

GUIDE FOR DEVELOPMENT IN THE FLOODPLAIN

This document was developed by the Department of Licenses and Inspections as a guide for development in the floodplain.

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Introduction

Construction projects and uses in a Special Flood Hazard Area (SFHA) have special requirements that vary with scope and location. This guide will help you navigate the process for obtaining permits and associated approvals that may be relevant to your project. To determine if your project is in a SFHA, use the FEMA [Flood Map Service Center](#).

Disclaimer

This document is intended to be used as a Guide. All laws and regulations should be referenced if there is any discrepancy between this Guide and the law.

What Type of Work Are You Doing?

Select the scope of work that best fits your project to navigate to the process flow chart.

- [Alteration to an existing building or structure](#)
- New Construction, Addition and/or Site Work
 - [Floodway encroachment](#)
 - [Fill to elevate building or site](#)
 - [Other work in the SFHA](#)
- [Commonwealth of PA Permits or FEMA Approvals \(Only\)](#)
 - [Change in SFHA Map \(Only\)](#)
 - [Waterway Obstruction or Encroachment \(Only\)](#)

Governing Standards

- [Philadelphia Zoning Code](#)
- [Philadelphia Building Code](#), including [International Building Code](#)
- [ASCE 24-14 Flood Resistant Design and Construction](#)
- [NFIP Regulations \(44 CFR Parts 60 - 80\)](#)
- [PA Code - Title 25](#)

Additional Resource

If your development project is in or adjacent to the Delaware River (within 50' and/or on submerged lands of the State), you are encouraged to participate in the [Urban Waterfront Action Group Pre-Application Meeting](#). This group includes representatives from federal, state, and local regulatory agencies that can advise you on specific permits and approvals required for your project.

SECTION 1:

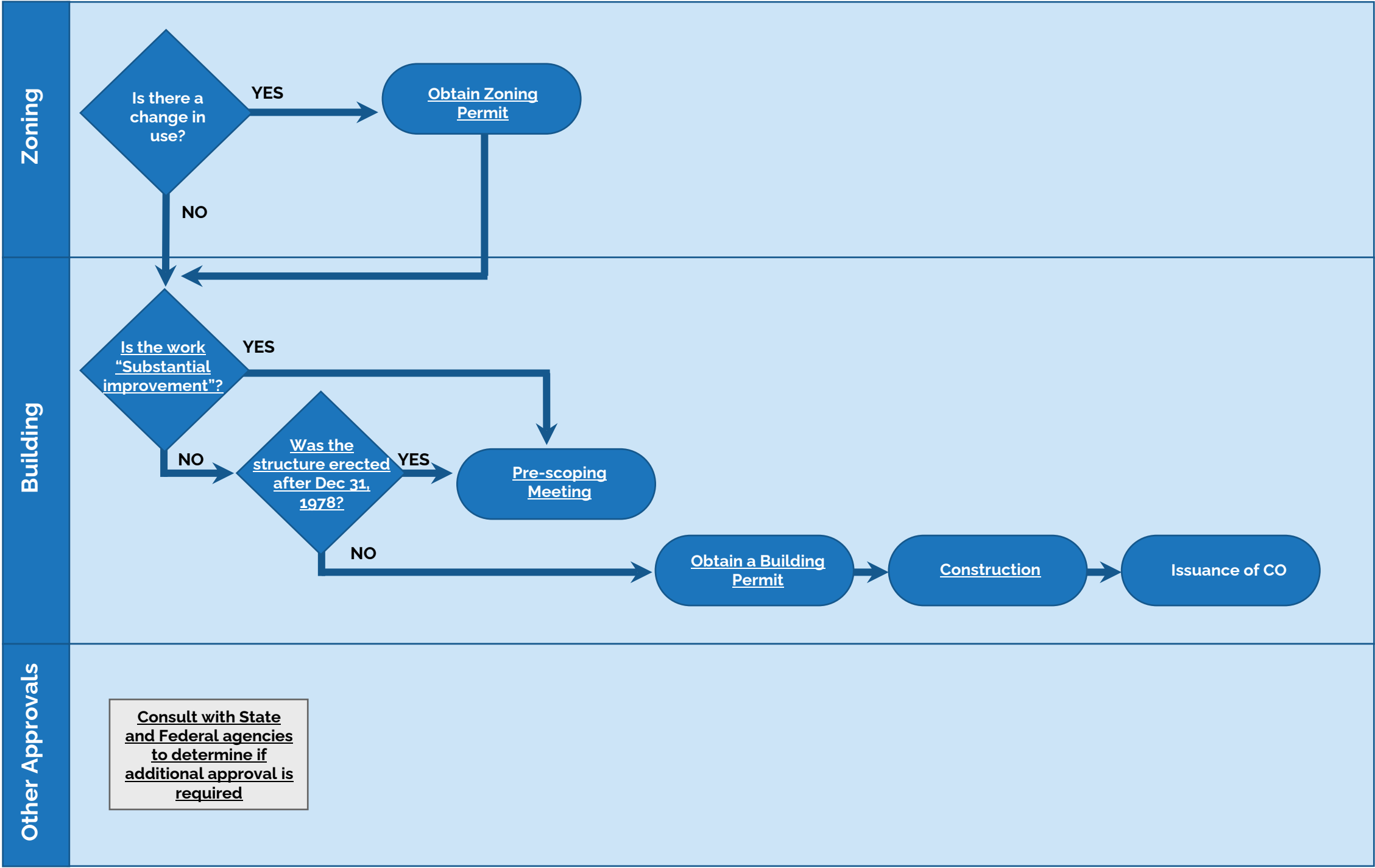
Flowcharts

Section 1 contains the following flowcharts. Within each flowchart, many of the steps listed are linked to supplemental guides.

- **Alterations**
- **New Construction, Addition and/or Site Work - Floodway Encroachment**
- **New Construction, Addition and/or Site Work - Fill to Elevate a Building or Site Above BFE (FEMA Map Change)**
- **New Construction, Addition and/or Site Work - Other Construction in Flood Hazard Area**
- **Federal and State Approval Only**

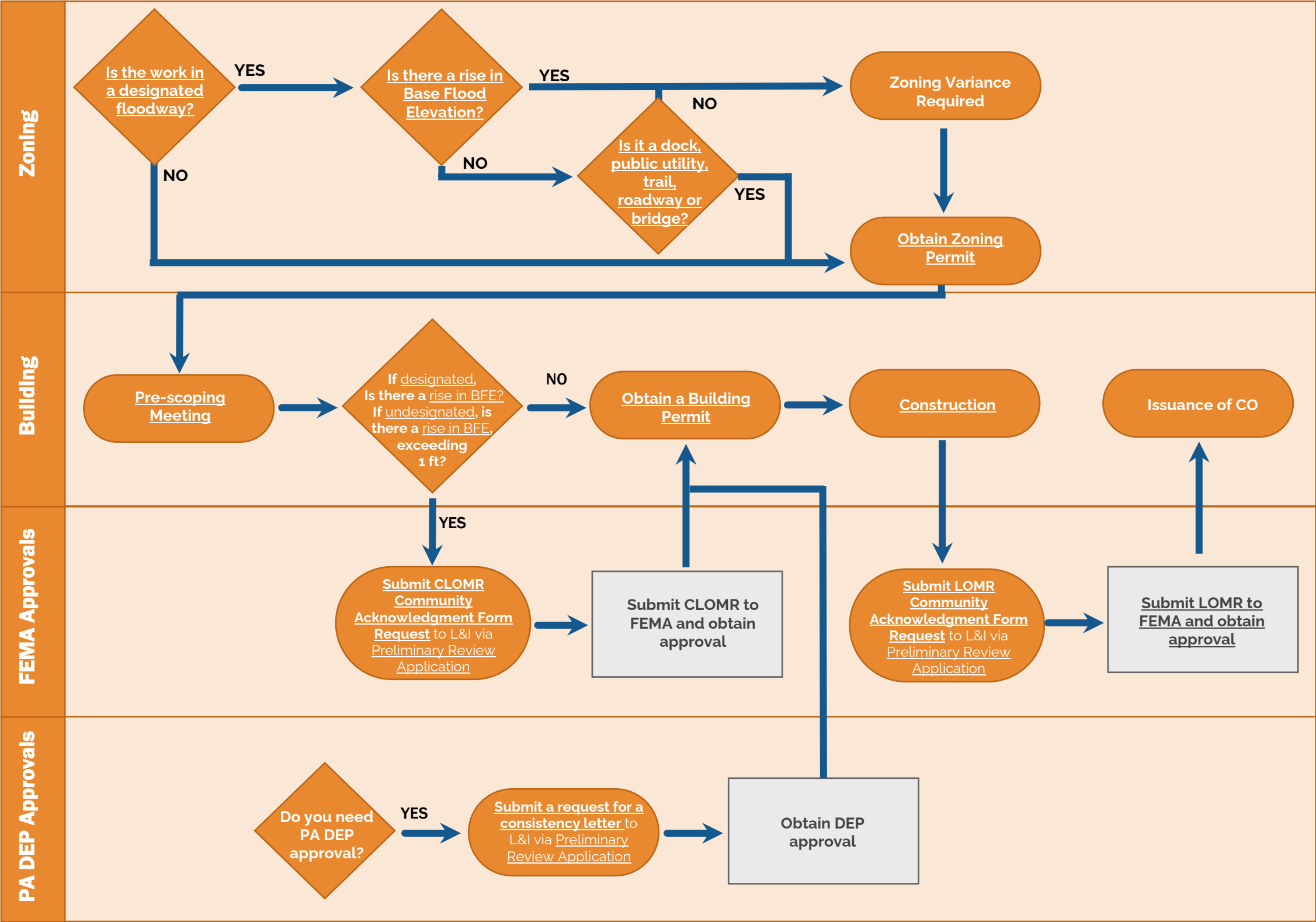
Alterations

Note: Steps in gray rectangles denote approvals outside of the City of Philadelphia



New Construction, Addition and/or Site Work - Floodway Encroachment

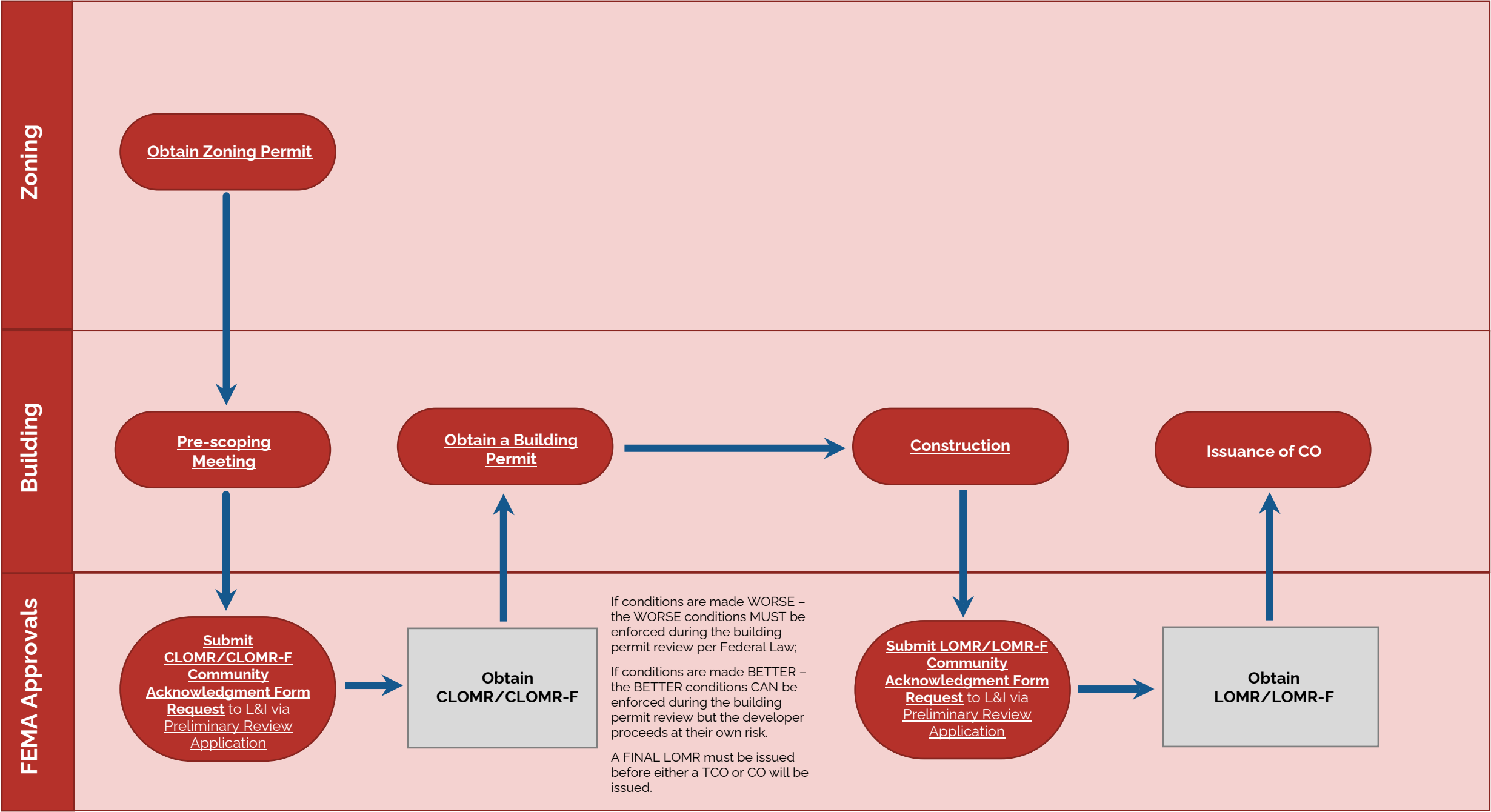
Note: Steps in gray rectangles denote approvals outside of the City of Philadelphia



