

**GULF ISLANDS
LIVESTOCK PROCESSING
FEASIBILITY STUDY**



FINAL REPORT

April 14, 2005



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EXECUTIVE SUMMARY

The Gulf Islands have a relatively small farm sector, which has a primary focus on lamb production, most of which is sold directly to end users. This study examines the feasibility of establishing a provincially licensed abattoir and processing facility in the Gulf Islands, in order to assure compliance with the British Columbia Meat Inspection regulations.

The permanent population of the study area is 15,000 people. Most meat and poultry consumed within the study areas comes from elsewhere. Gulf Islands consumption, based on Canadian averages, would be 1,545 beef cattle, 5,064 hogs, 201,600 chickens, 17,437 turkeys and 540 lambs. Tourist consumption could increase these numbers substantially. Less than 5% overall is produced on the islands.

The livestock inventory survey provided information from 139 respondents. Highlights are as follows:

Total Animals By Island (Inventory)							
	Galiano	Mayne	Pender	Prevost	Salt Spring Island	Saturna	Sidney
Cattle	-	55	78	51	219	37	-
Sheep	173	44	443	122	2,342	126	-
Swine	10	7	12	-	26	7	-
Goats	-	4	22	-	8	-	-
Total	183	110	555	173	2,595	170	-

Marketings for 2005 are expected to remain constant. An increase of 11% was indicated for 2006 and beyond if a local processing plant was developed.

Based on a 100% capture, and assuming a 10% increase in marketings, the red meat sector could provide \$248,684.00 in processing revenue to a new abattoir and processing plant.

Poultry marketings include about 5,390 birds per year (2004). Increases will depend on the availability of processing. The dollar volume, with a 20% increase would be \$17,236.00.

Waste disposal is a major issue for the project. Solid waste costs could be as high as \$52.00/AU*. Liquid waste disposal costs are still under review.

Average farm size is generally small as per the following farm size breakdown table. There were 1,072 animal units in total, and 78% would be located on Salt Spring and Pender.

AU Range	Galiano	Mayne	Pender	Prevost	SSI	Saturna	Sidney	Total
0-5	8	3	7	-	42	3	-	63
6-10	1	1	3	-	20	1	-	26
11-20	-	1	4	-	9	-	-	14
21-50	-	1	2	-	6	1	-	10
51-75	-	-	-	1	-	-	-	1
76-100	-	-	-	-	-	-	-	-
100+	-	-	-	-	-	-	-	-

Total market animals sold in 2004 were the following:

Sheep	1,881
Cattle	207
Swine	86
Goats	23

An additional 137 cull animals of various types were sold. AU marketings, including culls, in total were 536 in 2004. Close to 85% of the animals sold were direct marketed by producers.

- * An animal unit (AU) is a weight based definition. One AU is the equivalent of a 1,000 lb steer. A 100 lb lamb is 0.1 AUs.

For poultry, the most appropriate solution, given the small size of the industry, would be to ship to the proposed Cowichan Bay facility. This may not be conducive to poultry production on islands beyond Salt Spring due to logistical issues.

For red meat, the analysis indicated that the portable abattoir has the following advantages:

- Lower capital costs than a stationary plant (\$300,000 versus \$500,000 including processing)
- Flexibility to serve more locations
- No need to go through a potentially difficult process of selecting and developing an industrial site (NIMBY)
- Waste disposal would fall under agricultural guidelines.
- Potential to serve farmers' markets if a portable cooler/freezer cut and wrap facility was included.
- Lower stress on animals due to reduced transportation.

It is recommended that the proponents consult with major producers to see if there is commitment to support the proposed plant. If there is support, a business plan would be required.

1.0 INTRODUCTION

The Canadian Southern Gulf Islands are located in the Strait of Georgia to the east of Vancouver Island. Major islands in the group include Salt Spring, Pender, Galiano, Mayne and Saturna, as well as Prevost and Sidney. The islands noted above have an approximate permanent population of some 15,000 people.

During the tourist season, the overall population increases dramatically, with visitors drawn to the scenic settings and the diverse arts and cultural opportunities. Gulf Island agriculture is an integral part of the regular and tourist economy with most farmers selling directly to consumers (local residents and tourists). Products include meat, cheese, vegetables, wine and fruit.

The farms are small in size and many are operated to supplement other incomes. Due to the nature of the land base, livestock operations tend to be small in size. Livestock product marketing is virtually all done directly to consumers via farm gate sales, so producers size their operations to what they can sell and to their land's carrying capacity.

Historically, farm gate sales have been allowed to proceed with little scrutiny by government. However, recent changes (July, 2004) to the Food Safety Act in British Columbia will require all meat and meat products to be treated in a uniform manner as follows:

- all food animals must undergo mandatory ante and post-mortem inspection
- consistent standards for the construction and operation of all slaughterhouses

Industry has been given a two-year grace period to become compliant.

For the Gulf Islands, coming up with a practical option to meet the new requirements is of critical importance since virtually all locally raised meat is sold “farm gate”. There are no local plants which have licensing, and the nearest facilities are located on Vancouver Island.

In order to see if the new requirement can be met in the Gulf Islands, the Island Farmers Institute in cooperation with the Pender Island Farmers Institute, Mayne Island Agricultural Society and the Island Natural Growers have commissioned a feasibility study. The study contract was awarded to P.M. Associated Ltd. of Winnipeg, Manitoba in December of 2004. This final report is provided in fulfillment of the study requirements.

“This project is partly (50%) funded by the Islands Agri-Food Initiative, which is administered by the Island Farmers’ Alliance. The Islands Agri-Food Initiative is one of several programs funded by the Agri-Food Futures Fund; a joint initiative of Agriculture and Agri-Food Canada and the B.C. Ministry of Agriculture, Food and Fisheries. The Investment Agriculture Foundation of British Columbia is the trustee of the Agri-Food Futures Fund.”

2.0 TERMS OF REFERENCE

The consultants' terms of reference were provided in the RFP as follows:

- Assist the Island Farmers Institute in developing a survey methodology for livestock inventory and for formulating a reliable estimate of livestock processing and meat product marketing on the Southern Gulf Islands;
- Determine the amount of processed livestock required to meet annual farm gate, private and commercial meat food consumption requirements within the Southern Gulf Islands;
- By completing a preparatory assessment of the proposed regulations (for example: structural requirement), of abattoir(s) capital investments, potential locations and on-going operational budgets;
- Evaluate the feasibility of:
 - 1) Establishing Southern Gulf Island based abattoir(s), including an analysis of the intricacies and costs of inter-island livestock transportation;
 - 2) Setting up the organization and infrastructure required to establish a mobile abattoir for large livestock and poultry among the various Southern Gulf Islands;
 - 3) Utilizing the option of Vancouver Island based inspected and licensed abattoirs.

- Recommend solutions/options to consequential issues such as impacts of animal health/welfare regulations and waste/offal disposal.
- Prepare a summary report and all research and evaluation products of the project and present the report for the Island Farmers Institute and the Island Agri-Food Initiative Board.

3.0 MARKET FOR MEAT

The consumption of meat in Canada is tracked by Statistics Canada, and reports are provided through CANFAX Research Services. The most recent data (2003) indicated the following:

- Per capita beef consumption in 2003 was 51.5 lbs, which was a slight increase (5%) over 2001 and 2002. Some analysts attribute the increase to support for farmers over the BSE crisis, but other factors include the various low carb diet fads and some retail price reductions. The above figure is on a retail weight basis (RWB).
- Pork consumption in 2003 was 42.2 lbs per person, which was a 10% decline over 2002. Chicken and turkey consumption has remained stable at 67.2 lbs and 9.3 lbs respectively.
- Lamb consumption is relatively low at 1.8 lbs per person. Some attribute this low number to a lack of availability.

