

# **APPENDIX K**

ADOPTED BY THE INTERCOUNTY DRAIN BOARD  
EFFECTIVE: OCTOBER 10, 1996

Storm Water Management Policy  
For New Development

Bliss Creek and Huizenga Watersheds

## **Storm Water Detention**

- Comply with storm water detention criteria outlined in the Bliss Creek Watershed Management Plan (1995) and the Huizenga Watershed Management Plan (1995). The specific criteria contained in the guidelines of each Drain Commissioner's Office shall apply for projects within their respective counties. This includes a "no detention zone" for the Bliss Creek Watershed north of Jackson Road and Canal Street. The City of Wyoming's Storm Water Management Plan provides for a combination of regional and onsite detention.

## **Flood Plain Protection and Mitigation**

- All existing flood plains in the Bliss Creek and Huizenga Drain Watershed are assumed to be critical whether or not they are contiguous to the main channel and tributary drains, unless the developer can demonstrate that no impact to adjacent parcels or storm water discharge would occur from the loss of flood plain.
- The developer is required to delineate the extent of the 100-year flood subject to review by the Intercounty Drainage Board.
- Mitigation of the loss of flood plain shall meet the following criteria.
  - Replacement of the loss of flood plain at a 1.5-to-1 ratio. This applies to flood plain associated with rainfall events up to a 100-year frequency.
  - Storm water detention does not apply toward the mitigation volume.
  - Mitigation grading volume shall be computed above the seasonal high ground water level only.
  - The inflow and outflow rates to the mitigation area shall be consistent

with pre-development rates.

- The mitigation grading plan shall provide for an equivalent volume of storage for flood plains associated with more frequent events (I.e. 10-and 25-year frequency)
  - Up to 50 percent of the mitigation volume may be used for snow storage.
  - The proximity of the flood plain mitigation shall provide for an equivalent hydrologic impact to the receiving stream and adjacent parcels.
- In lieu of the construction of the additional mitigation volume between a 1-to-1 to a 1.5-to-1 ratio, the developer shall have the option of contributing a fee of \$20,000 per acre foot of mitigation volume to the Intercounty Drainage Board for use on flood control within the watershed.

**CRITERIA FOR INSTALLATION  
OF  
PRIVATE CROSSINGS  
ON THE  
BYRON-DORR INTERCOUNTY DRAIN**

**OBJECTIVES**

- The structure allows for the passage of flood flows without causing harmful interference and does not structurally interfere with the natural flow of the drain.
- The structure provides sufficient under clearance to facilitate passage of watercraft, which could be expected to navigate the waters involved.
- The structure is sound and will not adversely affect the public trust.

**A. Hydraulic Capacity**

1. The waterway opening of the crossing shall approximate or exceed the cross-sectional area of the channel. If this condition is not met, a hydraulic analysis will be required to show adequate hydraulic capacity. Adequate hydraulic capacity shall be defined as a maximum of 0.5 feet of headloss across the structure, and a maximum outlet velocity of 5 feet per second based on a 10-year discharge, or a maximum increase in headwater elevation of 0.1 feet based on a 100-year discharge for crossing installations with greater than a 2 square mile contributing drainage area, as required by the MDEQ.
2. The approach fill (if any) shall be confined to within 10 feet on either end of the structure, or a hydraulic analysis will be required to ensure no harmful interference due to loss of floodplain capacity for a range of discharges up to and including the 100-year discharge.

**B. Navigability**

1. An under clearance of 3.5 feet between the low chord elevation for a bridge, or the crown elevation for a culvert, and the ordinary high water mark shall be maintained.
2. The low chord elevation shall be constructed at or above the natural ground elevations on either bank.

3. Clearspan structures are desirable and shall generally be required by the Byron-Dorr Intercounty Drainage Board (ICDB). Exceptions may be made at ICDB discretion. In all cases the proposed structure shall span the base flow channel.

**C. Structural Integrity**

1. Footings for bridges and three-sided culverts shall be a minimum of 4 feet below the design bottom elevation of the last drain project of record to prevent the structure from being undermined due to scour, or future drain maintenance and improvement projects.
2. Culvert inverts shall be recessed below the design bottom elevation of the last drain project of record to a depth of 2 feet, or a depth not to exceed 25 percent of the total height of the culvert, whichever is less.
3. The structure shall be firmly anchored in place.
4. The property owner is responsible to ensure that the proposed crossing is structurally sound and of sufficient width for the intended use and anticipated loads.