

REQUIREMENTS FOR AN ENGINEER'S REPORT UNDER THE DRAINAGE ACT, R.S.O. 1990

The *Drainage Act* states what must be contained in an engineer's report. Listed below are the various report elements as required by the *Act* as well as other items that are not required by the *Act* but are usually included in a report. The intent of this list is to provide some guidance to the new person who is preparing reports. For this reason, the list covers many minor points that might otherwise be overlooked. The numbers following statements refer to sections and subsections within the *Drainage Act*, R.S.O. 1990.

A report shall include plans, profiles, and specifications of a drainage work including a description of the area requiring drainage, [s. 8(1a)].

- It is desirable to show the boundary of the watershed as well as the drain's location on the plan. If watershed boundaries of branches are shown, future maintenance assessments will be more easily determined by the municipality.
- The names of property owners on the plan will assist the landowners in understanding the plan. It is also helpful to show on the plan of the drainage area the same parcel identifiers, such as name and/or roll numbers, that are used in the schedule of assessment.
- Indicating survey stations on the plan at line fences and other significant locations would also be useful.
- Profiles generally show ground, present drain elevations and proposed drain elevations. It is also useful to show on the profile or list separately cuts from ground to drain bottom.
- The report must contain and describe sufficient bench marks or permanent levels. [s. 13(2)] Bench marks should be as permanent as possible and practical so that future maintenance may also be governed. Geodetic reference is desirable.
- The Act requires the engineer's report to be based on metric units but imperial equivalents can be shown as well if this makes the report more easily understood.
- The manner of disposal of material must be included in the report. [s. 16] This should be clearly stated so that the landowner understands how it affects his land. It would also be advisable to indicate how excavated material from future maintenance should be disposed. Provisions for rock and hardpan disposal should be spelled out.
- The engineer must provide for bridges or culverts and any replacements rendered necessary when crossing any public road. [s. 17]
- The engineer shall also provide for the construction of bridges, culverts, and pumping stations on private lands unless allowances are considered. [s. 18, 33]
- The location, size, and length of bridges should be described in detail for the

landowner's information. Specifications should cover exact details such as rip-rap, backfilling, etc. If an allowance is paid in lieu of a bridge, the minimum size of crossing should be specified.

- The engineer must designate a working space for the contractor. [s. 63(1)] The engineer should also designate access to the drainage works for construction and future maintenance. The working space should be defined for future maintenance. This might be more or less than the original working space.
- The engineer might also wish to define the drain. This would assist the municipality in enforcing section 80, which deals with obstructions. A drainage ditch might be described as including ditch bottom, sides and a width along the bank. A closed drain might be defined as including the ground surface above the drain, which might be graded or may be a grassed waterway. The starting and end points should also be described.

- Specifications might include the following:
 - brush removal;
 - fence crossings;
 - tile standards and procedure for testing;
 - reference might be made to "Drainage Guide for Ontario" for construction practices;
 - catch basin standards;
 - provisions for crossing utilities and roads;
 - safety requirements;
 - clean up after construction;
 - seeding specifications, including timing, seed and fertilizer rates, application method;
 - backfilling of drains;
 - erosion control measures.

- The report along with all plans, drawings and specifications should all be signed and sealed by the Engineer. Each of these documents should reference the name of the drain and a consistent date.

A report must contain an estimate of cost. [s. 8(1b)]

- The fees and expenditure of the engineer form part of the cost of the drainage works. Section 73(1) defines other costs that are deemed to be part of the cost of the project. Allowances and bridges are also eligible costs. Section 73(2) and (3) defines the costs that are not part of the cost of a drainage work.
- The report must contain a separate estimate of cost of the work within each municipality affected. [s. 27]

A report must contain an assessment schedule. [s. 8(1c)]

- The engineer shall assess for benefit, outlet liability and injuring liability. [s. 21]
- The three types of assessments must be listed in separate columns, opposite each parcel of land. The affected area, including areas assessed for cutoff benefit, must also be shown in hectares. Assessments in each municipality must be listed separately. [s. 21, 35, 36, 37] Also a separate listing of assessments for each branch would be useful, especially for purposes of future maintenance assessments.
- Assessments for the cost of lateral drains must be listed. [s. 37]
- Assessments against non-agricultural lands must be indicated. [s. 37]
- The engineer may be directed to assess a built-up area as a block. [s. 25, 1(3)]
- The report might also include a separate schedule of assessment for future maintenance or might include adjustments for future maintenance. [s. 38] Great care must be taken in the wording of the maintenance section of the report to avoid confusion concerning the assessment of future maintenance and repair.
- A special benefit assessment might also be included. It is desirable to include the reason for the special benefit for the information of the landowners. [s. 24, 1(28)]
- The *Drainage Act* provides that any additional cost due to crossing a road or public utility shall be charged to the road or utility. In the report it should state that the amount is to be based on actual cost less cost which would have occurred if the road or utility did not exist. [s. 26]

The report shall include allowances, if any. [s. 8(1d)]

- If applicable, the engineer shall provide allowances for:
 - land that is necessary to use for the drainage works [s. 29];
 - damages to ornamental trees, lawns, fences, lands and crops caused by the disposal of materials removed from the drainage works [s. 30];
 - existing drains, if incorporated into the drainage works [s. 31];
 - insufficient outlet, instead of bringing the drain to a sufficient outlet [s. 32];
 - loss of access instead of providing a crossing [s. 33].

The report shall include other matters as provided under the Act. [s. 8(1e)]

- Abandonment of any drain or part thereof. [s. 19] When a portion of a drain is being replaced or relocated, the engineer should outline the part of the drain that is to be abandoned. Examples of this include:
 - abandon the old tile municipal drain being replaced by a new tile
 - abandon the open municipal drain which is being filled in and replaced with a tile
 - abandon the open municipal drain which is being partially filled in and replaced with a combination tile and swale.
- An engineer may be asked to prepare a report on the abandonment of a drain. [s. 84]
- Work may be done before the report is adopted or prepared if an emergency is declared by the Minister of Agriculture, Food and Rural Affairs. Later, a report as defined in the Act must be adopted describing the emergency work. [s. 124]
- Many engineers make reference to sections 80 and 83 in their reports. It is desirable to indicate that s. 80 refers to obstructions, etc. and s. 83 to the pollution of drains.
- An engineer may have to report that a drain is not required or is impractical or cannot be constructed [s. 40], that a petition is invalid [s. 9(4)], to vary an assessment schedule [s. 76(2)] or prepare an environmental appraisal or a benefit cost statement.

Other items not included in the Act may also be in the engineer's report.

- A brief outline and history of the drain is desirable as it is a source of background for the landowners, utilities, government, etc. and will be useful to future engineers doing improvement reports. Listing the concerns of various government agencies that were considered would prove beneficial.
- If the reason for the drain is to provide outlet for tile drains and the drain does not provide outlet for all lands it is desirable to state so in the report.
- The report may contain provision for any work that the engineer feels is beneficial to a drain such as erosion control structures, fencing, ponds, rip-rap of private drains, etc. Items such as these may be requested from time to time and should be included where they will prolong the effective life of a drain.
- It is imperative that the engineer's report be thorough. Once the report is submitted to council, no changes can be made unless the complete report is referred back to the engineer for revision [s. 57] or if the report is referred to the Drainage Tribunal for correction of a gross error. [s. 58(4)] There is no other provision in the Act for changing the report.