

Encroachment Review Concepts



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Encroachment Review Concepts

Introduction

Try to answer the questions:

- What is an encroachment review?
- Why is it required for my project?
- What are the components of an encroachment review?

Encroachment Review Concepts

Presentation Overview

Roles & Responsibilities

When is a Floodplain Permit Required

Permitting Requirements

Encroachment Review

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Roles & Responsibilities

The local Community is the decision maker for floodplain regulation matters within their jurisdictional area.

The Community makes the final determination regarding the sufficiency and adequacy of the floodplain permit applications to meet the local floodplain ordinance requirements.

The Community decides what to do with any recommendations it receives from the DRNC or others.

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Roles & Responsibilities

The DNRC's role is to provide technical assistance when requested, not to oversee or become involved in the day to day management of the community's floodplain program.

The DNRC's review, comments, and recommendations serve as professional recommendations, not mandates or approvals from the State.

DNRC communication with the Applicant/Engineer is only done with approval from the community, and we prefer community participation in all communications. **(The DNRC does not speak for or represent the community)**

Encroachment Review Concepts

Roles & Responsibilities

Applicants and their representatives (consultant, engineer, surveyor, etc.) are responsible to prepare/submit complete applications in accordance with the local floodplain ordinances.

Applicant questions relating to permits should be addressed to the community, not the DNRC. It is not the States role to walk applicants through the process.

When PE certification is required, the certification must be from a Montana PE and the licensee shall only perform services in the areas of the competence, as per ARM 24.183.2203.

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When is a Floodplain Permit Required

A floodplain permit may be required any time that you are proposing a project within a designated Special Flood Hazard Area (Regulated Flood Hazard Area)

While there are a few minor exemptions in most community ordinances for agricultural and recreational uses. Generally any project that involves a structure or fill of any type will require a floodplain permit.

Always contact the local floodplain administrator prior to submitting an application.

http://dnrc.mt.gov/wrd/water_op/floodplain/

Encroachment Review Concepts

When is a Floodplain Permit Required

In areas where FIRMs or DFIRMs have published BFE's the regulatory floodplain extends to where the BFE intersects the natural ground surface. Because of the inaccuracy in topographic data some regulatory areas may be outside of the SFHA shown on the maps. It is the applicant responsibility to determine where the boundaries of the regulatory floodplain are located. It is the floodplain administrators responsibility to verify if a project is within the boundaries of the SFHA.

In areas with no published BFEs the floodplain administrator may require additional hydrologic and hydraulic analysis to determine if a project is inside the SFHA.

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Permitting Requirements

The Joint Application form is used to apply for a floodplain permit required for work in or near almost any water course or riparian area. The application is submitted to the community, not the DNRC.

The Joint Application, Information & Instructions, and the Submittal Requirements for Floodplain Permit Applications forms can be downloaded from the DNRC website at:
http://www.dnrc.mt.gov/wrd/water_op/floodplain/default.asp

Take the time to contact all of the agencies listed on the form before you start a project in order determine if their permit is needed.

Encroachment Review Permitting Requirements Joint Application Form

Revised: 2/16/10 (310 form 2/10)
Form may be downloaded from:
www.dnrc.mt.gov/permits/default.asp

AGENCY USE ONLY: Application # _____ Date Received _____
Date Accepted _____ / Initials _____ Date Forwarded to DFWP _____

JOINT APPLICATION FOR PROPOSED WORK IN MONTANA'S STREAMS, WETLANDS, FLOODPLAINS, AND OTHER WATER BODIES

Use this form to apply for one or all local, state, or federal permits listed below. "Information for Applicant" includes agency contacts and instructions for completing this application. To avoid delays, submit all required information, including a project site map and drawings. Incomplete applications will result in the delay of the application process. Other laws may apply. It is the applicant's responsibility to obtain all permits and landowner permission, when applicable, before beginning work.

PERMIT	AGENCY	FEE
<input checked="" type="checkbox"/> 310 Permit	Local Conservation District	No fee
<input type="checkbox"/> SPA 124 Permit	Department of Fish, Wildlife and Parks	No fee
<input type="checkbox"/> Floodplain Permit	Local Floodplain Administrator	Varies by city/county (\$25 - \$500+)
<input type="checkbox"/> Section 404 Permit, Section 10 Permit	U. S. Army Corps of Engineers	Varies (\$0 - \$100)
<input type="checkbox"/> 318 Authorization	Department of Environmental Quality	\$250 (318);
<input type="checkbox"/> 401 Certification		\$400 - \$20,000 (401)
<input type="checkbox"/> Navigable Rivers Land Use License or Easement	Department of Natural Resources and Conservation, Trust Lands Management Division	License \$25; Easement \$50, plus annual fee

A. APPLICANT INFORMATION

NAME OF APPLICANT: _____
Has the landowner consented to this project? Yes No
Mailing Address: _____ Day Phone: _____
Physical Address: _____ Evening phone: _____
City/State/Zip: _____ E-Mail: _____

NAME OF LANDOWNER (if different from applicant): _____
Mailing Address: _____ Day Phone: _____
Physical Address: _____ Evening Phone: _____
City/State/Zip: _____ E-Mail: _____

NAME OF CONTRACTOR/AGENT (if one is used): _____
Mailing Address: _____ Day Phone: _____
Physical Address: _____ Evening Phone: _____
City/State/Zip: _____ E-Mail: _____

B. PROJECT SITE INFORMATION

NAME OF STREAM or WATER BODY at project location _____ Nearest Town _____
Address/Location: _____ Geocode (if available): _____
1/4 _____ 1/4 _____ 1/4, Section _____, Township _____, Range _____, County _____
Longitude _____, Latitude _____

The state owns the beds of certain state navigable waterways. Is this a state navigable waterway? Yes or No.
If yes, send copy of this application to appropriate DNRC land office – see Information for Applicant.