New Construction, Addition and/or Site Work - Fill to Elevate a Building or Site Above BFE (or FEMA Map Change)

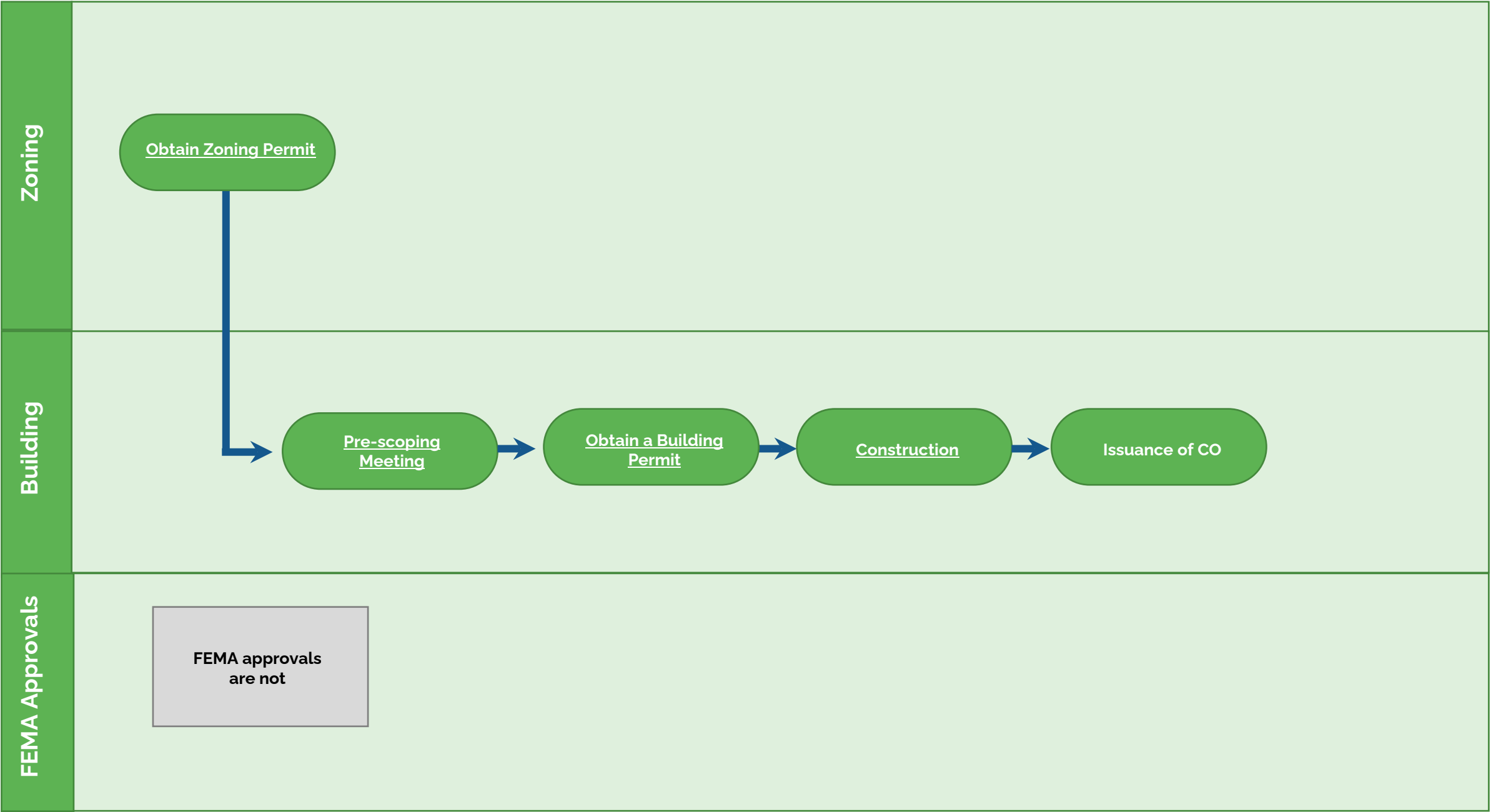


Note: Steps in gray rectangles denote approvals outside of the City of Philadelphia



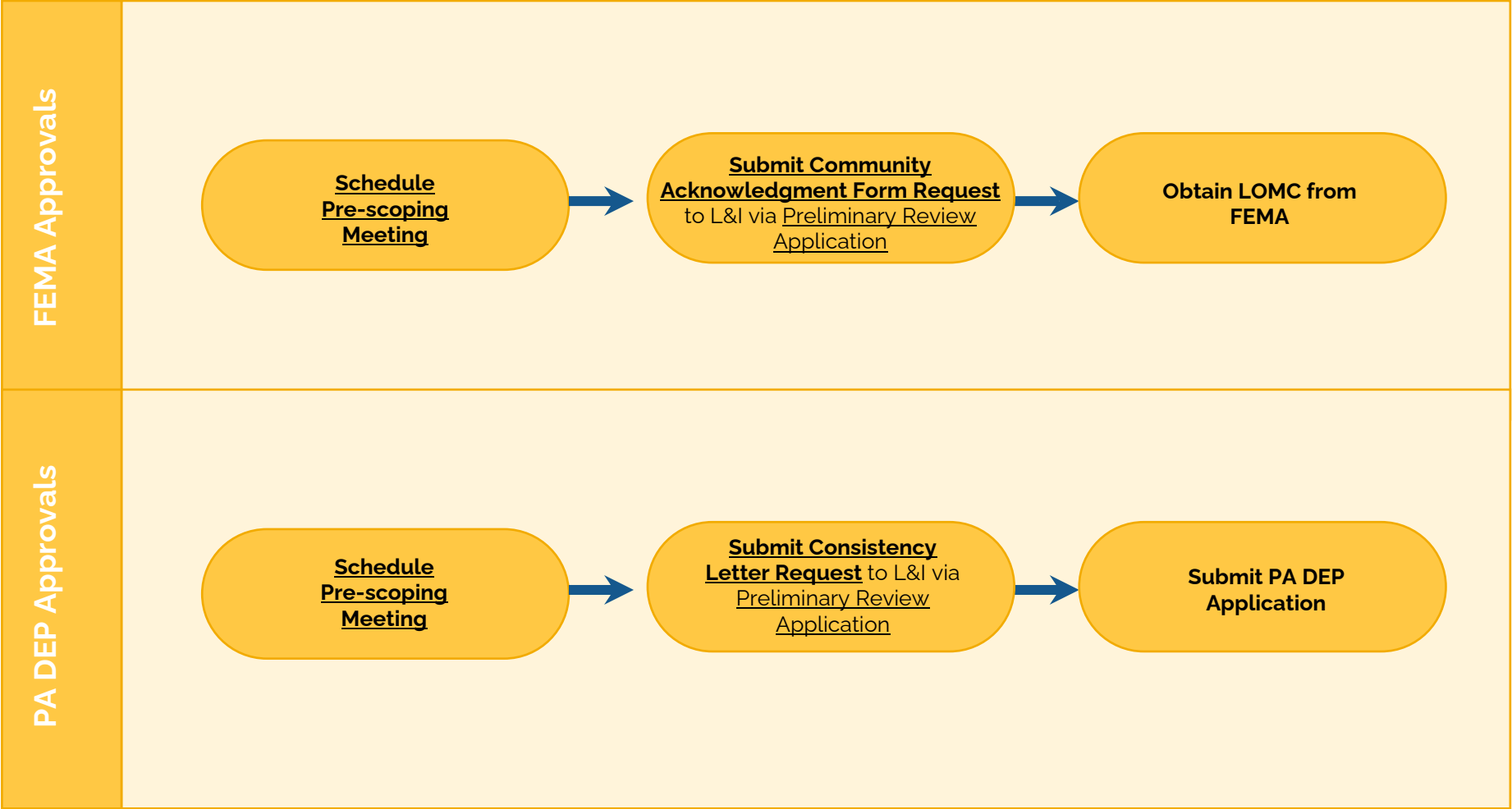
New Construction, Addition and/or Site Work - Other Construction in Flood Hazard Area

Note: Steps in gray rectangles denote approvals outside of the City of Philadelphia



Federal and State Approvals Only

Note: Steps in gray rectangles denote approvals outside of the City of Philadelphia





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Section 2:

Process Steps

Section 2 contains detailed information about the following processes:

- [Get a Zoning Permit](#)
- [Get a Building Permit](#)
- [Get Construction Inspections](#)
- [Get a Community Acknowledgement Form \(for FEMA Application\)](#)
- [Get a Floodplain Consistency Letter \(for PA DEP Application\)](#)



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Get a Zoning Permit

When is a Zoning Permit required for floodplain development?

A permit is required for any work or change in use that occurs within the Special Flood Hazard Areas (SFHA) defined by the Flood Insurance Study (FIS) and Flood Insurance Rate Maps (FIRM) and within property lines.

This includes any construction, reconstruction, modification, or extension of structures, filling, dredging, mining, grading, paving, excavation, drilling operations, or storage of equipment or materials, land excavation, land clearing, land improvement, or any construction thereof.

Permitting requirements are more expansive when work occurs within a SFHA and standard exceptions under the Zoning Code, Chapter 3 of the Philadelphia Administrative Code, and Code Bulletin A-1501 (Temporary Uses and Structures) may not apply to floodplain development.

The Zoning Code also makes reference to Substantial Improvement (SI) and Substantial Damage (SD); however, the Department limits the review of SI and SD determinations to the Building Permit phase.

What kind of Zoning Permit is required for my work?

The standard Zoning permit subtypes outlined on L&I's website '[Get a Zoning Permit](#)' shall also be applied to development in the floodplain. If the project includes site work only and no modification to parking, the "New Construction, Addition, GFA change" Work Type can be selected.

What is required for my Zoning Permit application?

Application requirements vary based upon scope of work as outlined on the L&I's website '[Get a Zoning Permit](#)'. Permit applications for "floodplain development" must provide, where applicable, some additional information to confirm compliance:

SITE PLAN

If the proposed development is occurring on a parcel entirely or partially within a SFHA (A, AE, Floodway), the site plan must be sealed by a registered design professional or professional land surveyor and include the following information:

- Property boundaries, related easements, and rights-of-way.
- Floodplain boundaries, including designated floodways, SFHA designations and associated Base Flood Elevations (BFE).
- Lowest floor elevation, including a basement or cellar, of all new and substantially improved structures.
- Site topography (existing and proposed).
- Size, location, and distance from property and floodplain boundaries of all new and existing buildings and structures including limits of earth disturbance and/or grading activity.
- If the parcel is in the '[Waterfront Setback Overlay](#)' the Top-of-Bank delineation and applicable Waterfront Setback Zone. The site plan must be prepared by a PA Professional Land Surveyor (PA LS) if the proposed development is within 75' of Top of Bank.



