on-site for disposal at a Hazardous Waste Disposal site (e.g., Miller Environmental Corporation, Letellier, MB).

On the basis of the above, environmental impacts from solid-waste management activities are not considered to be significant.

4.2.7 Nuisance

4.2.7.1 Truck Traffic

The first major highway west of the Miami Colony is Hwy 240, a north-south oriented highway that bisects PTH 23. Vehicle traffic commuting to and from the tannery plant would likely utilize this highway as a main travel route. Average Annual Daily Traffic (ADDT) for Station 982C located on Hwy 240 south of PTH 23 is 110 vehicles in 2003. Comparatively, Station 979C located north of the town of Miami on Hwy 338, averages a pass of 340 vehicles per day (Manitoba Highway Traffic Information System [MHTIS] 2005).

Although peak travel along highways in Manitoba generally occurs during summer months, traffic rates did not show seasonal variation at Station 982C (Hwy 240; MHTIS 2005). Resulting truck traffic during seasonal tannery operation will likely have an increase on the local traffic volumes for that highway and surrounding access roads for very short periods between October and March. This increase would be temporary, during times of hide or materials delivery to the tannery plant and hide or waste export from the plant. It is not anticipated that this increase in truck traffic would affect the annual average for daily traffic nor have a nuisance effect on local landowners.

4.2.7.2 Noise

As mentioned in Section 4.2.7.1, average daily traffic is not expected to increase noticeably from normal operations of the proposed development. Accordingly, traffic noise in the area is not expected to change as a result of the proposed development.

All processing equipment on-site will be located within site buildings, producing outside-noise levels that would not be noticeable to neighbours. The seasonality of operations is anticipated to preclude complaints of nuisance noise as operations will be occurring during the times of the year when outdoor-area agricultural and recreational activities are minimal.

4.2.7.3 Odour

As indicated in Section 4.2.4, facility emissions during normal operations are expected to be compliant with Manitoba Conservation's Ambient Air-Quality Guidelines (Manitoba Conservation 1999) and confirmatory testing, using a hand-held H_2S monitor, will be periodically conducted by the Environmental Inspector (cf. Section 2.8.1), with more elaborate emissions testing

conducted only in the event that a complaint(s) is received. The design of the lined lagoon (cf. Section 2.2.5) is such that odours that would normally be associated with mixed or aerated decomposing organic material will be significantly reduced. The seasonality of operations is anticipated to preclude any complaints of nuisance odours as operations will be occurring during the times of the year when outdoor-area agricultural and recreational activities are minimal. Although additional odours could result from the inclusion of tannery waste into the current operation of spreading livestock manure on agricultural fields, a notable increase in odour is not anticipated. The Colony residents and Colony neighbours currently practice land application of livestock waste on agricultural soils within the surrounding area. Spreading of mixed waste (lagoon slurry) will adhere to the Manure Management Regulation, and thus will occur in the spring or more typically in the fall, when other farmers are actively fertilizing their fields with livestock manure.

Nuisance odours during normal operations are therefore not considered to be significant.

4.2.8 Economic Effects

The development of a tannery in the R.M. of Thompson will not create tax increases for area residents; in fact, it will add to the existing tax revenue of the municipality through additional property taxes associated with the proposed development.

Development of a tannery is also not expected to have any effect on property value as the existing agricultural character of the immediate area is not anticipated to change. Therefore, any impacts related to taxes are expected to be positive and impacts related to property values are expected to be insignificant.

The revenues realized by the Colony from sales of its tanned deer hides will translate into increased economic stability for the Colony, and opportunities for future growth, equipment purchases, and investments.

4.3 POTENTIAL IMPACTS FROM CONTINGENCY EVENTS

Upset conditions associated with a new facility are comprised of events such as equipment breakdown or failure, containment failure, accidents, power failure, fire, etc. The most potential significant contingency events for the proposed development include the following:

- Failure of the liquid-waste storage lagoon, with subsequent leakage of contaminants, especially chromium, into any underlying groundwater.
- Containment failure of either bulk acidic or caustic materials on site, causing localized acidification or alkalinization of the underlying soil.
- Inadvertent mixing of certain waste streams.