ATTACH A PROJECT SITE MAP OR A SKETCH that includes: 1) the water body where the project will take place, roads, tributaries, landmarks; 2) a circled "X" representing the exact project location. IF NOT CLEARLY STATED ON THE MAP OR SKETCH, PROVIDE WRITTEN DIRECTIONS TO THE SITE.

This space is for all Department of Transportation and SPA 124 permits (government projects).
Project Name _____
Contract Number _____ Contract letting date _____
MEPA/NEPA Compliance Yes No If yes, #14 of this application does not apply.

C. PROJECT INFORMATION

1. TYPE OF PROJECT (check all that apply)

- | | | |
|---|--|--|
| <input type="checkbox"/> Bridge/Culvert/Ford Construction | <input type="checkbox"/> Fish Habitat | <input type="checkbox"/> Mining |
| <input type="checkbox"/> Bridge/Culvert/Ford Removal | <input type="checkbox"/> Recreation (docks, marinas, etc.) | <input type="checkbox"/> Dredging |
| <input type="checkbox"/> Road Construction/Maintenance | <input type="checkbox"/> New Residential Structure | <input type="checkbox"/> Core Drill |
| <input type="checkbox"/> Bank Stabilization/Alteration | <input type="checkbox"/> Manufactured Home | <input type="checkbox"/> Placement of Fill |
| <input type="checkbox"/> Flood Protection | <input type="checkbox"/> Improvement to Existing Structure | <input type="checkbox"/> Diversion Dam |
| <input type="checkbox"/> Channel Alteration | <input type="checkbox"/> Commercial Structure | <input type="checkbox"/> Utilities |
| <input type="checkbox"/> Irrigation Structure | <input type="checkbox"/> Wetland Alteration | <input type="checkbox"/> Pond |
| <input type="checkbox"/> Water Well/Cistern | <input type="checkbox"/> Temporary Construction Access | <input type="checkbox"/> Debris Removal |
| <input type="checkbox"/> Excavation/Pit | <input type="checkbox"/> Other _____ | |

2. PLAN OR DRAWING of the proposed project **MUST** be attached. This plan or drawing must include:

- a plan view (looking at the project from above)
- dimensions of the project (height, width, depth in feet)
- location of storage or stockpile materials
- drainage facilities
- an arrow indicating north
- a cross section or profile view
- an elevation view
- dimensions and location of fill or excavation sites
- location of existing or proposed structures, such as buildings, utilities, roads, or bridges

3. IS THIS APPLICATION FOR an annual maintenance permit? Yes No (If yes, an annual plan of operation must be attached to this application – see "Information for Applicant")

4. PROPOSED CONSTRUCTION DATE. Include a project timeline. Start date ____/____/____ Finish date ____/____/____. Is any portion of the work already completed? Yes No (If yes, describe the completed work.)

5. WHAT IS THE PURPOSE of the proposed project?

6. WHAT IS THE CURRENT CONDITION of the proposed project site? Include a description of the existing vegetation, bank condition, bank slope, and height. What other structures are nearby?

7. PROVIDE A BRIEF DESCRIPTION of the proposed project.

8. PROJECT DIMENSIONS. How many linear feet of bank will be impacted? How far will the proposed project encroach into and extend away from the water body?

9. VEGETATION. What type and how much vegetation will be removed or covered with fill material?

Encroachment Review

Permitting Requirements

The Joint Application, Information & Instructions, and the Submittal Requirements for Floodplain Permit Applications documents provide guidelines for the minimum data requirements for the floodplain process. Always check the local ordinances to determine additional requirements and consult with the floodplain administrator.

For many projects a narrative report discussing an applicants approach, comparative tables, detailed descriptions, drawings, and engineering calculations will likely be required.

Hydrological and/or Hydraulic data will likely be required, in addition to the normal engineering data, for projects in the SFHA. Electronic copies of any hydrologic or hydraulic models are required

Encroachment Review

Permitting Requirements

A detailed site plan, drawn to scale, showing all aspects of your project including the floodplain boundary, cross sections, and BFE elevations (using the FIS effective datum or the NAVD 1988 datum), is required.

Hydrological and Hydraulic data should be developed in accordance to FEMA and state guidelines.

Proper certification from a Montana PE or PLS will be required for documents submitted during the floodplain process.