Get a Zoning Permit

- Elevation Datum information consistent with effective Flood Insurance Rate Maps (FIRM) and/or Flood Insurance Studies (FIS) associated with the project area – typically NGVD 29.
 - IMPORTANT NOTE:** Where City Datum (CD) is used, both may be listed, but must also be accurately converted to the Datum consistent with the effective FIRM. See Philadelphia City Datum and NGVD 29 Conversion Chart at: phila.gov/documents/flood-protection-forms/.

Site Surveys obtained from the Philadelphia Department of Streets – Survey Division may include elevation benchmarks listed in both CD and NGVD 29/88. In such cases, the benchmark data must be used to determine all relevant Elevation Datum information and supersedes the above listed Conversion Chart. If such is the case, the following supporting information must be provided:

- Email or paperwork from Philadelphia Department of Streets – Survey Division identifying the benchmark in both City Datum and NGVD 29.

Additional information relating to floodplain boundaries, including Mean High Tide and Limit of Moderate Wave Action (LiMWA) may be required on a site plan submitted for Building Permit application or for the approval of a Federal or Commonwealth of PA agency.

FLOOD PROTECTION FORM

The '**Flood Protection Form – Zoning (FP-Z)**' must be submitted with all Zoning Permit applications for development in the SFHA.

This form is intended to capture some basic information necessary for zoning permit issuance and ensure that the owner is aware of additional requirements, restrictions, and processes that shall apply as they continue with the development.

The form must be completed by the permit applicant or other representative of the owner.

FLOODPLAIN ENGINEERING ANALYSIS

A Zoning Permit to construct a dock, public utility, trail, roadway, or bridge within a '**Regulatory Floodway**' may only be issued if the development does not cause an increase in Base Flood Elevation (BFE).

An '**Engineering Analysis**' is necessary to determine the effect on BFE. This analysis **shall not be submitted** with the Zoning Permit application; however, the design professional must affirm compliance through the submission of a completed '**Flood Protection Form - No Rise (FP-NR)**' when submitting a Zoning Permit application.

What specific conditions apply to a Zoning Permit for floodplain development?

Certain definitions and rules of measurement contained in Section 14-200 are different for development in the floodplain. Differences include, but are not limited to, the following:

- Average Ground Level** is measured at 1' above Regulatory Flood Elevation, instead of the base of the structure. This impacts additional calculations such as the height of the structure and the determination of ground floor level.
- Development** subject to permitting requirements incorporates the standard definition (erection or relocation of a structure, addition, increase in gross floor area, lot adjustment) and is extended to include all site work and storage of equipment or materials.
- Through the definition of "New Construction", it is established that structures for which the start of construction commenced on or after June 15, 1979 and includes any subsequent improvement to such structures must comply with the provisions of 14-704(4). Any construction started before June 15, 1979 is subject to the ordinance in effect at the time the permit was issued.

'Code Solution No 14-305(6) - When does alteration become new construction' provides additional conditions under which a structural alteration is classified as new construction.

Section 14-704(4) addresses regulations specific to development in the floodplain, including but not limited to the following:

- Any encroachment in the **'Regulatory Floodway'** requires a variance from the Zoning Board of Adjustment (ZBA) with the following exception:
 - Docks, public utilities, trails, roadways, and bridges which do not result in a rise of BFE.
- New construction of a structure used for the production, storage, and/or use of certain hazardous materials is prohibited in the Regulatory Floodway. A structure used for such purposes is permitted in the SFHA if the structure is elevated 18" above BFE or is dry floodproofed.
- The lowest floor level, including the basement or cellar, of a new construction or a structure undergoing Substantial Improvement (SI) must be at least 18" above BFE or meet the alternate floodproofing design criteria for non-residential structures, as defined in **'Code Bulletin A-1702R'**.
 - IMPORTANT NOTE:** The Building Code and ASCE 24 may require a greater height above BFE; please review such provisions prior to submitting your Zoning Permit application. The most restrictive provision between the Zoning and Building Codes shall apply to the development.
- Manufactured homes, including trailers placed on site for more than 180 days, hospitals, detention centers, and personal care homes are prohibited in the SFHA.

What If I need a variance?

All Zoning Variances are subject to the conditions of the **Philadelphia Zoning Code Section 14-303(8)**. This section contains supplemental criteria specific to variances in the floodplain. The **'Floodplain Protection Form-Variations (FP-VAR)'** provides guidance on variance requirements.

A Zoning Board of Adjustment (ZBA) Variance does not waive or supersede any Building Code requirements and/or restrictions that may be raised during the review of the Building Permit application.

WHAT HAPPENS NEXT?

Your next step is to **'Get a Building Permit'**.

If the cost for a project is \$50,000 or more, you must attend a **flood protection scoping meeting** before submitting your building permit application.

Review the **'LOMC' information sheet** to determine if your project, will also need conditional and/or final approval from FEMA.

If your project involves a waterway obstruction or encroachment, you will also need **'PA DEP Approval'**.

CODE REFERENCES

Philadelphia Zoning Code

Code Bulletin A-1702R-Development in Special Flood Hazard Areas



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Get a Building Permit

When is a Permit required for floodplain development?

To ensure all activity within a Special Flood Hazard Area (SFHA) complies with nationally adopted regulations and development standards, the rules for when a Permit is required are broad and apply to, generally, all “man-made” changes to property, as summarized below:

- 2018 IBC Appendix G Section G104.1 and 44 CFR Chapter I Subpart A Section 60.3(b)(1) require that a permit must be issued by the Building Official/Community before any “development” may occur – stating:
 - **G104.1 Required.** Any person, owner or owner’s authorized agent who intends to conduct any development in a flood hazard area shall first make application to the building official and shall obtain the required permit.
- “Development” requiring a permit is defined under 2018 IBC Appendix G Section G201.2, which states:
 - **Development.** Any man-made change to improved or unimproved real estate, including but not limited to, buildings or other structures, temporary structures, temporary or permanent storage of materials, mining, dredging, filling, grading, paving, excavations, operations, and other land-disturbing activities.
- Furthermore, the provisions of the Philadelphia Administrative Code (Subcode A) that outline work exempt from permits excludes areas within SFHA from the exception – with Subcode A Section A-301.2 exception stating:

- **Permits** are required in flood protection areas for any construction, reconstruction, modification, extension, expansion, or substantial improvement of structures, filling, dredging, mining, grading, paving, excavation, drilling operations, storage of equipment or materials, land excavation, land clearing, land improvement, or any construction thereof.
- This means that even if work is generally exempt from permits due to limited scope of minor improvements, once such work occurs within a SFHA, permits are now required before the start of work.

What kind of Building Permit is required for my work?

Construction activity is regulated by the City of Philadelphia through the Commonwealth of PA’s Uniform Construction Code (PA UCC). As such, the “Permits” associated with construction work are collectively called a “Building Permit” but are best separated into the following Building Permit Types:

- **Site / Utility Permits** – These permits involve general earth disturbance activity or the construction of foundation systems and associated on-site utility services.
- **Residential Building Permits** – For new construction, addition, and/or alterations to a One- or Two-Family Dwelling.
- **Commercial Building Permits** – For new construction, addition, and/or alterations to a building other than a One- or Two-Family Dwelling.

- **Demolition Permits** – For the complete, or near complete, demolition of existing buildings.
- **General Permits** – For the installation of other miscellaneous structures including, but not limited to, retaining walls, signage, fences, etc.

Depending on the scope of “development” proposed within a SFHA, one or multiple permits may be required for the project.

What is required for my Building Permit application?

All permit applications must submit minimum information as required by the Codes, Standards and Regulations applicable to the proposed work. Much of this information can be found summarized in the Philadelphia Code Title 4 Subcode A (Philadelphia Administrative Code) Section A-305.2 and available for review on the L&I's website '[Get a Building Permit](#)'.

In addition, permit applications for “floodplain development” must provide, where applicable, additional information to confirm compliance. This ‘floodplain development’ specific information includes, but need not be limited to:

- A Site Plan meeting the minimum submission standards of the Department with all the following information per Subcode A, Section A-305.2.1.1:
 - Property boundaries, related easements, and rights-of-way.
 - Size, location and distance from property and floodplain boundaries of all new and existing buildings and structures including limits of earth disturbance and/or grading activity.
 - Floodplain boundaries, designated floodways, and any associated SFHA information including, but not limited to:
 - SFHA designations and associated Base Flood Elevations (BFE)
 - Mean High Tide / Mean High Water (MHW)
 - Limit of Moderate Wave Action (LiMWA)
 - Clear delineation of any proposed changes to the above listed boundaries

- Elevation Datum information consistent with effective Flood Insurance Rate Maps (FIRM) and/or Flood Insurance Studies (FIS) associated with the project area.

- **IMPORTANT NOTE:** Where City Datum (CD) is used, both may be listed, but must also be accurately converted to the Datum consistent with the effective FIRM. See Philadelphia City Datum and NGVD 29 Conversion Chart here: phila.gov/documents/flood-protection-forms/.

Site Surveys obtained from the Philadelphia Department of Streets – Survey Division may include elevation benchmarks listed in both CD and NGVD 29/88. In such cases, the Benchmark Data must be used to determine all relevant elevation datum information and supersedes the above listed Conversion Chart. If such is the case, the following supporting information must be provided:

- Email or paperwork from the Philadelphia Department of Streets – Survey Division identifying the benchmark in both City Datum and NGVD 29.
- FEMA or L&I forms and supporting documents, signed and sealed by a Commonwealth of PA Registered Design Professional, of the types listed below must be provided to confirm compliance with 2018 IBC Section 1612.2 and ASCE 24:
 - A copy of the Flood Protection Scoping Meeting Summary Report.
 - Larger projects are required to undergo a Flood Protection Scoping Meeting. For more information, please refer to the '[Flood Protection Scoping Meeting Information Sheet](#)'.
 - '[Floodplain Protection Form – General \(FP-G\)](#)' required for permit applications for new construction or Substantial Improvement (SI).



- **'Floodplain Protection Form – Existing Buildings (FP-EX)'** required for the documentation of any Substantial Improvement (SI) calculations associated with the proposed work.
- A Structural Design Criteria form adequately listing all applicable floodplain related structural loads.
- FEMA Elevation Certificate applicable to the SFHA associated with the project – available at: [fema.gov/glossary/elevation-certificate](https://www.fema.gov/glossary/elevation-certificate) via the link to "Elevation Certificate"
 - At time of permit application an Elevation Certificate based on "Construction Drawings" must be submitted. Make sure to select "Construction Drawings" in Section 'C1' of the Elevation Certificate.
 - During inspections additional documentation may be required. Refer to the **'Get Construction Inspections'** information sheet for further guidance.
- Floodproofing Certificate(s) and supporting information based on the type of floodproofing technique used for the project consisting of one or more of the following per 2018 IBC Section 1612.4 and 44 CFR Section 60.3(c)(4) and (5):
 - For DRY Floodproofed areas – FEMA Floodproofing Certificate for non-residential structures
 - For WET Floodproofed areas with engineered openings – Certification Statement by registered design professional that openings allow for automatic entry and exit of floodwaters and automatically equalize hydrostatic pressure
- Copies of all applicable U.S. Federal, Commonwealth of PA, and other City of Philadelphia Department Permits / Approvals applicable to the proposed work per 2018 IBC Appendix G Section G103.1 including, but not limited to:
 - PA Dept. Of Environmental Protection (PA DEP) Approvals for:
 - Waterway Obstruction and Encroachment Approval or Watercourse Alterations
 - US Army Corps of Engineers (USACE) Approvals for:
 - Wetlands filling
 - Navigable waters
 - An Engineering Analysis, signed and sealed by a Commonwealth of PA Professional Engineer (PE), must be submitted when the proposed development falls into the scenarios listed below. Refer to the **'Is an Engineering Analysis Required for Your Work'** information sheet for more information.
 - Work performed within a "regulatory floodway" per 2018 IBC Appendix G Section G103.5.
 - Work performed in proximity to a riverine body of water with no "regulatory floodway" per 2018 IBC Appendix G Section G103.4 and such development occurs within the Waterfront Setback Zone as defined by the Philadelphia Water Department (PWD).

- **IMPORTANT NOTE:** This requirement does not apply to the floodplains of the Delaware River as such body of water is not a riverine flood hazard but is a Coastal body of water.
 - Work performed in proximity to a Coastal body of water where work involves the alteration or construction of any dunes or other structures that effect tidal waters during flooding per 2018 IBC Appendix G Section G103.7.