The permanent population of the study area is roughly 15,000 people, implying an overall market for meat as follows:

	No. of People	Per Capita (lbs)	Total	No. of Animals
Beef*	15,000	51.5	772,500	1,545 ⁽¹⁾
Pork*	15,000	42.2	633,000	5,064 ⁽²⁾
Chicken**	15,000	67.2	1,008,000	201,600 ⁽³⁾
Turkey**	15,000	9.3	139,500	17,437 ⁽⁴⁾
Lamb*	15,000	1.8	27,000	540 ⁽⁵⁾

* The weights calculated above for beef, pork and lamb represent the “Retail Weight Basis (RWB)” numbers. Animals are typically sold on a live weight basis. After slaughter, they are weighed on a “Carcass Weight Basis (CWB)”.

** Poultry is weighed live, then eviscerated and sold whole or in pieces.

- (1) Assumed 500 lbs of saleable meat per animal
- (2) Average hog at 50% of live weight using a live weight of 250 lbs
- (3) A 5 lb average eviscerated weight was used for chickens
- (4) An 8 lb average eviscerated weight was used for turkeys
- (5) 50 lbs of saleable meat per lamb

Table A would represent total production needed to meet the needs of permanent residents, assuming per capita consumption is at the Canadian average. It does not take into account meat consumption by visitors to the island. The tourist trade on the Gulf Island is substantial and probably increases overall consumption by a significant amount.

See Appendix C for a discussion paper on carcass yields.

4.0 SURVEY OF LIVESTOCK INVENTORY AND MARKETINGS

4.1 RESULTS

The consultants, in cooperation with the steering committee, prepared a comprehensive producer survey. The steering committee and other volunteers collected 139 surveys from producers throughout the study area. This is believed to represent close to 95% of all livestock production. Survey results are as follows:

1a. Location of Respondents

Saltspring Island	99	71.2%
Galiano Island	9	6.5%
Mayne	6	4.3%
Pender Island	18	13.0%
Prevost Island	1	0.7%
Saturna Island	5	3.6%
Sidney	<u>1</u>	<u>0.7%</u>
	139	100.0%

1b. Types of Red Meat Animal Enterprises

Sheep	71	50.7%
Sheep Organic	<u>5</u>	<u>3.6%</u>
	76	54.3%
Cattle	37	26.4%
Cattle Organic	<u>6</u>	<u>4.3%</u>
	43	30.7%
Swine	9	6.4%
Swine Organic	<u>4</u>	<u>2.9%</u>
	13	9.3%
Goat	5	3.6%
Goat Organic	<u>2</u>	<u>1.4%</u>
	7	5.0%

Other**	1	0.7%
Total	140	100.0%

* Some producers have more than one species; some are only in poultry.

** Deer on Sidney Island

1c. Inventory

* Other typically denotes replacement animals

CATTLE			
	Total	SSI	Outer Gulf Islands
Breeding Males	22	13	9
Breeding Females	223	86	137
Market Animals	173	112	61
Other *	22	8	14
Total	440	219	221
Percentage	100.0%	49.8%	50.2%

SHEEP			
	Total	SSI	Outer Gulf Islands
Breeding Males	88	53	35
Breeding Females	2,440	1,837	603
Market Animals	389	307	82
Other *	333	145	188
Total	3,250	2,342	908
Percentage	100.0%	72.0%	28.0%

SWINE			
	Total	SSI	Outer Gulf Islands
Breeding Males	4	4	-
Breeding Females	3	3	-
Market Animals	55	19	36
Other *	-	-	-
Total	62	26	36
Percentage	100.0%	42.4%	57.6%

GOATS			
	Total	SSI	Outer Gulf Islands
Breeding Males	3	1	2
Breeding Females	27	7	20
Market Animals	-	-	-
Other *	4	-	4
Total	34	8	26
Percentage	100.0%	23.5%	76.5%

Organic - All on Salt Spring Island except for 2 enterprises on Saturna, 1 enterprise on Mayne and 1 on Pender.

	Total	Cattle	Sheep	Goats	Swine
Breeding Males	4	-	2	2	-
Breeding Females	34	7	15	12	-
Market Animals	23	9	-	-	14
Other *	2	-	2	-	-
Total	63	16	19	14	14

Other

20 horses

20 Jersey cows - male calves and cull cows sold as meat (organic)

2,000 deer on Sidney Island (wild animals)

1d. Farm Size Breakdown Based on AU Inventory

Basis for Determination of AUs

	Cattle	Sheep	Swine	Goats
Breeding	1 AU	0.2 AU	0.3 AU	0.2 AI
Market	1 AU	0.1 AU	0.3 AU	0.1 AU
Other	0.75 AU	0.2 AU	0.3 AU	0.2 AU

FARM SIZE BREAKDOWN

AU Range	SSI	Outer Gulf Islands	Total
0-5	42	21	63
6-10	20	6	26
11-20	9	5	14
21-50	6	4	10
51-75	-	1	1
76-100	-	-	-
100+	-	-	-

FARM SIZE BREAKDOWN ON ISLANDS

SALT SPRING ISLAND	
Type of Animal	Amount of AUs
Cattle	217
Sheep	438
Swine	8
Goats	1
Total	664 AUs

OUTER GULF ISLANDS	
Type of Animal	Amount of AUs
Cattle	218
Sheep	174
Swine	11
Goats	5
Total	408 AUs

2a. Types of Meat Animals Marketed in 2004 by Number of Respondents

Sheep	66
Cattle	35
Swine	13
Goats	<u>5</u>
Total	119

Some producers marketed more than one species.

16 marketed 2 species

2 marketed 3 species

2b. Market Animals Sold in 2004 by Respondents

	No. of Animals Sold	Average live weight (lbs)
Sheep	1,881	95
Cattle	207	812
Swine	86	192
Goats	23	58

The above markets would represent the following number of animals units:

Cattle	=	1 AU
Sheep	=	0.1 AU

Swine = 0.3 AU
 Goats = 0.1 AU

	<u>AUs</u>
Cattle	207
Sheep	188
Swine	26
Goats	<u>3</u>
	424

2c. Total Animals Sold

	# of Respondents	Total Animals	Farm gate sales	At farmers' markets	Sell live to processors	Direct to retailers	Other
SSI	65	1,678	1,020	-	184	384	90
Outer Gulf Islands	29	1,058	641	39	229	-	149
Total	94	2,736	1,661	39	413	384	239

3a. Amount of Increased Production for 2005

	Total Respondents	Total Current Animals from Respondents			Total Current AUs from Respondents	Average % Increase	Total Future Animals from Respondents			Total Future AUs from Respondents
		Sheep	Cattle	Swine			Sheep	Cattle	Swine	
SSI	21	443	27	21	78	85	551	66	14	125
Outer Gulf Islands	5	120	13	-	25	27	131	15	-	28
Total	26	563	40	21	103	N/A	682	81	14	153

Applied to the total population, this represents a 4% increase in the sheep population, a 10% increase in cattle, and a decrease in swine.

3b. Amount of Decreased Productions for 2005

	Total Respondents	Total Current Animals from Respondents				Total Current AUs from Respondents	Average % Decrease	Total Future Animals from Respondents				Total Future AUs from Respondents
		Sheep	Cattle	Swine	Goats			Sheep	Cattle	Swine	Goats	
SSI	14	236	35	30	4	68	61	114	9	15	2	25
Outer Gulf Islands	-	-	-	-	-	-	-	-	-	-	-	-
Total	14	236	35	30	4	68	61	114	9	15	2	25

- If the above occurred, it would nearly offset the entire increase noted in 3a).
- This may be due to uncertainty over processing. See question 11 for a more relevant result (increases if a licensed plant was available).

