

Guidelines for Determining Environmental Reserve (ER) Dedication for Wetlands and Other Water Bodies

The following guidelines have been developed for determining an appropriate buffer zone for wetlands and other water bodies with respect to lands to be dedicated as Environmental Reserve (ER)¹. They are based on several sources of information including a literature review and guidelines from other jurisdictions. For a more thorough explanation of the rationale for these guidelines please consult the accompanying background document.

The Alberta Municipal Government Act Section 664 allows for the City of Edmonton (as a subdivision authority) to take "...part of that parcel of land as environmental reserve if it consists of

- (a) a swamp, gully, ravine, coulee or natural drainage course
- (b) land that is subject to **flooding** or is, in the opinion of the subdivision authority, **unstable** or
- (c) a strip of land, not less than 6 metres in width, abutting the bed and shore of any lake, river, stream or other body of water for the purpose of
 - (i) **preventing pollution**, or
 - (ii) providing **public access** to and beside the bed and shore."

Therefore, ER dedication of an appropriate buffer zone needs to address how to determine areas subject to flooding, areas considered to be unstable and areas required for pollution prevention and public access. These guidelines deal with each of these ER components individually with the intent that the overall ER dedication should be the greatest extent of all of the individual components².

Steps:

1. Determine the boundary of the wetland or other water body.

If the Crown **has** claimed the bed and shore of a water body, a legal survey **is** required to determine the legal bank. Under Section 17(2) and (3) of the Alberta Survey Act, the legal bank should extend through the wetland vegetation and be located where distinct vegetation or soils exist (Kwasniak, 2001). It is also recommended that when the legal survey is conducted by a certified Alberta Land Surveyor, representatives from both the landowners/developers and Alberta Public Lands be present.

If the Crown **has not** claimed the bed and shore of a water body, a legal survey **is not** required but would be beneficial in determining buffer zones requirements. If a developer/landowner chooses not to obtain a legal survey of the bed and shore, a qualified environmental consultant should be retained to define the boundary of the wetland and/or water body. This boundary determination will be subject to approval by the City of Edmonton.

¹ Please note that the River Valley Area Redevelopment Plan (ARP, 1985) provides provisions for determining ER for lands designated within the North Saskatchewan River Valley and Ravine System. These new guidelines may or may not be implemented within the ARP lands. The primary intent of these guidelines is to provide direction for ER dedication within the City of Edmonton not covered by the ARP.

² Please also note that any area required for other wetland functions, in particular for habitat and biodiversity, must be acquired through other means such as municipal reserve or acquisition.

2. The wetland buffer zone should be measured from the boundary of the wetland or water body (legal bank where applicable).
3. Determine the buffer zone width requirements for each of the following components of ER separately (e.g. flooding, unstable lands, pollution prevention and public access)

a. Flood Protection:

The following steps should be taken to determine the appropriate floodplain:

- 1) Determine the boundary (legal bank/ bed and shore where applicable) of the wetland or water body.
- 2) Determine the extent of the natural drainage basin (pre-development).
- 3) Determine the critical (highest) storm water level (100-year) based on the following assumptions
 - a. Normal antecedent moisture conditions
 - b. Initial water level at the bed and shore line
 - c. Pre-development land use runoff conditions (e.g. agricultural)
- 4) Plot this floodplain with respect to the wetland boundary (legal bank).

Please note that for wetlands, hydroperiod dynamics should be considered in this determination.

b. Unstable Lands:

Any unstable land should be identified through appropriate geotechnical and/or hydrogeological studies. These lands may include steep slopes or areas where the water table is extremely close to the surface. All of these lands should be included within the buffer zone.

c. Pollution Prevention:

A fixed minimum buffer width of 30 m from the wetland or other water body boundary should be used.

d. Public Access:

Emergency access needs should be used as the minimum requirement.

Please note that ERD (Emergency Response) should provide input into this determination until standard guidelines are developed.

4. Provide a figure/map showing overlays each of these delineations, including the initial boundary as overlays. A short report defining and providing the rationale for each of these delineations, including the initial boundary must also be provided.
5. The greatest extent of all of the ER components should be identified as the required area for ER dedication.