



2101 Overland Ave • Billings, MT 59102 • 406-384-0080

## MEMORANDUM

**To:** Federal Emergency Management Agency  
**From:** Craig Dalton, Project Engineer  
**Date:** November 17, 2015  
**Subject:** Glynn Abbey Subdivision CLOMR

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The proposed Glynn Abbey Development is a residential subdivision north of the intersection of Rimrock Road and 58<sup>th</sup> Street West in Billings, MT. The projects legal description is Tracts 3 and 4 of C.O.S. 836, Section 30, Township 1N, Range 25E. The proposed 21.88-acre subdivision consists of 33 residential lots bordering a 3.67-acre open space area with access provided by a single looped roadway. According to the current National Flood Insurance Program's (NFIP) Flood Insurance Rate Map (FIRM), approximately 10.05 acres of the project site is located in the Special Flood Hazard Area (SFHA) of the Cove Creek Drainage (Map Number 30111C1245E).

The purpose of this Conditional Letter of Map Revision (CLOMR) is to obtain Federal Emergency Management Agency's (FEMA) comments on the impacts the proposed project may have on the SFHA.

Performance Engineering and Consulting (PEC) has conducted a hydraulic study of the Cove Creek drainage north of Rimrock Road. Floodplain modeling was performed using the publicly available Corps of Engineers HEC-RAS 5.0 software. The new HEC-RAS 5.0 allows for the two-dimensional (2D) analysis of overland flow during major storm events. This software is particularly useful in the case of the Cove Creek drainage as it loses a defined channel as it crosses the Yellowstone Country Club Golf Course and approaches Rimrock Road. Previous modeling methods (one-dimensional) were required to split the flows into separate "channels" in effort to effectively model the spread of the floodplain at the Rimrock Road obstruction. This, however, led to the inaccurate modeling of the spread of water through the existing Yellowstone Club Estates Subdivision and onto the proposed project site.

In effort to conduct an apples-to-apples comparison of the existing and proposed conditions, the existing topography was modeled in the HEC-RAS 2D software to establish the existing base flood elevation (BFE) conditions. The existing conditions were modeled from the north end of the golf course to the area south of Rimrock Road in order to mitigate potential errors in the area of interest. Topographic data for the existing conditions was developed by merging LiDAR data collected in 2005 for the Cove Creek drainage with project site ground data collected in 2014. Following the establishment of the existing ground BFE's, the proposed topography was modeled. The proposed surface consists of the mass grading of the project site, reflecting the excavation of several large ponds and the construction of the proposed roadway and lots. The proposed project will require approximately 5,100 cubic yards of imported fill material. A comparison between the existing and proposed conditions revealed increase BFE's on the proposed project site (Tracts 3 & 4), however, did not result in significant increases BFE's on surrounding properties. Exhibits of the existing and proposed conditions are included with this submittal. Additionally, maps of the existing and proposed floodplains using the HEC-RAS 2D modeling are included.

If you have any questions about the information above please feel free to contact me at 406-384-0080 or [craig@performance-ec.com](mailto:craig@performance-ec.com).

Cc: Max Griffin, file

U.S. DEPARTMENT OF HOMELAND SECURITY  
 FEDERAL EMERGENCY MANAGEMENT AGENCY  
**OVERVIEW & CONCURRENCE FORM**

*O.M.B No. 1660-0016  
 Expires February 28, 2014*

**PAPERWORK BURDEN DISCLOSURE NOTICE**

Public reporting burden for this form is estimated to average 1 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing, reviewing, and submitting the form. You are not required to respond to this collection of information unless it displays a valid OMB control number. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, Department of Homeland Security, Federal Emergency Management Agency, 1800 South Bell Street, Arlington, VA 20958-3005, Paperwork Reduction Project (1660-0016). Submission of the form is required to obtain or retain benefits under the National Flood Insurance Program. **Please do not send your completed survey to the above address.**

**PRIVACY ACT STATEMENT**

**AUTHORITY:** The National Flood Insurance Act of 1968, Public Law 90-448, as amended by the Flood Disaster Protection Act of 1973, Public Law 93-234.

