8	7	7	6	6	20	41	41	81	13	2.9:1
	4	25	10	10	8	8	7	7	25	50	50	100	17	3.1:1
	5	31	13	13	10	10	8	8	31	62	62	123	21	3.1:1
	6	38	16	16	13	13	10	10	38	76	76	153	25	2.9:1
	7	47	19	19	16	16	13	13	47	94	94	189	31	2.9:1
	8	59	24	24	19	19	16	16	59	117	117	233	39	2.9:1
	9	73	29	29	24	24	19	19	73	144	144	288	53	3.5:1
	10	90	36	36	29	29	24	24	90	178	178	356	70	4.5:1
	11	111	45	45	36	36	29	29	111	220	220	441	81	3.5:1
	12	137	55	55	45	45	36	36	137	272	272	545	110	5:1
	13	169	68	68	55	55	45	45	169	336	336	673	134	4.8:1
	14	209	84	84	68	68	55	55	209	416	416	832	169	5.2:1
	15	259	104	104	84	84	68	68	259	514	514	1028	200	4.4:1

Notes: 1. cumulative totals assuming all females stay in breeding condition

2. incremental surplus

3. incremental surplus

4. assumes surplus males have been removed from herd

\* cumulative

\*\* incremental

Retained Value of Bison Herd - Ten Year Projection

Year	Juvenile	Adult	Total	Breeding <sup>1</sup>	Slaughter <sup>2</sup>
1990	22	30	52	670,000.00	1,010,000.00
1991	29	36	65	830,000.00	1,250,000.00
1992	41	40	81	1,010,000.00	1,535,000.00
1993	50	50	100	1,250,000.00	1,910,000.00
1994	62	61	123	1,535,000.00	2,360,000.00
1995	77	76	153	1,910,000.00	2,920,000.00
1996	95	94	189	2,360,000.00	3,610,000.00
1997	115	118	233	2,920,000.00	4,460,000.00
1998	142	146	288	3,610,000.00	
1999	176	180	356	4,460,000.00	

10 years

<sup>1</sup> Breeding Value based on \$30,000/pair for adult

<sup>2</sup> Slaughter Value based on wholesale prices for

(Adult = 124 kg at \$27.30)

(Juvenile = 41 kg @ \$ 27.30)

<sup>3</sup> Valued on \$20,000/bull.

<sup>4</sup> Wholesale value of bison jerky 155 kg @ 27.30

### XIII. Funding Schedule

Capital funds will be required as soon as the project is approved. The summer program for 1989 requires an estimated \$120,200.00.

This will be followed immediately by funding requirements to marshal materials for the 1990 construction program by winter road. Although these materials and related equipment are needed in 1990/91 they must be purchased and put in place during 90/90. Capital monies for this project have been approved-in-principle by the EDA Renewable Resources Sub-Agreement Management Committee.

operations are expected to begin in February 1990 with the arrival of 40 woodland bison. Operating costs have three main components:

1. Salaries and benefits and technical support.
2. Herd maintenance and support.
3. Physical plant maintenance.

Salaries and technical support for this project are eligible for cost sharing with the IRAP program of the National Research Council. NRC will contribute up to 65% of salaries of technical staff required for the project and 75% of consultants required to develop the technical aspects of the various management details, that is, disease and parasite monitoring and management.

The balance of the operating budgets are requested from Schedule C by way of operating grant. The bison herd is offered as collateral against any loans that are required for operations,

A funding requirements schedule for 1989/90 and 1990/91 follows.

Cash Flow Projections

Capital	1989/90			1990/91				1991/92
	2nd Qtr	3rd Qtr	4th Qtr	1rst Qtr	2nd Qtr	3rd Qtr	4th Qtr	
Access Trails & Corrals	140,380							
Transportation			5,760					
Equipment for 1990		132,500						
Buildings		70,000			New Year	W/ New Year		
Fencing			36,715		(10,000)		20,000	25,275
<b>Sub Total 1 (Capital)</b>	140,380	202,500	42,475		40,000		20,000	25,275

Operations	1989/90			1990/91				1991/92
Hay			18,750				14,625	18,255
Salaries/Casuals			15,187.50	15,187.50	15,187.50	15,187.50	15,187.50	60,750
Operations/Maintenance			2,062.50	5,267.25	5,267.25	5,267.25	5,267.25	19,575
<b>Sub Total 2 (Operations)</b>			36,000.00	20,454.75	20,454.75	20,454.75	35,079.75	98,580
<b>Cash Flow 1 + 2</b>	140,380	202,500	78,475.50	20,454.75	60,454.75	20,454.75	55,079.75	
<b>FY TOTAL</b>			121,355 250,000				156,444	123,855

171,355

#### **XIV. Funding Sources**

This submission has been developed on the assumption that the approval-in-principle for capital monies by the EDA Management committee remained in place. Support in principle for the project was further confirmed in discussions between Mr. Ken Hudson and the Minister for Economic Development and Tourism and the Deputy Minister for Renewable Resources in the GN W T.