- **IMPORTANT NOTE:** The Delaware River is a Coastal body of water and development related to piers, bulkheads, seawalls, or other similar structures are subject to this requirement

- Determination of Base Flood Elevation (BFE) in SFHA Zones where no BFE exists on the effective FIRM and work involved exceeds 50 lots/parcels or 5 acres of development, whichever is less, per 2018 IBC Appendix G Section G104.2 Item# 4.
- In situations where the technical provisions of the floodplain regulations require application of a recently approved FEMA Letter of Map Change (LOMC), the permit application must include:
 - FEMA Approval letter confirming issuance or approval of the LOMC Application.
 - Copy of the "Community Acknowledgement Form" issued by the Floodplain Administrator. All work must comply with the terms of such Community Acknowledgment and associated FEMA Determination.
 - **For Example:** Constructing a building on fill previously approved through a Letter of Map Revision based on Fill (LOMR-F) – the permit for new construction would require submission of the FEMA LOMR-F Approval to ensure consistency between the "building" construction and the previously approved "fill" construction.


What specific conditions apply to a Building Permit for floodplain development?

In addition to typical "Building Code" requirements, the following provisions are especially important for floodplain development and must be reviewed by the Registered Design Professional prior to permit application:

- Review ASCE 24-14 "Flood Resistant Design and Construction" prior to submitting your application.
 - The National Flood Insurance Program (NFIP) Regulations have been incorporated into the technical provisions of ASCE 24-14 and is the primary technical standard enforced by the Department for floodplain development.
- For Permit Applications submitted before April 1, 2022 - Review ASCE 24 and FEMA Technical Bulletins for current definitions of "Ancillary area", "Residential", "Non-Residential", and other categories.

- NFIP Regulations define terms and limits differently than most "Building Codes" because of its specific focus on floodplain management. Care must be taken to adequately categorize the building so that floodproofing limits are well understood. The following are important definitions to review:
 - **Ancillary area** means a common area such as a lobby, foyer, office used by building management, exercise space and meeting room.
 - **Mixed Use Building** means a building that has both residential and commercial or other non-residential uses. The term does not include multi-family residential buildings that have ancillary areas but no non-residential uses.
 - **Non-Residential Building** means a building that has a commercial or other non-residential use.
 - **Residential Building** means building designated for habitation. Ancillary areas of residential buildings that serve only residents are residential ancillary areas and include laundry facilities, storage rooms, recreational rooms, parking garages, and exercise facilities.
- For Permit Applications submitted after April 2, 2022 – Review the US Code of Federal Regulations (CFR) Title 44 for new definitions of "Residential", "non-residential" and related occupancy categories.
 - Changes to the Federal Regulations were made on 10/1/2021 to update the previously mentioned definitions. Namely, the use of the term "ancillary use" is no longer needed, "other-residential" newly defined, and building categories are determined based primarily on the area residential and commercial uses occupy within the building. The new definitions below have been officially adopted into 44 CFR per 85 FR 43946, effective 10/1/2021.
 - **Mixed Use Building** means a building that has both residential and non-residential uses.
 - **Non-Residential Building** means a commercial or mixed-use building where the primary use is commercial or non-habitation.



- Other Residential Building means a residential building that is designed for use as a residential space for 5 or more families or a mixed-use building in which the total floor area devoted to non-residential uses is less than 25 percent of the total floor area within the building.
- **Residential Building** means a non-commercial building designed for habitation by one or more families or a mixed-use building that qualifies as a single-family, two-to-four family, or other residential building.
- The definitions listed above and defined under 44 CFR will be used to enforce any ASCE 24 occupancy limitations. Please consider these definitions during your review of ASCE 24.
- Development within a floodway or adjacent to water without a 'designated floodway'
 - Refer to the **'Is the Proposed Work in a Regulatory Floodway'** information sheet for guidance.
- Projects occurring seaward of any documented Limit of Moderate Water Action (LiMWA) line are limited to specific areas of the site per ASCE 24 Section 4.1.1 and construction activity is highly regulated.
 - LiMWA lines are most prevalent along the Delaware River and are displayed on the effective FIRM as shown below marked by the  line:

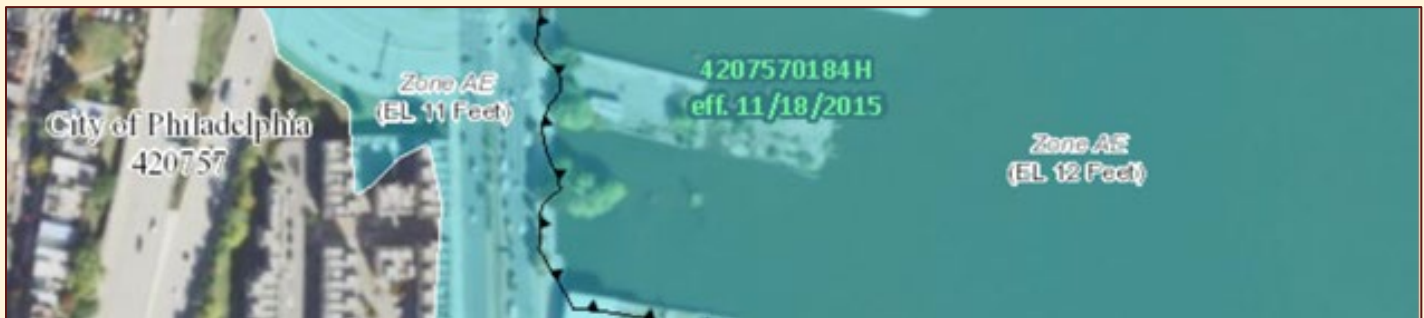


Figure 1" Property subject to LiMWA line regulations along Delaware River

- Additional LiMWA restrictions apply to 'structural fill' limitations, slope requirements, etc. Please review ASCE 24-14 Section 4.1 for more information.
- Projects occurring seaward of any Mean High Tide / Mean High Water (MHW) are prohibited when involving new construction per ASCE 24 Section 4.3.
 - Mean High Tide / Mean High Water (MHW) lines are based on available data from the National Oceanic and Atmospheric Administration (NOAA). For more information please visit: **tidesandcurrents.noaa.gov/datum_options**.
 - Upon determination of the MHW elevations, the delineation can be made by projecting the elevation marks, for the full length of the property frontage abutting the body of way, onto the site topography.
- This information must be clearly shown on the Site Plan described earlier in this document.
- Fill placement and compaction is heavily regulated within a SFHA and must meet the minimum requirements applicable to the SFHA assigned to the property.
 - Fill must comply with flood hazard conditions per ASCE 24-14 Section 1.5.4. Refer to the Soils Investigation Report for any guidance. If none exists, contact the Registered Design Professional who prepared the Soils Investigation Report for direction.
 - Fill slopes, compaction rates, density, lift limits, etc. are all regulated for non-Coastal SFHAs per ASCE 24-14 Section 2.4.

- Retain copies of minimum tests and observation records of all fill placement to ensure proper reporting of compliance if requested by the Department.
- Structural Fill is prohibited in Coastal "High Hazard" or Coastal "A" Zones, including areas seaward of the LiMWA line, per ASCE 24-14 Section 4.5.4.
 - This means that structures within these areas must be supported on deep foundation elements to ensure no structural load is supported by the soils.
- Refer to the **'Is Fill Being Used to Elevate a Building, Structure or Site'** information sheet for further guidance.

WHAT HAPPENS NEXT?

The above requirements and guidance are provided to make sure you can get your permit approved in as efficient and comprehensive manner as possible.

Once you have gathered all necessary information, the next steps would be to submit your Building Permit application to the Department.

For more information on the submission process and to see all supporting documents, please review the L&I's website **'Get a Building Permit'**.



Get Construction Inspections

What are the specific requirements for inspections?

Inspections will be performed to ensure full compliance with the approved permit documents. The **'Floodplain Management Inspection Checklist'** identifies common items that the Building Inspector must verify.

In addition, specific certifications must be collected throughout the construction process.

What certifications are required during construction and when must they be submitted?

Lowest Floor Inspection - This inspection must be requested upon completion of the lowest floor (including basement, crawlspace or enclosed floor) and prior to any further "vertical" framing above the lowest floor.

- A FEMA Elevation Certificate reflecting 'Building Under Construction' Condition (Section C of Certificate) must be submitted prior to requesting the Lowest Floor Inspection.
 - The Certificate must be completed in accordance with FEMA instructions, contained within the FEMA Elevation Certificate document available at: [fema.gov/glossary/elevation-certificate](https://www.fema.gov/glossary/elevation-certificate) via the link to "Elevation Certificate".
 - If you are not installing the slab prior to vertical work:
 - Mark foundation at future top of floor

- Complete Elevation Certificate for structure under construction (photos must be included)
- Attached letter of PA Design Professional Letterhead that you are proceeding without lowest floor installation
 - A Stop Work Order shall be issued if vertical framing begins prior to Departmental approval of the Elevation Certificate.

Final Inspection - The following documents must be submitted prior to requesting a final inspection:

- A FEMA Elevation Certificate reflecting "Finished Construction" Condition (Section C of Certificate).
 - The Certificate must be completed in accordance with FEMA instructions, contained within the FEMA Elevation Certificate document available at: [fema.gov/glossary/elevation-certificate](https://www.fema.gov/glossary/elevation-certificate) via the link to "Elevation Certificate".
- Floodproofing Certificate(s) based on the type of floodproofing technique used for the project consisting of one or more of the following per 2018 IBC Section 1612.4 and 44 CFR Section 60.3(c)(4) and (5):
 - For DRY Floodproofed areas – **FEMA Floodproofing Certificate for non-residential structures**
 - For WET Floodproofed areas – If engineered openings are used, certification statement from a professional engineer confirming minimum area of net clear openings for automatic (i.e. by gravity) entry and exit of floodwaters consistent with submitted construction document.



Can I still obtain a Temporary Certificate of Occupancy (TCO) if all requirements relating to flood management have not yet been satisfied?

A TCO shall not be issued unless a required Elevation Certificate and/or the above listed Floodproofing Certificate(s) have been submitted and accepted.

A TCO shall not be issued while a Letter of Map Change (LOMC) is pending final approval of FEMA. information sheet for guidance.

Refer to the **'Is a Letter of Map Change (LOMC) Required for Your Work'**



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Get a Community Acknowledgement Form (for FEMA LOMCs)

IMPORTANT NOTE:

The following is GUIDANCE ONLY and does NOT constitute any formal determination on behalf of FEMA. Please review all applicable FEMA standards and regulations to determine complete LOMC requirements.

When is a Community Acknowledgement Form required for a Letter of Map Correction (LOMC)?

A Community Acknowledgement Form allows the Floodplain Administrator to relay to FEMA that the project under their review is considered "reasonably safe from flooding" with regards to Local Floodplain Management Regulations. A Community Acknowledgement Form is required to be provided to FEMA under the following scenarios:

- For any FEMA LOMC Application related to a CLOMR-F, LOMR-F, CLOMR, LOMR, and PMR. Refer to the **'Is a Letter of Map Change (LOMC) Required for Your Work'** information sheet for when an LOMC is applicable.
 - LOMC requests are separated into MT-1 and MT-2 Applications to FEMA per the following links. Please review all application instructions prior to submission of a Community Acknowledgment Form.
 - For more information on FEMA's MT-1 Application: fema.gov/flood-maps/change-your-flood-zone/paper-application-forms/mt-1

- For more information on FEMA's MT-2 Application: fema.gov/flood-maps/change-your-flood-zone/paper-application-forms/mt-2

How is a Community Acknowledgement Form signature obtained from the City?

- Schedule a Floodplain Scoping Meeting to review the scope of the work with the Floodplain Administrator. For more information, please review the **'Flood Protection Scoping Meeting Information Sheet'**.



What are the submission standards for a Community Acknowledgement?

The following are required for the Floodplain Administrator's review of a Community Acknowledgement Form request:

- A complete FEMA MT-1 or MT-2 Application alongside all necessary supporting information.
- As-built drawings of the development for LOMR-F and LOMR requests.
- All necessary information to confirm compliance with local Floodplain Management Regulations. Refer to the **'Get a Building Permit'** information sheet for guidance.