**PRINCIPAL PURPOSE(S):** This information is being collected for the purpose of determining an applicant's eligibility to request changes to National Flood Insurance Program (NFIP) Flood Insurance Rate Maps (FIRM).

**ROUTINE USE(S):** The information on this form may be disclosed as generally permitted under 5 U.S.C § 552a(b) of the Privacy Act of 1974, as amended. This includes using this information as necessary and authorized by the routine uses published in DHS/FEMA/NFIP/LOMA-1 National Flood Insurance Program (NFIP); Letter of Map Amendment (LOMA) February 15, 2006, 71 FR 7990.

**DISCLOSURE:** The disclosure of information on this form is voluntary; however, failure to provide the information requested may delay or prevent FEMA from processing a determination regarding a requested change to a (NFIP) Flood Insurance Rate Maps (FIRM).

**A. REQUESTED RESPONSE FROM DHS-FEMA**

This request is for a (check one):

**CLOMR:** A letter from DHS-FEMA commenting on whether a proposed project, if built as proposed, would justify a map revision, or proposed hydrology changes (See 44 CFR Ch. 1, Parts 60, 65 & 72).

**LOMR:** A letter from DHS-FEMA officially revising the current NFIP map to show the changes to floodplains, regulatory floodway or flood elevations. (See 44 CFR Ch. 1, Parts 60, 65 & 72)

**B. OVERVIEW**

1. The NFIP map panel(s) affected for all impacted communities is (are):

Community No.	Community Name	State	Map No.	Panel No.	Effective Date
Example: 480301	City of Katy	TX	48473C	0005D	02/08/83
480287	Harris County	TX	48201C	0220G	09/28/90
30008	City of Billings	MT	30111C	1245E	11/06/13

2. a. Flooding Source: Cove Creek

b. Types of Flooding:  Riverine     Coastal     Shallow Flooding (e.g., Zones AO and AH)  
 Alluvial fan     Lakes     Other (Attach Description)

3. Project Name/Identifier: Glynn Abbey Subdivision

4. FEMA zone designations affected: AE (choices: A, AH, AO, A1-A30, A99, AE, AR, V, V1-V30, VE, B, C, D, X)

5. Basis for Request and Type of Revision:

a. The basis for this revision request is (check all that apply)

Physical Change     Improved Methodology/Data     Regulatory Floodway Revision     Base Map Changes  
 Coastal Analysis     Hydraulic Analysis     Hydrologic Analysis     Corrections  
 Weir-Dam Changes     Levee Certification     Alluvial Fan Analysis     Natural Changes  
 New Topographic Data     Other (Attach Description)

Note: A photograph and narrative description of the area of concern is not required, but is very helpful during review.

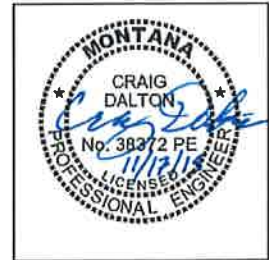


Ensure the forms that are appropriate to your revision request are included in your submittal.

**Form Name and (Number)**

**Required if ...**

- |   |   |
|---|---|
| <input checked="" type="checkbox"/> Riverine Hydrology and Hydraulics Form (Form 2) | New or revised discharges or water-surface elevations   |
| <input type="checkbox"/> Riverine Structures Form (Form 3)                          | Channel is modified, addition/revision of bridge/culverts, addition/revision of levee/floodwall, addition/revision of dam |
| <input type="checkbox"/> Coastal Analysis Form (Form 4)                             | New or revised coastal elevations   |
| <input type="checkbox"/> Coastal Structures Form (Form 5)                           | Addition/revision of coastal structure  |
| <input type="checkbox"/> Alluvial Fan Flooding Form (Form 6)                        | Flood control measures on alluvial fans   |