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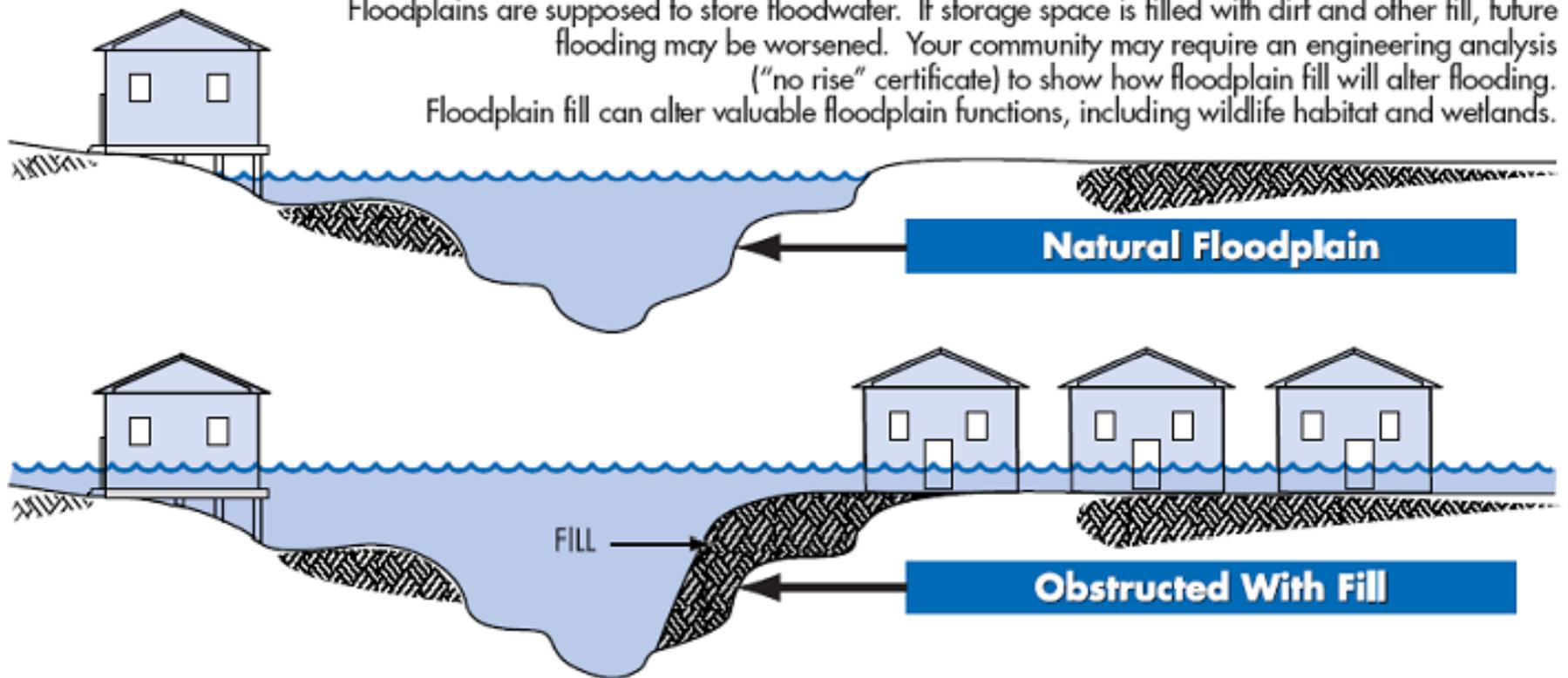
Basic Rule – Development must not increase the flood hazard on other properties (either upstream or downstream).

Encroachment – activities within the floodplain including fill, new construction, substantial improvements, bridges, channel modifications and artificial obstructions.

When proposing development within the SFHA in general an Encroachment Review will likely be required.

Allowing Fill in the Floodplain Today May Worsen Impacts of Future Flooding...

Floodplains are supposed to store floodwater. If storage space is filled with dirt and other fill, future flooding may be worsened. Your community may require an engineering analysis ("no rise" certificate) to show how floodplain fill will alter flooding. Floodplain fill can alter valuable floodplain functions, including wildlife habitat and wetlands.



Encroachment Review Concepts

Definitions

Encroachment Review– a Hydraulic analysis performed to evaluate the effects of proposed development and artificial obstructions on the 100-year water surface elevation (i.e. BFE) and water velocities.

It is a comparison of the Existing vs. Proposed conditions that control the 100-year water surface profiles.

It generally requires application of hydraulic modeling techniques with modeling programs such as HEC-RAS.

Encroachment Review Concepts

Other Definitions

Development – means 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. (44 CFR59.1)

Artificial Obstruction– Any obstruction which is not natural and includes any dam, diversion, wall, riprap, embankment, levee, dike, pile, abutment, projection, revetment, excavation, channel rectification, road, bridge, conduit, culvert, building, refuse, automobile body, fill or other analogous structure or matter in, along, across, or projecting into any Regulated Flood Hazard Area that may impede, retard, or change the direction of the flow of water, either in itself or by catching or collecting debris carried by the water, or that is placed where the natural flow of the water would carry the same downstream to the damage or detriment of either life or property. (ARM 36.15.101(3) & MCA 76-5-103(1))

Encroachment Review Concepts

Encroachment Review

What are the elements of an encroachment review?

An encroachment review may consist of:

- A detailed written narrative (always)

