



Policy Name

High Water Table Assessment

Policy Number

PD – 20

Policy Statement

High water tables are a common feature within Brazeau County due to the soil types, vegetation and water features contained within the western portions of Alberta. The role of the Planning & Development department is to ensure that any subdivision of land establishes a site suitable for the use intended based on zoning and that development on a site, whether subdivided or not, is not jeopardized by the presence of a high water table.

To this effect, Brazeau County will seek to:

- Educate applicants/owners on the potential subdivision and development restrictions of land due to a high water table if present;
- Establish criteria for use in assessing a site to determine whether a high water table may be present; and
- Facilitate options for development of a site that may contain or has a proven high water table;

Policy

a) Subdivision or Development Permit Application Initial Review

Purpose

The Planning and Development Department (P&D) receives applications for development permits and subdivisions. As part of the review process for each application, the file manager determines whether there are site specific considerations that need to be addressed such as a high water table.

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Procedure

When an application is received, P&D will utilize the following procedure to conduct an initial review of the application to assess whether a high water table may be present:

- 1) The Planning & Development Coordinator will review and assign the file. If/once assigned, the Development Officer will review the file again.
- 2) Aerial imagery will be utilized as the first step in the desktop review process. Planning staff will look at the imagery for the lands subject to the application and surrounding lands for obvious surface water features including lakes, streams, ponds, and wetlands. If there are natural water features on the subject properties or nearby, this will trigger the requirement for a mandatory site inspection by the file manager.
- 3) All subdivision and bare land development permit applications are circulated to the Community Services and Public Works & Infrastructure Departments. Referral comment sheets are provided where each department can provide feedback on items including drainage and a potential high water table.
- 4) After receiving back referral comment sheets, if any potential high water table or drainage concerns are noted, the file manager will conduct a mandatory site inspection.

b) Subdivision or Development Permit Application Site Inspection

Purpose

All subdivision and development permit applications are subject to a site inspection as required. Site inspections allow a file manager to confirm the site characteristics including whether slopes, water features, high water table or other impediments to development are present. Brazeau County shall conduct mandatory site inspections for all sites suspected of having a high water table.

Procedure

When a high water table is suspected, P&D will utilize the following procedure when conducting a site inspection:

- 1) The file manager will contact the applicant/owner to request a site inspection. The applicant/owner will be notified of the date and approximate time the site inspection will occur.

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- 2) Once on site, the file manager will use the criteria and definitions established in Section C to determine whether a high water table may be present.
- 3) If a potential high water table is determined, the file manager will contact the applicant/owner to inform them of the situation and discuss potential options as per Section D.

c) Criteria for Establishing a High Water Table

Purpose

During the initial review process and subsequent site inspection, the file manager shall utilize the following criteria and definitions for determining whether a high water table may be present. The following information is obtained from the Government of Alberta's *Environmental Guidelines for the Review of Subdivisions in Alberta*:

General Description of the Water Table

The water table is that surface of a body of unconfined groundwater at which the pressure is equal to that of the atmosphere (Driscoll 1986). The water table can be viewed directly by drilling an observation well into this groundwater body and waiting for the water level to stabilize. Repeated measurement of the water level in this well over a year or so will likely reveal that the water level fluctuates, perhaps by a metre or more. The water table to ground surface separation may also vary considerably over small distances as revealed by simultaneous measurement of water levels in neighbouring wells. The water table level in a well is influenced by such factors as weather, season, water levels of nearby water bodies or water courses, groundwater discharge, surficial stratigraphy and topography.

High Water Table Area and Constraints to Development

A high water table area is defined as any area where the water table is within 1.8 metres (6 feet) of the ground surface during the frost free period up until the end of August; and within 2.4 metres (8 feet) of the ground surface during the remainder of the year. This definition recognizes that the water table will probably be elevated in the spring due to the infiltration of snowmelt and during the summer rainy season. High water table levels can:

- adversely affect the functioning of a sewage disposal system, which could lead to shallow groundwater and/or surface water contamination;

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- render the area unsuitable for residential basement construction, interfere with the construction of roads, etc.