It must be recognized that the start-up size described in this pilot **project** submission **will** take longer to achieve commercial viability. However, it must also be recognized that a game ranch with disease free wood bison introduces many options for wood bison in the Northwest Territories that are now not possible.

This pilot **project** can demonstrate many **aspects** of game ranching that can at present only be discussed in theory.

- 1 Costs of developing and maintaining **infrastructure in** remote areas for red meat production.
- 2 **Durability** of northern grasslands to more intense grazing management.
- 3 **Government/community** relationships in developing and managing renewable resource production under captive conditions.

More specifically for wood bison, this project **will** demonstrate productivity and survival rates of bison in captivity in a northern climate. If wood bison duplicate the performance observed for their



schedule with respect to disease management in wild bison that is independent of Wood Buffalo National Park.

These elements can all be demonstrated in a three year period. The funds necessary for this period and their possible sources are summarized below.

Funding Requirements

	1989/90	1990/91	1991/92
Capital	385,355	60,000	25,275
operations	36,000	93,643	98,580
TOTAL	<u>421,355</u>	<u>153,643</u>	<u>123,855</u>

Possible Funding Sources

EDA	* 380,855 250,000 130,855	60,000	25,275
Schedule C	130,855 30,150 161,005	30,150	66,343
NRC/ IRAP	5,850	27,300	27,300
* HTA	5001.		
TOTAL	<u>421,355</u>	<u>153,643</u>	<u>123,855</u>

1 15% to be provided by Hanging Ice Ranch Ltd. - - - - - ent's portio  
for Schedule C. / *(was this not equal in amount)*

2 In kind by assigning HTA Argo to Hanging Ice Ranch Ltd.

*ion / 19. P a*  
*↓*  
*Loan*

Appendix 1

Statement of Qualifications of Senior Ranch Manager

Dr. J. **C.Haigh** BVMS MSC.,  
P. O.Box 11, **R.R.5**,  
Saskatoon, Sask S7N 0W0

Ben Hubert,  
Hubert & Associates Ltd.,  
Box 277, **Yellowknife**,  
NWT. XIA 2N2

FAX 403-873-3297

June 25th 1989

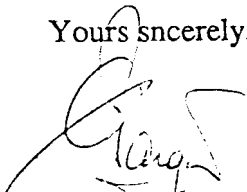
Dear Ben,

This letter **accompanies** a document in which I have outlined some requirements for the type of individual that **will** be needed as a senior herdsman for a bison ranch in **the** Northwest Territories. To ensure that the right individual is hired to manage the Hanging Ice bison ranch the search committee must make a painstaking search for qualified candidates. The main point to be **recognised** is that a couple of **clichés** apply very well in this situation. The first is borrowed from the computer world. *Garbage in garbage out. The second from (I believe) Wild Bill Hickock. You gotta speculate to accumulate. If the* right individual is not **hired**, the ranch will lose money, and a major government funded development will have egg on its face (not to mention the department concerned, and the **minister** who signs the **cheque**).

The employer will no doubt have to recognize that the person **hired** will require considerable skills that are somewhat dissimilar from normal 9 to 5 office life.

I hope that these criteria are of some use when **deliberations** on hiring are initiated

Yours sincerely,



J. C. Haigh BVMS MSc MRCVS  
P. O. Box 11, R.R. #5,  
Saskatoon SASK S7K 3J8  
June 29th 1989

BISON RANCH HERDSMAN  
STATEMENT OF QUALIFICATIONS

Introduction

There are some risks and hazards related to the task of managing a bison herd in a remote location. The **individual hired** must be made aware of such risks before undertaking the assignment. The principal risks relate to the remoteness of the site ( and therefore the lack of help), the nature of the **animal** to be **ranch**ed, and the potential for infection with either bovine tuberculosis or **brucellosis** from infected carcasses.

The individual must have a combination of skills that encompass at least all of the following. **Stockmanship**, range management, nutrition, mechanical **skill**, simple **first aid** skills, a willingness to learn, an ability to make independent decisions, ability to thrive in a remote location and communication.