U.S. DEPARTMENT OF HOMELAND SECURITY  
 FEDERAL EMERGENCY MANAGEMENT AGENCY  
**RIVERINE HYDROLOGY & HYDRAULICS FORM**

*O.M.B No. 1660-0016  
 Expires February 28, 2014*

**PAPERWORK BURDEN DISCLOSURE NOTICE**

Public reporting burden for this form is estimated to average 3.5 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing, reviewing, and submitting the form. You are not required to respond to this collection of information unless a valid OMB control number appears in the upper right corner of this form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, Department of Homeland Security, Federal Emergency Management Agency, 1800 South Bell Street, Arlington VA 20958-3005, Paperwork Reduction Project (1660-0016). Submission of the form is required to obtain or retain benefits under the National Flood Insurance Program. **Please do not send your completed survey to the above address.**

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**DISCLOSURE:** The disclosure of information on this form is voluntary; however, failure to provide the information requested may delay or prevent FEMA from processing a determination regarding a requested change to a NFIP Flood Insurance Rate Maps (FIRM).

Flooding Source: Cove Creek

**Note:** Fill out one form for each flooding source studied

**A. HYDROLOGY**

1. Reason for New Hydrologic Analysis (check all that apply)

- |   |  |  |
|---|--|--|
| <input checked="" type="checkbox"/> Not revised (skip to section B) | <input type="checkbox"/> No existing analysis        | <input type="checkbox"/> Improved data                           |
| <input type="checkbox"/> Alternative methodology                    | <input type="checkbox"/> Proposed Conditions (CLOMR) | <input type="checkbox"/> Changed physical condition of watershed |

2. Comparison of Representative 1%-Annual-Chance Discharges

Location	Drainage Area (Sq. Mi.)	Effective/FIS (cfs)	Revised (cfs)
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3. Methodology for New Hydrologic Analysis (check all that apply)

- |   |  |
|---|--|
| <input type="checkbox"/> Statistical Analysis of Gage Records | <input type="checkbox"/> Precipitation/Runoff Model → Specify Model: _____ |
| <input type="checkbox"/> Regional Regression Equations        | <input type="checkbox"/> Other (please attach description)                 |

Please enclose all relevant models in digital format, maps, computations (including computation of parameters), and documentation to support the new analysis.

4. Review/Approval of Analysis

If your community requires a regional, state, or federal agency to review the hydrologic analysis, please attach evidence of approval/review.

5. Impacts of Sediment Transport on Hydrology

Is the hydrology for the revised flooding source(s) affected by sediment transport?  Yes  No

If yes, then fill out Section F (Sediment Transport) of Form 3. If No, then attach your explanation..

## B. HYDRAULICS

1. Reach to be Revised

	Description	Cross Section	Water-Surface Elevations (ft.)	
			Effective	Proposed/Revised
Downstream Limit*	<u>Rimrock Rd</u>	<u>30111C 1308</u>	<u>3381.87</u>	<u>3381.89</u>
Upstream Limit*	<u>Sam Snead Trail Rd</u>	<u>30111C 723</u>	<u>3371.45</u>	<u>3371.12</u>

\*Proposed/Revised elevations must tie-into the Effective elevations within 0.5 foot at the downstream and upstream limits of revision.

2. Hydraulic Method/Model Used: HEC-RAS 5.0 (August 21, 2015 Edition)

3. Pre-Submittal Review of Hydraulic Models\*

DHS-FEMA has developed two review programs, CHECK-2 and CHECK-RAS, to aid in the review of HEC-2 and HEC-RAS hydraulic models, respectively. We recommend that you review your HEC-2 and HEC-RAS models with CHECK-2 and CHECK-RAS.

4.

