Attachment B

2015 City of Billings Subdivision Regulations Amendments

Changes to the current regulations are shown with ~~strike through~~ for proposed deletions, and underline for proposed additions of text.

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Section 23-1101. Variances.

The City Council may grant reasonable variances from the design and improvement standards of these Regulations when strict compliance would result in undue hardship and the result would not negatively affect public health and safety. The granting of a variance shall not have the effect of nullifying the intent and purpose of these Regulations or justifying submission of an incomplete application. The City Council may not approve a variance that would permit structures within the floodway of the 100-year floodplain, as defined in 76-5-101, MCA.

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APPENDIX O
FLOOD HAZARD EVALUATION

A. **Definitions. (Sec. 76-5-103, MCA) Whenever the following words and phrases are used in this Appendix, they shall be given the meaning attributed to them by this section.**

~~1. Channel: The geographical area within either the natural or artificial banks of a watercourse or drainway.~~

1. Development: Any man-made change to improved or unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, grading, paving, excavation, or drilling operations or storage of equipment or materials.

~~2. Flood: The water of any watercourse or drainway that is above the bank or outside the channel and banks of the watercourse or drainway.~~

2. Flood Fringe: the identified portion of the floodplain outside of the floodway.

3. Flood of 100-year Frequency: A flood magnitude expecting to recur on the average of once every 100 years or a flood magnitude that has a 1% chance of occurring in any given year. ~~having a one percent (1%) chance of being equaled or exceed in any given year. A 100-year flood is the same as a base flood.~~

4. Floodplain: The area adjoining the watercourse or drainway that would be covered by the floodwater of a flood of 100-year frequency, except for sheet flood areas that receive less than 1 foot of water per occurrence and are considered ~~"zone B"~~ "shaded X zone" by

the federal emergency management agency.

5. Floodway: The channel of a watercourse or drainway and those portions of the floodplain adjoining the channel that are reasonably required to carry and discharge the floodwater of any watercourse or drainway. ~~stream and the adjacent overbank areas that must be reserved in order to discharge a base flood without cumulatively increasing the water surface elevation more than one half (1/2) foot.~~

~~6. Watercourse: Any depression two (2) feet or more below the surrounding land serving to give direction to a current of water at least nine (9) months of the year and having a bed and well-defined banks.~~

B. **General.**

1. Land located within the floodway of a flood of 100-year frequency as defined by Title 76, chapter 5, MCA, may not be subdivided for building purposes, or other uses that may be prohibited by state or local floodplain regulations.

2. Where the 100-year floodway has been delineated by a Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM), or a City- or County-approved study on land in a subdivision, the 100-year floodway boundary and 100-year floodplain boundary shall be shown on the plat of the subdivision and the area within the 100-year floodway shall be labeled as a "No-Build Zone."

3. Any development of land that is in the flood fringe, a Zone A as shown on a FIRM, or an identified flood prone area is subject to the requirements of the City of Billings Floodplain Regulations.

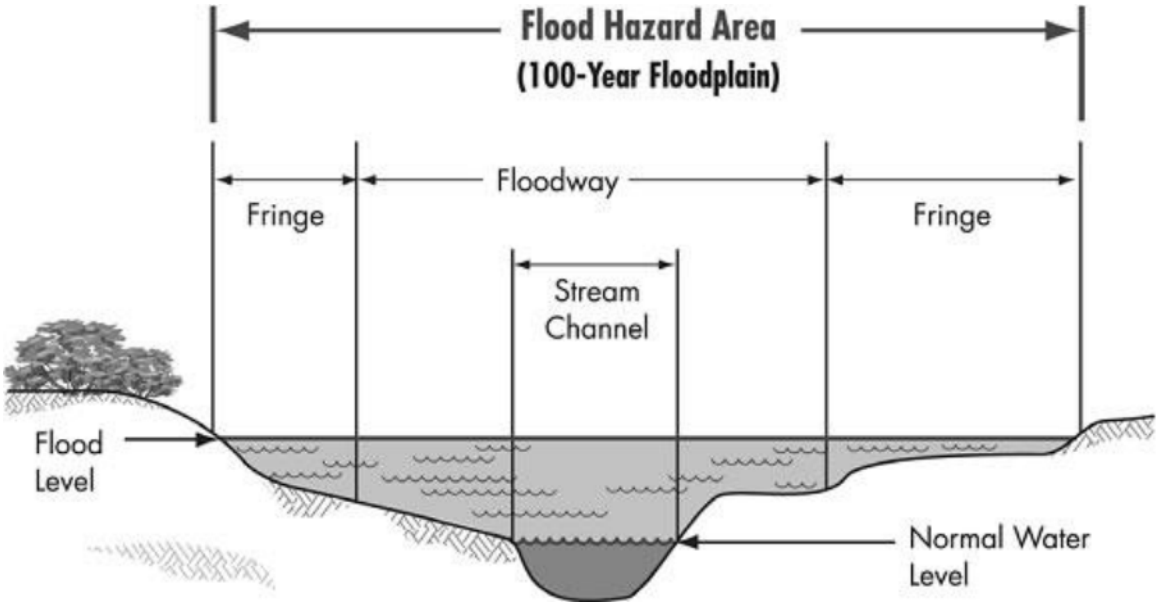

Figure 1. 100-Year Floodplain Cross-Section Diagram

1. Flood Hazard Areas (See 76-3-504, MCA): Land subject to being flooded by a flood of 100-year frequency as defined in this Appendix by the Federal Emergency Management Agency (FEMA), or land deemed to be subject to flooding by the City or County, may not be subdivided for building or residential purposes, or other uses that may increase or aggravate flood hazards to the public health, safety or welfare, or that may be prohibited by state or local floodplain or floodway regulations. Land deemed to be subject to flooding by the City or County may include (but is not limited to) land subject to shallow flooding, groundwater rise, historically flooded lands and lands located within 2,000 horizontal feet of the channel bank of the watercourse.

