GRID BASED ZONE A BFES: NOW STREAMING ON A PORTAL NEAR YOU

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Background

- The State of Kansas provides Base Flood Elevation information for Zone A floodplains where available data exists.

- In 2016 we partnered with the Kansas Geological Survey’s Data Access and Support Center (DASC) to develop a system to store and semi-automate BFE requests.

- The goal is to provide “best available data” to clients for use in LOMAs, New Construction, etc.
Determining Zone A BFES – Old Method
Early Methods (XS Interpolation, FOA, AE)

New Guidance Flood Depth and Analysis Grids from Feb 2018

Flood risk datasets derived from effective data must reflect the effective regulatory elevations as shown on the FIRM.
New Initiative in BFE Determinations

- 2D modeling to generate Grid Based Zone A Base Level Engineering (BLE) data for custom watersheds.
- Some early grids from 1D modeling have quality issues, so for now we are checking each determination before approval.
Kansas BFE Portal

KDA-DWR collaboration with DASC begin in Sept 2016 to construct the Portal

Launched October 1, 2017 and is used for requesting Zone A BFEs where data is available
BFE Portal

**Goal:** To improve workflows by utilizing a user drawn polygon to automatically extract the maximum elevation from the water surface elevation grid (BFE Determination) and the minimum elevation from the LiDAR service for the approximate Lowest Adjacent Grade (LAG) value.

**Statistics**

- **130** registered users since the October 1 launch. These are primarily surveyors or engineering firms, but we do have some citizens registered.
- **70** “partial” users – these are from previous requests and may become regular users.
- **148** BFE requests since Oct 1, 2017.
Behind the Scenes

- The Portal draws upon the following GIS Services:
  - *KDA-DWR service on the BFE Status and Detailed Study areas vs Zone A Floodplain information*
  - *FEMA Geo Index Service for Panel Number and Effective Date*
  - *DASCs NG911 (address points/road names) & LiDAR Service to return LiDAR values from the user click and an approximate Lowest Adjacent Grade (LAG) from the user polygon*
  - *DASC is hosting KDA-DWR water surface elevation grids as a service where the BFE is extracted from the user polygon*
Testing the Portal

KDA-DWR tested the Portal several times within KDA hosted classes and within DWR before releasing to the public.

During the first test the system crashed, and we did not have any successful BFE submissions.

Since then, DASC moved the geoprocessing task outside of the map, and it runs smoothly.
Use this page to verify the status of BFE data. Click on the map to obtain a LiDAR elevation at a specific point. Once zoomed into the map, the floodplain data will appear.
Drawing the Property

1) Use the Address or Sec, Twp, Rng Search to locate your property*

*Note: Please verify your location is in a Zone A; otherwise use the FIS to find your BFE

2) Click on the Area of Interest Polygon to start drawing

3) Important: Please trace the boundary of the structure using the aerial imagery as your guide as shown below

4) You will need to fill out the box with the address and purpose and then click ‘Save’
Map Views Depend on User Level

Admin View
Access to all – LiDAR & BFE values, supplemental data

User View
Can obtain LiDAR point data, but must submit request to obtain official BFE
Admin View

### Search Requests by Person or Map ID

<table>
<thead>
<tr>
<th>User</th>
<th>Map Obj</th>
<th>Address</th>
<th>Purpose</th>
<th>BFE Max</th>
<th>LiDAR Min</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rod Zinn</td>
<td>21580</td>
<td>3006 E 8th St, Pittsburg, KS</td>
<td>LOMA Application</td>
<td>899.30</td>
<td>896.31</td>
</tr>
</tbody>
</table>

### Update Requests

**Map Obj:** 21580

**BFE:** 899.3

**Letter Text:**

This is in response to your request for a Base Flood Elevation (BFE) for the property at 3006 E 8th St, Pittsburg, KS. The subject property is mapped within Zone A on panel 20037G0341E with the current effective date of 4/16/2009. The base flood elevation for the subject property is 899.3 feet NAVD 88.