**Stockmanship**

Of all of these, **stockmanship** is certainly the **most important**, and also the most difficult to define. The best way might be to describe an individual who has **this** quality. The person must:-

have a knowledge of the basic biology of the species (in this case bison), and be willing to learn more through reading, conversation and lecture attendance.

be able to recognize changes in pasture so that the ideal forage can be utilized at all times.

be able to handle animals intelligently, without foolish bravado.

be able to recognize danger signals at any time that a bison is showing threatening **behaviour**, and take appropriate safety action.

be able to recognize minor signs of sickness or even poor productivity and **growth**, and take appropriate investigative and remedial action.

be able to take direction on simple veterinary procedures and carry them through.

be able to select breeding groups of animals at the right time of year and manage **them** accordingly.

be able to select animals for culling.

be able to humanely kill, dress and present edible parts and by-products for the market.

be able to carefully skin and preserve hides, capes and heads for shipment to tanning and/or **mounting** contractors.

be able to carry out a field post-mortem and collect samples of all **major** organs so that they **can** be submitted to a **pathologist** for detailed examination. This skill may require some additional training at a suitable location. This area will be particularly important for at least three **reasons**:-

- a. because a veterinarian is unlikely to be available at short notice.
- b. because of the **location** of **the** proposal ranch and its close proximity to animals of known disease status.
- c. because of the potential for diseases transmissible to humans to

be involved

**Range management & nutrition**

The fragile ecosystem of the north will allow **only** short grazing periods on enclosed pastures. **If** they are overused they will **become irrevocably changed**, almost certainly for the worse. **Research** work currently underway in areas adjacent to **the** proposed bison ranch have shown what types of plant are **favoured** by bison at certain times of year. **Overgrazing** will rapidly deplete stocks of these plants to a point at which they disappear from the range. The manager must be willing to be shown by **knowledgeable** individuals exactly what plants in the community are **favoured** and needed at given times. At any given time the range must not be overgrazed.

To avoid overgrazing the individual must be able to recognize proper stocking densities and move animals accordingly. The **herdsman** will need to monitor **the** plant population in the grazing area, and with considerable vigilance be able to move animals to avoid destruction of the range.

The most important time of year, at least for the successful running of a livestock operation, is the period of 6-8 weeks before the onset of the breeding **season**. *If the* females are on arising plane of nutrition and gaining weight at **the** start of the rut (usually July and early August), **the** conception rates will be high. The herdsman must be able to ensure that the entire breeding herd have **access** to the proper **nutrition** at this time.

In the relatively long **winter** period the summer range should not be utilized. Previous experience with plains bison has shown that they can be managed in a number of different ways, according to **the** abilities and resources of the farmer. The systems can **stretch** all the way from complete ranching, with no supplementary feeding, to something equivalent to a feed-lot. Bison seem to be able to handle almost any of these situations and the **feedlotting** will spare valuable pasture if the ranch is developed on small acreages. From the standpoint of economic return of dollars against dollars **invested**, this may be a reasonable option.

An alternative will be to ensure that **there** is plenty of winter range, using forage similar to that observed to be used by bison in nearby habitat, and allow them to roam. The ability of a herdsman to run the operation will depend upon the resources available.

As the ranch must evidently make some profit the herdsman must be able to select appropriate animals as replacement stock and others as **finishing** stock for butchering. Many bison ranches finish their stock on pasture, but other find that a short (2-3 month) finishing period on hay and concentrates is desirable. This will **entirely** depend upon the targeted market for meat products.

#### Mechanical skills

If supplementary feeding in winter is the chosen management system the herdsman will have to be familiar with the operation of farm machinery (tractors, hayraking, etc) and also be able to service and carry out repairs. These should probably include some welding **ability**.

The manager must also be able to follow designs for, and develop, handling systems.

Furthermore the herdsman must be able to carry out **routine** surveillance and conduct repairs and maintenance to yards and fencing, on a **regular** basis.

#### First aid

There is little or no chance that emergency veterinary help will be available to deal with sick or injured animals. The administration of **injections**, **anthelmintic (de-worming)** medicines, and the treatment of minor **injuries** should **be** apart of the skills of the herdsman. Some degree of simple **first** aid skills for ministration of humans **on the** ranch will also be desirable.

#### Willingness to learn

It maybe that the ideal individual cannot readily be found. Potential candidates must be willing to learn before embarking upon the ranch operation, and must be willing to **continue** to learn through the medium of self education and attendance at formal and informal gatherings.