4. Cull Animals Marketed in 2004 by Respondents

	Breeding Stock		Over 30 Months in Age	
	No. of animals	Avg. live weight (lbs)	No. of animals	Avg. live weight (lbs)
Sheep	118	103	108	100
Cattle	17	1,800	25	1,092
Swine	1	140	-	-
Goats	1	55	-	-

5. There is a 12% increase in cull sales expected in 2005, taken from 15 respondents (about 20% of red meat operators). (Overall average is 2% increase.)

6. How do you currently market your red meat production (Basis 2004)?

Farm gate sales	85	76.6%
Selling live to processors	12	10.8%
Direct to retailers	6	5.4%
At farmer's market*	3	2.7%
Auction live animals	1	0.9%
Breeding stock sold live	1	0.9%
On island word of mouth	1	0.9%
Myself	1	0.9%
Other	<u>1</u>	<u>0.9%</u>
Total	111	100.0%

* May not be legal in the future without the Health Department's approval

7. Percentages of Various Marketing Strategies

The majority of meat is sold as either farm gate or direct to retailers.

8a. Where do you currently get your animals slaughtered?

Local unlicensed	36	34.6%
Off island licensed processors	28	26.9%
Myself	21	20.2%
Off island unlicensed processors	15	14.4%
Other	<u>4</u>	<u>3.9%</u>
Total	104	100.0%

8b. Amount of Animals Slaughtered

	# of Respondents	Local unlicensed	Off island licensed processors	Off island unlicensed processors	Self	Other	Total
SSI	61	350	447	77	418	18	1,310
Outer Gulf Islands	25	50	351	74	265	20	760
Total	86	400	798	151	683	38	2,070

9. Where do you currently get your animals processed?

Local unlicensed	44	43.1%
Off island licensed processors	27	26.5%
Off island unlicensed processors	15	14.7%
Myself	13	12.8%
Other	<u>3</u>	<u>2.9%</u>
Total	102	100.0%

10. If you had convenient access to a Gulf Islands processing facility at a reasonable cost, would your production of red meat* increase in 2006 and beyond?

Yes	47	44.3%
No	<u>59</u>	<u>55.7%</u>
Total	106	100.0%

* Assumed to mean market animals

11. Animals Units Increase by Size Category

AU Range	SSI			Outer Gulf Islands		
	Total AUs	Average% increase	Total AUs after increase	Total AUs	Average% increase	Total AUs after increase
0-5	44.9	34	60.2	6.5	46.5	9.5
6-10	26.7	50	40.1	13.5	10	14.9
11-20	35.2	10	38.7	15.9	30	20.7
21-50	22	10	24.2	-	-	-
51-75	-	-	-	-	-	-
76-100	-	-	-	-	-	-
100+	-	-	-	-	-	-
Total	128.8	N/A	163.2	35.9	N/A	45.1

- There were no increases for Mayne, Prevost, or Sidney.
- Galiano and Salt Spring Island each had a respondent who believed their farm would increase production, but they were unsure by what amount.
- The overall results represent an 11% increase in market animals sold. (43.7/424 = 10.7%)

12. Slaughter Fees

The average slaughter fees suggested for the various species were:

Sheep	\$28.00	Swine	\$44.00
Cattle	\$70.00	Goats	\$29.00

13. The average processing fee suggested was 41¢/lb.

14. Do you currently raise poultry as part of your farm operation?

Yes	64	56.6%
No	49	43.4%
Total	113	100.0%

15a. Please indicated what type of poultry you currently raise.

Chickens	51	86.4%
Turkeys	5	8.5%
Ducks	2	3.4%
Geese	1	1.7%
Other	-	-
Total	59	100.0%

15b. Inventory

	Total	SSI	Outer Gulf Islands
Chickens	2,525	1,681	844
Turkeys	45	8	37
Ducks	69	39	30
Geese	2	2	-
Total	2,641	1,730	911
Percentage	100.0%	65.4%	34.6%

16. How many birds of each species would you currently be marketing annually? (Basis 2004)

	Total	SSI	Outer Gulf Islands
Chickens	5,080	4,000	1,080
Turkeys	169	82	87
Ducks	141	91	50
Geese	-	-	-
Total	5,390	4,173	1,217
Percentage	100.0%	77.5%	22.5%

17. Minimal overall increases are expected for 2005. (Only 9 of 64 respondents were looking at expanding, with an average increase of 5%.)

18. How do you currently market your poultry?

- 8 producers market 100% of production as farm gate sales
- 1 producer markets 80% of production as farm gate sales
- 1 producer markets 20% of production to retailers

19. With access to a licensed Gulf Islands processing plant, 28 of 57 producers (49.0%) said their production would increase.

20. With access, the estimated production increase was 50.0% (25 producers). Based on 57 producers, the average increase would be 21.9%.

21. What fee per bird would be a reasonable charge for custom processing your poultry (based on you retaining ownership and selling all end products yourself?)

Chickens	\$2.60
Turkeys	\$4.80
Ducks	\$4.00
Geese	-

22. Where do you currently have your poultry processed?

Off island unlicensed	15	36.6%
Myself	15	36.6%
Off island licensed	<u>11</u>	<u>26.8%</u>
Total	41	100.0%

23. If you lose the ability to do farm gate and/or farmers' market sales due to the new health regulations and the lack of a licensed on island processing option, do you anticipate having to shut down your red meat and poultry operations?

Yes	61	59.2%
No	<u>42</u>	<u>40.8%</u>
Total	103	100.0%

Comments

- I don't use an on island, so as long as there is a licensed plant in Duncan, not much will change.
- Have own slaughter house but no longer use it
- A shame for local industry to collapse due to change in law
- Will have to leave island
- Cut numbers of sheep
- Keep small flock
- Sell live cattle
- Sell live to processors
- Public should have right to make the choices, farm gate sales are safe
- Too expensive to sell off island
- Not a problem, I can take them to Duncan
- Raise only for personal use not considered farming
- 80% reduction
- If can not be processed will shut down
- Would keep animals for personal use

24. If yes was chosen to Question 23, the total value of production lost is \$176,775 (45 respondents). The average is \$3,928/farm.

25. Would this mean you would have to quit farming?

Yes	33	40.2%
No	<u>49</u>	<u>59.8%</u>
Total	82	100.0%

26. Could this mean the loss of your farm tax status?

Yes	39	48.8%
No	<u>41</u>	<u>51.2%</u>
Total	80	100.0%

27. Do you have any comments or innovative suggestions as to solutions to the processing challenges facing Gulf Island farmers?

