

Floodplain Fill LOMR Submittal Guidelines

November 5, 2010

Purpose

The purpose of this guidance is to document whether a LOMR or LOMR-F is more appropriate for documenting a project which has fill in the floodplain for projects within the jurisdiction of the unincorporated Harris County or City of Houston.

Background

Floodplain fill and associated mitigation is a common practice within the geographic area of Harris County. Many times the developer engineer will submit a Letter of Map Revision based on Fill (LOMR-F) to remove filled areas from the floodplain. However if the area or depth or volume of fill is extensive, a LOMR-F may not be the most suitable approach because of its potential to adversely impact flooding conditions upstream and downstream.

The LOMR-F documentation process identifies the areal extent of placement of material in locations where existing ground elevations are below the 100-year regulatory base flood elevations and the area in question is mapped within the 1% annual chance floodplain. FEMA reviews and approves such applications without regard to loss of floodplain storage and channel conveyance. With the LOMR-F process the hydrologic models (HEC-HMS) and hydraulic models (HEC-RAS) are not updated. The concern of the local agencies responsible for managing the floodplain is that if there are many LOMR-Fs concentrated in a particular area or if there is one large LOMR-F, the cumulative impact of the fill activities could affect channel conveyance or floodplain storage, thus adversely impacting flood elevations on adjacent land owners. With these changes in flood elevations, property and slab elevations in adjacent areas may not be designed at the proper elevation due to the change in flood elevations.

In cases where the fill (area, depth or volume) is large, a LOMR is more applicable to document changes in topography that need to be incorporated into the model; thus the associated water surface elevations will remain current and accurate. A technical advisory committee was established by Harris County Flood Control District to evaluate this concern and propose recommendations and guidance as to whether a LOMR-F or LOMR is more appropriate for a given set of conditions. This committee was comprised of representatives from the Houston Council of Engineering Companies, Harris County Permits Office, Harris County Flood Control District and the City of Houston's Floodplain Management Office. The following summarizes the recommendations and guidance from the committee.

LOMR vs. LOMR-F Guidelines

LOMR-F Only

Projects satisfying ALL of the following conditions may submit a LOMR-F with no conveyance or floodplain storage analysis required:

- Fill area is located in an ineffective flow area,
- Fill area is not within 100 feet of the regulatory floodway,
- Fill volume is less than 10 acre-feet, and
- Fill depth to the base flood elevation is a maximum of 18-inches or less.

LOMR-F with Impact Analysis

Projects satisfying ALL of the following conditions may submit a LOMR-F upon approval of an impact analysis demonstrating no change in stream conveyance and/or water surface elevation as a result of the project.

- Fill area is no greater than 50 acre-feet of fill,
- Fill depth to the base flood elevation is a maximum of 2-feet or less,
- Fill is placed outside of the regulatory floodway, and
- Fill area is to impact no more than 2 cross sections within the current FEMA effective model.

CLOMR/LOMR

For all other conditions, a CLOMR/LOMR analysis, including full hydrologic and hydraulic evaluations must be conducted in accordance with the Federal Emergency Management Agency's and/or the Local Floodplain Administrator's requirements.

Floodplain Fill Submittal Guidance Matrix

The following table identifies the submittal options and the geometric characteristics considered for projects proposing fill within the FEMA regulatory floodplain. In order to utilize the LOMR-F or the LOMR-F with Impact Analysis submittal options, the project must satisfy **ALL** of the requirements listed in the corresponding column.

Floodplain Fill Submittal Guidance Matrix

Geometric Characteristics Considered	Submittal Options		
	LOMR-F	LOMR-F w/Impact Analysis	CLOMR/LOMR
Conveyance	Located in an Ineffective Flow Area *	Addressed in Impact Analysis	Addressed in Impact Analysis
Fill Depth (1% WSEL to Natural Ground)	< 18"	< = 2'	> 2'
Fill Volume (Acft)	< 10	< = 50 **	> 50 **
Distance From Floodway (ft)	> 100' Outside the Floodway	Outside The Floodway	n/a
# of Cross Sections (Affected in the Effective Model)	n/a	< = 2	> 2

* Local permitting jurisdiction definition supersedes the definition provided in this document.

** HCFCD and/or Local Permitting Authority may request the engineer to update the storage outflow routing analysis to demonstrate no impact.

Definitions

Stream Conveyance: The ability of a channel to transmit flow downstream from one location to another. This parameter is largely dependent on channel properties such as the roughness and vegetation, the channel bottom slope, and its geometry.

Ineffective Flow Area: An area where water is prevented from moving in the downstream direction as determined by a Professional Engineer licensed to practice in the State of Texas.

- Impact Analysis:** A hydraulic analysis using numerical modeling techniques demonstrating no net loss to conveyance or no increase in conveyance resulting in a change in water surface elevations utilizing methodologies consistent with current general engineering practices and the HCFCD Hydrologic and Hydraulic Guidance Manual.
- Floodplain Fill Volume:** The volume of earthen fill material placed above natural ground to the base flood elevation and calculated by using average end area method or other applicable engineering methods.
- Floodplain Fill Depth:** The depth of fill material above natural ground to the base flood elevation.
- Floodway Buffer:** The minimum horizontal distance fill may be placed in proximity to the effective floodway boundary.
- Impacted Cross Sections:** The number of cross sections within the effective model that will be physically modified by the proposed fill plan.

Implementation of Guidelines

Implementation of projects with less than 10 acre-feet of fill will need to follow the matrix. Implementation of phased developments with a cumulative floodplain volume of greater than 50 acre-feet will need to have a pre-project meeting with Harris County Flood Control District and Harris County Permit staff for all parties to understand how to implement the Guidance. There may be instances when a large development may be phased into small areas. Phased developments within the limits of the LOMR-F matrix may be allowed to complete a LOMR-F. However, if the cumulative fill volume of the current project plus the previously submitted LOMR-F's exceed the maximum fill volume identified by the Floodplain Fill Submittal Guidance Matrix, the developer and the developer's engineer will have to document the cumulative fill volume for all existing phases with a LOMR.