Attached is a map of the property. The BFE calculation was developed using regression equation hydrology and hydraulics developed.

**Admin Note:**

**Approved:** Yes

**CC:**
This is in response to your request for a Base Flood Elevation (BFE) for the property at 200 S Lincoln Bennington Kansas 67422. The subject property is mapped within Zone A on panel 20143C0390C with the current effective date of 11/18/2009. The base flood elevation for the subject property is 1218.0 Feet NAVD 88 with the Solomon River noted as the flooding source. Attached is a map of the property. The BFE calculation using rain-on-grid 2-dimensional hydrologic and hydraulic modeling, developed off of high resolution LiDAR data as the elevation source. This data is part of a 2D modeling project for the Solomon watershed which covers part of Ottawa County, Kansas.

Based on the LiDAR, the approximate Lowest Adjacent Grade (LAG) for the user drawn polygon is 1217.8 Feet NAVD 88. LiDAR data is believed to be accurate to within a foot of actual ground elevation barring any land changes. This data is provided as a reference only and is not survey grade accurate and cannot be used in FEMA Letter of Map Amendment (LOMA) Applications.

If the BFE is utilized to remove a structure from the Special Flood Hazard Area (SFHA) with a LOMA or Letter of Map Revision based on Fill (LOMR-F) the owner should consider carrying flood insurance with a Preferred Risk Policy (PRP). Larger floods than the 1% event are possible and the source modeling for the BFE was developed using approximate methods. Structures located above the determined BFE are not guaranteed to be safe from flooding.
# Other Portal Resources

<table>
<thead>
<tr>
<th>For Admins</th>
<th>For Users</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Admin</strong> shows all pending requests with the date received. This is where BFE requests are approved or denied and the letter is generated</td>
<td><strong>Request History</strong> shows a record of user requests and LiDAR values</td>
</tr>
<tr>
<td><strong>Letters</strong> Tab where all PDF documents are kept with an option to export all requests</td>
<td><strong>About</strong> Information about the Portal as well as Frequently Asked Questions and more information</td>
</tr>
<tr>
<td><strong>Home</strong> Approve all users – check user names, etc. For users there are general use instructions/info.</td>
<td><strong>Help</strong> PDF Quick Guide to walk the user through the Portal</td>
</tr>
<tr>
<td></td>
<td><strong>User Profile</strong> Allows the user to update contact information</td>
</tr>
</tbody>
</table>
Benefits of the BFE Portal

■ As Admins
  - *BFE requests sit within the Portal and aren’t lost within emails*
  - *The user tells us specifically the location, so we aren’t searching for it*
  - *We have spatial records of previous requests (heat map)*
  - *DASC is hosting our grid data and provides maintenance*

■ As Users
  - *Central location for all requests*
  - *Gives an idea on the chances of obtaining a LOMA before money is spent on a surveyor*
  - *An official letter stating the user BFE and approximate LAG will be emailed*
Determining BFES – New Method
“Super” Users

- Local Floodplain Administrators will be “Super” Users and have the administrative ability to determine BFE requests using the Portal

- Goal: Automated process once 2D BLE Data is available

- Letter Templates will populate automatically based on the data source
We use this information along with areas of non-LiDAR based Flood Insurance Rate Maps (FIRMs) to prioritize areas of new mapping.
Currently budgeting the subtraction of 2 feet from the LiDAR generated LAG

Letter Template will automatically update if the structure qualifies

Estimated 100 structures would have qualified for a LOMA with this approach
Future Enhancements

- Additional Data Layers – Advisory flood risk from raw 2D modeling, depth and velocity grids.

- We are working with DASC on implementing a LiDAR elevation profile tool similar to ESRI’s elevation service tool.

Goal: Statewide Floodplain Management System for Local Floodplain Administrators
Questions?  http://maps.kgs.ku.edu/fpm_bfe/login.cfm

- Learn More about our new 2D Custom Watershed approach
  - Thursday, Session H1, 2:00 – 3:30 PM

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