- Get rid of regulations x4
- If there was an on island processor, we would use it x2
- Behind anything to keep farming viable on island x2
- Would increase lamb production if there was a market
- On island licensed facility is needed
- Public input is needed
- Shipping off island really affects the economics of farming
- New regulation are a cash cow for the government
- Need on island solution
- Some facilities are good for animals as well as farmers
- Help small farms as well
- Government should fund diversity supporting demand for today farm gate food
- Licensed mobile unit that would be at least on Salt Spring Island
- Agree with mobile livestock processing x2

4.2 MAXIMUM VOLUMES BASED ON AN 100% CAPTURE

Based on the survey results, the following potential volumes could be realized from a Gulf Islands facility:

Red Meat (10% increase based on survey question #11)

1. Beef

- 207 market animals plus 42 cull cows
- Applied an increase of 10% to get volume = 227 market animals and 46 culls
- Fees for abattoir only

273 x \$75.00 =	\$20,475.00
-----------------	-------------
- Fees for processing (cut and wrap)

273 x 623 x 55¢ =	\$93,543.00
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- **Total Beef = \$114,018.00**

2. Lamb/Sheep

- 1,881 lambs plus 225 mature culls
- Applied an increase of 10% to get volume = 2,069 lambs plus 248 mature culls
- Fees for abattoir only

2,317 x \$28.00 =	\$64,876.00
-------------------	-------------
- Fees for processing (cut and wrap)

Lambs 50 lbs @ 45¢ =	\$23
Ewes 80 lbs @ 45¢ =	\$36
- Total fees for processing

2,069 x \$27 =	\$47,587.00
248 x \$54 =	<u>\$8,928.00</u>
	\$56,515.00
- **Total Sheep = \$121,391.00**

3. Swine

- 86 currently

- Applied an increase of 10% to get volume = 95 swine
- Fees for abattoir only
 $95 \times \$44 =$ \$4,180.00
- Fees for processing (cut and wrap)
 $180 \times 45 \times 95 =$ \$7,695.00
- **Total Swine =** **\$11,875.00**

4. Goats

- Fees for abattoir only
 $25 \times \$29 =$ \$725.00
- Fees for processing (cut and wrap)
 $25 \times \$27 =$ \$675.00
- **Total Goats =** **\$1,400.00**

Summary			
Type	Abattoir	Processing	Total
Beef	\$20,475	\$93,543	\$114,018
Sheep	64,876	56,515	121,391
Swine	4,180	7,695	11,875
Goats	725	675	1,400
Total	\$90,256	\$158,428	\$248,684

This is based on a 100% capture of slaughter and processing.

Poultry (20% increase based on survey question #20)

1. Chickens

- 5,080 birds
- Applied an increase of 20% to get volume = 6,000 birds
- Fees
 $6,000 \times \$2.60 =$ \$15,600.00

2. Turkeys

- 169 birds
- Applied an increase of 20% to get volume = 200 birds
- Fees

$$200 \times \$4.50 = \$960.00$$

3. Ducks

- 141 birds
- Applied an increase of 20% to get volume = 169 birds
- Fees

$$169 \times \$4.00 = \$676.00$$

Total Poultry **\$17,236.00**

Other

The deer on Sidney Island could also represent a potential opportunity for a mobile plant. Parks Canada would like to sell meat to offset costs of an annual population reduction (200-300 animals per year).

Based on Canadian consumption averages, the Gulf Islands market for meat products is generally for in excess of what is produced locally.

Gulf Islands Market/Production Analysis			
	Consumed No. of Animals	Produced No. of Animals⁽²⁾	Shortfall
Beef	1,545	273	1,272
Pork	5,064	95	4,969
Chicken	201,600	6,000	195,600
Turkey	17,437	169	17,568 ⁽³⁾
Lamb⁽¹⁾	540	2,317	(1,777)

- (1) Lamb is the only exception. The Islands produce and sell more lamb than the apparent consumption.
- (2) Project volume based on survey responses.
- (3) Turkey shortfall may be overstated. An average weight of 8 lbs only was used.

5.0 PROCESSING OPTIONS

5.1 OVERVIEW

The consultants were given three options to consider, including the following:

- 1) development of a fixed facility for slaughter and further processing;
- 2) development of a portable facility that would move to various island locations;
and
- 3) development of transportation infrastructure to access off-island plants.

The abattoir models are sized to address 100% of the marketed production. This would require a capacity to process as follows:

	Animals	AU Conversion	Animal Units (AUs)
Beef	273	1	273
Sheep	2,069	0.1	207
Goats	248	0.15	37
Swine	95	0.2	19
			536

We have used a level of 500 AUs for sizing purposes



5.2 PORTABLE FACILITY

The portable model is based on the San Juan Island concept, which is described as follows:

- 1) The abattoir is owned by the Island Grown Farmers Co-op. It was custom built by Featherlite Trailers and is USDA approved. It has a daily capacity to store 10-12 cattle, 50 sheep or 20 hogs.
- 2) A drawing is provided as follows with an information package in the Appendix B.
- 3) It does slaughter only and is moved from farm site to farm site. This is an infield, on-farm slaughter facility.
- 4) Waste is disposed of on-site. Solid waste is composted, and liquid waste is spread as fertilizer.
- 5) Carcasses are moved to a fixed-in-place, cut and wrap facility for further processing.

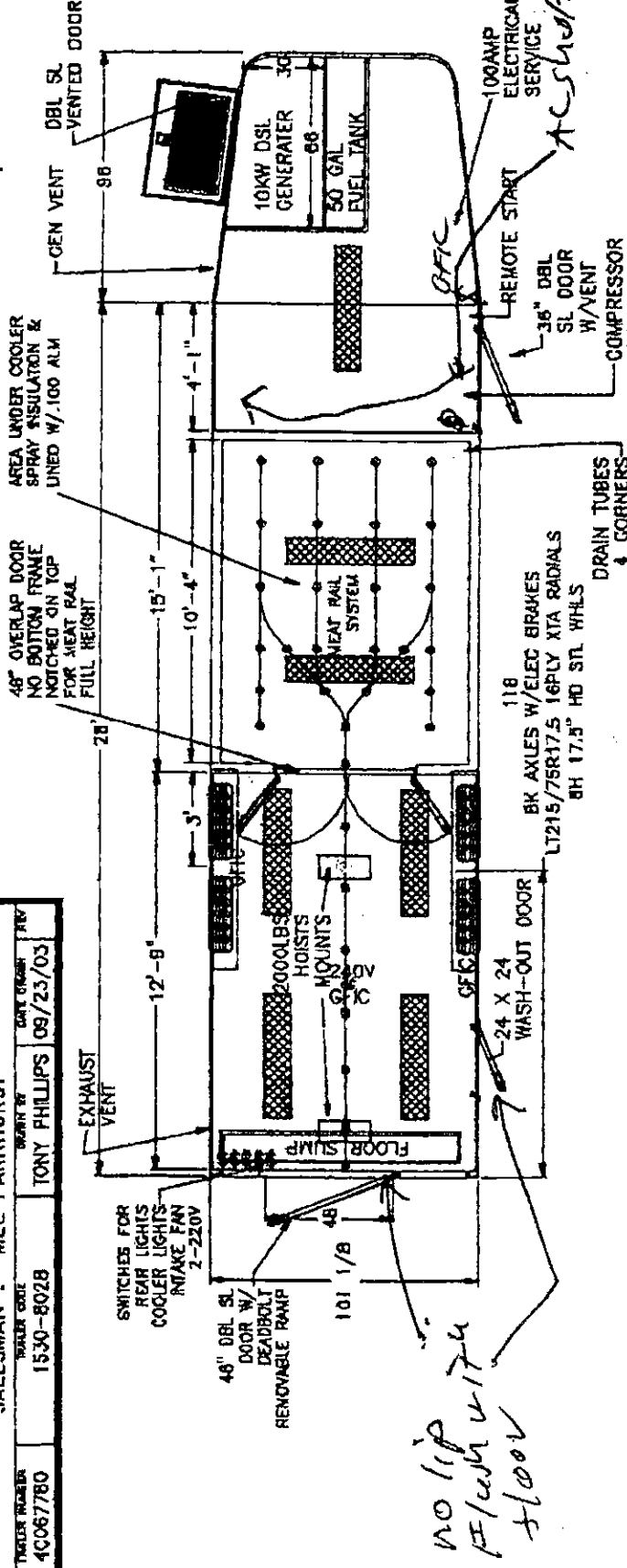
Disadvantages would include:

- 1) It is not certain that British Columbia (CFIA) will approve a portable facility.
- 2) An approved Refrigerated transport unit would be needed to transfer carcasses from the abattoir to a cut and wrap facility.