- Accident involving a Colony truck carrying either drummed acid or caustic to the Colony or drummed non-hazardous wastes away from the Colony to a licensed landfill.

A fire at the facility is not considered to be potentially significant because the likelihood of such an event within the Colony is low and because response to such an event would be immediate (because there is a large-capacity fire truck within the Colony; cf. Section 2.5.5).

4.3.1 Lagoon Failure

The regular testing of groundwater wells installed around the lined lagoon will allow the timely identification of a problem with this liquid-waste containment system. In the event that groundwater testing indicates high levels of contaminants, suggesting failure of the lined lagoon, Manitoba Conservation would be notified and the lined lagoon would be immediately pumped of liquid and sludge to allow the location of the leak to be identified and fixed. Pumped liquid and sludge would be trucked to an appropriate storage/treatment facility if wastes could not be dispersed across agricultural fields. The Colony would suspend all tannery processing during this investigation, at minimum until another acceptable temporary method(s) of disposing liquid waste were implemented. Groundwater would be continuously monitored following re-introducing wastes to the lined lagoon to ensure compliance.

If the lagoon failure was deemed to have likely contaminated underlying soil, Manitoba Conservation would be contacted and appropriate treatment would be taken to remediate the site. It is noted that, as indicated in Section 2.2.5, the lagoon will be sited on clayey soils or soils with moisture-retention capabilities. Accordingly, contaminant migration should be sufficiently slow to allow remediation prior to environmental impact.

In the event that the transport of the lagoon slurry to select agricultural fields or transport within an agricultural field resulted in a spill, the Colony would take appropriate steps to clean up waste and/or redistribute waste evenly across cultivated fields. Given the properties of trivalent chromium and the dilution of both Cr^{+3} and salts, even a large spill of waste in a localized area is not anticipated to have an environmental impact.

4.3.2 Containment Failure

As indicated in Section 2.5.4, bulk chemicals being stored on site for use in tannery operations will be equipped with secondary containment providing 110% capacity spill-protection. In the event of containment failure of either bulk acidic or caustic materials on-site, however, that caused localized acidification or alkalinization of the underlying soil, the Colony would notify Manitoba Conservation, take steps to prevent the migration of contaminants, and remediate the contaminated soil.

4.3.3 Inadvertent Mixing of Certain Waste Streams

One area identified as having potential concern with respect to process management is the inadvertent mixing of unprocessed waste streams, L-2 and L-5 (cf. Section 2.4.2.1). Waste streams L-2 and L-5 are chemically incompatible if mixed. Stream L-2 originates from the sulphide oxidation of the dehairing process. Prior to release to the lagoon storage area all sulphides must be oxidized to sulphates and thiosulphates. This is accomplished via air oxidation in conjunction with manganese sulphate (catalyst).

Waste steam L-5 originates from the chrome-tanning process. Stream L-5 is acidic (pH 3-5) and undergoes chrome precipitation to remove excess chromium prior to recycling. The accidental mixing of un-processed or partially processed stream L-2 and stream L-5 would result in the immediate release of hydrogen-sulphide gas. This situation can be mitigated by strict adherence to testing for the presence of sulphides prior to discharge to the storage lagoon. The lead acetate paper test will be used as part of the daily on-line process checks established during tannery commissioning.

4.3.4 Vehicular Accident

In the event of a spill involving Colony trucks and drummed acid or caustic and/or non-hazardous waste, the R.M. of Thompson and Manitoba Conservation would be contacted and appropriate cleanup action would be taken.

5.0 PUBLIC CONSULTATION

No public consultation was conducted as part of this assessment because:

- The closest community is 4.8 km north of the proposed facility.
- Only one neighbour lives within 400 m of the Colony.
- There are only six homes within a 2.4-km (2-mile) radial distance.
- All of the surrounding land uses are agricultural, most of them involving similar animal-husbandry activities.
- Operations of the tannery will not be continuous, occurring only in winter when few neighbours could be affected.
- The Colony owns 13 km^2 of land surrounding the tannery, creating a large buffer area around the facility.

In addition, the Colony advised that it has communicated informally with a few neighbouring farms about the proposed development. No individuals indicated any concern for this scale of seasonal operation located within an area of active animal husbandry and agriculture.

