*If the project has proposed development that is within or adjacent to a mapped floodplain, all County code requirements shall be followed which may result in limited to no proposed development within this area. Please review all comments provided within this document and modify the design to meet all Henrico County Code, Chapter 10, Article 1 requirements, as applicable, before resubmitting this project for further review and approval.*

*For Floodplain Management purposes, “development” is defined as any man-made change to improved or unimproved real estate, including buildings or other structures, as well as mining, dredging, filling, grading, paving, excavation or drilling operations, and storage of equipment of materials. This includes stormwater discharge impacting the floodplain even if the stormwater facility is located outside of the Special Flood Hazard Area (SFHA). “Adjacent to the SFHA” means being located within the 500-year floodplain (0.2% Annual Chance Floodplain) or within 40’ of the SFHA.*

*Comments are applicable to the proposed project when the box (*  ) *has been checked.* ***Blue text*** *indicates a new comment or a comment that has not been addressed.* ***Black text*** *indicates a comment that has been addressed or may be for information purposes only. Comment clarification will be provided in ADDITIONAL COMMENTS at the bottom of each section.*

# REVIEWER AND CONTACT INFORMATION

**If you have specific questions concerning this review, please contact the Floodplain Review Engineer, Marie Benavides, by e-mail at** [**ben071@henrico.gov**](mailto:ben071@henrico.gov) **or by telephone at (804) 501-7240.**

**Reviewed by:**      

**Date Reviewed:**      

**Revisions Required  All Comments Addressed  No Comments**

# FLOODPLAIN ON PARCEL(S) AND/OR IMPACTED BY PROPOSED DEVELOPMENT (check all that apply)

Community SFHA  FEMA SFHA  Adjacent to SFHA (within 40’ setback or 500-year floodplain)

No SFHA – (Ordinance applicable, Sec. 10-(XX) applies)  No SFHA – Floodplain ord. not applicable

**Flood Zone(s):**

A  AE  Floodway  X500 (500-year)

**FEMA Flood Insurance Rate Map (FIRM) Panel(s) (if applicable):**

**Watercourse(s) Impacted:**

**Base Flood Elevation(s):**

# DESCRIPTION OF PROPOSED DEVELOPMENT IMPACTING SFHA OR ADJACENT AREAS

# FLOODPLAIN BOUNDARY INTERPRETATION AND MAPPING REQUIREMENTS

*Please note: Floodplain boundaries must be shown on* ***all*** *applicable plan pages.*

1. Flood zone information (“Floodplain Type, Zone Designation”) must be noted on the plan cover sheet. This includes the 500-year floodplain and floodway, when applicable (e.g., “FEMA SFHA, AE Zone”, “Community SFHA, A Zone”, “FEMA 500-yr floodplain”).
2. The floodplain boundaries are not shown on the plan. Clearly delineate and label the boundaries, including flood zone (e.g. “FEMA SFHA, A Zone”).
3. The floodplain boundaries on the plan are not correctly labeled. Clearly delineate and label the boundaries, including flood zone (e.g. “FEMA SFHA, A Zone”).
4. The floodplain boundaries on the plan are difficult to see. Clearly delineate using a line style that is easily distinguishable from other lines on the plans.
5. The floodplain boundaries on the plan do not reflect the current effective floodplain boundaries as shown on the Henrico County Floodplain Maps. Update to use effective floodplain.
6. Based on the topography, there are areas of the site adjacent the floodplain that are below the BFE but are not currently mapped within the floodplain. According to Sec. 10-6(a) of the Henrico County Code, the area shall be considered SFHA and is subject to the requirements of the Henrico County Code. Revise the floodplain boundaries to include these areas.
7. A map change is required:

*CLOMR approval is required prior to construction plan approval. LOMR approval may be required prior to construction plan approval. See additional comments below.*

Conditional Letter of Map Revision (CLOMR):

County (Community SFHA only)

FEMA (FEMA SFHA only)

Letter of Map Revision (LOMR):

County (Community SFHA only)