<u>Models Submitted</u>	<u>Natural Run</u>		<u>Floodway Run</u>		<u>Datum</u>
	File Name:	Plan Name:	File Name:	Plan Name:	
Duplicate Effective Model*	<u>Cove2007</u>	<u>East Cove Creek</u>	<u></u>	<u></u>	<u></u>
Corrected Effective Model*	<u></u>	<u></u>	<u></u>	<u></u>	<u></u>
Existing or Pre-Project Conditions Model	<u>File Name: Cove Creek EG</u>	<u>Plan Name: 25ft-EGEast</u>	<u>File Name:</u>	<u>Plan Name:</u>	<u></u>
Revised or Post-Project Conditions Model	<u>File Name: Cove Creek PG</u>	<u>Plan Name: 25ft-PGEast</u>	<u>File Name:</u>	<u>Plan Name:</u>	<u></u>
Other - (attach description)	<u>File Name:</u>	<u>Plan Name:</u>	<u>File Name:</u>	<u>Plan Name:</u>	<u></u>

\* For details, refer to the corresponding section of the instructions.

Digital Models Submitted? (Required)

## C. MAPPING REQUIREMENTS

A **certified topographic work map** must be submitted showing the following information (where applicable): the boundaries of the effective, existing, and proposed conditions 1%-annual-chance floodplain (for approximate Zone A revisions) or the boundaries of the 1%- and 0.2%-annual-chance floodplains and regulatory floodway (for detailed Zone AE, AO, and AH revisions); location and alignment of all cross sections with stationing control indicated; stream, road, and other alignments (e.g., dams, levees, etc.); current community easements and boundaries; boundaries of the requester's property; certification of a registered professional engineer registered in the subject State; location and description of reference marks; and the referenced vertical datum (NGVD, NAVD, etc.).

Digital Mapping (GIS/CADD) Data Submitted (preferred)

Topographic Information: LiDAR supplemented with ground survey

Source: City of Billings, Ewen Surveying Date: 2005 and 2014

Accuracy: +/- 0.1'

Note that the boundaries of the existing or proposed conditions floodplains and regulatory floodway to be shown on the revised FIRM and/or FBFM must tie-in with the effective floodplain and regulatory floodway boundaries. Please attach a **copy of the effective FIRM and/or FBFM**, at the same scale as the original, annotated to show the boundaries of the revised 1%-and 0.2%-annual-chance floodplains and regulatory floodway that tie-in with the boundaries of the effective 1%-and 0.2%-annual-chance floodplain and regulatory floodway at the upstream and downstream limits of the area on revision.

Annotated FIRM and/or FBFM (Required)

**D. COMMON REGULATORY REQUIREMENTS\***

1. For LOMR/CLOMR requests, do Base Flood Elevations (BFEs) increase?  Yes  No
- a. For CLOMR requests, if either of the following is true, please submit **evidence of compliance with Section 65.12 of the NFIP regulations**:
- The proposed project encroaches upon a regulatory floodway and would result in increases above 0.00 foot compared to pre-project conditions.
  - The proposed project encroaches upon a SFHA with or without BFEs established and would result in increases above 1.00 foot compared to pre-project conditions.
- b. Does this LOMR request cause increase in the BFE and/or SFHA compared with the effective BFEs and/or SFHA?  Yes  No  
If Yes, please attach **proof of property owner notification and acceptance (if available)**. Elements of and examples of property owner notifications can be found in the MT-2 Form 2 Instructions.
2. Does the request involve the placement or proposed placement of fill?  Yes  No
- If Yes, the community must be able to certify that the area to be removed from the special flood hazard area, to include any structures or proposed structures, meets all of the standards of the local floodplain ordinances, and is reasonably safe from flooding in accordance with the NFIP regulations set forth at 44 CFR 60.3(A)(3), 65.5(a)(4), and 65.6(a)(14). Please see the MT-2 instructions for more information.
3. For LOMR requests, is the regulatory floodway being revised?  Yes  No
- If Yes, attach **evidence of regulatory floodway revision notification**. As per Paragraph 65.7(b)(1) of the NFIP Regulations, notification is required for requests involving revisions to the regulatory floodway. (Not required for revisions to approximate 1%-annual-chance floodplains [studied Zone A designation] unless a regulatory floodway is being established. Elements and examples of regulatory floodway revision notification can be found in the MT-2 Form 2 Instructions.)
4. For CLOMR requests, please submit documentation to FEMA and the community to show that you have complied with Sections 9 and 10 of the Endangered Species Act (ESA).