#### Ability to make independent decisions

With few exceptions a herdsman is going to have to make on the spot decisions upon a range of matters related to the operation of the ranch. Each of these must be justifiable to the employer, and therefore based upon sound business and --livestock principles.

#### Ability to thrive in a remote location

The ability to thrive **in** a remote and sometimes harsh environment will be an absolute essential for any individual hired for the post of herdsman to the Hanging Ice bison ranch.

#### Communication

The individual hired must be a good **communicator**. Not only must letter, phone and verbal communications be clear, but records must be **well maintained** in both the animal and fiscal areas.

In the face of any kind of disease **outbreak** the herdsman must be willing and able to communicate concerns so that **full** investigations can **be** carried out without delay.

The individual should have demonstrated people management **skills** to motivate those under supervision and assist with assigned tasks.

If the ranch management committee decide that the promotion of hunting **opportunities** is to be **part** of the operation the herdsman must also have skills to ensure that **this** facet is well managed. There are many aspects to such a venture. They include good verbal skills, something of a "salesman" approach, knowledge of sled dogs & their management **familiarity with firearms in every respect**, ability to track, observe, **identify** and allow the shooting of selected animals, and abilities already discussed above in **the** areas of skinning and trophy preservation

#### Conclusion

As a minimum I would suggest that an individual **with** most of the "stockmanship" skills be considered. The most **important** of these would be in the areas of **nutrition** and animal handling. The autopsy skills could be taught to the right person. The mechanical skills would not be a "must", unless the **herdsman** were the only resident of the ranch. Similarly not all of the communication skills would be essential, but people management would certainly be a must. As for the running of a hunting operation, **this** could easily be leased to other parties, but everyone concerned must be absolutely certain which animals are rifle targets **as** opposed to prime breeding bulls.

The employer must ensure that education in areas of deficiency is **provided** at an early date.

## Appendix 2

Draft Lease



JAN 30/89  
sm

QUAD 85 A/8-1-2  
File No. 85 A/8-1-2  
**DRAFT ONLY**

THIS LEASE made this \_\_\_\_\_ day of \_\_\_\_\_ 19\_\_\_\_

BETWEEN

Her Majesty the Queen in right of Canada, hereinafter called "Her Majesty"

OF THE FIRST PART

AND HANGING ICE RANCH LTD., a body corporated incorporated under the laws of the Northwest Territories having a registered office in the Town of Fort Smith in the said Territories,

hereinafter called "the lessee"

OF THE SECOND PART

WITNESSETH that in consideration of the rents, covenants and agreements herein reserved and contained on the part of the lessee to be paid, observed and performed, and subject to the Territorial Lands Act and the Territorial Lands Regulations, Her Majesty demises and leases unto the lessee all that certain parcel or tract of land situate, lying and being composed of the whole of an unsurveyed parcel of land in QUAD 85 A/8, in the Northwest Territories, as said parcel is shown outlined in red on the sketch annexed hereto and forming part of this description,

**DRAFT ONLY**

hereinafter called "the land" , SUBJECT TO the following reservations:

Initial \_\_\_\_\_

- (a) all mines and minerals whether solid, liquid or gaseous which may be found to exist within, upon, or under the land together with the full powers to work the same and for that purpose to enter upon, use and occupy the land or so much thereof and to such an extent as may be necessary for the effectual working and extracting of the said minerals;
- (b) the rights of the recorded holders of mineral claims and any other claims or permits affecting the land;
- (c) all timber that may be on the land;
- (d) the right to enter upon, work and remove any rock outcrop required for public purposes;
- (e) such right or rights of way and of entry as may be required under regulations in force in connection with the construction, maintenance and use of works for the conveyance of water for use in mining operations; and
- (f) the right to enter upon the land for the purpose of installing and maintaining any public utility.

THE PARTIES COVENANT AND AGREE AS FOLLOWS:

DEFINITIONS:

1. In this lease:

- (a) "Minister" means the Minister of Indian Affairs and Northern Development and any person authorized by him in writing to act on his behalf;
- (b) "facilities" means all physical structures or appurtenances placed in or upon the land;
- (c) "construction" means all manner of disturbance of the natural state of the surface of the land, including the sub-surface and sub-strata;
- (d) "Surveyor General" means the Surveyor General as defined in the Canada Lands Surveys Act;
- (e) "body of water" means any lake, river, stream, swamp, marsh, channel, gully, coulee or draw that continuously or intermittently contains water;

TERM:

2. The term of this lease shall be for a period of ten (10) years commencing on the 1st day of January, A.D. 1989 and terminating on the 31st day of December, A.D. 1998.

