

Environment Act Licence

Manitoba
Environment



Licence No. 1731
Issue Date DECEMBER 17, 1993

In accordance with the Manitoba Environment Act (C.C.S.M. c. E125)

THIS LICENCE IS ISSUED TO:

The Rural Municipality of Macdonald: "the Licencee"

for the construction and operation of the Development being a municipal water distribution project in the vicinities of Brunkild and Oak Bluff subject to the following specifications, limits, terms and conditions:

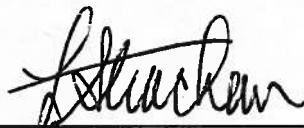
Specifications, Limits, Terms and Conditions

1. The Licencee shall construct the Development in accordance with the Environment Act Proposal dated September 10, 1993, submitted by the Manitoba Water Services Board on behalf of the Licencee.
2. The Licencee shall construct stream and drain crossings by boring, tunnelling or augering under the bed as described in the Proposal. The Licencee shall not undertake any method of watercourse crossing other than that authorized by this Licence without prior written approval from the Director.
3. The Licencee shall re-establish the profile, compact and seed all excavated areas within the rights-of-way of provincial roads and provincial highways.
4. The Licencee shall obtain all necessary permits and agreements from Manitoba Highways and Transportation and the Highway Traffic Board prior to undertaking construction on or adjacent to highway rights-of-way.
5. The Licencee shall separate and replace topsoil from backhoe and trenching operations in accordance with the methodology described in Figures 1, 2 and 3 attached to this Licence. This requirement is not applicable where the topsoil has been previously disturbed due to the construction of roads or drains.
6. The Licencee shall ensure that the operation of the municipal water supply is in accordance with Manitoba Regulations under the Public Health Act and all operating requirements as recommended by Manitoba Environment.

7. The Licencee shall ensure that all waste oil products generated by the machinery used in the construction of the Development are collected and disposed of in accordance with applicable Manitoba Environment and legislation requirements.
8. The Licencee shall, during construction, ensure that fuel storage areas established for the construction of the Development shall comply with the requirements of *Manitoba Regulation 97/88R* respecting *Storage and Handling of Gasoline and Associated Products*.

Revocation

If, in the opinion of the Director, the Licencee has exceeded or is exceeding the limits, or has not complied or is not complying with the specifications, terms or conditions set out herein, the Director may revoke this Licence either temporarily or permanently.



Larry Strachan, P. Eng.
Director,
Environment Act

File No: 3477.10

R/W
BOY.

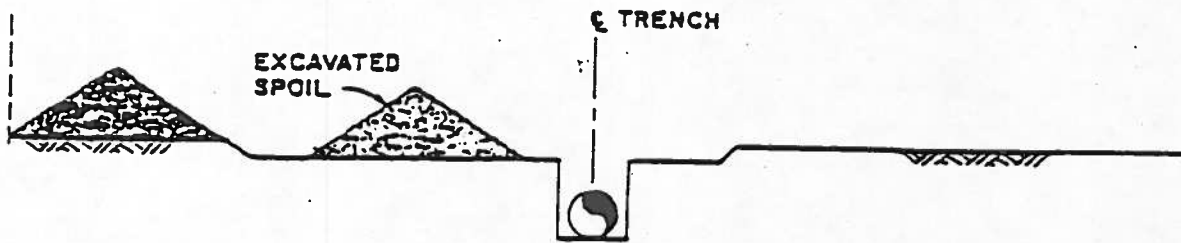
SPOIL SIDE

WORK SIDE

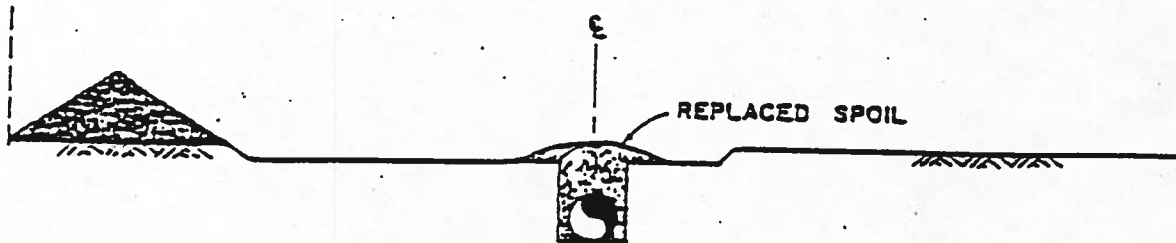
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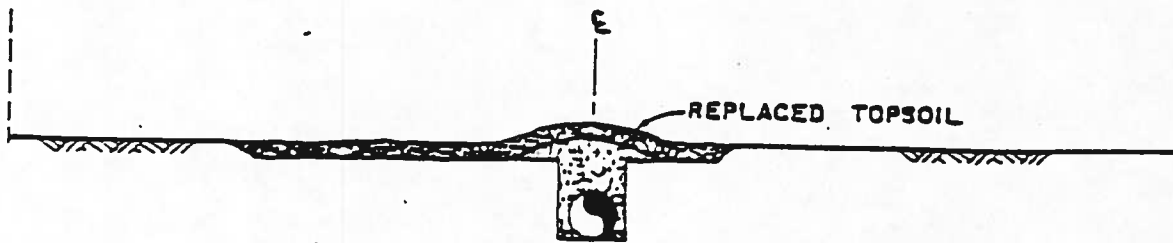
1. TOPSOIL STRIPPED
N.T.S.