FEMA (FEMA SFHA only)

***ADDITIONAL COMMENTS:***



## MAP REVISION SUBMITTAL REQUIREMENTS

* *A Map Revision must be supported by technical data though a flood study. In addition to this technical data, property owner notification letters, a list of impacted property owners, and a map depicting the revised area must be provided. This information must be submitted electronically in* ***one complete package*** *using the* [*Build Henrico*](https://henrico.gov/build/) *site.* ***Files must be in a compressed folder (.zip) and submitted through*** [***Build Henrico***](https://henrico.gov/build/) ***as “DPW - Floodplain Documentation”.***
* *A complete Map Revision submittal package includes but is not limited to:*
  + *Signed and sealed Flood Study Narrative Report (.pdf)*
  + *Associated technical data (e.g.: HEC-RAS model files, hydrologic model files (HydroCAD, PondPack, etc.), pre-/post-topographic surveys, etc.).*
  + *Impacted property owner list (.xlsx)*
  + *Property Owner Notification Letters, Mail Merge ready (.docx)*
  + *Response to Comments, when applicable (.xlsx)*

*Additional information and templates for flood studies, narrative reports, and map revision documents are available online in the* [*Floodplain Technical Guidance Manual, Sec. 5.2 and Sec. 6.3.K*](https://henrico.gov/works/design/floodplain/build-responsibly/floodplain-technical-guidance-manual/)*.*

# NO-RISE CERTIFICATE REQUIREMENTS

1. **A *No-Rise Certificate*, signed and sealed by a professional engineer licensed in the Commonwealth of Virginia, is required** in accordance with Sec. 10-9(a) of the Henrico County Code with the following supporting technical data:

No Impact Statement

General Engineering Analysis

Peak Offset

Conveyance Shadow

Compensatory Storage

Flood Study

Other:

1. Development is proposed in a floodway. The No-Rise Certificate for this proposed development must be supported by a hydrologic and hydraulic analysis, as per Sec. 10-9(j) of the Henrico County Code. A CLOMR and/or LOMR may be required.
2. The submitted No-Rise Certificate documentation is incomplete:

The No-Rise Certificate is not signed and sealed by a professional engineer licensed in the Commonwealth of Virginia.

The supporting narrative report is not included, or the incorrect narrative template was used.

The supporting narrative report is not signed and sealed by a professional engineer licensed in the Commonwealth of Virginia.

The supporting technical data has not been provided.

The Response to Comments document has not been provided.

***ADDITIONAL COMMENTS:***

* + *No-Rise Certificate technical review comments will be provided as a separate comment document.*

## NO-RISE SUBMITTAL REQUIREMENTS

* *The No-Rise Certificate and supporting technical documentation must be submitted electronically in* ***one complete package*** *using the* [*Build Henrico*](https://henrico.gov/build/) *site.* ***Files must be in a compressed folder (.zip) and submitted through*** [***Build Henrico***](https://henrico.gov/build/) ***as “DPW - Floodplain Documentation”.***
* *A complete No-Rise Review submittal package includes but is not limited to:*
  + *Latest plan set (.pdf) – The latest plan set should be submitted in Build Henrico as its own document and does not have to be included in the .zip folder with the other No-Rise documents.*
  + *Signed and sealed No-Rise Certificate (.pdf)*
  + *Signed and sealed Narrative Report (.pdf)*
  + *Associated technical data (e.g.: HEC-RAS model files, hydrologic model files (HydroCAD, PondPack, etc.), compensatory storage volumetric calculations, pre-/post-topographic surveys, etc.).*
  + *Response to Comments, when applicable (.xlsx)*
* *Additional information and templates for the No-Rise Certificate and narrative reports are available online in the* [*Floodplain Technical Guidance Manual, Sec. 5.1.*](https://henrico.gov/works/design/floodplain/build-responsibly/floodplain-technical-guidance-manual/)

# FILL AND WATERCOURSE ALTERATION REQUIREMENTS

1. Based on the plan, the watercourse (     ) is proposed to be  altered,  relocated, or  removed:

A permit from the U.S. Corps of Engineers, the Virginia Department of Environmental Quality, and the Virginia Marine Resources Commission (as applicable) must be obtained prior to the proposed alteration or relocation of any channel or watercourse within Henrico County in accordance with Sec. 10-9(h) of the Henrico County Code.