RENT AND TAXES:

3. Subject to Clause 4, the lessee shall pay to the lessor yearly and every year in advance the rental of one thousand, nine hundred (\$1,900.00) dollars.

DRAFT ONLY

Initial \_\_\_\_\_

4. The Minister may, not less than three (3) months before the expiration of the first five (5) year period of the said term, notify the lessee in writing of an amended rental payment for the following five (5) year period, the said amended rental to be based upon the fair appraised value of the land at the time of such notification, but without taking into account the value of any improvements placed thereon by and at the expense of the lessee.

RENEWAL:

5. Subject to the lessee having performed and observed all the covenants and conditions on the part of the lessee to be performed and observed, and upon a renewal being requested by the lessee in writing 6 months prior to the date of expiry of this lease, Her Majesty will grant to the lessee a renewal of this lease for a further term of thirty (30) years upon essentially the same terms and conditions as are herein contained except as to rent and this right of renewal.

USE:

6. The lessee shall use the land for grazing purposes only, and the lessee shall not, during the term of this lease use or allow to be used any part of the lands leased to him for any purpose other than grazing purposes.

SUBLETTING OR ASSIGNMENTS:

7. The lessee shall not sublet the land or assign or transfer this lease or any portion thereof without the consent of the Minister in writing, which consent shall not be unreasonably withheld.

BREACH:

8. Where any portion of the rental herein reserved is unpaid for more than thirty (30) days after it becomes due, whether formally demanded or not, the Minister may by notice in writing terminate this lease and on the day following the mailing of such notice, this lease is cancelled.
9. Where the lessee breaches or fails to perform or observe any of the covenants, terms, conditions or agreements herein contained, other than the covenant to pay rent, the Minister may so advise the lessee by written notice and if the lessee fails to remedy the breach or non-performance within a reasonable time thereafter or within the time granted in the said notice, the Minister may, by notice in writing, terminate this lease and on the day following the mailing of such notice, this lease is cancelled.
10. Unless a waiver is given in writing by the Minister, Her Majesty will not be deemed to have waived any breach or non-performance by the lessee of any of the covenants, terms, conditions or agreements herein contained and a waiver affects only the specific breach to which it refers.

TERMINATION:

11. Upon the termination or expiration of this lease, the lessee shall deliver up possession of the land in a condition satisfactory to the Minister .

DRAFT ONLY  
Initial \_\_\_\_\_

12. Termination or expiration of this lease will not prejudice Her Majesty's right to unpaid rental or any other right with respect to a breach or non-performance of any covenant, term, condition or agreement herein contained nor will the lessee be relieved of any obligation contained herein.
13. On the termination or expiration of this lease, the lessee may sever and remove from the land all structures, fixtures and improvements saving and excepting the following: all and any land fill, and without restricting the generality of the foregoing, in the form of soil, topsoil, sod, clay, sand, gravel, crushed rock, rock, glacial till, concrete, grout, asphalt or any combination thereof, which during the said term were affixed or placed at his expense on the land.

WASTE DISPOSAL:

14. The lessee shall remove all garbage and debris from the land to an authorized dumping place.
15. The lessee shall not discharge or deposit any refuse substances or other waste materials in any body of water, or the banks thereof, which will, in the opinion of the Minister, impair the quality of the waters or the natural environment.

ENVIRONMENTAL:

16. The lessee shall at all times keep the land in a condition satisfactory to the Minister.

BOUNDARIES/SURVEY:

17. Her Majesty is not responsible for the establishment on the ground of the boundaries of the land.
18. The boundaries of the land are subject to such adjustment and alteration as may be shown to be necessary by survey.
19. The Minister may, during the term herein granted, by notice in writing, order the lessee to survey the boundaries of the land and the lessee shall, at its own expense, within one (1) year from the date of said notice, make or cause to be made a survey of the land, such survey to be made in accordance with the instructions of the Surveyor General, and upon completion of the survey and the production of survey plans suitable for recording in the Canada Lands Surveys Records and filing in the Land Titles Office for the Northwest Territories Land Registration District, Her Majesty will execute an Indenture in amendment of this lease for the purpose of incorporating herein descriptions of the land based on the said plans.

IMPROVEMENTS:

20. The lessee is responsible for ensuring that all improvements to the land are made within the boundaries of the land.
21. The lessee shall before the expiry of the term of this lease construct and maintain a fence which encloses the entire leased area, and is capable of confining adult bison.