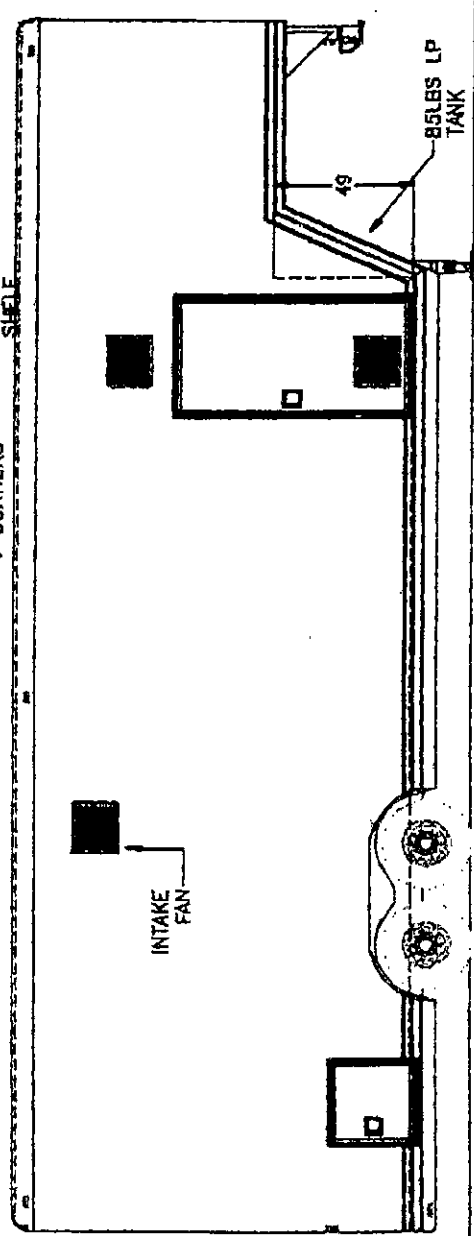
FEATHERITE
 40067780 1530-8028 TONY PHILLIPS 09/23/03
 TRAILER NUMBER WATER CONT. WEIGHT BY GROSS WEIGHT PER
 FLOORPLAN FOR FRONTIER TRAILER SALES
 101,125W X 28' LONG DRY FREIGHT
 CUSTOMER : MONTERY CO. AG CONSERANCY
 SALESMAN : MEL PARKHURST

PLEASE REVIEW THIS PLAN CAREFULLY.
 MAKE CHANGES OR CORRECTIONS AND
 RETURN TO FEATHERITE ENGINEERING.

SIGNATURE *B. Dunlop*
 DATE 10/6/03



no lip flush with floor



- 11'-8" INSIDE HEIGHT
- DUAL 25PO LANDING LEDS
- 2 EXTRA STOP TURNS UP HIGH
- .128 ALM TREADPLATE FLOORING
- CEILING LINED .040 WHITE
- COOLER & PROCESSING AREA LINED IN BRUSHED STNLS STL LINING MUST BE OVERLAPPED AND TAPED TO BE AS WATER TIGHT AS POSSIBLE
- STNLS INNER FENDER COVERS
- FLOOR UNDER COOLER SECTION TO BE LINED AND INSULATED W/SPRAY FOAM
- COOLER AREA HAS 4" INSULATION
- REST OF TRAILER HAS 1" INSULATION
- FLUORESCENT LIGHTS NEED SHATTER PROTECTION
- REINFORCE FOR OVER 1-TON

- 3) Each island would need a cut and wrap facility with cold and freezer storage.

Producers with suitable equipment could be hired to haul the abattoir and cooler units.

Other issues include:

- The home headquarters for the portable unit would likely need to be on SSI, given that there are more animals located there.
- There would need to be specific processing sites established based on factors such as the availability of water and power, distance from water courses, isolation from neighbours, etc.
- The cost of relocations should be amortized among all of the users on a per AU basis.
- A firm schedule would be required to accommodate the needs of inspection staff. (It is not known if local veterinarians can be contracted for inspection.)
- Producers from each island will need to assess how they could establish local cut and wrap facilities.



5.2.1 COSTS

Portable Abattoir

- 1) The quoted price for the San Juan Islands model, using a USA supplier is \$100,000 USF or \$120,000 CDN. There is also the possibility of sourcing from a Canadian supplier.
- 2) A refrigeration trailer for transfers is optional. Carcasses can also be transported in the portable abattoir, which has a hanging cooler (allow \$30,000.00).
- 3) It is assumed that trucks to haul the unit(s) could either be rented commercially or would be available from producers.
- 4) A stationary model cut and wrap facility could include:
 - a carcass receiving area with a hanging cooler (sized for three weeks of products);
 - a cut and wrap room;
 - a finished products cooler with an out load dock;
 - a finished products freezer (optional);
 - an office;
 - mens/womens washroom and cleanup area;
 - mechanical room; and
 - retail area (optional).

A floor plan for a model facility is provided (800 square feet including retail). At \$100 per square foot plus refrigeration and equipment (at \$87.50 per square foot), a facility of this size could cost \$150,000. Modifying an existing building and/or not having retail or freezing capacity could reduce this substantially. This assumes no land cost. As well, it assumes the facility could be hooked into existing infrastructure.

Another option would be to develop a portable cut and wrap facility, which could move with the slaughter facility. It could likely be done at a similar cost to the abattoir. (This is not certain, since we have not obtained a quote.)

5.2.2 PORTABLE ABATTOIR CAPACITY TAKE-UP

The San Juan portable abattoir model has the capacity to store two days of production. As noted previously, the facility can store 10-12 cattle, 50 sheep or 20 hogs. (Processing capacity per day is 6 cattle or 25 sheep.)

It is assumed that species are not co-mingled, so the following slaughter days would be needed to process the total AUs identified in the market study.

Lamb/Sheep/Goats	
2342 / 25 =	94 days
Cattle	
273 / 6 =	45 days
Swine	
95 / 10 =	10 days
Total days	149 days

On the basis of a 50-week operating year, this would represent three days per week, leaving the remaining days for cleanup, travel, repairs, etc.

5.2.3 FINANCIAL ANALYSIS

Abattoir

The slaughter program for the San Juan system was projected to operate with a cost of goods sold of 63%, resulting in a gross margin of 37%. Included in the costs of sales were the following cost categories:

- lead butcher and assistant labour;
- benefits;
- fuel and oil;
- ferry costs (added);
- repairs;
- insurance;
- consumables; and
- vehicle license.

Based on a projected 100% capture, the red meat division of a Gulf Islands project could generate the following:

Sales	\$90,256.00	100%
Cost of Sales	<u>56,861.00</u>	<u>63%</u>
Gross Profit	\$33,575.00	37%

This would be required to service debt (if any) and cover overhead costs. Overhead costs typically include management, telephone licenses, office supplies, bank charges, etc.

To raise the gross profit, the fees could be raised or expenses lowered. Labour is the largest cost of sale category (over 60%).

5.2.4 MEAT PROCESSING

The San Juan model is based on one stationary facility to do cut and wrap. The cost of sales percentage is 67% resulting a gross margin of 33%. Operating multiple cut and wrap facilities could be more expensive, so we have increased the cost of sales to 75%.

On the basis of the 100% capture of survey sales, the gross profit from cut and wrap would be as follows:

Sales	\$158,428.00	100%
Cost of Sales	<u>118,821.00</u>	<u>75%</u>
Gross Profit	\$39,607.00	25%

For the overall project (mobile slaughterhouse plus stationary cut and wrap facilities (one or more)), the total available for overhead would be \$73,182.00.