All affected adjacent jurisdictions, the Virginia Department of Conservation and Recreation (Division of Dam Safety and Floodplain Management), and FEMA must be notified when altering or relocating any channel or watercourse mapped in a FEMA SFHA. Copies of this notification must be provided.

1. Fill is proposed within the SFHA. Fill is not permitted in the SFHA as per Sec. 10-9(b) of the Henrico County Code and must be removed.

Proposed fill is minor and necessary to protect or restore natural floodplain functions or to stabilize stream banks to protect public roads and utilities. An Administrative Variance in accordance with Sec. 10-17(a) of the Henrico County Code must be approved by DPW prior to construction plan approval.

***ADDITIONAL COMMENTS:***



# SUBDIVISION PROPOSAL REQUIREMENTS

1. A narrative must be provided that documents how the proposed subdivision complies with Sec. 10-12(b)-(d) of the Henrico County Code, including measures to reduce flood damage, ensure that public utilities and facilities are located and constructed to minimum flood damage, and adequate drainage has been provided to reduce exposure to flood hazards.
2. The proposed subdivision has greater than 5 acres or 50 lots:

There is a watercourse on or adjacent to the site that does not currently have a mapped floodplain. In accordance with Sec. 10-12(a) of the Henrico County Code, a hydraulic and hydrologic analysis must be provided, using detailed methodologies, to establish a Community SFHA and BFE for this site. Once identified, those areas shall be subject to the requirements of the Floodplain Ordinance.

There is an existing SFHA, or no watercourse that could be mapped as floodplain, on or adjacent to the site. The requirements of Sec. 10-12(a) of the Henrico County Code are not applicable.

***ADDITIONAL COMMENTS:***



# STRUCTURES/BUILDINGS AND CRITICAL FACILITIES

Plan approval is not approval for any structures within or adjacent to the SFHA. A **Floodplain Development Permit** is required as per Sec. 10-8 of the Henrico County Code and must be submitted to DPW for approval. A Building Permit will not be issued until an approved Floodplain Development Permit has been issued. [See Sec. 10-3 of the Henrico County Code](https://henrico.gov/pdfs/countyattorney/Chpt010Environment.pdf) for definitions of structure types.

1. A residential structure(s) is proposed:

The proposed residential structure(s) is located within the SFHA or within 15’ of the SFHA. Residential structures are prohibited in accordance with Sec. 10-9(k) and Sec. 10-9(m) of the Henrico County Code, so the proposed residential structure(s) must be removed or relocated.

The proposed residential structure(s) is located between 15’ and 40’ of the SFHA or within the 500-year floodplain. Residential structures may be permitted in accordance with Sec. 10-9(o) of the Henrico County Code if the lowest floor, including mechanical equipment, of the structure(s) is elevated 1’ above the BFE.

The proposed lowest floor of the structure(s) must be noted.

The proposed residential structure is not located within or adjacent to the SFHA.

1. A non-residential structure(s) is proposed:

The proposed non-residential structure(s) is located within the SFHA. Non-residential structures may be permitted in the SFHA if the lowest floor, including mechanical equipment, is elevated 2’ above the BFE in accordance with Sec. 10-9(n) of the Henrico County Code.

The proposed lowest floor of the structure(s) must be noted.

The proposed non-residential structure(s) is located within 40’ of the SFHA or within the 500-year floodplain. Non-residential structures may be permitted if the lowest floor, including mechanical equipment, is elevated 1’ above the BFE in accordance with Sec. 10-9(o) of the Henrico County Code.

The proposed lowest floor of the structure(s) must be noted.

Dry floodproofing has been proposed. An Administrative Variance in accordance with Sec. 10-17(b) of the Henrico County Code must be approved by DPW prior to construction plans being signed.

