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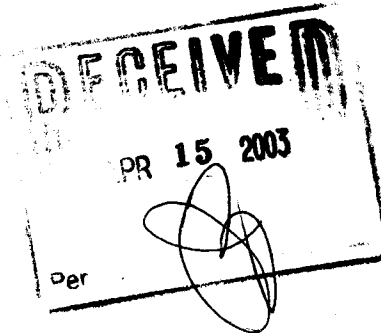
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April 2, 2003

File No. 03-048

Jim Harmer
Township of East Zorra-Tavistock
Box 100
Hickson ON N0J 1L0



RE: STRAUSS DRAINAGE PROBLEM / TAVISTOCK DRAIN 1987

Dear Jim:


As requested, I have reviewed the Tavistock Drain 1987 in the area of the Strauss property shown as Roll No. 247-10 on the Tavistock Drain 1987 drawing. This property is on the south side of Rudy Avenue and is on the west side of the unopened road allowance for Holley Avenue. Within this road allowance the 675 (27") Main Drain of the Tavistock Drain 1987 exists.

It is my understanding that the owner has water ponding in his rear yard whenever any heavy rainfall situation exists. It is my further understanding that a catchbasin was installed previously by the Municipality to rectify this but the lead for such catchbasin was joined to an individual field tile, and that there may be problems with this field tile. It is my understanding that I am being requested to advise as to what size of lead be used from a catchbasin, either the existing basin or a new basin, on this property, and have such joined to the adjacent Tavistock Drain 1987.

I made a review of the Tavistock Drain 1987 and it is evident that the drain was designed for a 2-year event using the Rational design method. I determined from the review of the report that most catchbasins on the drain have small diameter leads into the main tile. I also determined that there are private drain connections provided to most properties. I made an analysis as to what the accumulated flows could be from the catchbasin leads and house leads and then compared such to the capacity of the drain. For the Branch A Drain I based its contribution on the flow when the pipes on Fuhr and Wellington Streets are flowing full. I found that in the portion adjacent to the Strauss property, that there is substantial reserve but in the section downstream, the reserve is 0.1 cfs. A lead of 100mm (4") in diameter would pass approximately 0.5 cfs into the drain.

I have been advised that some of the existing catchbasins which were included in the capacity calculations have very little water actually entering them (my field review confirmed this). It is also my understanding that when this drain was observed (near the Holley and Rudy Avenue intersection during a heavy runoff period that it was only flowing partially full. This could result since the time to peak for the Branch A Drain serving the Fuhr and Wellington areas may be different than the portion serving the Holley, Henry Vogt and Rudy Avenue areas.

All flow calculations are based on storm drainage waters only and do not consider the possibility that sanitary flows could be in the storm drain.

Considering the above, it is my opinion that a catchbasin with a 4" lead could be safely joined to the adjacent 27" pipe of the Main Drain. I would recommend that the connection be made using a "wye" to improve the efficiency of the connection. 

The one assumption that I made in this calculation is that minimal top waters enter the manhole at the junction of the Branch A and Main Drain. Although staff have advised that this assumption is correct, I would recommend that a manhole grate rather than a catchbasin grate exist on this catchbasin.

While doing this analysis it became evident that the limiting section in this Tavistock Drain 1987 is the section from Sta. 900 to 1+139 (239 metres) where the 750mm pipe is at 0.22% grade. This is the interval where the calculated reserve is 0.1 cfs. Downstream of Sta. 900 where the grade increases to 0.51%, an added reserve of 10 cfs is available.

This completes my report on the Strauss drainage problem.

Yours truly,



K. A. Smart, P. Eng.

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