5.2.5 POULTRY

The portable abattoir used in the San Juan Islands is not suitable for poultry. A separate unit would be required. At this time, we do not see the poultry volume as being sufficient to support a processing facility.

5.3 STATIONARY FACILITY

The plan for a stationary facility is based on a typical concept/design layout for a small slaughterhouse and cut and wrap facility. A preliminary review was done by CFIA, and modification made as a result of their input.

No site has been identified for the stationary facility, so a number of the costs are difficult to assess.

5.3.1 WASTE ISSUES

In addition, waste disposal from a stationary plant is a major issue of concern. The following summary of the current state of knowledge is provided.

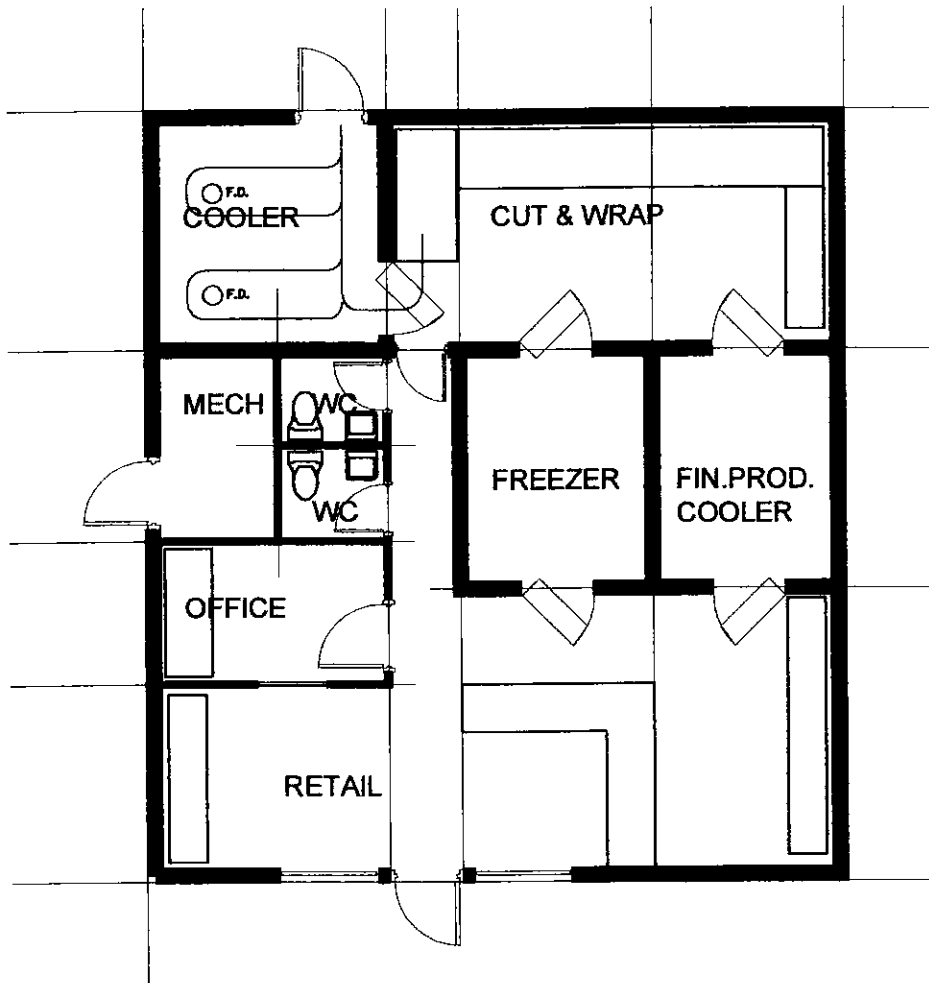
- The model is based on 500 AUs. 500 AUs will produce about 100,000 gallons of liquid waste (200 gallons/AU) and 250,000 lbs of solid waste (bones, fat, trim, guts, etc.) (500 lbs/AU).
- Solid waste can not be put into an on-island landfill. About 65% of the waste could go to the West Coast Reductions (WCR). (They would pick it up at 3-

5¢/lb.) The rest (35%), would be picked up by Salt Spring Island Garbage Services (SSGS) at a cost of \$450/MT. The waste disposal cost, using the WCR/SSGS, would cost \$52.11 per AU. (\$5.21 per lamb) This could be a low estimate.

- We do not see this as an economic solution. It would represent 30% of slaughter fees.
- Additional costs would be incurred as the rendering material would have to be kept in a cooler. In addition, sheep over one year of age are not accepted. The cost of placing solid waste in a land fill is four times that of placement with the rendering company.
- Composting is a generally accepted practice for abattoir waste. It could be done in a central facility (beside a fixed-in-place abattoir) or at various locations associated with a portable abattoir. Sawdust, leaves, etc. would be needed to drive the process.
- Information is being obtained on an in-vessel system, which could be stationary or portable.
- On-farm composting is also an accepted practice, which would not require a permit or license. A variance might be needed for composting if the animals were not raised on that specific property. A central composting facility would require a permit.
- Another option could be to have farmers take back all the waste from their animals and compost them on their own farm. This would have logistical

issues, especially if we develop one fixed plant. It would work better with a portable abattoir.

- Liquid waste is more of an issue. The liquid waste produced by this plant is equivalent to the design guideline for a household of 3-4 people. However, the nature of the effluent is much different than household waste. Virtually no municipalities will accept abattoir waste without pre-treatment. In other words, abattoirs have to treat it to the point where it is similar in constitution to household sewage. (Blood, fats, proteins, etc. are the problem.)
- There is a liquid waste disposal site on SSI. Early indication were that they would take the effluent directly from the plant. This is not the case, and pre-treatment “to stabilize it” would be needed before they would take it. The costs of dumping are about 32¢ per gallon or \$6.40 per lamb. The sewage plants on SSI would also not take the effluent without pre-treatment (if at all).
- As per G. Hendren of CRD, the recommendation would be to do ground disposal (septic tank and field). A properly designed field would be needed. **In order to accurately identify requirements and costs, a qualified engineer is required to assess these requirements.**



1
PA-1
FLOOR PLAN
 SCALE : N.T.S.

REV.1	-
PA-1	

SCALE	N.T.S.
DATE	MAR.19/05
PROJECT No.	

CUT & WRAP FACILITY WITH RETAIL

PM ASSOCIATES
 65 DEMDNEY AVENUE
 WINNIPEG, MANITOBA R3B 0E1

5.3.2 WATER USE

It should also be noted that the amount of water used (which must also ultimately be disposed of as waste water) is a matter of some complexity. Several estimates have been obtained including:

- 1) 1.7 – 2.0 cu. Metres per AU
374-440 gallons

This would mean processing one lamb would require 37-44 gallons of water.

This estimate came from an engineer from Mallot Creek Engineering in Southern Ontario who does slaughter plant design.

- 2) 200 gallons per AU
20 gallons per lamb

This estimate came from a CFIA Vet working in Ontario.

- 3) 5 gallons per lamb

This estimate came from an abattoir operator in Dryden, Ontario.

- 4) 22 gallons per lamb

This estimate was provide from an excerpt from an EEC Guidebook provided by J. R. Cousins Consulting of Winnipeg.

It is noted that a plant using dry clean-up techniques and employing water conservation methods should use lower water volumes. Blood collection is also important.