The proposed non-residential structure(s) is not located within or adjacent to the SFHA.

1. A critical facility is proposed:

The proposed critical facility is located within the SFHA. Critical facilities are prohibited in the SFHA in accordance with Sec. 10-9(k) of the Henrico County Code, so the proposed critical facility must be removed or relocated.

The proposed critical facility is a building and is located within the 500-year floodplain. Critical facilities may be permitted in the 500-year floodplain in accordance with Sec. 10-9(l) of the Henrico County Code if the lowest floor is elevated to either the BFE plus 2’ or the 500-year flood elevation plus 1’, whichever is greater.

The proposed lowest floor of the structure(s) must be noted.

The proposed critical facility is not located within or adjacent to the SFHA.

1. An existing structure is proposed to be modified within or adjacent to the SFHA:

An existing structure in the floodway may not be expanded or enlarged if the proposed expansion or enlargement would result in an increase in the BFE, as outlined in Sec. 10-13(b) of the Henrico County Code.

An existing residential structure may not be enlarged if any part of the enlarged structure will be within the SHFA or within 15’ of the SFHA, as outlined in Sec. 10-13(e) of the Henrico County Code.

A detailed cost breakdown for the proposed improvements to the existing structure must be provided to determine if the proposed improvements constitute a Substantial Improvement. *Henrico County will use the tax assessed value for the market value of the structure unless a current appraisal is provided. See the* [*Floodplain Technical Guidance Manual*](https://henrico.gov/works/design/floodplain/build-responsibly/floodplain-technical-guidance-manual/) *for additional information on what costs must be included/excluded.*

The proposed work is considered a Substantial Improvement. The entire structure must meet the requirements of Sec. 10-13(d) of the Henrico County Code.

The proposed work is not considered a Substantial Improvement. The proposed improvements must be designed to minimize flood damage in accordance with Sec. 10-13(c) of the Henrico County Code.

A residential structure may be relocated only if the new location of the structure is entirely outside the SFHA and the new location complies with Sec. 10-13(f) of the Henrico County Code.

1. An accessory structure(s) is proposed within or adjacent to the SFHA:

The structure is 600 ft2 or less in size. It may be constructed below the BFE if the following have been met:

Flood openings, in accordance with Section 10-10(b) of the Henrico County Code .

Anchored to resist flotation, collapse, and lateral movement.

Flood damage-resistant materials must be used for components below BFE.

Mechanical, electrical, and utility equipment must be elevated or dry floodproofed to or above the BFE.

The structure is larger than 600 ft2 in size. It is considered a non-residential structure and must meet the requirements of comment #16 above.

1. A historic structure is proposed to be modified within or adjacent to the SFHA and must comply with the requirements for its structure type (residential, non-residential, etc.) unless:

A County Engineer Variance in accordance with Sec. 10-16 of the Henrico County Code must be approved by DPW prior to construction plans being signed.

1. A temporary structure is proposed. A plan for removal of the structure in the event of a flood-related severe weather notification (hurricane, tropical storm, flood, flash flood, etc.) in accordance with Sec. 10-10(k) of the Henrico County Code is required prior to Floodplain Development Permit approval.