ACCESS:

22. Her Majesty assumes no responsibility, express or implied, to provide access to the land.
23. It shall be lawful for Her Majesty or any person duly authorized at all reasonable times to enter upon the land for the purpose of examining the condition thereof.
24. The Minister may grant to such persons as he may consider fit, rights-of-way or access across, through, under or over all or any portion of the land for any purpose whatsoever, but such rights-of-way or access will not unreasonably interfere with the rights granted to the lessee hereunder, or with any \*rev-ts made by the lessee on the land.

INDEMNIFICATION:

25. The lessee shall at all times hereafter indemnify and keep Her Majesty indemnified against all claims, demands, actions or other legal proceedings by whomsoever made or brought against Her Majesty by reason of anything done or omitted to be done by the lessee, his officers, servants, agents or employees arising out of or connected with the granting of this lease.
26. Her Majesty will not be liable for damages caused by vandalism or interference by others with the lessee's facilities and equipment.

REVIEW:

27. At the request of the lessee, any decision of the Minister will be reviewable by the Trial Division of the Federal Court of Canada; costs of such review are the responsibility of the lessee unless otherwise ordered by the Court.

NOTICES:

28. All written notices respecting the land or the covenants, terms, conditions or agreements contained in this lease shall, unless otherwise stipulated herein, be deemed to have been received by the lessee ten (10) days after the mailing thereof or, if hand delivered, on the day of delivery.
29. Any notice affecting this lease which Her Majesty may desire to serve upon the lessee, or any notice which the lessee may desire to serve upon Her Majesty shall, unless otherwise stipulated herein, be sufficiently served if posted by registered mail to the last known address of the opposite party as follows:

To Her Majesty: Director of Renewable Resources and Environment,  
Northwest Territories Region,  
Northern Affairs Program  
Department of Indian Affairs and Northern  
Development  
P.O. Box 1500  
Yellowknife, N.W.T.  
X1A 2R3

To the Lessee: Hanging Ice Ranch Ltd.  
Box 673  
Port Smith, N.W.T.  
XOE 0P0

Either party may change its address for service during the term of this lease by notifying the other party in writing.

30. No notice of breach or default given herein by Her Majesty shall be valid or of any effect unless it is also given to any mortgagee of the lessee, in respect of the leased lands, of which Her Majesty shall have received written notice.

GENERAL:

31. This lease enures to the benefit of and is binding upon Her Majesty, Her Heirs and Successors and the lessee, its successors and assigns.
32. No implied covenant or implied liability on the part of Her Majesty is created by the use of the words "demises and leases" herein.
33. The lessee shall, before the expiry of the term of this lease establish and maintain a herd of not less than one hundred (100) adult female bison, and shall continue to maintain such a herd for the duration of the term of this lease and any renewal thereof.
34. For the purposes of covenant 33, only bison confined within the fence referred to in covenant 21 shall be included in the calculation of the size of the herd.

**DRAFT ONLY**

Initial \_\_\_\_\_

IN WITNESS WHEREOF The Director of Renewable Resources and Environment, Northwest Territories Region, Northern Affairs Program, Department of Indian Affairs and Northern Development, has hereunto set his hand and seal on behalf of Her Majesty the Queen in right of Canada and HANGING ICE RANCH LTD., has hereunto affixed its corporate seal attested to by its proper officers duly authorized in that behalf.

SIGNED, SEALED AND DELIVERED on behalf) of Her Majesty by The Director ) of Renewable Resources and Environment) Northwest Territories Region, ) Department of Indian Affairs and ) Northern Development, in the presence ) of )

\_\_\_\_\_ )

SEALED, ATTESTED TO AND DELIVERED )

by the )

and the )

of HANGING ICE RANCH LTD. )

(SEAL)  
\_\_\_\_\_  
DRAFT ONLY  
\_\_\_\_\_  
(SEAL)  
\_\_\_\_\_  
(SEAL)

Appendix 3

Land Use Permit #N88E037



P.O. Box 1500  
Yellowknife, N.W.T.  
X1A 253

Year In: 1988

December 16, 1988

Date In: 1988

Hanging Ice Ranch Ltd.  
P.O. Box 673  
Fort Smith, N.W.T.  
XOE OPO

ATTENTION: Ken Hudson

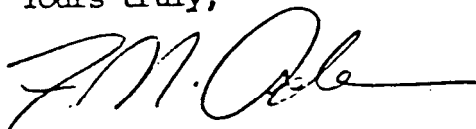
Dear Sir:

Re: Land Use Permit N88E037  
Winter Road  
Salt River Area, N.W.T.

Enclosed is your copy of Land Use Permit authorizing your project as described in your application dated November 7, 1988.