5.3.3 PLANT DESIGN

The following preliminary design is provided. The plant size is about 1,800 square feet. A number of sources have been used to estimate the capital cost including:

1) Mallot Creek Engineering R.R.D. (Federal Plant)

Capital Cost	\$100 per sq. foot
Equipment Cost	\$75 per sq. foot
Other costs including:	
Infrastructure* costs including	
engineering	\$50 per sq. foot
Total	\$225 per sq. foot

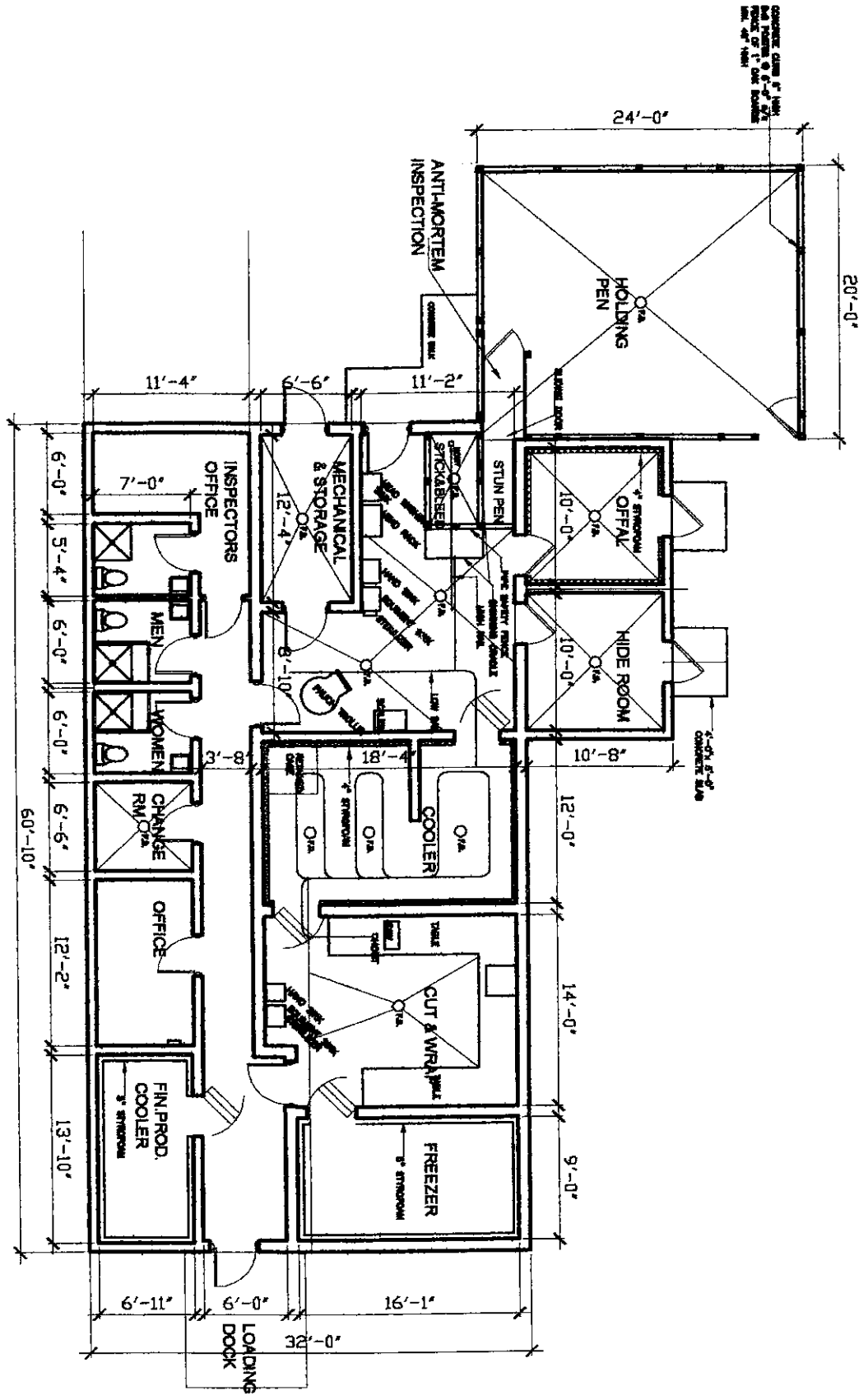
A 25% reduction was envisaged if provincial standards were used, which would result in a cost of \$168 per square foot.

* Infrastructure refers primarily to waste disposal, water supply, etc.

2) Meyers Norris Penny Study for a 2,400 sq. foot combined slaughter (processing facility to federal standards in Manitoba).

\$300 per sq. foot plus equipment, design, waste treatment, etc. at \$300 per sq. foot for a total of \$600 per sq. foot.

1 FLOOR PLAN
 PA-2 SCALE: 1/8" = 1'-0" (11 X 17")



REV.1	-	SCALE	1/8"	FLOOR PLAN - ALT.2	CUSTOM SLAUGHTER HOUSE SALT SPRING ISLAND - BC	PM ASSOCIATES 85 DENNEY AVENUE WINNIPEG, MANITOBA R3B 0E1
PA-2	DATE	MAR.20/05				
	PLCT No.					

3) F.W. Sawatsky (FWS)- Builders

FWS has been involved as design builders in the meat processing industry in Alberta. For larger projects, they indicated \$150-175 per sq. foot. They expected a smaller facility would cost over \$200 sq. foot plus equipment and waste disposal.

We were unable to find cost data for facilities of the scale indicated for the Gulf Islands.

5.3.4 COST ASSUMPTIONS

Basic Building	
1,800 sq. feet@ \$150	\$270,00.00
Equipment and Refrigeration	
1,800 sq. feet @ \$50	<u>90,000.00</u>
	360,000.00
Design @ 10%	36,000.00
Septic System/Cost	
Unknown, have used \$100,000 for now	\$100,000.00
Total	\$496,000.00

Round up to \$500,000.00.

Land cost not included.

5.3.5 FINANCIAL ANALYSIS

Industry Canada collects statistical data from variety of business sources. Abattoirs fall under the animal slaughtering category. Their publication indicated the following with respect to gross profit for medium sized firms.

Average (2002)	12.8%
Median	20.9%
Better (75%)	19.4%
Worse	8.5%

It is noted that many of these abattoirs would do a combination of purchased animals processing and custom processing. The proposed SSI facility will only do custom processing and will not be an owner or seller of the processed meat. This reduces both risk and working capital needs. The direct costs would include:

	% of Sales
Wages for the processing staff	35%
Benefits	3.5%
Waste disposal costs	15%
Water costs	2%
Packaging costs/supplies	<u>3%</u>
	58.5%

Based on revenue of \$248,684 (100% capture), the cost of sales would be 58.5 x \$248,684 = \$145,480. This would leave \$103,204 for overhead and investment costs.

- Overhead costs would include utilities, accounting/legal, repairs, telephone, bank charges, insurance and taxes.
- Overall, investment costs need to be considered. If a target overall return of 8% was desired, the investment cost would be at least \$40,000. Part of the \$40,000 would cover interest on debt. The rest would be a return on equity.
- Depreciation costs would be:

\$300,000 @ 6% for the building	\$18,000
\$200,000 @ 10% for the equipment	<u>20,000</u>
	\$38,000

Based on the above, a plant costing \$500,000 would not be profitable.

5.3.6 ISSUES OF CONCERN

- The stationary plant may not achieve a 100% capture of the available market (especially from other islands).
- The waste disposal issue is not resolved. Costs may be even higher than those used in the analysis.
- Land costs and location issues for a stationary facility could be problematic.