- Hydraulics and Hydrologic Analysis

- Survey Data

- BFE Comparison Tables

- Engineered Drawings

- Calculations

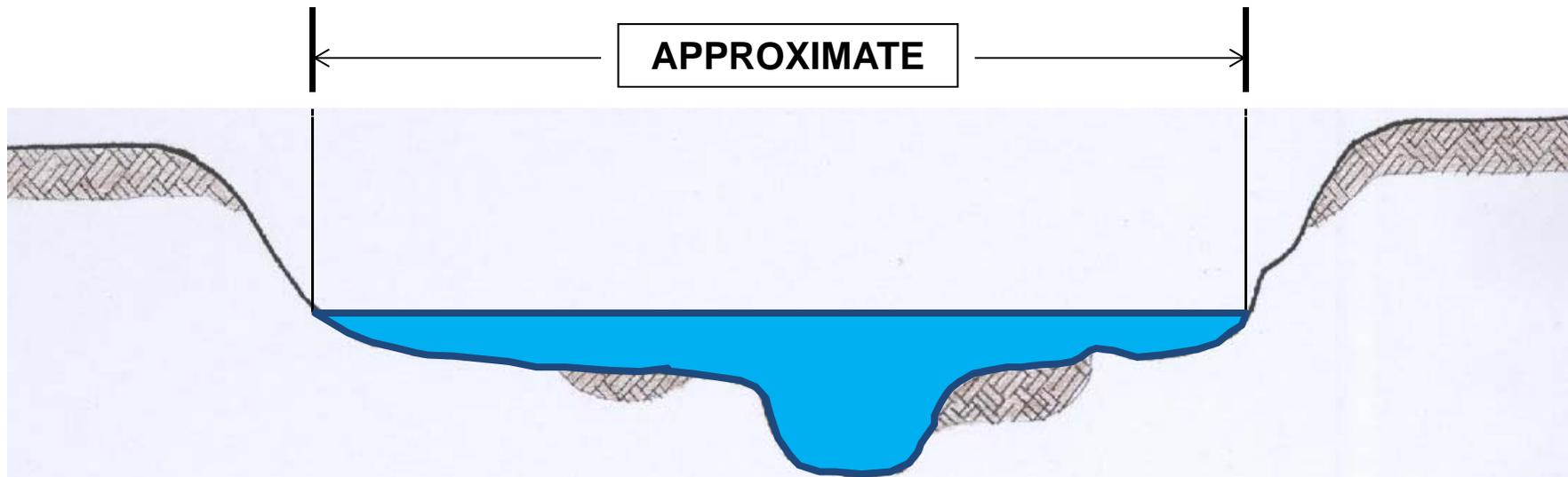
- Possibly CLOMR/LOMR Forms

- Engineers Seal and Certification

Encroachment Review Concepts

Encroachment Review

Approximate Zone A



The SFHA is defined on the FIRM.

There are no BFEs or Floodway on the FIRM.

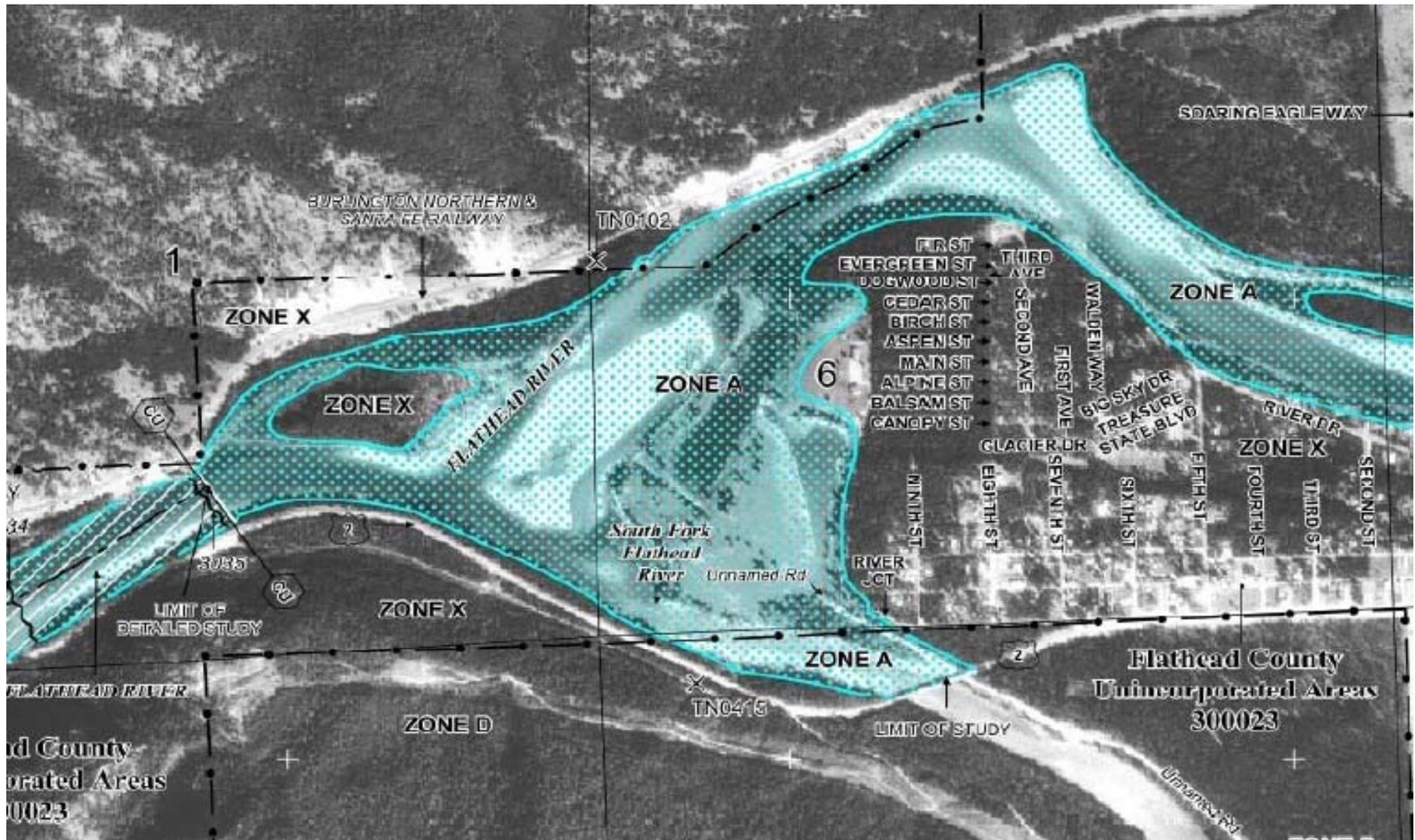
There is no Hydrologic or Hydraulic data available (most of the time).