***ADDITIONAL COMMENTS:***



## DEFINITIONS Related to Structures (expand to view)

* Accessory or Appurtenant Structure: A structure which is on the same parcel of property as the principal structure and the use of which is incidental to the use of the principal structure. An accessory structure is considered nonresidential for the purposes of this article and may include detached garages, sheds, barns, or greenhouses.
* Agricultural Structure: A structure that is used exclusively in connection with the production, harvesting, storage, raising, or drying of agricultural commodities and livestock, including aquatic animals or plants associated with aquaculture activities. An agricultural structure does not include any structure used for human habitation.
* **Basement:** Any area of the building having its floor subgrade (below ground level) on all sides.
* **Critical Facility:** A structure or other improvement that, because of its function, size, service area, or uniqueness, has the potential to result in serious bodily harm, extensive property damage, or disruption of vital socioeconomic activities if it is destroyed or damaged or if its functionality is impaired. Critical facilities include health and safety facilities, utilities, government facilities, and hazardous materials facilities.
* **Dry Floodproofing:** A combination of measures that results in a structure and its attendant utilities and equipment being watertight with all elements substantially impermeable and with structural components having the capacity to resist flood loads.
* **Freeboard:** A factor of safety usually expressed in feet above a flood level for purposes of floodplain management. Freeboard tends to compensate for the many unknown factors that could contribute to flood heights greater than the height calculated for a selected size flood and floodway conditions, such as wave action, bridge openings, and the hydrological effect of urbanization of the watershed.
* **Historic Structure:** Any structure that is: (a) listed individually in the National Register of Historic Places maintained by the U. S. Department of Interior or preliminarily determined by the U. S. Secretary of the Interior as meeting the requirements for individual listing on the National Register, or (b) certified or preliminarily determined by the U. S. Secretary of the Interior as contributing to the historical significance of a registered historic district or a district preliminarily determined by the Secretary to qualify as a registered historic district, or (c) individually listed on a state inventory of historic places in states with historic preservation programs which have been approved by the U. S. Secretary of the Interior, or (d) individually listed on a local inventory of historic places in communities with historic preservation programs that have been certified either: (1) by an approved state program as determined by the U. S. Secretary of the Interior or (2) directly by the U. S. Secretary of the Interior in states without approved programs.
* **Lowest Floor:** The lowest floor of the lowest enclosed area (including basement). An unfinished or flood resistant enclosure, usable solely for parking of vehicles, building access, or storage in an area other than a basement area is not considered a building's lowest floor if such enclosure does not violate the applicable enclosure requirements in Sec. 10-10(c) of this article.
* **Manufactured Home:** A structure, transportable in one or more sections, which is built on a permanent chassis and is designed for use with or without a permanent foundation when attached to the required utilities. The term Manufactured Home does not include a recreational vehicle. A Manufactured Home may be considered a Residential or Non-Residential Building depending on its use.
* **Mechanical Equipment:** Includes electrical, heating, ventilation, plumbing, and air conditioning equipment, and other service facilities.
* **Mixed-Use Building:** A building that has both residential and non-residential uses
* **New Construction:** For the purposes of determining insurance rates, structures for which the “start of construction” commenced on or after the effective date of an initial FIRM or after December 31, 1974, whichever is later, and includes any subsequent improvements to such structures. For floodplain management purposes, new construction means structures for which the start of construction commenced on or after the effective date of a floodplain management regulation adopted by a community and includes any subsequent improvements to such structures.
* **Non-Residential Building:** A building or accessory structure where the primary use is commercial or not for human habitation.
* **Residential Building:** A non-commercial building designed for habitation by one or more families or a mixed-use building, including any building or portion of a building occupied or designed to be occupied exclusively for residential purposes. The term includes guesthouses, cabins, and sleeping units but does not include a tent, recreational vehicle, hotel or motel, boardinghouse, hospital, or other accommodation used for transient occupancy.
* **Structure:** A walled and roofed building that is principally above ground. Walled is considered “two or more outside rigid walls” and roofed is “a fully secured roof.” This may also be referred to as a building.
* **Substantial Damage:** Damage of any origin sustained by a structure whereby the cost of restoring the structure to its before damaged condition would equal or exceed 50 percent of the market value of the structure before the damage occurred.
* **Substantial Improvement:** Any reconstruction, rehabilitation, addition, or other improvement of a structure, the cost of which equals or exceeds 50 percent of the market value of the structure before the Start of Construction of the improvement. This term includes improvements to structures which have incurred Substantial Damage, regardless of the amount of the actual repair work performed. For the purposes of this article, the relocation of a residential structure within the SFHA is deemed a substantial improvement. This term does not, however, include any improvement of a structure to correct existing violations of state or local health, sanitary, or safety code specifications which have been identified by the local code enforcement official and which are the minimum improvements necessary to assure safe living conditions.
* **Wet Floodproofing:** Floodproofing method that relies on the use of flood damage-resistant materials and construction techniques in areas of a structure that are below the elevation required by this article and are intentionally allowed to flood.