We request that you adhere to the operating conditions annexed to your permit.

Yours truly,



F.N. Adlem  
Regional Manager  
Land Resources

Enclosure

cc: District Manager  
Fort Smith

R.M.O.  
Fort Smith

L. U.A.C.

SMITH/cc

Canada

LAND USE PERMIT

PERMIS D'UTILISATION  
DES TERRES

NORTHERN AFFAIRS  
PROGRAM

PROGRAMME DES AFFAIRES  
DU NORD

PERMIT CLASS - PERMIS CATEGORIE
<b>A</b>
PERMIT NUMBER - PERMIS NO
N88E037

Subject to the Territorial Land use regulations and the terms and conditions in this permit, authority is hereby granted to:

Sous réserve du règlement sur l'utilisation des terres territoriales et conditions de ce permis:

**HANGING ICE RANCH LTD.**  
Permittee - Détenteur de permis

To proceed with the land use operation described in the application of:

Est autorisé à entreprendre les travaux d'exploitation des terres décrits dans demande de permis du:

DATE November 7, 1988	SIGNED BY - SIGNATURE Ben Hubert
TYPE OF LAND USE OPERATION GENRE DE TRAVAUX D'EXPLOITATION DES TERRES Winter Road	LOCATION - EMPLACEMENT Salt River Area, N.W. T.

This permit may be assigned, extended, discontinued, suspended or cancelled pursuant to the territorial land use regulations.

Ce permis peut faire l'objet d'une cession, d'une prolongation, d'une cessation d'une suspension ou d'une annulation, en vertu du règlement sur l'utilisation des terres territoriales.

Dated at Yellowknife, N.W. T.  
Date à \_\_\_\_\_

  
\_\_\_\_\_  
Engineer - Ingénieur

The ~~XIXIX~~ 16th Day of December, 1988  
Ce 16<sup>e</sup> jour de Décembre, 1988

And Amended this 29th Day of December, 1988

December 16, 1988  
Commencement Date - Date du début des travaux

December 15, 1990  
Expiry Date - Date d'achèvement

NOTE

IT IS A CONDITION OF THIS PERMIT THAT THE PERMITTEE COMPLY WITH ANY OTHER APPLICABLE ACT, REGULATION, ORDINANCE, BY-LAW OR ORDER. DEFAULT HEREOF MAY RESULT IN SUSPENSION OR CANCELLATION OF THIS PERMIT.

REMARQUE

LE DÉTENTEUR DU PRÉSENT PERMIS DOIT SE CONFORMER À TOUT AUTRE RÉGLEMENT, LOI, DÉCRET, RÉGLEMENT MUNICIPAL OU ARRÊTÉ APPLICABLE. LE MANQUEMENT À CETTE OBLIGATION POURRAIT DONNER LIEU À LA SUSPENSION OU À L'ANNULATION DU PERMIS.

CONDITIONS ANNEXED TO AND FORMING PART  
OF LAND USE PERMIT NO. N88E037

31(1) (a) - Location and Area

- |    |   |                             |
|----|---|-----------------------------|
| 1. | The Permittee shall not conduct this land use operation on any lands not designated in the accepted application, unless otherwise authorized in writing by the Engineer.              | PLANS                       |
| 2. | The Permittee shall not conduct any part of the land use operation within 300 metres of any privately owned land or structure unless otherwise authorized in writing by the Engineer. | PRIVATE<br>PROPERTY         |
| 3. | The Permittee shall remove from Territorial Lands, all scrap metal, discarded machinery and parts, barrels and kegs, buildings and building material.                                 | REMOVE<br>WASTE<br>MATERIAL |

31 (1) (b) - Time

- |    |   |                              |
|----|---|------------------------------|
| 4. | The Permittee's Field Supervisor shall contact or meet with a Land Use Inspector at the Fort Smith District office of the Department of Indian Affairs and Northern Development, Phone Number 872-2558, at least 48 hours prior to the commencement of this land use operation. | CONTACT<br>INSPECTOR         |
| 5. | The Permittee shall advise a Land Use Inspector at least 10 days prior to the completion of the land use operation of (a) his plan for removal or storage of equipment and materials, and (b) when final clean-up and restoration of the lands used will be completed.          | REPORTS<br>BEFORE<br>REMOVAL |
| 6. | The Permittee shall not conduct any over-land movement of equipment and vehicles between March 31 and December 15 unless otherwise authorized by a Land Use Inspector in writing.   | SHUT-DOWN<br>PERIOD          |

