

**ITEM:** This Floodplain Permit Application is for the elevation of a residential structure in the Imhoff Creek Floodplain.

**BACKGROUND:**

APPLICANT: Glenn Burnett

BUILDER: Glenn Burnett

ENGINEER: Earl Gary Keen, P.E.

The original single story, masonry house was constructed in 1930 on Lot 6 Block 2 of the Eagleton Addition and is in good condition. The entire property including the house is in the floodplain/floodway of Imhoff Creek in an area of repetitive flooding. The owner seeks a permit to elevate the structure to a minimum of two feet above the BFE, as well as elevating the HVAC system to the same height and removing soil from the floodplain to compensate for the materials used to elevate it and the steps to access the house. Additionally, the applicant seeks to repair fencing that exists along the north and west sides of the this property. The applicant seeks to bring the structure into compliance with the current Flood Hazard Ordinance so that substantial improvements can be made to this property. A previous application was denied by the committee on May 8, 2023 based on substantial improvement concerns and safety related to the property being in the floodway of Imhoff Creek in a repetitive loss area. This application is for raising the structure, the HVAC and fence repair, not for remodeling. The owner's intent is to bring this structure into compliance with all pertinent floodplain regulations and use it as student housing. His son is attending OU and will be the primary resident. The owner's intent is to leave the residence in its exact existing location on the property. The footprint of the existing structure will not be enlarged.

This property is located in the designated floodplain and floodway of Imhoff Creek. Imhoff Creek was studied in the FEMA FIS Study; therefore base flood elevations for the 1% chance flood are published therein. The base flood elevation for this residence was determined from the profile in the effective FEMA FIS study to be 1153.1' NAVD. A Licensed Land Surveyor determined that the elevation of the adjacent grade at the NE corner of the residence is 1149.3' NAVD and that the lowest finished floor of this structure is 1149.92' NAVD. To fully meet the floodplain requirement, the finished floor would have to be at an elevation of 1155.1' NAVD or higher. The engineer recommends a target finished floor elevation of 1155.3' to allow for possible construction deviations. In addition the engineer indicates that flood vents would be installed in the crawl space beneath the house to meet FEMA requirements.

To construct the steps into the home after it is raised, the existing concrete porch and cement block steps would be removed from the floodplain. The engineer is recommending that steps be built using steps similar to those found in industrial settings, which consists of metal stringers and welded metal steps to minimize the footprint in the floodplain. The engineer also recommends that the platform for the HVAC unit be constructed of 4-inch by 4-inch metal steel posts. The application indicates that there is a dilapidated shed in the backyard that will be removed from the property and the multiple fence types that require repair and maintenance located along the property will be cleaned of debris and have missing/broken posts and sections replaced and maintained in the future. The total volume of soil that is required to be removed from the floodplain to account for the steps and HVAC support is 18 cubic feet. The engineer recommends increasing that amount to 27 cubic feet (1 cubic yard) to be conservative.

**STAFF ANALYSIS:**

Site located in Little River Basin or its Tributaries?      yes\_\_    no✓

According to the latest FIRM, the site of the proposed work is located in the Imhoff Creek floodplain (Zone AE). At the proposed site, the BFE is 1153.1 ft.

Applicable Ordinance Sections:  
36-533                      (e)2(a).....Subject Area:  
Fill restrictions

- (e)2(b).....New construction or substantial improvement designed and adequately anchored to prevent flotation, collapse or lateral movement
- (e)2(e).....Compensatory storage
- (e)3(a)(1).....Residential structures and accessory structures elevated 2 feet above BFE
- (e)3(e).....Flood Venting
- (f)3(a)(8).....No rise considerations

(e)2(b) All new construction or substantial improvements shall be designed (or modified) and adequately anchored to prevent floatation, collapse or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy.

The engineering report indicates that crawl space will be constructed with flood vents built to FEMA standards. In addition stairs and accessory structures will manufactured using steel or other metal material and welded joints for strength and to minimize volume of the structure. This satisfies ordinance requirements.

(e)2(a) and (e)2(e) Fill Restrictions in the Floodplain and Compensatory Storage – Fill is restricted because storage capacity is removed from floodplains, natural drainage patterns are adversely altered, and erosion problems can develop. Compensatory storage must be provided within the general location of any storage that is displaced by fill or other development activity and must serve the equivalent hydrologic function as the portion which is displaced with respect to the area and elevation of the floodplain.

According the engineer a net of approximately 1 cubic yard of soil will be removed from the floodplain satisfying ordinance requirements.

(f)3(a)(8) No Rise Considerations – For proposed development within any flood hazard area (except for those designated as regulatory floodways), certification that a rise of no more than 0.05 ft. will occur in the BFE on any adjacent property as a result of the proposed work is required. For proposed development within a designated regulatory floodway, certification that no increase in the BFE on any adjacent property as a result of the proposed work is required.

The project engineer has provided calculations for fill and certified that the proposed project will not cause a rise in the BFE, which meets the ordinance requirement.

(e)3(a)(1) Residential structures, including both site-built and manufactured homes, shall be constructed on fill so that the lowest floor including basement, ductwork, mechanical and electrical equipment including furnaces, water heaters, and air conditioners, etc. is at least two (2) feet above the base flood elevation...

The project engineer has indicated in the plans that the proposed structure will be built at a minimum of 2 above the BFE meeting the requirements of the ordinance.

(e)3(e) Enclosures. New construction and substantial improvements, with fully enclosed areas below the lowest floor ... that are subject to flooding shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for entry and exit of floodwaters. Designs for meeting this requirement must either be certified by a registered professional engineer or architect or meet or exceed the following criteria:

1. A minimum of two openings having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding shall be provided;
2. The bottoms of all openings shall be no higher than one foot above grade;
3. Openings may be equipped with screens, louvers, valves, or other coverings or devices,

provided that they permit the automatic entry and exit of floodwaters.

The project engineer has indicated that the crawl space below the elevated structure will be built with flood vents to FEMA standards.

**RECOMMENDATION:** Staff recommends Floodplain Permit Application #677 be approved with the following conditions:

1. An elevation certificate be submitted at completion of the construction to verify compliance;

**ACTION TAKEN:** \_\_\_\_\_