For actions authorized, funded, or being carried out by Federal or State agencies, please submit documentation from the agency showing its compliance with Section 7(a)(2) of the ESA. Please see the MT-2 instructions for more detail.

\* Not inclusive of all applicable regulatory requirements. For details, see 44 CFR parts 60 and 65.



# United States Department of the Interior

## Fish and Wildlife Service

Ecological Services

Montana Field Office

585 Shepard Way, Suite 1

Helena, Montana 59601-6287

Phone: (406) 449-5225 Fax: (406) 449-5339



File: M29 (I)  
06E11000-2016-TA-0014

October 23, 2015

Craig Dalton, P.E.  
Performance Engineering & Consulting  
2101 Overland Avenue  
Billings, Montana 59102

Dear Mr. Dalton:

This is in response to your October 19, 2015, inquiry requesting additional information from the U.S. Fish and Wildlife Service (Service) concerning potential impacts to fish and wildlife resources, including federally listed threatened and endangered species that may occur in the vicinity of the residential subdivision located at Tracts 3 and 4 of C.O.S. 836, Section 30, T1N, R25E, west of Billings, Montana. The proposed 21.88-acre subdivision consists of 33 residential lots with access provided by a single looped roadway. Approximately 10.05 acres of the project site is located in the Special Flood Hazard Area of the Cove Creek drainage. The proposed project will involve mass grading the site, excavating and regarding approximately 22,000 cubic yards of material. The grading process will also require an additional estimated 5,100 cubic yards of material be brought to the site. The proposed project seeks revision of floodplain mapping for portions of this subdivision. Specific activities will include jacking up the house, and placing approximately one foot of fill adjacent to the house to remove it from the jurisdictional floodplain.

We offer the following comments under the authority of and in accordance with the Migratory Bird Treaty Act (MBTA; 16 U.S.C 703 et seq.), as amended, Bald and Golden Eagle Protection Act (BGEPA; 16 U.S.C. 668-668d, 54 Stat. 250), as amended, Executive Order 13186 *Responsibilities of Federal Agencies to Protect Migratory Birds*, Endangered Species Act (ESA; 16 U.S.C. 1531 et seq.) as amended, and the Fish and Wildlife Coordination Act (16 U.S.C. 661 et seq.).

### Threatened and Endangered Species

Outlined below is the current list of threatened, endangered and candidate species occurring within the boundaries of Yellowstone County:

Scientific name	Common name	Status*
<i>Mustela nigripes</i>	Black-footed Ferret	LE
<i>Grus americana</i>	Whooping Crane	LE
<i>Calidris canutus rufa</i>	Red Knot	P
<i>Anthus spragueii</i>	Sprague's Pipit	C

\*LE=Listed as Endangered, LT=Listed Threatened, C=Candidate species for listing, CH=Critical Habitat

Given that the site is in a semi-urban setting adjacent to substantial development, we do not anticipate nor have we observed adverse effects to threatened, endangered, or candidate species or critical habitat to result from the proposed action. In addition, we are unaware of bald or golden eagle nest occurrences within one mile of the proposed project site. Should occupied eagle nests occur within 0.5 mile of the proposed site, we recommend that you comply with the recommended temporary seasonal and distance constructions buffers stipulated in the *2010 Montana Bald Eagle Management Guidelines: An Addendum to Montana Bald Eagle Management Plan (1994)*.

The Service appreciates your efforts to incorporate fish and wildlife resource concerns, including threatened and endangered species, into your project planning. If you have questions or comments related to this issue, please contact Brent Esmoil within our office at (406) 449-5225, extension 215.

Sincerely,



for Jodi L. Bush  
Field Supervisor