Criteria for Floodplain Administrator signature on a Community Acknowledgement Form:

To allow for a complete review of your Community Acknowledgement Form request, the following information must be submitted to the Floodplain Administrator:

- Evidence of compliance with locally adopted floodplain regulations, including but not limited to elevation and/or floodproofing requirements. Refer to the **'Get a Building Permit'** information sheet for guidance.
- Completed Engineering Analysis as applicable to the proposed development. Refer to the **'Is an Engineering Analysis Required for Your Work'** information sheet for guidance.
- Copies of all necessary Federal and Commonwealth of PA Permits / Approvals. Refer to the **'Does the Work Require any Commonwealth of PA Approval'** information sheet for guidance.
- Proof of adjacent Property Owner Notification in accordance with 44 CFR for the following scenarios. Content and type of notification shall be approved by the Floodplain Administrator prior to release:

- For watercourse alterations to riverine flooding sources – Notification to all adjacent Community Floodplain Administrators of the proposed alteration per 44 CFR Section 60.3(b)(6).
- For data revisions to Regulatory Floodway boundaries – Either public or individual notification to all affected property owners and affected adjacent jurisdictions per 44 CFR Section 65.7(b)(1).
- For proposed development within a Regulatory Floodway, or riverine floodplain when no Regulatory Floodway exists on the FIRM, where BFE changes exceed that permitted under 2018 IBC Sections G103.4 and G103.5 – Individual legal notice to all impacted property owners within and outside of the community explaining the impact to the subject property per 44 CFR Section 65.12(a)(3).
- See the appropriate FEMA MT-1 and MT-2 Application instructions for more information regarding adjacent Property Owner Notification requirements.
- When required by the Floodplain Administrator – evidence that existing structures within the impacted areas are "reasonably safe from flooding" per 44 CFR Sections 65.5(a)(4), 65.6(a)(14), and 65.8.
- Permit drawings (CLOMR/CLOMR-F) and/or as-built drawings (LOMR/LOMR-F) are consistent with permit records and inspection records.



What happens once a Community Acknowledgement Form and LOMC has been obtained?

A Community Acknowledgement Form applies to proposed and future development on the property and so must be retained and reviewed as necessary for the life of the structure or development in question. Additionally, once a FEMA LOMC has been obtained, retain all determination documents and any plans for your records as they may be requested by L&I based on the following conditions:

- **Letter of Map Revision (LOMR) or Physical Map Revision (PMR):**

- FEMA will revise the FIRM, and the City of Philadelphia will regulate based on any effective revision shown on the City's FIRM's.

- **Letter of Map Revision based on Fill (LOMR-F):**

- FEMA has determined whether proposed fill will remove a parcel and/or structure from the SFHA. Provide the FEMA Determination Letter that the property or a portion of the property was removed from the SFHA.

Note: For these properties, future development must maintain their status of "reasonably safe from flooding."

- **Conditional Letter of Map Revisions (CLOMR):**

- FEMA has commented on whether proposed fill will change the SFHA. Provide FEMA Determination Letter prior to City of Philadelphia permit issuance, when required see 'Are you Required to do a LOMC?'

Note: Effective FIRM BFE, boundary, and zone will still apply to your project review.

- **Conditional Letter of Map Revision based on Fill (CLOMR-F)**

- FEMA has commented on whether proposed fill will remove a parcel and/or structure from the SFHA.

Note: Effective FIRM BFE, boundary, and zone will still apply to your project review.



Get a Floodplain Consistency Letter (for PA DEP Approvals)

IMPORTANT NOTE: The following is GUIDANCE ONLY and does NOT constitute any formal determination on behalf of ANY US Federal or PA Department or Agency. Please review all applicable US Federal and PA Statutes, Codes, Standards and Regulations to determine if additional Permits or Approvals are required prior to start of work.

When is a City of Philadelphia Floodplain Consistency Letter required?

The Commonwealth of PA Dept of Environmental Protection (PA DEP) will require the City of Philadelphia Floodplain Administrator's "sign-off" through the issuance of a Floodplain Consistency Letter. This ensures that work under PA DEP review is consistent with Local Regulations per 25 PA Code Chapters 105 and 106 as outlined below:

- This allows any Community specific regulations to be brought to PA DEP's attention and are adequately applied to the project prior to start of work.
- A Floodplain Consistency Letter is required for any PA DEP Permit or Approval issued under the PA "Dam Safety and Encroachment Act" per 25 PA Code Chapter 105 Section 105.14(b)(9) which states:
 - (b) In reviewing a permit application under this chapter, [PA DEP] will use the following factors to make a determination of impact:
 - (9) Consistency with State and local floodplain, the State Water Plan and the Coastal Zone Management Plan.

- A Floodplain Consistency Letter is also required for PA DEP approvals issued under the PA "Floodplain Management Act," which regulates Public Utility and Governmental floodplain projects, per 25 PA Code Chapter 106 Section 106.13(b)(7) which states:
 - (b) In reviewing a permit application under this chapter, [PA DEP] will use the following factors to make a determination of impact:
 - (7) Consistency with State and local floodplain, the State Water Plan and the Coastal Zone Management Plan.

What are the submission standards for requesting a Floodplain Consistency Letter?

Prior to issuing a Floodplain Consistency Letter, the Floodplain Administrator must review the scope of work proposed as part of the PA DEP submission. Additionally, as the work may or may not be subject to Local Permitting, additional City of Philadelphia specific submission requirements may also apply as summarized below:

- For all submissions for a Floodplain Consistency Letter:
 - Entire PA DEP Application package as submitted to PA DEP for Permit or Authorization



- Due to variety of projects under PA DEP jurisdiction, many aspects of any given PA DEP Application may require review by the Floodplain Administrator.
- An Engineering Analysis may be required if the work requires such documentations.
 - Refer to the **"Is an Engineering Analysis Required for Your Work"** information sheet for further guidance.
- A copy of a FEMA Letter of Map Change (LOMC) approval if required for the proposed development.
 - Refer to the **'Is a Letter of Map Change (LOMC) Required for Your Work'** information sheet for further guidance.
- For work that requires a **Zoning Permit**:
 - Refer to the **'Get a Zoning Permit'** information sheet for further guidance.
 - A Zoning permit shall be issued before a Floodplain Consistency Letter can be issued by the Floodplain Administrator.
- **IMPORTANT NOTE:** This is quite rare as much of the work under PA DEP purview is outside of property lines which is outside the scope of the Philadelphia Zoning Code per Section 14-104(1).
- For work that requires a **Building Permit**:
 - Refer to the **'Get a Building Permit'** information sheet for all submission requirements.
 - While a Building permit will not be required before a Floodplain Consistency Letter will be issued by the Floodplain Administrator, aspects of the technical provisions of the Building Code may be cited during the Floodplain Consistency Letter Review.
 - A Preliminary Building Review Application shall be required to officially document the Floodplain Consistency Letter within Department Records.

- A Preliminary Building Review also allows persons performing development to appeal any decisions rendered by the Floodplain Administrator to the Board of Building Standards (BBS) during the Consistency Letter review.
- For work that requires neither a Building nor Zoning Permit:
 - A Preliminary Building Review shall be required to officially document the Floodplain Consistency Letter within Department Records.
 - A Preliminary Building Review also allows persons performing development to appeal any decisions rendered by the Floodplain Administrator to the Board of Building Standards (BBS) during the Consistency Letter review.

Criteria for Consistency Letter:

- Compliance with locally adopted floodplain regulations, including but not limited to elevation and/or floodproofing requirements.
- When an analysis (Coastal/Tidal or Riverine) effects on the SFHA (boundary, BFE, and/or zone changes) is required, no adverse impacts to other properties.
- The City of Philadelphia has established Floodplain Management Regulations through the adoption of Codes and Standards that include conditions in excess of those requirements typically encountered elsewhere in the Commonwealth of PA – known as “above code” requirements. These “above code” requirements include, but need not be limited to:
 - Elevation of all development to the 1-1/2 feet or higher, “Freeboard” established per Philadelphia Code Title 4 Subcode B Section B-1612.2.1 and ASCE 24-14.
 - Prohibition of building, structures and activities not allowed within the “Waterfront setback” per Philadelphia Code Title 14 Section 14-704(5).



- Prohibition of new construction and structural fill seaward of the reach of the Mean High Tide/Mean High Water (MHW) line per ASCE-24-14.
- Prohibition of development in the floodway, except for docks, roadways, trails, bridges, and public utilities per Philadelphia Code Title 14 Section 14-704(5).
- Prohibition of either of the following conditions per Philadelphia Code Title 14 Section 14-704(4) within the Special Flood Hazard Area (SFHA):
 - "Hazardous materials" of any kind within a "Regulatory Floodway".
 - Hospitals, Assisted Living Facilities, Correctional Facilities and new/substantially improved "Manufactured Homes" anywhere within the SFHA.



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Section 3: Supplemental Information

Section 3 contains the following supplemental information:

- [Is an Engineering Analysis Required for Floodplain Development?](#)
- [Is Fill Being Used to Elevate Your Building, Structure, or Site?](#)
- [Does Work Include a Watercourse Alteration?](#)



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Is an Engineering Analysis Required for Your Work?

When Is an Engineering Analysis required for floodplain development?

Flood Insurance Rate Maps (FIRMs) and the associated Flood Insurance Study (FIS) were developed by FEMA through detailed engineering studies. If changes occur to conditions originally studied, the changes may require additional Engineering Analysis to ensure FIRM areas remain consistent and hazards do not increase. Therefore, the situations when an Engineering Analysis is required for floodplain development are:

- **Any development within a “Regulatory Floodway”:**

In this case, an engineering analysis is required to verify that proposed development does not increase the Base Flood Elevation (BFE) for any part of the floodplain by more than 0.00 FT per 2018 IBC Appendix G Section G103.5 which states:

- **G103.5 Floodway encroachment.** Prior to issuing a permit for any floodway encroachment, including fill, new construction, substantial improvements and other development or land-disturbing activity, the building official shall require submission of a certification, prepared by a registered design professional, along with supporting technical data, demonstrating that such development will not cause any increase of the base flood level.
- **Cumulative development within “Riverine” flood hazard areas with no “Regulatory Floodway”:** (NOT applicable to the floodplains of the Delaware River, which is a Coastal flood hazard) – In this case, an Engineering Analysis is required to ensure that cumulative development within the floodplain does not increase the BFE by more than 1.00 FT per 2018 IBC Section G103.4 which states:

- **G103.4 Activities in Riverine flood hazard areas.** In Riverine flood hazard areas where design flood elevations are specified but floodways have not been designated, the building official shall not permit any new construction, substantial improvement or other development, including fill, unless the applicant submits an engineering analysis prepared by a registered design professional, demonstrating that the cumulative effect of the proposed development, when combined with all other existing and anticipated flood hazard area encroachment, will not increase the design flood elevation more than 1 foot (305 mm) at any point.

- **IMPORTANT NOTE:** An Engineering Analysis for “Riverine” areas without a “Regulatory Floodway” will only be required if work occurs within a “Waterfront Setback Area”. Refer to the **‘Is Your Work Within a Waterfront Setback’** information sheet for further guidance.
- **IMPORTANT NOTE:** Until such time as the City of Philadelphia maintains engineering analysis to track cumulative development, development regulated under this section shall be permitted to be limited to only existing and proposed development occurring on the subject parcel.