Approximate Zone A



FEMA Flood Insurance Rate Map (FIRM) - **Approximate Study**
Flathead River – Flathead County

Approximate Zone A



FEMA Digital Flood Insurance Rate Map (DFIRM) - **Approximate Study**
Flathead River – Flathead County

Encroachment Review Concepts

Encroachment Review

Approximate Zone A

Regulations for an Approximate Zone require that encroachment into the SFHA not cause a rise in the BFE greater than 0.5 feet.

If a project proposes raising the BFE by more than 0.5 feet a CLOMR must be submitted before the permit can be issued and work can commence.

Encroachment Review Concepts

Encroachment Review

Approximate Zone A

An encroachment review in an Approximate Zone A will require the development of hydrologic and hydraulic data.

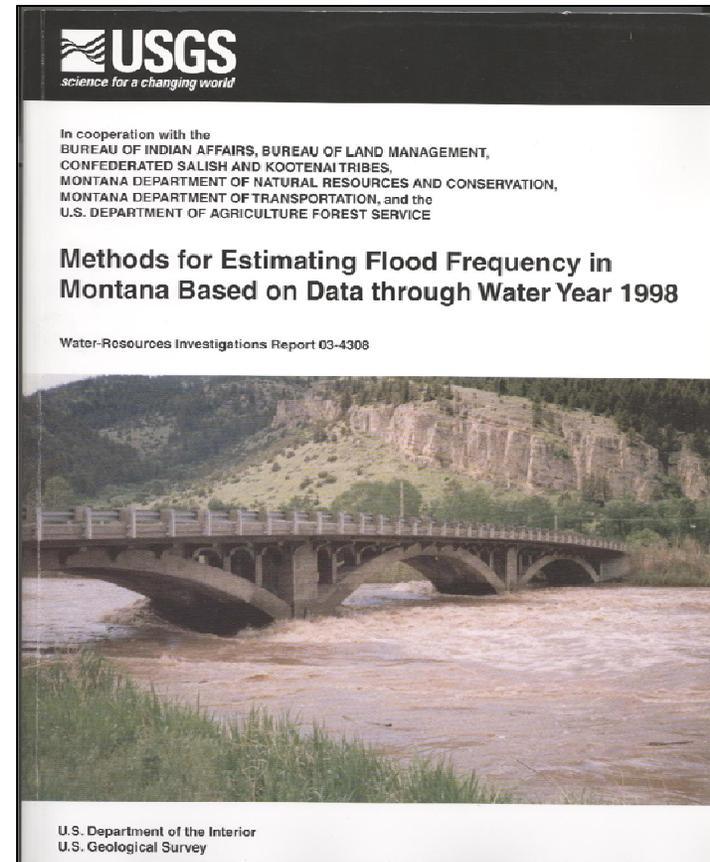
A Hydrologic analysis to determine the 100-year event discharge will need to be developed.

Hydraulic data and/or modeling of the initial project field conditions and the proposed post construction conditions needs to be developed so a comparison can be made between the BFEs on the two models.

Encroachment Review Concepts

Encroachment Review Approximate Zone A

Acceptable Hydrologic analysis are based upon the protocol and guidelines established in USGS Water-Resources Investigations Report 03-4308, “Methods for Estimating Flood Frequency in Montana Based on Data through Water Year 1998”



Encroachment Review Concepts

Encroachment Review

Approximate Zone A

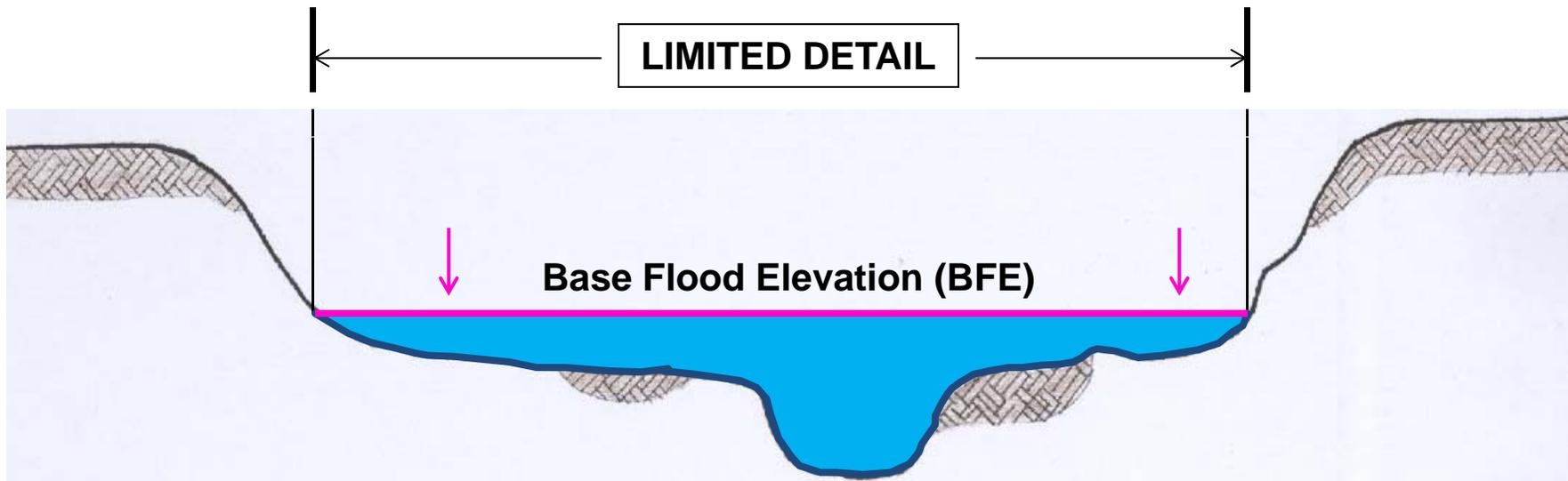
The DNRC has developed draft guidelines to help the engineers and surveyors understand the type of details and level of information needed for the hydraulic modeling process. (http://www.dnrc.mt.gov/wrd/water_op/floodplain/default.asp)

