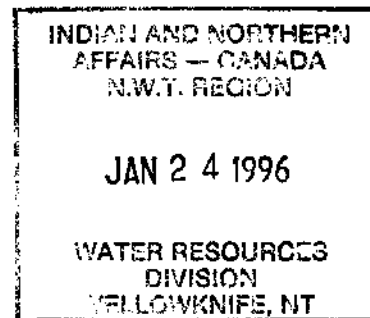
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Our File: 95-2832-01

January 22, 1996

Indian & Northern Affairs Canada
Water Resources Division
Box 1500
Yellowknife, NWT
X1A 2R3

Attention: Brian Collins
Water Resources



**Sewage Lagoon
Grise Fiord**

Dear Mr. Collins:

We have reviewed the letter you received from UMA Engineering Ltd. regarding the comments that were made on the construction drawings. At your request, we have reviewed UMA's comments and provide the following clarifications.

- **Erosion Protection on Ditches**

The letter from UMA expressed concern with the comments that were forwarded to them from your office. Your letter, dated November 10, 1995, indicated that all ditches require rip-rap protection. It was not the intent of our comments that all ditches require the protection. We indicated that the ditch on the west side of the proposed lagoon require rip-rap erosion protection. Ditches with erosion protection are noted as "Type A" ditches on the construction drawings. UMA commented that not all ditches require this protection and the criteria for erosion protection is based on flow velocities and volume considerations. These criteria, we feel indicate that the west ditch does require protection for the following reasons:

- The ditch immediately upstream of the west ditch is noted on the drawings to require erosion protection. This indicates that upstream of the west ditch there is sufficient flow velocity and volume to warrant protection.

...continued

Mr. Brian Collins

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January 22, 1996

- The lagoon overflow channel is located immediately upstream of the west ditch. This will increase the flow volume over that of the upstream ditch.
- The contours on the drawing indicate that the natural ground slope becomes steeper in the area of the west ditch. This indicates that the velocities in the west ditch will increase over the velocity of the upstream ditch.

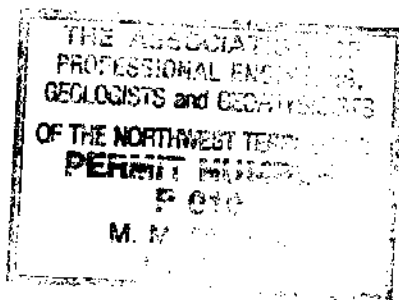
The above would suggest that the flow velocities and the discharge volumes that are to be carried by the west ditch will be greater than the ditch upstream and will require that the west ditch is to be protected from erosion. Therefore, a type "A" ditch in this area is considered appropriate.

- **Erosion Protection on the Slopes of the Inside Lagoons**

UMA indicated in their letter that the interior of the dike walls do not require erosion protection in the cut portion of the slope, and that this construction technique is by recommendation of their geotechnical subconsultant. Upon your approval, we solicited the geotechnical report from UMA. A copy of this report is attached for your reference and files. The report does not include any reference to the construction of cut slopes for the lagoon walls.

We retained EBA engineering to review the geotechnical report and provide comments on the wall's construction details. Their comments are included in a letter that is attached. In summary, EBA Engineering indicates that the interior slopes do require erosion protection, as indicated in our earlier letter. They also provide some additional comments on the thermal analysis and the stability of the lagoon wall at the overflow channel.

Should you require further clarification or, if you would like our assistance in drafting a response letter to UMA, please do not hesitate to call. We trust that these comments are acceptable.



GS:gs
Encl.