- **Development in a “Coastal” area that affect dune like structures such as seawalls or closed piers:** (Applicable to the floodplains of the Delaware River, which is a Coastal flood hazard) – In this case, an Engineering Analysis is required to ensure there is no increase in flood damage potential per 2018 IBC Appendix G Section G103.7 which states:



- **G103.7 Alterations in Coastal areas.** Prior to issuing a permit for any alteration of sand dunes and mangrove stands in Coastal high-hazard areas and Coastal A Zones, the building official shall require submission of an Engineering Analysis, prepared by a registered design professional, demonstrating that the proposed alteration will not increase the potential for flood damage.
 - **IMPORTANT NOTE:** Many "Coastal" Zones within Philadelphia are classified "Coastal A" due to the existence of a Limit of Moderate Wave Action (LiMWA) line as opposed to a "Zone V" or "VE" typically seen on the FIRM. In such cases, an Engineering Analysis will be required when any construction or alteration of any kind is performed to any man-made or natural obstruction that defines such LiMWA line including but not limited to bulkheads, seawalls, dikes, closed piers, etc. Review the ['Get a Building Permit'](#) information sheet for guidance on LiMWA line identification.
 - **Any watercourse alteration of a body of water within the Commonwealth of PA:** In this case, an Engineering Analysis is required to ensure that the flood carrying capacity of the watercourse is not decreased, which would subject adjacent and upstream sites to higher flooding for a given hydrological event per 2018 IBC Appendix G Section G103.6.1 which states:
 - **G103.6.1 Engineering Analysis.** The building official shall require submission of an Engineering Analysis, prepared by a registered design professional, demonstrating that the flood-carrying capacity of the altered or relocated portion of the watercourse will not be decreased. Such watercourses shall be maintained in a manner that preserves the channel's flood-carrying capacity.
- **IMPORTANT NOTE:** Per 25 PA Code Chapter 105, PA Department of Environmental Protection (PA DEP) Approval is required for any watercourse alteration. As such, while building official review of the Engineering Analysis is required, this does **not** preclude or exempt the development from all necessary PA DEP Approvals prior to start of work.
- **When requested by the respective Appeal Boards as part of an appeal to the Board of Building Standards (BBS) or Zoning Board of Adjustment (ZBA):**
 - To ensure Communities do not grant a Variance to projects that create conditions of higher flood damage to adjacent property owners or other residents within the Community, the Federal Emergency Management Agency (FEMA) provides specific conditions to Communities for when a Variance for properties within a floodplain can be issued.
 - These conditions are outlined under the 2018 IBC Appendix G Section G105 for the BBS and the Philadelphia Code Title 14 (Zoning Code) Section 14-303(8)(f) for the ZBA and include the submission of an Engineering Analysis when requested by the respective Appeal Boards.

What are the submission standards for an Engineering Analysis?

The Analysis reports described above determine the aspects of flooding that can affect wide areas of land and may require the approval of multiple reviewers including the Building Code Official or FEMA. As such, for consistent review all Engineering Analysis submitted for Permitting must contain the information listed in the following pages.

Is an Engineering Analysis Required for Your Work?



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All Engineering Analysis approaches must be consistent with FEMA Technical Modelling Guidance and Standards available at: [fema.gov/flood-maps/guidance-reports/guidelines-standards](https://www.fema.gov/flood-maps/guidance-reports/guidelines-standards).

- **Background Project Information** – Applicable to all Engineering Analysis submissions:
 - Description of floodplain development analyzed, consistent with the Building Permit application, including information regarding the land use, intended use of the proposed development, etc.
 - Indicate if the Engineering Analysis is in support of a FEMA Letter of Map Change (LOMC) request.
 - If a CLOMR or LOMR is being pursued, all technical review will be deferred to the FEMA MT-2 Technical Reviewer. The Floodplain Administrator reserves the right to verify the analysis for issuance of a Community Acknowledgement Form including digital formats of model data.
 - Indicate Map and Panel Number(s) subject to the Analysis extents consistent with the FIRM Title blocks including any existing FEMA LOMC products applicable to the analysis area such as LOMR, LOMR-F, etc.
 - Description of Flooding Source consistent with the naming conventions provided on the FIRM.
 - Indicate the Type(s) of Flooding considered in the Analysis (e.g., Riverine, Coastal, Alluvial Fan, etc.) consistent with the Flood Insurance Study (FIS) applicable to the Flooding Sources identified above.
 - Indicate the Special Flood Hazard Area (SFHA) designation(s) (i.e., Zone AE, Coastal A, Zone V, etc.) applicable to the study area consistent with the FIRM.
 - If a CLOMR or LOMR is being pursued, indicate the "Effective" and "Revised" designations.
 - Indicate the Base Flood Elevation(s) (BFE) applicable to the project location consistent with the FIRM.

- If a CLOMR or LOMR is being pursued, indicate the "Effective" and "Revised" elevations.

- **IMPORTANT NOTE:** All elevation information, including all modelling outputs, shall be in National Geodetic Vertical Datum of 1929 (**NGVD29**), consistent with FIRM and FIS data. All local site topography and benchmark information shall be permitted to be listed in Philadelphia City Datum (CD) but must be converted to NGVD29 on all plans and analysis documents. If a site-specific benchmark is utilized for elevation information, the Engineering Analysis must identify the official Benchmark Number with approximate location shown on all site plans.

- Indicate the Program Name of the Hydrological, Hydraulic, and Coastal Models used for analysis consistent with FEMA acceptable models available at: [fema.gov/flood-maps/products-tools/numerical-models](https://www.fema.gov/flood-maps/products-tools/numerical-models).

- **IMPORTANT NOTE:** If a non-FEMA acceptable model is used, a LOMR must be secured for the "new or improved data" prior to such data being used as a basis of an Engineering Analysis for further floodplain development. Refer to the '[Is a Letter of Map Change \(LOMC\) Required for Your Work](#)' information sheet for guidance.

- Commonwealth of PA Professional Engineer (PA PE) signed and sealed topographic work map for the analysis area including the development area and the following information:
 - All information required for the Site Plan identified within the '[Get a Building Permit](#)' information sheet and an outline of the analysis area and all related cross sections or transects.



Is an Engineering Analysis Required for Your Work?

- **Hydrological Analysis Information** – Applicable only to Riverine flooding sources:
 - Tabular listing of 10-%-, 2-%-, 1-%- and 0.2-%- Annual Chance Discharges for the subject Flooding Source alongside location and drainage area consistent with Section 3.1 of the FIS including any FEMA LOMCs.
 - If a CLOMR or LOMR is being pursued, indicate the "Effective" and "Revised" discharges.
 - **IMPORTANT NOTE:** If discharges inconsistent with the FIS or applicable existing FEMA LOMCs are to be used, a LOMR must be secured for the "new or improved data" prior to such data being used as a basis of an Engineering Analysis for further floodplain development. Refer to the **'Is a Letter of Map Change (LOMC) Required for Your Work'** information sheet for guidance.
 - If a CLOMR or LOMR is being pursued and if discharge rates inconsistent with the effective FIS are determined, provide supporting data for the new hydrological analysis consistent with FEMA acceptable models available at: **fema.gov/flood-maps/products-tools/numerical-models**.
- **Hydraulic Analysis Information** – Applicable only to Riverine flooding sources:
 - Tabular listing of Analysis Area indicating "Downstream" and "Upstream" limits, existing and analytical Cross Sections, and Base Flood Water Surface Elevations (WSEL) – in NGVD29 – for both before and after conditions with respect to the proposed development consistent with Table 6 of the FIS.
 - For analysis of proposed development between existing FIRM Cross Sections – provide additional analytical Cross Sections immediately "Downstream" and "Upstream" of the development, and associated calculated WSEL, in addition to existing FIRM Cross Sections.
 - For analysis of any Watercourse Alteration – provide additional Tabular listing of channel carrying capacity at all relevant

Cross Sections for both before and after conditions.

- If a CLOMR or LOMR is pursued for Watercourse Alteration, provide flow criteria information (i.e., Subcritical, Critical, Supercritical, etc.) for the altered channel.
- PA PE signed and sealed Certification statement(s) confirming:
 - All data in the contained analysis are accurate to the best of the certifier's knowledge, and all analysis have been performed in accordance with acceptable engineering principles, and
 - If applicable, confirmation of no reduction of channel carrying capacity of a watercourse.
 - If applicable, copy of completed Flood Protection – No Rise Form (FP-NR).
 - **IMPORTANT NOTE:** If BFE changes exceed 2018 IBC Appendix G Sections G103.4 and G103.5, OR any Watercourse Alteration results in reduction in channel carrying capacity per Section G103.7, a FEMA CLOMR Determination must be secured prior to Building Permit issuance. Refer to the **'Is a Letter of Map Change (LOMC) required for your work'** information sheet for guidance.
- If a CLOMR or LOMR is being pursued, provide all data for the hydraulic analysis for the "Duplicate Effective," "Corrected Effective," "Existing or Pre-Project Conditions," and "Revised or Post-Project Conditions" Models consistent with FEMA MT-2 Instructions and Technical Guidance including:
 - Technical evidence and explanation for the following must be provided, where applicable:
 - Any difference between the effective WSEL data identified within the FIS and the "Duplicate Effective" Model WSEL output.
 - Any changes made to the "Duplicate Effective" Model to prepare the "Corrected Effective" Model.

- Any changes made to the "Corrected Effective" Model to prepare the "Existing or Pre-Project Conditions" Model with regards to individual parcel addresses that include development incorporated into the "Existing or Pre-Project Conditions" to allow for Permitting review and coordination by Floodplain Administrators.
- All supporting data such as soil type, summary of model input parameters, etc. for review by Floodplain Administrator.
- **Coastal Analysis Information** – Applicable only to Coastal flooding sources (i.e. Delaware River):
 - Describe the limits of the studied area using FIRM Transects and, if applicable, Road Names.
 - Describe the Coastal Analysis methods utilized to ensure consistency with the effective Coastal Analysis performed under Section 3.3 of the FIS.
 - **IMPORTANT NOTE:** If analysis methods inconsistent with the FIS or existing FEMA LOMCs are to be used, a LOMR must be secured for the "new or improved data" prior to such data being used as a basis of an Engineering Analysis for further floodplain development. Refer to the '[Is a Letter of Map Change \(LOMC\) Required for Your Work](#)' information sheet for guidance.
- PA PE signed and sealed Certification statement confirming:
 - All data in the contained analyses are accurate to the best of the certifier's knowledge, and all analyses have been performed in accordance with acceptable engineering principles, and
 - Development, as described in the above "Background Project Information" Section, does not "increase the potential for flood damage" per 2018 IBC Appendix G Section G103.7.

- **IMPORTANT NOTE:** If any increase in flood damage potential is determined, a CLOMR must be secured prior to Building Permit issuance. Refer to the '[Is a Letter of Map Change \(LOMC\) Required for Your Work](#)' information sheet for guidance.
- If a CLOMR or LOMR is being pursued, provide all data for the Coastal analyses for the Models consistent with FEMA MT-2 Instructions and Technical Guidance including:
 - Number of transects in revised analysis.
 - Analysis Methods utilized within the "Revised Analysis".
 - Description of Stillwater Elevation calculation method and "Effective" and "Revised" elevations.
 - Description of output results of previously listed Coastal Analysis Methods including wave runup elevation, any BFE revisions, any LiMWA line revisions, overtopping rate, etc. per FEMA MT-2 Application Form 4.



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Is Fill Being Used to Elevate Your Building, Structure, or Site?

What floodplain specific regulations apply to 'fill' used in a floodplain area?

Depending on the SFHA applicable to your project site – the use of "fill" will be subject to varying Code requirements:

▪ Within all Special Flood Hazard Area (SFHA) Flood Zones (i.e. Zones A, AE, etc.):

- Placement of fill must be clearly identified and detailed on Site Plans signed and sealed by a Commonwealth of PA Professional Engineer (PE) confirming compliance with all applicable provisions of ASCE 24-14 Section 2.4.
- Fill must be designed to be stable under the flood loads associated with the site including flood-related erosion, rapid rise and drawdown of water levels and prolonged inundation per ASCE 24-14 Section 1.5.4.
- For projects that otherwise require a Soils Investigation Report such Report must clearly identify the presence of SFHA limits on fill placement and design.
- Fill shall be compacted and sloped to minimize shifting, slumping and erosion per 2018 IBC Section 1804.5.
- Structural fill must be placed in lifts of no more than 12-in and compacted and constructed with maximum side slopes per ASCE 24-14 Section 2.4.1. Requirements shall be clearly stated on the associated Site Plan.

▪ Within a "Regulatory Floodway":

- Placement of fill is prohibited unless it can be shown, through an Engineering Analysis, that the proposed fill will not result in a rise in Base Flood Elevation (BFE) greater than 0.00 FEET at any point within the SFHA per 2018 IBC Section G103.5. Refer to the 'Is an Engineering Analysis Required for Your Work' information sheet for guidance.

▪ Within a "Riverine" Flood Zone with no "Regulatory Floodway" (This is not applicable to the Delaware River, which is a Coastal flood zone)

- Placement of fill may be prohibited unless it can be shown, through an Engineering Analysis, that the proposed fill will not result in a rise in BFE greater than 1.00 FEET at any point within the floodplain per 2018 IBC Section G103.4. Refer to the 'Is an Engineering Analysis Required for Your Work' information sheet for guidance.