Guidelines For Water Course Surveys - This document outlines the type of topographic data that is needed in order to construct a reasonable HEC-RAS model.

Guidelines For Obtaining Base Flood Elevations (BFE) in Unmapped or A Zone Areas - This document outlines the type of data is required to construct a reasonable HEC-RAS model and what is required to be submitted for DNRC review.

Encroachment Review Concepts

Encroachment Review Limited Detail Study, Zone AE



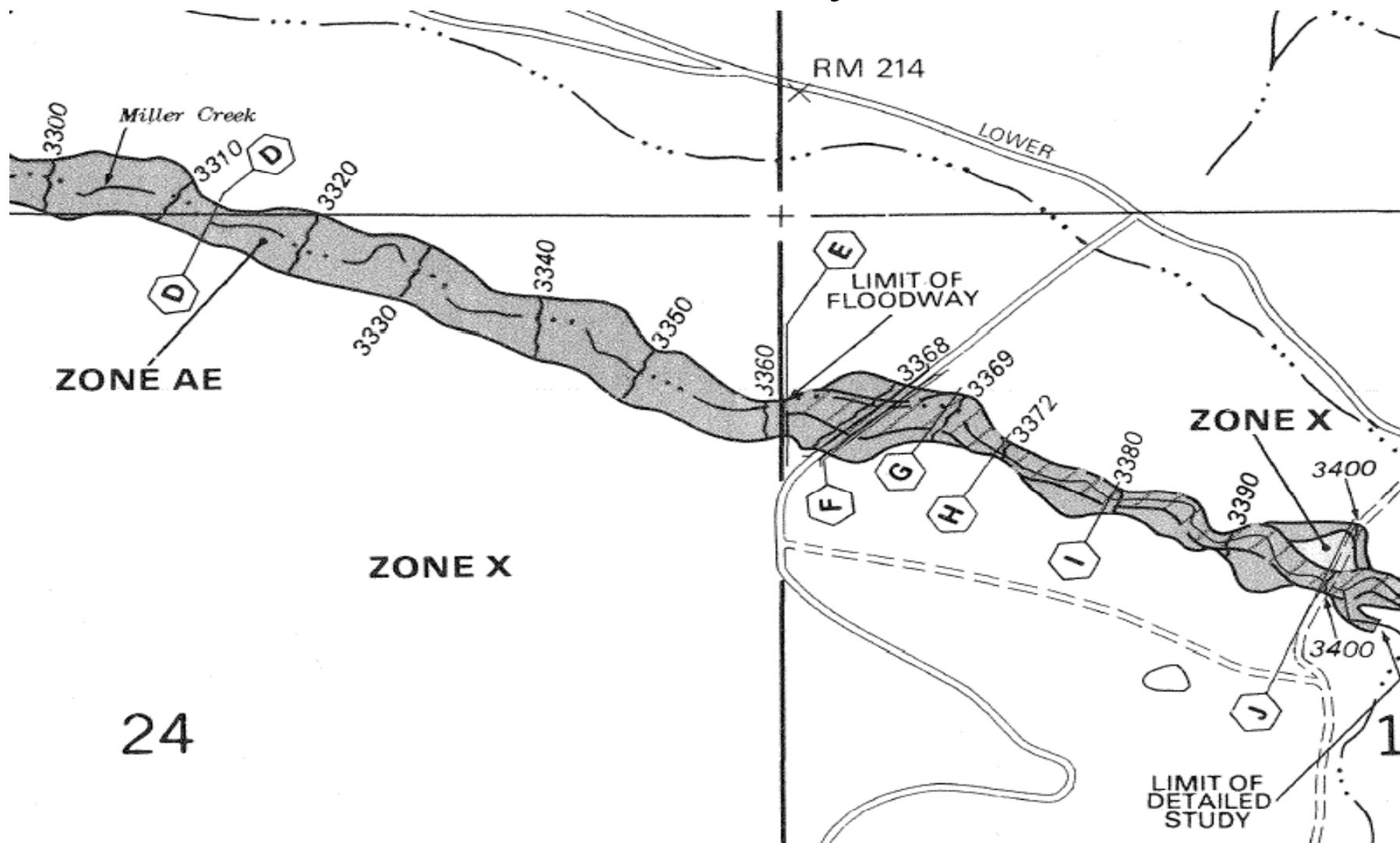
The SFHA is defined on the FIRM.