5.4 TRANSPORT

There are a number of existing plants (35) on Vancouver Island, some of which currently process Gulf Islands livestock. Any of these facilities that wish to continue will need to be in compliance with the new legislation by September of 2006. It is unclear how many will be in compliance, but British Columbia Agriculture officials indicate there might only be three compliant red meat facilities that would be in reasonable proximity to the Gulf Islands. They are:

- Westholme Meat Packers (Federal)
Chemainus, B.C.
- Maplewood – Nikkels
Victoria, B.C.
- Valley View Farms
Nanaimo, B.C.

There may only be one poultry facility (Cowichan Bay Farms – Lyle Young).

The proposed Cowichan Bay poultry plant will have a theoretical capacity of 3,000 birds per day. It will be initially licensed at 1,400 birds per day or some 365,000 per year. The proponent is currently working on obtaining all the necessary permits and he hopes to break ground this spring. He is eager to work with producers from the Gulf Islands.

5.4.1 KEY ISSUES

Red Meat

For the red meat sector, the logistics associated with Vancouver Island processing are such that to be legal, producers would need to make two trips – one to transport the live animals to a plant and one to transport processed meat back to their farms (or to the customer). This would typically involve two ferry trips, plus waiting times. It would also mean that live animal transportation vehicles need to meet B.C. ferry requirements with respect to no waste droppings. The finished product conveyance would need to be refrigerated and sanitary. (The cold chain principle applies to meat conveyance – frozen meat would need to be moved in a freezer unit and chilled meat in a refrigerated unit.)

- Incremental costs to producers could include:
 - acquiring the transportation vehicle(s);
 - operating the transportation vehicles(s);
 - ferry fees; and
 - time.

- Smaller producers may not find this to be economic. There may also be scheduling issues with respect to the processing plants not having capacity at critical times.

- There are no livestock transport businesses currently in place. Some producers move animals using farm trucks with stock racks but not all producers have this equipment.

- The ferry service appears to be in a process of consolidation and rationalization. This may result in service reductions in the future.
- Livestock transportation may cause stress to the animals which potentially lowers meat quality.
- Ferry service is the best from Salt Spring Island to Vancouver Island. The other islands experience lesser levels of service. SSI has 49.8% of the cattle, 72% of the sheep, 42.4% of the swine and 23.5% of the goats.
- Pender has the next most active ferry service to Vancouver Island. Pender has 17.7% of the cattle, 13.6% of the sheep, 19.1% of the swine and 64.7 of the goats.
- For the other islands, service to and from Vancouver Island is somewhat more complex and not as frequent.

Calculating the incremental costs of processing on Vancouver Island is somewhat difficult given that unit costs would depend on the number of animals per trip, the degree of processing, location of producer, etc. However, an estimate was made for an SSI producer transporting ten lambs in a farm truck.

- 10 lambs, saleable meat 50 lbs each
- Processed in Victoria (Metchosin)
- One trip for live transport, assume 6 hours in total
- \$10/hr
- One trip to retrieve meat, 6 hours
- Ferry costs, \$18/trip
- Truck cost @ 30¢/kilometre. Assume 200 kilometres in total.

• Total costs	
Ferry	\$36.00
Truck	60.00
Time 12 hours @ \$10/hr	<u>120.00</u>
	\$216.00
\$126.00 / 10 =	\$21.60*
Processing fee per lamb	\$51.00
Total cost including transportation	\$72.60
Percent increase	30%

* Does not include equipment depreciation

Pooled transportation with a larger vehicle could lower costs, but an investment would be needed to acquire the vehicle.

Poultry

- Most poultry marketings currently occur on Salt Spring Island (77.5%) with the remainder equally split between Pender and Mayne.
- The proposed poultry plant at Cowichan Bay Farms is located approximately 30 minutes from the Crofton Ferry terminal. This is quite convenient for Salt Spring producers. It is less so for Mayne and Pender producers.
- Total marketing currently represents slightly less than four days processing capacity for the proposed plant.

- The incremental costs per bird processed will depend on the number of birds transported per trip. Once again, to be legal, the live animal transport vehicle and the processed conveyance could not be the same.
- The total trip costs would be lower than to Metchosin due to the close proximity to the ferry terminal. We estimate \$176 versus \$216 (SSI basis).
- The cold weather load density for chickens is 139 lbs per 10 square feet of space. Given B.C. conditions, we used an average of 100 lbs/10 sq. foot. (12 birds @ 6 lbs)
- A regular pickup truck using layered cages might haul 200 birds. The incremental cost is 88¢ per bird, which is a 30% increase.

Hauling to the Cowichan Bay plant may be practical for SSI producers. It would be less so for Pender and Mayne producers.

6.0 RECOMMENDATIONS

Based on the present information, it is our opinion that the portable abattoir option has the best potential to meet the needs of producers in the Gulf Islands. The portable abattoir plans could be refined with more input from producers on each island and a business plan prepared.

The advantages of the portable abattoir are as follows:

- 1) Lower capital costs than a stationary plant (\$300,000 versus \$500,000 including processing)
- 2) Flexibility to serve more locations
- 3) No need to go through a potentially difficult process of selecting and developing an industrial site (NIMBY)
- 4) Waste disposal would fall under agricultural guidelines.
- 5) Potential to serve farmers' markets if a portable cooler/freezer cut and wrap facility was included.
- 6) Lower stress on animals due to reduced transportation.

It is also noted that carcass grading will need to be considered. Lower grade carcasses may be sold as hamburger and/or sausage.

APPENDIX A
ISLAND GROWN FARMERS
CO-OP

Mobile Abattoirs

Island Grown Farmers Co-op
Washington State
September 9, 2004 visit

Island Grown Farmers Co-op



Island Grown Farmers Co-op

- 40 Co-op members
- 15 sites where they kill beef
- Charge \$45/head to slaughter
- 0.75/lb to cut and wrap
- Inspector sticks with truck, travels in separate vehicle
- Operator is key to business
- Gooseneck truck and trailer unit
 - Maneuverability
 - Height restriction - ferries

Featherlight Trailer



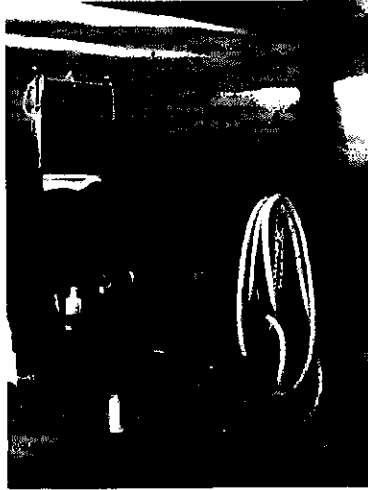
Mobile Abattoir

- Currently building 4th unit
- Holding capacity
 - 10 – 12 cattle or
 - 50 sheep or
 - 20 hogs

Island Grown Farmers Co-op



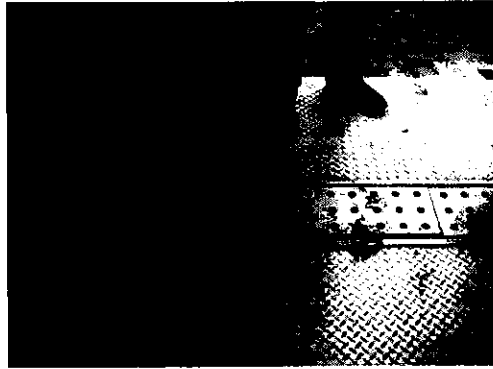
Mobile Abattoir



Stainless Steel Construction



Mobile Abattoir



Hydraulic Winch



“Central” cut & wrap facility

- Aging
- Small retail area
- 1 butcher
- 2 cutters
- 2 wrappers

Each site has squeeze with headlock



Stainless steel construction



Offal removal



Mobile abattoir chilled storage



On site composting