6.0 CONCLUSIONS

6.1 ASSESSMENT RESULTS

Tetr*ES* was retained to undertake an independent Environmental Impact Assessment of the proposed seasonal deer-hide tannery development and has completed the required assessment of its consequences. On the basis of the preceding sections of this report, no significant environmental impacts from the construction and operation of the proposed development are expected.

The seasonal operations of the proposed development, combined with the agricultural nature of the area (and resulting few immediate neighbours), will further preclude normal nuisances associated with such a development.

Tannery operations will be standard for the industry. Wastes will be either:

- Sent to a lined lagoon.
- Recycled.
- Properly disposed of in a licensed landfill or Hazardous Waste facility.
- Responsibly applied to Colony agricultural lands.

In the event that regulators are opposed to the mixing of manure waste with tannery wastes after two years of operations, the Colony will provide an additional cell for the exclusive containment of tannery effluent within the lagoon. The Colony will incur the additional costs of separately storing, pumping and spreading manure and tannery waste on ultimately the same environmental receptor, the soils within the Colony's agricultural fields.

7.0 REFERENCES

7.1 LITERATURE CITED

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7.2 PERSONAL COMMUNICATIONS

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Hofer, L. 2005. Conversation between Karen Mathers and Mike McKernan of Tetr*ES* Consultants Inc. and Levi Hofer of Miami Colony Farms Ltd. regarding the Colony and the proposed tannery development.

McConnell, B. 2005. Conversation between Karen Mathers of Tetr*ES* Consultants Inc. and Brian McConnell, Tannery Run Sales, regarding the proposed tannery development and the operation of other tanneries.

McConnell, B. 2006. Conversations between Karen Mathers of Tetr*ES* Consultants Inc. and Brian McConnell, Tannery Run Sales, regarding the proposed tannery development, the Colony's bench-scale testing results, and the operation of other tanneries.

APPENDIX A

ENGINEERING DESIGN FOR NEW COLONY LAGOON

DGH ENGINEERING LTD.

PROFESSIONAL SERVICE - PRACTICAL SOLUTIONS

MIAMI COLONY

EARTHEN MANURE STORAGE BASIN
RM OF THOMPSON
LEGAL: NE 4-4-6 W
E.M.S. IN-SITU SOIL TYPE

DRAWING INDEX

ISSUED FOR CONSTRUCTION

ENGINEERS SEAL

PROVINCE OF MANITOBA
C. LID
Member
22982
2006-6-22
REGISTERED PROFESSIONAL ENGINEER

REVISION

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DGH ENGINEERING LTD.
PROFESSIONAL SERVICE - PRACTICAL SOLUTIONS
12 AVIATION BLVD, ST. ANDREWS, MB R1A 5N5
PHONE: (204) 8346846 FAX: (204) 8346835

CLIENT

MIAMI COLONY
BOX 131
MORDEN, MANITOBA
R6M 1V9

PROJECT TITLE

EARTHERN MANURE
STORAGE BASIN
RM OF THOMPSON

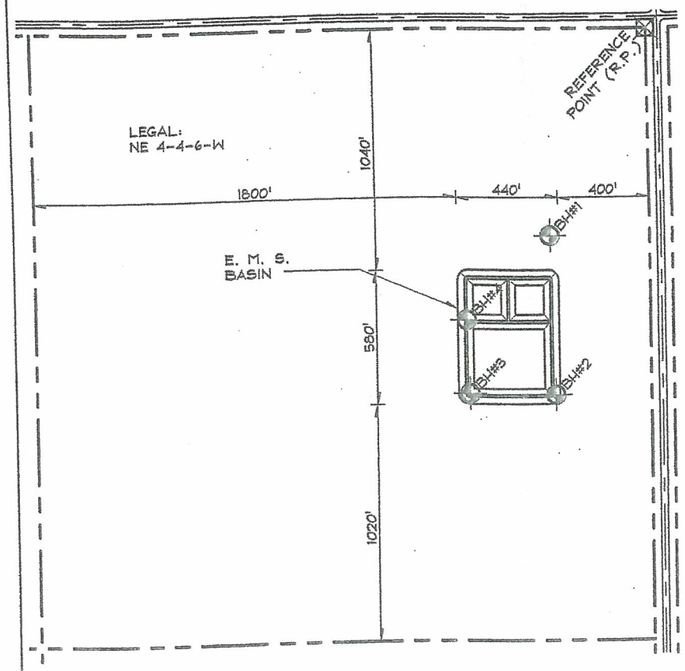
LEGAL DESCRIPTION

NE 4-4-6 W

PROJECT NUMBER: 06-1-1400-005-10 DATE: JUNE 2006

COVER PAGE & DRAWING INDEX

DRAWING NO. REV.