There are BFEs on the FIRM and in the FIS report.

There is an associated FIS report with hydrologic and hydraulic data. There are effective models.

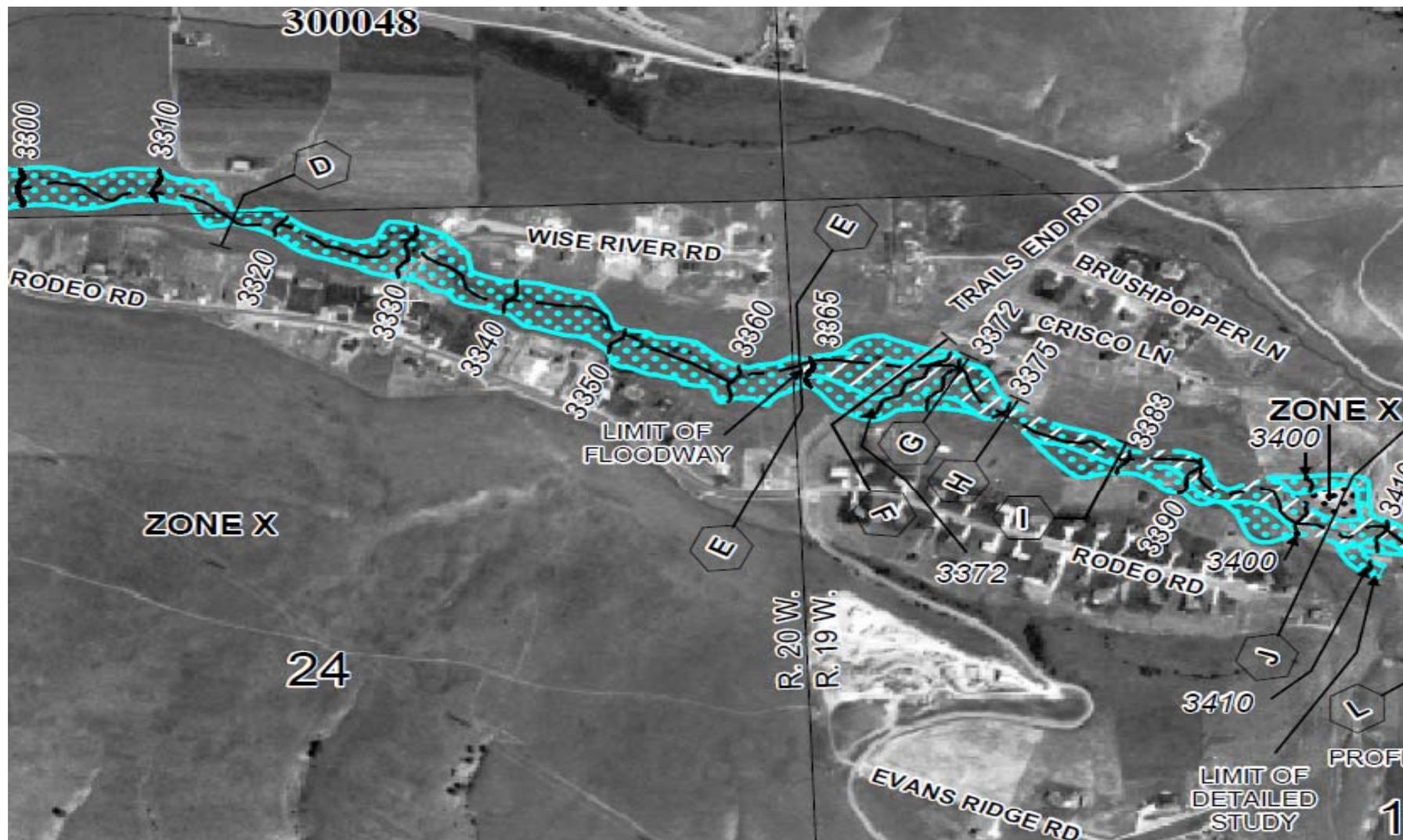
There is no mapped regulatory floodway.

Limited Detail Study, Zone AE



FEMA Digital Flood Insurance Rate Map (FIRM) – **Limited Detail Study**
Miller Creek - Missoula County

Limited Detail Study, Zone AE



FEMA Flood Insurance Rate Map (DFIRM) – **Limited Detail Study**
Miller Creek - Missoula County

Encroachment Review Concepts

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Limited Detail Study, Zone AE

Regulations for an Limited Detail Zone AE require that encroachment into the SFHA not cause a rise in the BFE greater than 0.5 feet.

If a project proposes raising the BFE in a Limited Detail Zone AE by more than 0.5 feet a CLOMR must be submitted before a permit can be issues and work can commence.

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Limited Detail Study, Zone AE

Hydrologic data is contained in the FIS report so it does not need to be developed.

An encroachment review in a Limited Detail Zone AE will require the development of existing condition and proposed condition hydraulic models. The hydraulic models need to be developed using the existing effective models available from FEMA (FEMA Engineering Library).

The BFEs generated by the existing condition and proposed conditions models will be compared (at every cross section and along the profile) to determine if the proposed encroachment causes a greater than 0.5 foot rise.

The technical data used in the encroachment review should be submitted with the application.