2. Where the 100-year floodway has been delineated by a FEMA Flood Insurance Rate Map (FIRM), a FEMA Floodway Map or a City- or County-approved study on land in a subdivision, the 100-year floodway boundary and 100-year floodplain boundary shall be shown on the plat of the subdivision and the area within the 100-year floodway shall be labeled as a "No-Build Zone."

3. Where the subdivision is within a flood hazard area that has been identified by the City or County, a Flood Study shall be completed as outlined in Part B and Part C of this Appendix, and the 100-year floodway boundary and 100-year floodplain boundary shall be shown on the plat of the subdivision and the area within the 100-year floodway (see Figure 1) shall be labeled as a "No-Build Zone."

C. **Flood Study Requirements.**

1. A Flood Study shall be required for a subdivision if:

   a. Any portion of a proposed subdivision is within 2,000 horizontal feet and less than 20 vertical feet from the channel bank of a watercourse draining an area of 25 square miles or more, and no official floodplain or floodway delineation (study) of the watercourse has been made; or

   b. The subdivision is within a flood hazard area that has been identified by the City or County.

2. The Flood Study shall be performed by a registered Professional Engineer experienced in this field of work. Upon the request of the City or County, the study shall be submitted to the City of Billings Floodplain Administrator and/or the Floodplain Management Section, Water Resources Division, Montana Department of Natural Resources and Conservation (DNRC) for review and comment. A copy of the Flood Study and written comment from the City Floodplain Administrator and/or the DNRC shall be provided to the Planning Department.

D. **Flood Study Contents.** The Flood Study shall include the following:

1. Certification: Certification by a registered professional engineer, including license

~~number, seal or stamp, signature and date.~~

2. ~~Written Report: A narrative report containing a description of the study area, data collection, the type of modeling method used for both the hydrology and hydraulics, discussion of the parameters used, modeling results and conclusions.~~

3. ~~Site Plan: An overall scaled site plan of the subdivision with location of lot lines and an identified scale for vertical and horizontal distance showing the following:~~

    a. ~~Vicinity Map~~

    b. ~~Watercourse~~

    c. ~~100-year floodplain and floodway boundaries~~

    d. ~~Contours shown at intervals between one (1) foot and four (4) feet depending on the site, or at the discretion of the Floodplain Administrator.~~

    e. ~~Cross-sections~~

    f. ~~Bridges or other constrictions in the floodplain~~

    g. ~~USGS gauging stations (if any)~~

    h. ~~Location and elevation of a temporary benchmark(s) established within the subdivision and referenced to mean sea level with appropriate elevation adjustment.~~

4. ~~Cross-sectional information:~~

    a. ~~Cross-section elevations and stations should be determined at points representing significant breaks in ground slope and at changes in the hydraulic characteristics of the floodplain (i.e., points where ground cover, soil, or rock conditions change). Elevations shall be reported in NAVD 88 or NGVD 29 datum.~~

    b. ~~The number of cross-sections needed, and the distance between cross-sections will vary depending on the site, the slope of the watercourse, the slope of the channel, and the hydraulic characteristics of the reach. A minimum of four cross sections are required over the entire reach with at least two cross-sections at the property where the elevations are desired. Additional cross-sections shall be taken above, below and at bridges, control structures, or natural constrictions in topography.~~

    c. ~~Each cross-section shall cross the entire floodplain. The cross-section alignment should be perpendicular to the general flow of the watercourse (approximately perpendicular to contour lines). Elevation stations should be recorded at the~~

channel bank and within the channel to determine the channel bottom shape. Cross sections shall be reasonably spaced to accurately define the study area.

d. A profile sheet scaled the same as a FEMA Flood Insurance Study showing the observed water surface profile, base flood elevation, location of cross sections, subdivision boundaries, watercourse profile, and thalweg (lowest point of the channel bottom along the reach of the watercourse.

5. Bridges/Culverts/Pipes: Provide descriptions and sketches of all bridges, culverts and pipes within the reach, showing unobstructed waterway openings and elevations.

6. Water Surface: Base Flood elevation of the water surface is to be determined and shown on each valley cross section.

7. Supporting Documentation: Provide engineering reports of calculations and assumptions, historical references, research of published hydrology or calculations showing how hydrology was derived, and other documentation of research information.

8. Electronic Data: Provide maps and any other information provided for a Flood Study that may be utilized by FEMA that meets their specific guidelines for digital and electronic data. Please refer to FEMA's Flood Hazard Mapping Program at www.fema.gov/fhm/ for specific guidelines and specifications for data collection.

Figure 1. 100-Year Floodplain Cross-Section Diagram