▪ Within a "Coastal High Hazard" or "Coastal 'A' Zones" (i.e. Seaward of LIMWA line) (This is applicable to the Delaware River, which is a Coastal flood zone):

- Placement of structural fill is prohibited in these SFHA Zones per ASCE 24-14 Section 4.5.4.
- Placement of non-structural fill is limited to minimal site grading and landscaping per ASCE 24-14 Section 4.5.4.
- All fill adjacent to buildings or structures for dune construction shall include a report signed and sealed by a Commonwealth of PA PE confirming no wave-runup conditions created.



Is Fill Being Used to Elevate Your Building, Structure, or Site?

Using fill to remove/revise the property's status on the effective Flood Insurance Rate Map (FIRM)?

Using fill to remove/revise a property's status on the effective FIRM may exempt the property from floodplain regulations but requires multiple specific procedures. Refer to the **'Is a Letter of Map Change (LOMC) Required for Your Work'** information sheet for guidance.

WHAT HAPPENS NEXT?

Per the above scenarios, Permit Applications that include the placement of fill within a SFHA must include:

- A Site Plan showing the existing and proposed grading/topography – signed and sealed by a PA PE.
- If applicable, an Engineering Analysis (i.e., H&H Study or Coastal Analysis) confirming that no increase in BFE occurs per the proposed fill.
- If applicable, a Report confirming no run-up effect for fill in Coastal Zones.
- If fill is being used to remove the property from the effective FIRM, specific procedures outlined in the **'Is a Letter of Map Change (LOMC) Required for Your Work'** must be reviewed and completed.



Does Work Include a Watercourse Alteration (Channel Change)?

What is considered a 'Watercourse Alteration' or 'Channel Change'?

As part of the Commonwealth of PA Dept. Of Environmental Protection's (PA DEP's) purview for work in or adjacent to waterways in PA, "Watercourses" and work considered a "Watercourse Alteration" are defined as:

- A "Watercourse" is defined under 25 PA Code Chapter 105 Subchapter A Section 105.1 as:
 - **Watercourse**—A channel or conveyance of surface water having defined bed and banks, whether natural or artificial, with perennial or intermittent flow.
 - In other words, a "Watercourse" is defined by the regular "perennial" (i.e., typically recurring) flow of a channel and is **not** defined by any Flood Insurance Rate Map (FIRM) flood event associated with the channel. For any work in proximity to a body of water in PA, applicants should contact PA DEP to verify if the project is required to obtain PA DEP Approval prior to start of work.
- A "Watercourse Alteration" is therefore any "Channel Change" of a watercourse and includes bank adjustments, encroachments or obstructions of any kind into the cross-section of the "channel" or any other work within such area including dredging.
 - As such, a "**Channel Change**" is outlined via PA DEP Regulations per 25 PA Code Chapter 105 Subchapter E Section 105.221, which states:
 - **105.221. Scope.** *Except as provided in §§ 105.3 and 105.12 (relating to scope; and waiver of permit requirements), this subchapter applies to channel changes in the regulated waters of this Commonwealth, and to dredging in the regulated waters of this Commonwealth conducted for purposes of construction, operation or maintenance of a dam, water obstruction or encroachment.*

What Approvals and/or Permits are required prior to a Watercourse Alteration?

A watercourse's "channel" is a resource that can affect the lives of many PA residents both upstream and downstream of any proposed activity. In addition, the "channel" cross section may also affect the depth or extent of the floodplain associated with that body of water. Therefore, any "channel changes" require specific approvals:

- All "channel changes" require PA DEP Approval and Permitting per 25 PA Code Chapter 105 Subchapter E Section 105.221 as stated above.
- During their review, PA DEP may require input and review of the proposed project by the City of Philadelphia Floodplain Administrator – known as a "Floodplain Consistency Letter".
 - Refer to the **'Does Work Require any Commonwealth of PA Approval'** and **'Get a Floodplain Consistency Letter (for PA DEP Approvals)'** information sheets for further guidance.



- **IMPORTANT NOTE:** 2018 IBC Appendix G Section G103.6 and G103.6.1 require "Permit" and "Engineering Analysis" approvals by the "Building Official" prior to construction. This does not preclude all necessary PA DEP Permits/Approvals prior to start of work.
- "Watercourse Alterations" may also require changes to the effective Flood Insurance Rate Map (FIRM). Refer to the **'Is a Letter of Map Change (LOMC) Required for Your Work'** information sheet for guidance.
 - In situations where the Registered Design Professional in Responsible Charge is unable to determine if the proposed "Watercourse Alteration" necessitates a change to the effective FIRM, the Floodplain Administrator will make such determination based on the scope of work proposed.
 - Regardless of the extent of "Watercourse Alteration" proposed, the following minimum compliance requirements must be confirmed:
 - Any alteration to a watercourse must maintain the existing "flood-carrying capacity" of the watercourse per 44 CFR Chapter I Section 60.3(b)(7).
- Other PA or Federal Agency approvals may also be required for the proposed "Watercourse Alterations". Please review all applicable Commonwealth of PA and US Federal Statutes, Codes, Regulations and Standards to ensure all applicable approvals have been obtained prior to start of work.

WHAT HAPPENS NEXT?

Often, a "Watercourse Alteration" has material effects on many aspects of the application of the Floodplain Management Regulations enforced by the City of Philadelphia. As such, the following requirements apply:

- **For Zoning Permit Applications:**
 - Refer to the **'Get a Zoning Permit'** information sheet for further guidance. In most cases, the work would be exempt from Zoning Permit unless "new construction" or "change of use" is proposed.

- Site Plan information must clearly state the extents of any "Watercourse Alteration".
- If changes to the effective FIRM are anticipated for the "Watercourse Alteration":
 - All development that results in the change to the "identification" of an area with respect to the parcel's floodplain designation (i.e. Zone X, Zone AE, 'floodway', etc.) require approval from FEMA prior to start of work per Philadelphia Code Title 14 (Zoning Code) Chapter 14-700 Section 14-704(4)(f), which states:
 - (f) **Changes in identification of Area.** *The identified floodplain area may be revised or modified by the Floodplain Administrator where studies or information prepared by a qualified agency or person and provided by an applicant documents the need for such revision. **However, prior to any such change to the Special Flood Hazard Area, approval must be obtained from FEMA.** Additionally, as soon as practicable, but not later than six months after the date such information becomes available, the applicant shall notify the Floodplain Administrator and FEMA of the changes to the Special Flood Hazard Area by submitting technical or scientific data.*
- Zoning permit review by the Department will be based on current effective FIRM data and no proposed changes to the effective FIRM will be taken into consideration for the purposes of compliance with the Zoning Code unless a FEMA Letter of Map Change (LOMC) is issued.
 - For example: If a "Watercourse Alteration" proposes to remove a parcel from a Special Flood Hazard Area (SFHA) regulated by the Zoning Code and development, typically prohibited within the SFHA based on current effective FIRM designation, is proposed – Permit review will be limited to the Parcel's current effective FIRM designation unless a LOMC determination from FEMA amending the FIRM has been issued.



- If no changes to the effective FIRM are anticipated for the "Watercourse Alterations":
 - Zoning Permit applications will enforce all applicable provisions of the Zoning Code based on current effective FIRM data.
 - If the Floodplain Administrator determines that a FEMA LOMC is required for the project at a later date, the previously obtained Zoning Permit and associated Approvals may be subject to mandatory amendment and/or revocation in accordance with the Philadelphia Code Title 4 Subcode A (Administrative Code) Section A-302.9, which states:
 - **A-302.9 Revocation of permit:** *The code official is authorized to revoke a permit or approval issued pursuant to the provisions of this code and the technical codes in case of any of the following:*
 1. *The permit was issued in error.*
 2. *The permit was issued on the basis of incorrect, inaccurate or incomplete information in the application or construction documents.*
 3. *The permit was issued on the basis of false statement or misrepresentation of fact in the application or construction documents.*
 4. *An ordinance, regulation, or condition of permit has been violated.*
 5. *Work is being conducted in an unsafe manner.*
 6. *A Stop Work Order or Cease Operations Order has been issued.*

- **For Building Permit Applications:**

- Refer to the '**Get a Building Permit**' information sheet for general guidance.
- Site Plan information must clearly state the extents of any "Watercourse Alteration".
- All US Federal and Commonwealth of PA Permits and Approvals must be obtained prior to Permit Application per 2018 IBC Appendix G Section G103.2.
- If changes to the effective FIRM are anticipated for the "Watercourse Alterations":
 - A FEMA Approved CLOMR must be submitted at time of Permit application.
 - Refer to the '**Is a Letter of Map Change (LOMC) Required for Your Work**' information sheet for guidance.
- If no changes to the effective FIRM are anticipated for the "Watercourse Alterations":
 - The City of Philadelphia Floodplain Administrator will render a determination on whether a LOMC for the project is required on behalf of the "Community" per 44 CFR Part 65 Section 65.8.



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Appendix A: Resources

Appendix A contains the following resources:

- [What is Substantial Improvement?](#)
- [What is the Significance of Pre-FIRM and Post-FIRM Structures?](#)
- [Does the Work Involve a Rise in Base Flood Elevation \(BFE\)?](#)
- [Is the Proposed Work in a 'Regulatory Floodway'?](#)
- [Is the Proposed Work in the Waterfront Setback Overlay?](#)
- [Are You Required to do a Letter of Map Change \(LOMC\)?](#)
- [Does the Work Require any Commonwealth of PA Approval?](#)
- [Is the Proposed Work a Dock, Public Utility, Trail, Roadway, or Bridge?](#)
- [Floodplain Management Inspection Checklist](#)



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What is Substantial Improvement?

Work that is considered “Substantial Improvement”

Construction on a PRE-FIRM structure can be considered “Substantial Improvement” if the cost of work proposed exceeds 50% of the market value of the structure. SI determinations are made per the following provisions:

- “Substantial Improvement” is defined under 44 CFR Part 59 Subpart A Section 59.1, 2018 IEBC Section 202 and ASCE 24-14 Section 1.2 which states:
 - Substantial improvement means 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 structures which have incurred “substantial damage”, regardless of the actual repair work performed. **The term does not, however, include either:**
 - (1) Any project for 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 necessary to assure safe living conditions, or
 - (2) Any alteration of a “historic structure”, provided that the alteration will not preclude the structure’s continued designation as a “historic structure”.
- For a detailed description on the determination of “Substantial Improvement” refer to the Department’s **‘Flood Protection Form – Existing Buildings (FP-EX)’**.

- If proposed work constitutes “Substantial Improvement” – All new work and the entire PRE-FIRM building must now comply with all applicable provisions of the Floodplain Management Regulations applicable to “New Construction”.
 - L&I reserves the right to treat separate permit applications as a single project for the determination of “Substantial Improvement” if all subject Permits have not been completed.
- Exception to above listed determination for “Substantial Improvement” are the following:
 - Repair/ reconstruction work performed on buildings that have undergone “Substantial Damage”:
 - “Substantial Damage” is defined per 44 CFR Part 59 Subpart A Section 59.1, 2018 IEBC Section 202 and ASCE 24-14 Section 1.2, which states:
 - Substantial damage means 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.
 - This means that if a building is damaged where the cost of work of restoration to pre-damage conditions exceeds 50% of the pre-damage market value of the structure, all work performed on the building is considered “Substantial Improvement” even if the work performed is less than 50% of market value of the pre-damage condition.