2. TRENCH EXCAVATED
N.T.S.



3. TRENCH BACKFILLED
N.T.S.

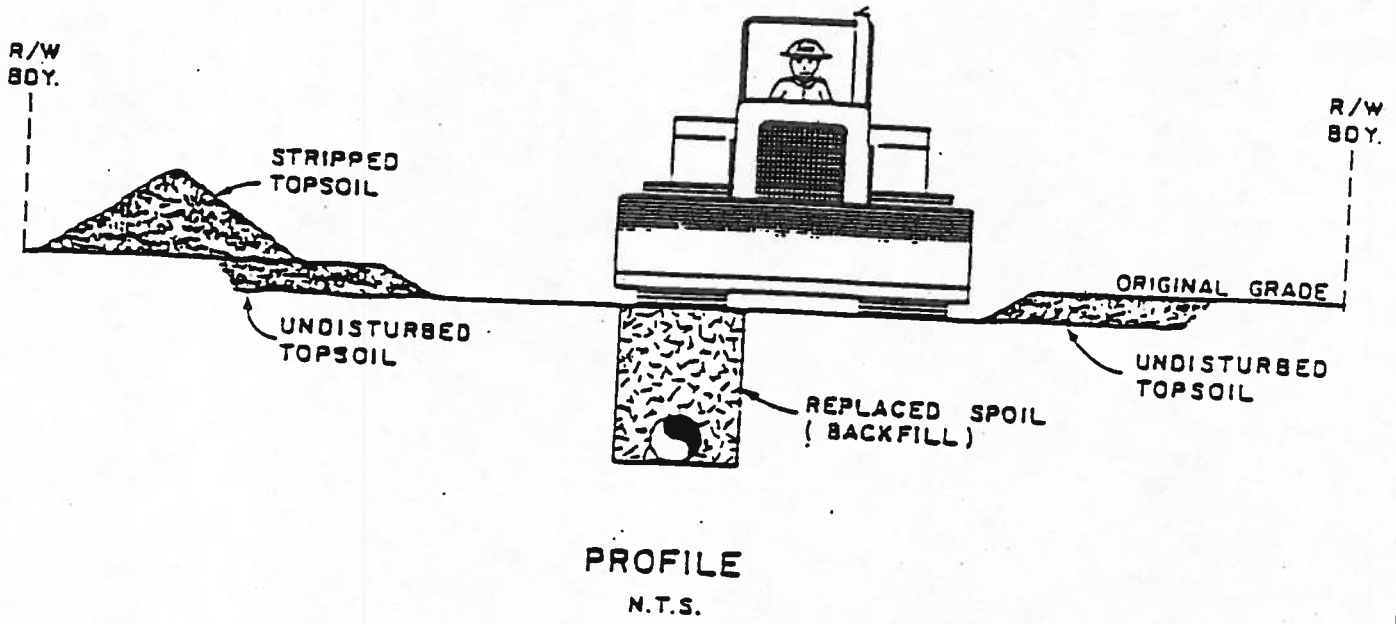


4. TOPSOIL REPLACED
N.T.S.

SEQUENCE OF TOPSOIL HANDLING

FIGURE 1

WIDTH OF TOPSOIL STRIPPING

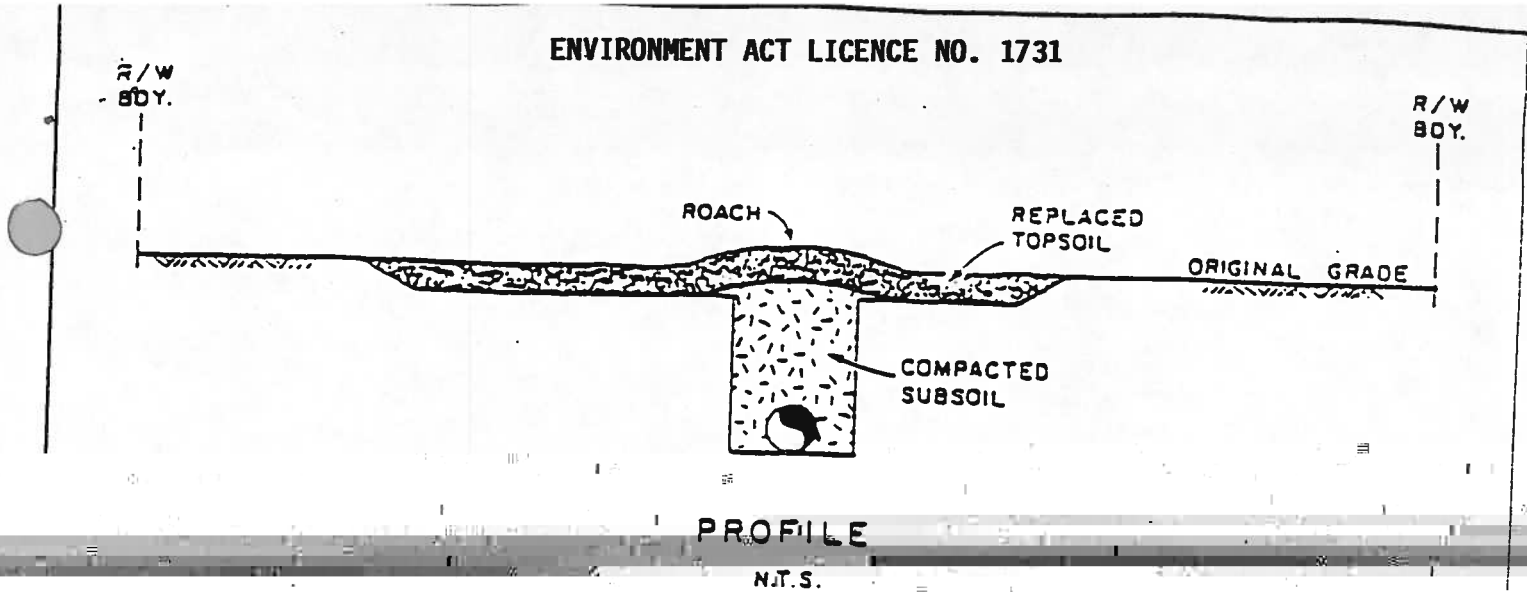


Notes

1. Except in rocky or muskeg areas, compact the backfilled subsoil to minimize settlement. The degree of compaction which can be achieved is limited by soil type, frost and moisture content, depth of cover, pipe strength and insulation, and other factors. Typically, compaction is achieved by a few passes with a crawler tractor. In special cases such as irrigated fields and open cut road crossings, 100% compaction is desirable and requires special equipment and compaction in multiple lifts.
2. Dispose of excess subsoil in locations satisfactory to the landowner and in a manner which will prevent mixing with topsoil.

COMPACTION OF BACKFILL

FIGURE 2



1. Roach the trench to compensate for settlement and changes in natural drainage patterns. The height of the roach depends upon land use, the degree of compaction activity, and soil type. Frozen soils require higher roaches than non-frozen soils. In agricultural lands, including forested lands in the yellow area, the roach should be low and wide (unfrozen case) to facilitate topsoil replacement. A higher roach is acceptable on forested land provided drainage and wildlife are unaffected. Typical values for roaching of representative soil types are presented below. The high numbers in the range represent the worst case (frozen or clods).

Type of Backfill	Swell Coefficient (r)
blasted rock	.00 - .05
sand & gravel	.05 - .10
sand	.08 - .15
silty sand	.10 - .15
silt	.10 - .20
clay	.10 - .25
organic (muskeg)	

$R = r \times D$ where R = height of roach
 r = swell coefficient
 D = depth of trench

2. Leave periodic gaps in roach (e.g., 250 m), at all obvious drainage courses and at trench breakers (Dwg. No. 12-3a and -3b) to allow for surface run-off. These gaps may require maintenance the following year to fill in settled areas.
3. Replace topsoil evenly after trench has settled or has been compacted.

Source: Formula adapted from Transcanada Pipelines, 1979.

ROACHING THE TRENCH

FIGURE 3