Encroachment Review Concepts

Encroachment Review Limited Detail Study, Zone AE

The effective FIS and FIRM/DFIRM must be obtained from the FEMA Map Service Center.

(<https://msc.fema.gov/webapp/wcs/stores/servlet/FemaWelcomeView?storeId=10001&catalogId=10001&langId=-1>)

Hydrological and Hydraulic data and models must be obtained from FEMA.

Encroachment Review Concepts

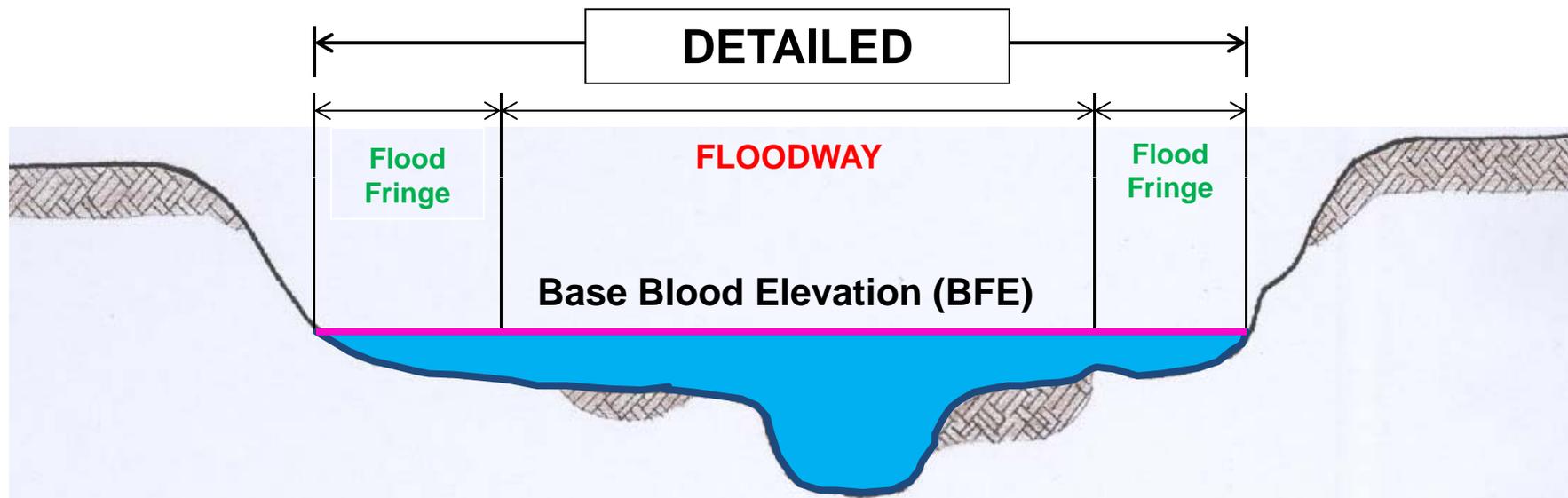
Encroachment Review
Limited Detail Study, Zone AE

MT-2 (CLOMR/LOMR) Application

DNRC's No-Rise presentation.

Encroachment Review Concepts

Encroachment Review Detailed Study, Zone AE



The SFHA is defined on the FIRM.

There are BFEs on the FIRM and in the FIS report.

There is an associated FIS report with hydrologic and hydraulic data. There are effective models.

There is a mapped regulatory floodway and floodway fringe area.

Detailed Study, Zone AE



FEMA Flood Insurance Rate Map (FIRM) - **Detail Study**
Flathead River – Flathead County

Detailed Study, Zone AE



FEMA Floodway Boundary Map - **Detail Study**
Flathead River – Flathead County

Detailed Study, Zone AE



FEMA Digital Flood Insurance Rate Map (DFIRM) - **Detailed Study**
Flathead River – Flathead County

Encroachment Review Concepts

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Detailed Study, Zone AE

Regulations for a Detailed Zone AE require that encroachment into the Regulatory Floodway not cause any rise in the BFE (0.00 increase).

If a project proposes encroachment that raises the BFE in the floodway of a Detailed Zone AE by greater than 0.00 feet, a CLOMR must be submitted per 44 CFR 60.3(d)(4). CLOMRs must be submitted and approved by FEMA and the state prior permit approval and subsequent construction.

Encroachment into the floodway fringe does not require an encroachment review.

Encroachment Review Concepts

Encroachment Review Detailed Study, Zone AE

Hydrologic data is contained in the FIS report so it does not need to be developed.

An encroachment review in a Detailed Zone AE will require the development of existing condition and proposed condition hydraulic models. The hydraulic models need to be developed using the existing effective models available from FEMA (FEMA Engineering Library).

The BFEs generated by the existing condition and proposed conditions models will be compared (at every cross section and along the profile) to determine if the proposed encroachment causes a greater than 0.00 foot rise.

The technical data used in the encroachment review should be submitted with the application.

Encroachment Review Concepts

Encroachment Review Detailed Study, Zone AE

The effective FIS and FIRM/DFIRM must be obtained from the FEMA Map Service Center.

(<https://msc.fema.gov/webapp/wcs/stores/servlet/FemaWelcomeView?storeId=10001&catalogId=10001&langId=-1>)

Hydrological and Hydraulic data and models must be obtained from FEMA.

Encroachment Review Concepts

Encroachment Review
Detailed Study, Zone AE

MT-2 (CLOMR/LOMR) Application

DNRC's No-Rise presentation.