Topography

The water table is generally a subdued reflection of the topography. Therefore, elevated areas within the site such as knolls, mounds, etc. will tend to have lower water table conditions (greater water table to ground surface separation) than those associated with depressions and valley bottoms.

Water Courses and Water Bodies

Areas adjacent to water courses and water bodies often have high water table conditions. Search for areas which are flat, nearly level and are only slightly higher than the water surface elevation when examining topographic maps, air photos or conducting a site inspection.

Vegetation

Vegetation type, which is probably the most sensitive indicator, tends to reflect the interplay of various factors and the resultant long-term range of water table levels. Areas forested in aspen probably have low water table conditions. A transition from low to high water table conditions can sometimes be detected by the presence of white birch and balsam poplar. High water table conditions are encountered in wetlands such as bogs, fens and marshes. These areas are usually flat or very gently sloping. In bogs, black spruce, tamarack, dwarf evergreen heaths and sphagnum moss predominate. Sedges, willows, dwarf birch and tamarack are characteristic plant species of fens. Marshes are usually found in association with shoreland areas and abound in sedges, cattails, rushes and grasses.

d) Potential High Water Table, Restrictive Covenant, and High Water Table Study Requirements

Purpose

When a potential high water table is determined, the file manager shall inform the applicant/owner of the situation and determine next steps for subdividing/developing the

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land. The file manager shall provide options as per this policy, the Land Use Bylaw, and any other relevant documents or legislation pertaining to the developability of the site.

Procedure

The following options shall be provided to the applicant/owner if a high water table is determined:

- 1) For a development permit:
 - a. The applicant/owner can move the development to a suitable area of the site where no high water table is suspected.
 - b. If the applicant/owner cannot or chooses not to move the development and the applicant/owner is proposing subgrade development (i.e. basement), a high water table study will be required. The study shall be conducted by a qualified professional (P. Eng, P. Biol, etc.) and will be stamped and signed accordingly. The study shall delineate a developable area, establish water table depth, and provide design and construction recommendations specific to the proposed development. The study shall be registered on title as a Restrictive Covenant and the applicant/owner shall adhere to the study in its entirety.
 - c. If the applicant/owner cannot or chooses not to move the development and the applicant/owner is not proposing subgrade development (i.e. basement), they will be required to register a Restrictive Covenant on the title of the lands noting that no below grade development or discharge/percolation septic systems shall occur. All structures on the site shall be above grade only.

- 2) For a subdivision application:
 - a. The applicant/owner shall ensure that their proposed parcel includes at least one (1) acre of developable area unaffected by a potential high water table.
 - b. If there is not a minimum of one (1) acre of developable area unaffected by a potential high water table, a high water table study will be required. The study shall be conducted by a qualified professional (P. Eng, P. Biol, etc.) and will be stamped and signed accordingly. The study shall delineate a developable area, establish water table depth, and provide design and construction recommendations. The study shall be registered on title as a Restrictive Covenant and the applicant/owner shall adhere to the study in its entirety including at the time of development at a later date.

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- c. If there is not a minimum of one (1) acre of developable area unaffected by a potential high water table and a high water table study is not completed, the applicant/owner will be required to register a Restrictive Covenant on the title of the lands noting that no below grade development or discharge/percolation septic systems shall occur. All structures on the site shall be above grade only.

e) Hazard Areas: Presence of Wetlands, Water Features, Slopes and Environmentally Significant Areas

Purpose

During a site inspection, the file manager may note that there are other site features that may impede development or provide an unsafe area for subdivision and development. If these areas are encountered, the file manager shall adhere to all relevant provincial and County policies and legislation dealing with hazard areas.

Procedure

If during a site inspection, other hazard areas are observed, the file manager shall refer to County policy and bylaws to determine next steps. The area(s) will have to be avoided, require a Restrictive Covenant or easement, or potentially further study to assess suitability for subdivision and/or development.

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