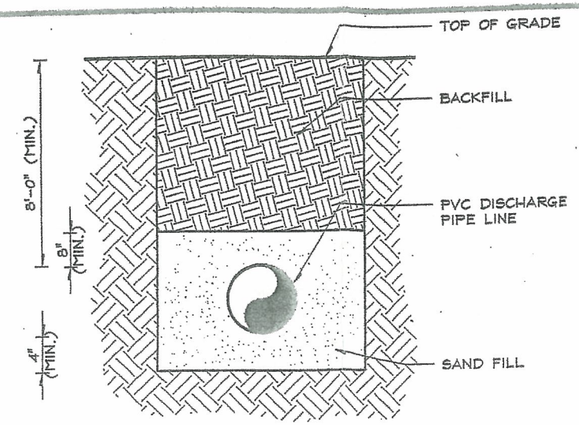


SITE PLAN - OVERALL

BORE HOLE SCHEDULE		
MARK	N. - S. AXIS	E. - W. AXIS
BH#1	892' S. of R.P.	436' W. of R.P.
BH#2	1580' S. of R.P.	418' W. of R.P.
BH#3	1574' S. of R.P.	790' W. of R.P.
BH#4	1257' S. of R.P.	800' W. of R.P.

NOTE:
ALL DISTANCES ORIGINATE FROM REFERENCE POINT (R.P.), IDENTIFIED AS STEEL PEG w/ RIBBON AT CORNER OF PROPERTY LINES

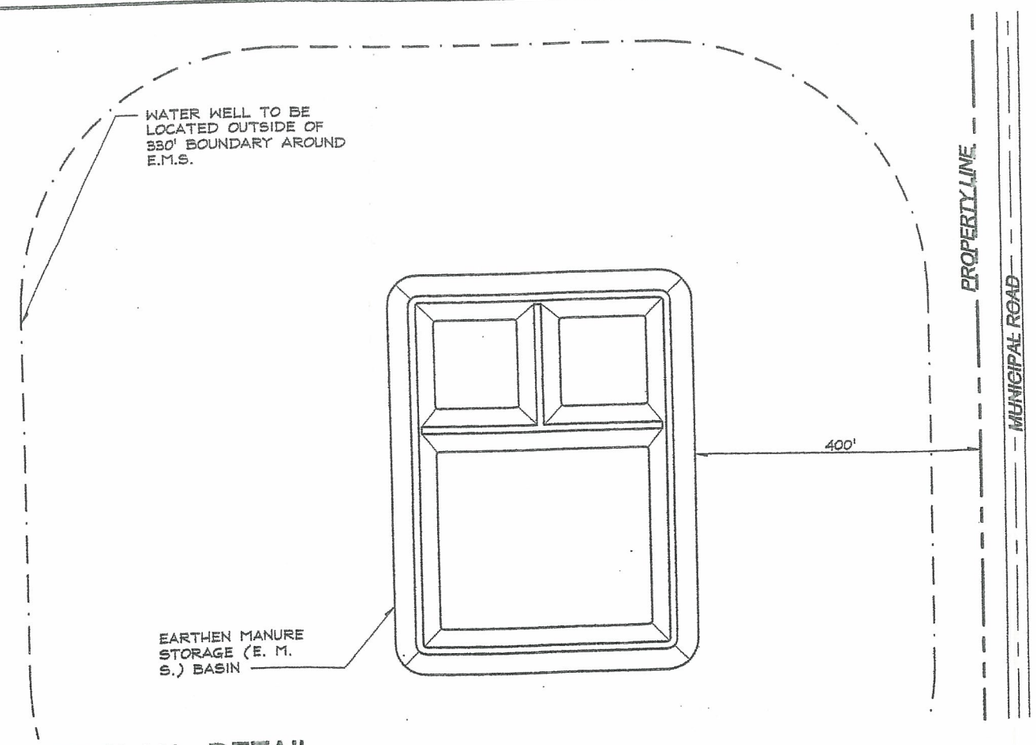
- W — INDICATES WATER WELL LOCATION
- BH#1 — INDICATES BORE HOLE LOCATION & NUMBER
- MW#1 — INDICATES MONITORING WELL LOCATION & NUMBER
- LS1 — INDICATES MANURE LIFT STATION LOCATION & NUMBER
- MW1 — INDICATES MANURE WET WELL LOCATION & NUMBER