7. The Permittee shall dispose of all brush and timber prior to removal of men or equipment from the land use area. leaving the work area. BRUSH DISPOSAL

31 (1) (c) - Equipment

8. The Permittee shall not use any equipment except of the type, size, and number that is listed in the accepted application, unless otherwise authorized in writing by the Land use Inspector. ONLY APPROVED EQUIPMENT

31 (1) (d) - Methods and Techniques

9. The Permittee shall scout proposed lines and routes to select the best location for crossing streams and avoiding terrain obstacles prior to the movement of any vehicle that exerts pressure on the ground in excess of 35 K pa. DETOURS & CROSSINGS
10. The Permittee shall construct and maintain winter roads with a minimum of ten (10) centimetres packed snow at all times during this land use operation. SNOW ROADS

31 (1) (f) - Control or Prevention of Flooding, Erosion and Subsidence of Land

11. The Permittee shall remove any obstruction to natural drainage caused by any part of this land use operation. NATURAL DRAINAGE
12. The Permittee shall not cut any stream bank unless authorized in writing by a Land Use Inspector. STREAM BANKS

- 13• The Permittee shall not use any material other than water in the construction of ice bridges  
ICE  
BRIDGE  
MATERIAL
14. The Permittee shall suspend overland travel of equipment or vehicles if rutting occurs.  
SUSPEND  
OVERLAND  
TRAVEL
- 31 (1) (g) - Use, Storage, Handling and Disposal of Chemical or Toxic Material
- 
15. The Permittee shall remove all garbage and debris from the area of the land use operation to a disposal site approved in writing by a Land Use Inspector.  
REMOVE  
GARBAGE
16. The Permittee shall dispose of all combustible waste petroleum products by incineration or removal.  
WASTE  
PETROLEUM  
DISPOSAL
17. The Permittee shall report all spills immediately in accordance with instructions contained in "Spill Report" form N .W.T. 1086(10/79). Twenty four (24) hour spill report line (403)920-8130.  
REPORT  
CHEMICAL  
AND  
PETROLEUM  
SPILLS
- 31 (1) (h) - Wildlife and Fisheries Habitat
18. The Permittee shall not unnecessarily damage wildlife habitat in conducting this land use operation.  
HABITAT  
DAMAGE
- 31 (1) (k) - Petroleum Fuel Storage
19. The Permittee shall not place any petroleum fuel storage containers within thirty (30) metres of the normal high water mark of any stream.  
FUEL  
BY  
STREAM

20. The Permittee shall not allow petroleum products to spread to surrounding lands or into water bodies. FUEL CONTAINMENT

31 (1) (1) - Debris and Brush Disposal

21. The Permittee shall totally dispose of all debris and brush by burning. BURN BRUSH

22. The Permittee shall complete total disposal of all debris and brush cleared prior to the expiry date of the permit. BRUSH DISPOSAL TIMING

31 (1) (m) - Matters Not Inconsistent with the Regulations

23. The Permittee shall provide in writing to the Engineer, at least forty-eight (48) hours prior to commencement of this land use operation, the following information: IDENTIFY AGENT

(a) person, or persons, in charge of the field operation to whom notices, orders, and reports may be served;

(b) alternates;

(c) all the indirect methods for contacting the above person(s).

24. The Permittee shall, while preparing the access road, make every effort to avoid covering or destroying traps or snares that may be found along these routes. TRAPS PROTECTION

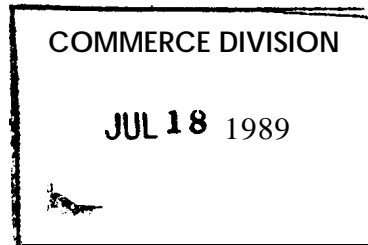
25. The Permittee shall restore any trails used by trappers or hunters along access routes by slashing any and all trees that may fall across these paths or trails and by removing any other obstructions such as snow piles or debris that may be pushed across the trails. TRAILS RESTORATION

?

# HUBERT AND ASSOCIATES LTD.

17.07.1989

Mr. Sam Ransom  
Renewable Resource Development  
Economic Development and Tourism  
Government of the N.W.T.  
Box 1320  
Yellowknife, N.W.T.  
XIA 2L9



Dear Sam,

Attached is the final project description for the Hanging Ice Ranch pilot project. We are all confident that you will "carry the day" when this project is reviewed by the EDA Management Committee.

Please forward the letter from Ken Hudson to **Altaf** as a formality from the Applicant to the Funding Agency. Thank you.

Yours truly,



Ben Hubert