# DRIVEWAYS, ROADS, AND PARKING AREAS

1. The proposed  roadway,  parking area, and/or  driveway meets the dryland access requirements outlined in Sec. 10-10(g) of the Henrico County Code.
2. The proposed  roadway,  parking area, and/or  driveway appear(s) to be located more than 6” below the BFE. The improvements must be relocated or redesigned, so it will not be overtopped by more than 6” of water during the 100-yr storm event.

***ADDITIONAL COMMENTS:***



# WATER, SEWER, AND WASTEWATER SYSTEMS

1. A narrative, including any supporting data, must be provided that demonstrates that the proposed water supply system is designed to minimize or eliminate infiltration of floodwaters into the systems, as per Sec. 10-9(d) of the Henrico County Code.
2. A narrative, including any supporting data, must be provided that demonstrates that the proposed sanitary sewage system is designed to minimize or eliminate infiltration of floodwaters into the systems and discharges from the systems into floodwaters, as per Sec. 10-9(e) of the Henrico County Code.
3. A narrative, including any supporting data, must be provided that demonstrates that the proposed onsite waste disposal system is located to avoid impairment to them or contamination during flooding, as per Sec. 10-9(f) of the Henrico County Code.

***ADDITIONAL COMMENTS:***



# TEMPORARY ENCROACHMENTS

Temporary encroachments include sediment control devices, temporary stream crossings, haul roads and construction entrances, storage of equipment, and soil stockpiling. A temporary encroachment shall not be in place for more than 3 months and is renewable for up to 1 year with written approval from the Floodplain Administrator.

1. A temporary encroachment(s) is proposed in the SFHA and must comply with the No-Rise Certificate and no fill requirements mentioned above.
2. A temporary encroachment(s) is proposed in the SFHA, and the no fill requirement is not being met and approval from the Floodplain Administrator has been granted in accordance with Sec. 10-10(l) of the Henrico County Code.

The following note must be shown on the plan cover sheet and the E&S Sequence of Construction:

*“The temporary encroachment of [insert encroachment type] shall not be in place more than 3 months and is renewable for up to 1 year with written approval from the Floodplain Administrator in accordance with Sec. 10-10(l) of the Henrico County Code. The 3 months begins on the date of the pre-construction meeting.”*

***ADDITIONAL COMMENTS:***



# STORMWATER MANAGEMENT FACILITIES

1. A Stormwater Management Facility (     ) is proposed in the SFHA, which is prohibited as per Sec. 10-10(j) of the Henrico County Code. The proposed Stormwater Management Facility must be removed or relocated. [Sec. 4.4.C of the Floodplain Technical Guidance Manual](https://henrico.gov/works/design/floodplain/build-responsibly/floodplain-technical-guidance-manual/) outlines what is considered a Stormwater Management Facility for floodplain management purposes.

***ADDITIONAL COMMENTS:***



# STORAGE OF MATERIALS

1. Storage of hazardous materials is proposed in the SFHA and is prohibited as per Sec. 10-10(f) of the Henrico County Code. Storage of hazard materials must be removed or relocated.
2. Storage of other materials is proposed in the SFHA and documentation must be provided demonstrating that at least one of the options below been met to ensure the materials and equipment will not become debris during a flood as per Sec. 10-10(f) of the Henrico County Code:

Materials and equipment elevated to or above the BFE.

Materials and equipment anchored to resist flotation.

Materials and equipment located in an enclosure.

Materials and equipment designed to be removable from the site prior to a flood. The following must be provided:

A written designation of a location outside the SFHA to which the materials or equipment will be removed, AND

A copy of the contract with a trucking company to ensure the availability of removal equipment when needed, OR

Evidence of removal equipment on the property if a trucking company will not be used.

***ADDITIONAL COMMENTS:***



# OTHER COMMENTS