PIPE BURIAL DETAIL

MANURE TRANSFER SPECIFICATIONS:

1) DISCHARGE PIPE FROM BARN TO EMS TO BE 8"ϕ PVC, SERIES 100 SDR41.
2) BEDDING SAND SHALL BE PLACED AND THROUGHLY COMPACTED
3) CONDUCT PRESSURE TEST, SITE CONFIRM WITH ENGINEER.
4) CLEAN-OUT SHALL BE INSTALLED EVERY 800' IN TWO DIRECTIONS



SITE PLAN - DETAIL

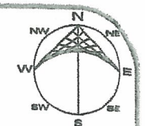
PIPELINE PRESSURE TEST:

HYDROSTATIC TESTS ON ALL PORTIONS OF THE COMPLETED PIPELINE SHALL BE PERFORMED UNDER THE DIRECT SUPERVISION OF DGH ENGINEERING LTD.

HYDROSTATIC TESTING SHALL NOT COMMENCE UNTIL AT LEAST 72 HOURS AFTER THE INSTALLATION OF THE LAST THRUST BLOCK ON THE LINE TO BE TESTED. PRIOR TO HYDROSTATIC TESTING, THE LINE(S) SHALL BE FILLED SLOWLY WITH WATER AND ALL AIR SHALL BE EXPELLED FROM THE LINE. AIR VENTS SHALL BE LOCATED AT ALL HIGH POINTS IN ORDER TO ALLOW THE AIR TO BE EXPELLED AS THE LINE FILLS WITH WATER. THE TEST PRESSURE SHALL BE VERIFIED WITH ENGINEER. THE TESTS SHALL NOT COMMENCE UNTIL A MINIMUM OF 24 HOURS HAS PASSED SINCE THE PIPE WAS FILLED WITH WATER.

THE DURATION OF EACH TEST SHALL BE NO LESS THAN TWO HOURS. AT THE END OF THE FIRST HOUR, THE PRESSURE SHALL BE BOOSTED TO THE INITIAL VALUE . AT THE END OF THE SECOND HOUR, THE PRESSURE SHALL BE CHECKED. THE DROP IN PRESSURE SHALL NOT EXCEED 2% OF THE TEST PRESSURE. IF THE PRESSURE DROP IS IN EXCESS OF THIS, THE OWNER SHALL FIND THE LEAK, CORRECT IT, AND REPEAT THE TEST UNTIL THE LINE CAN SHOW A PRESSURE AND DROP OF LESS THAN 2% OF THE TEST PRESSURE IN ONE HOUR.

AS AN ALTERNATIVE, A PRESSURE DROP OF NO MORE THAN 15% OF THE TEST PRESSURE OVER A 12 HOUR PERIOD SHALL BE ACCEPTABLE.



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PROFESSIONAL SERVICE - PRACTICAL SOLUTIONS
12 AVIATION BLVD, ST. ANDREWS, MB R1A 3N5
PHONE: (204) 334-8946 FAX: (204) 334-8629

CLIENT
MIAMI COLONY
BOX 131
MORDEN, MANITOBA
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PROJECT TITLE
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RM OF THOMPSON

LEGAL DESCRIPTION
NE 4-4-6 W

PROJECT NUMBER: 05-1-1400-005-10 DATE: JUNE 2005

MANURE TRANSFER SYSTEM - SITE PLAN, DETAILS & NOTES

DRAWING NO. C1.1 REV. R00