- "Substantial Damage", however, does **not** include work required to correct any life safety violations cited against the property.
 - This allows for buildings damaged for any reason to be secured and "made safe" should unsafe conditions exist, without any consideration of the cost of the work necessary.
 - The only work eligible for such exemption from "Substantial Damage" calculations is limited to structural and weather proofing work and may not include any interior renovations or finish work.
 - **For example** – A property is damaged due to flooding within a flood hazard area. The inundation causes damage to all property within the building at the ground floor level. **The extent of damage constitutes "substantial damage" as defined above.** Additionally, the front wall of the building has shifted due to flood loads and poses a threat to public safety – the Community determines that the conditions constitute "substantial damage" and the front wall is listed as "Unsafe" and must be resolved. Regardless of the cost of work, all work related to resolving the "Unsafe" condition may be performed without consideration of compliance of the rest of the building with Floodplain Management Regulations. Any other work would immediately constitute "substantial improvement" and would require the entire building be made to comply with all applicable provisions of the current Floodplain Management Regulations.
- Work performed on Historical Buildings where the applicant does **not** propose the building or structure to lose designation as a 'historic structure':
 - For buildings where the Permit application wishes to remove the designation as a "historic structure" all work is subject to "Substantial Improvement" determinations as previously stated.
 - This exception allows work to preserve the designation of a "historic structure" to continue without having the Community render "Substantial Improvement" determinations.
 - Work **not related** to the portions of the property designed as "historic" by the designating authority (I.e., Philadelphia Historical Commission, etc.) shall be included within all "Substantial Improvement" determinations and may then require the entire building be made to comply with current Floodplain Management Regulations.
 - **IMPORTANT NOTE:** If the work not related to the portions of the building designated as "historic" triggers a "Substantial Improvement" determination – the property may be eligible for a variance from full compliance with the floodplain management regulations per 2018 IBC Appendix G Section G105.3. Conditions of such variance shall be determined by the Board of Building Standards (BBS) at time of appeal.
 - While subject to this exception, Floodplain Management Regulation compliance for designated "historic structures" is strongly recommended to the fullest extent possible to protect investments in such structures from flood damage.



Work that is NOT considered Substantial Improvement

This consists of work on a "PRE-FIRM" building that **does not** exceed the previously stated thresholds. In this situation, the level of compliance with Floodplain Management Regulations depends on the location, extent and type of work proposed. The "scoping provisions" applicable are outlined in 2018 IEBC and as summarized below:

- Repairs, Prescriptive Alterations, and all Level 1, 2, and 3 Alterations – See 2018 IEBC Sections 401.3, 502.3, and 701.3 / 801.2 / 901.2 respectively.
 - Compliance with Floodplain Management Regulations shall not be required provided such work does not be required provided such work does not constitute "Substantial Improvement".
- Additions per the Prescriptive and "Work Area" compliant methods – See 2018 IEBC Sections 502.3 and 1103.3, respectively, and FEMA document P-758 dated May 2010 for more information.
 - Compliance with Floodplain Management Regulations shall only be required if the total of all "Additions" and "Alterations" for the Project constitute "Substantial Improvement" except as noted below:
 - Additions that do **not** constitute "Substantial Improvement" as listed above **but** are structurally independent from the existing structure in question (i.e., Not supported for gravity and lateral loads by the PRE-FIRM building) must comply with all applicable provision of the Floodplain Management Regulations. Furthermore, compliance of the existing structure with Floodplain Management Regulations is only required if renovations within such structure, alone, constitute "Substantial Improvement".
 - In essence, structurally independent additions are treated as new construction buildings for floodplain compliance purposes.

- For additions to buildings or structures located within a "Regulatory Floodway":
 - Regardless of if the proposed work does constitute "Substantial Improvement," all development within a "Regulatory Floodway" must be shown to cause an increase to the BFE at any point in the Community of no more than 0.00 ft.
- Refer to the **'Is the Proposed Work in a Regulatory Floodway'** information sheet for guidance.



What is the Significance of Pre-FIRM and Post-FIRM Structures?

What date defines 'PRE-FIRM' and 'POST-FIRM' construction?

The development of a Flood Insurance Rate Map (FIRM) and associated Flood Insurance Study (FIS) required the Federal Emergency Management Agency (FEMA) to set a date when a Community's Floodplain Regulations would go into effect. This date will inform the level of compliance required for "existing" buildings as described below:

- The FEMA FIS and supporting FIRM for the City of Philadelphia were published **June 15, 1979** – this date shall be used in comparison with the "Start of Construction" date of any "existing" building or structure to determine the level of compliance required for Permit application. "Start of Construction" is defined per ASCE 24-14 Section 1.2, and 44 CFR Part 59 Subpart A Section 59.1, which states:
 - ***Start of Construction*** means date the construction permit was issued for new construction, provided that actual start of construction commenced within 180 days of the permit date. The actual start means either the first placement of permanent construction of a structure on a site, such as the pouring of a slab or footing, the installation of piles, the construction of columns, or any other work beyond the stage of excavation; or the placement of a manufactured home.

Permanent construction does not include land preparation, such as clearing, grading, or filling; nor does it include excavation for a basement, footings, piers, or foundation or the erection of temporary forms; nor does it include the installation of accessory structures, such as garages or sheds not occupied as dwelling units or not part of the main structure.

For "Substantial Improvement", the actual start of construction means the first alteration of any wall, ceiling, floor, or other structural part of a structure, whether or not that alteration affects the external dimensions of the structure.

- If the "Start of Construction" of a building or structure was **BEFORE** June 15, 1979, the building is considered a "PRE-FIRM" structure.
- If the "Start of Construction" of a building or structure was **AFTER** June 15, 1979, the building is considered a "POST-FIRM" structure.

How do floodplain regulations apply to work performed on 'POST-FIRM' buildings?

Unique to Floodplain Management Regulations and unlike other "Building Codes" the distinction between a PRE- or POST-FIRM building is fixed per the above dates and any improvement to a "POST-FIRM" structure is required to comply with the floodplain regulations as if the work is "new construction" as summarized below:

- All work on "POST-FIRM" buildings must comply with current floodplain regulations. Work must comply with the Floodplain Management Regulations in effect at time of Permit application. See ASCE 24-14 Section 1.1, and 44 CFR Part 59 Subpart A Section 59.1, which states:
 - **Scope.** This standard provides minimum requirements for flood resistant design and construction of structures that are subject to building code requirements and that are located, in whole or in part, in Flood Hazard Areas. This standard applies to the following: (1) new construction, including subsequent work to such structures, and (2) work classified as substantial improvement of an existing structure that is not an historic structure.
 - Floodplain Management Regulations can be amended and may change. At time of Permit application, L&I will enforce the current version of the Floodplain Management Regulations applicable to your building or structure based on the scope of work proposed in the Permit application.
 - Floodplain Management Regulations are **not** "retroactive" and therefore upgrades are not required to work previously performed via a legal Permit and in compliance with previous regulations within the following exceptions:
 - If the proposed work requires alterations to existing parts of the "POST-FIRM" building such altered elements must comply with current floodplain regulations.

- If the building official determines that a building element or component, while installed under a legal permit, does not comply with the floodplain regulations in effect at time of original construction - reasonable adjustments to such elements to achieve compliance with floodplain regulations originally in effect may be required.

- This means that even existing buildings, if they are considered "POST-FIRM" buildings, all construction must comply with current floodplain regulations as applicable to "new construction".

How do floodplain regulations apply to work performed on 'PRE-FIRM' buildings?

For "PRE-FIRM" buildings, the scope of work and the cost of work must both be considered to understand the extent of compliance needed for proposed construction with floodplain management regulations.

- If the work is considered "Substantial Improvement" or if the work involves a structurally independent addition, the scope of compliance varies greatly.
- Refer to the **'What is Substantial Improvement (SI)'** information sheet for guidance.



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Does Work Involve a Rise in Base Flood Elevation (BFE)?

Working in a “Regulatory Floodway” – “No Rise” in Base Flood Elevation (BFE) permitted

Working in a “Regulatory Floodway” is heavily regulated and must be shown to comply with very specific development regulations including, but not limited to, the following provisions:

- Per 44 CFR Chapter I Subpart A Section 60.3(d)(3), 2018 IBC Section G103.5 and ASCE 24 Section 2.2, the following is applicable to work that encroaches into a “Regulatory Floodway”:
 - **G103.5 Floodway encroachment.** Prior to issuing a permit for any floodway encroachment, including fill, new construction, substantial improvements and other development or land-disturbing activity, the building official shall require submission of a certification, prepared by a registered design professional, along with supporting technical data, demonstrating that such development will not cause any increase of the base flood level.
- The above 2018 IBC Appendix G Reference means that any encroachment into the “Regulatory Floodway” must be shown to cause no increase over 0.00 feet of the BFE associated with the floodway. This is often called a “No-rise” Certification with supporting data.
- To determine what effect a proposed “Regulatory Floodway” encroachment will have on the effective BFE, an Engineering Analysis, sometimes called a Hydrological and Hydraulics (H&H) Study, must be performed and the results, alongside any memorandum or Certification summarizing the results, signed and sealed by a Commonwealth of PA Professional Engineer (PE).

Working in a “Riverine” floodplain with NO “Regulatory Floodway” – BFE Rise limited to 1.0 ft above effective FIRM BFE

Working within a “Riverine” floodplain where no “Regulatory Floodway” exists requires Engineering Analysis to ensure cumulative development does not create an excessive increase in BFE as follows:

- Per 44 CFR Chapter I Subpart A Section 60.3(c)(10), 2018 IBC Section G103.4, and ASCE 24 Section 2.2 regulate this situation with 2018 IBC Section G103.4 stating:
 - **G103.4 Activities in “Riverine” flood hazard areas.** In riverine flood hazard areas where design flood elevations are specified but floodways have not been designated, the building official shall not permit any new construction, substantial improvement or other development, including fill, unless the applicant submits an engineering analysis prepared by a registered design professional, demonstrating that the cumulative effect of the proposed development, when combined with all other existing and anticipated flood hazard area encroachment, will not increase the design flood elevation more than 1 foot (305 mm) at any point.
 - In summary, the above 2018 IBC Appendix G reference require the cumulative effect of SFHA development near a watercourse without a “Regulatory Floodway” may not increase BFE for the area by more than 1 ft (305 mm).
- **IMPORTANT NOTE:** This provision does **not** apply to the Delaware River, which is a Coastal, and not a “Riverine” floodplain



Performing the necessary Engineering Analysis to determine BFE

To ensure proposed work meets the above requirements, an Engineering Analysis alongside supporting documentation must be submitted with your Building Permit application.

Refer to the **'Is an Engineering Analysis Required for Your Work'** information sheet for guidance.

WHAT HAPPENS NEXT?

Depending on what the "Engineering Analysis" reports for the proposed 'floodplain development' determine, the project will be subject to specific conditions:

If either (a) a BFE Rise > 0.00 Foot in a "Regulatory Floodway" or (b) a BFE Rise > 1.00 Foot in a "Riverine" floodplain with no "Regulatory Floodway":

○ For Zoning Permit applications:

- The site plans submitted for Permit application must contain a statement confirming:
 - Pursuant to 44 CFR Section 60.3(c)(13) and (d)(4), the development identified herein, graphical or otherwise implied, shall not commence unless a Federal Emergency Management Agency (FEMA) Conditional Letter of Map Revision (CLOMR) has been obtained by the Community in accordance with all applicable provisions of the aforementioned regulations. Additionally, any Zoning Permit issued by the Community, pursuant to the proposed development shall not be considered a guarantee of final Permit issuance for construction until all approvals in accordance with the Philadelphia Code Title 4 (Philadelphia Building Construction and Occupancy Code) have been obtained for the property and approved by the Community.

○ For Building Permit applications:

- A FEMA Conditional Letter of Map Revision (CLOMR) must be approved for the proposed development prior to L&I Permit issuance per 2018 IBC Appendix G Section G103.5.1, which states:
 - **G103.5.1 Floodway revisions.** A floodway encroachment that increases the level of the base flood is authorized if the applicant has applied for a conditional Flood Insurance Rate Map (FIRM) revision and has received the approval of the Federal Emergency Management Agency (FEMA).
 - Refer to the **'Is a Letter of Map Change (LOMC) Required for Your Work'** information sheet for guidance
- A FEMA final Letter of Map Revisions (LOMR) must be approved once the "Floodplain Development" construction has been completed to ensure that conditions and design approved under the aforementioned CLOMR have been successfully installed.
- Failure to secure the LOMR associated with the project may delay in L&I's issuance of any final Certificate of Occupancy (CO).

Does Work Involve a Rise in Base Flood Elevation (BFE)?



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If neither of the above limits a (a) “No-Rise” in a “Regulatory Floodway” or (b) BFE Rise < 1.00 foot in an “Undesignated Floodway”:

- **For Zoning Permit applications:**

- The site plans submitted for Permit application must contain a statement confirming:
 - Pursuant to 44 CFR Section 60.3(c)(10) and (d)(3), the development identified herein, graphical or otherwise implied, shall not cause increases in the Base Flood Elevation (BFE) greater than 0.00 ft and 1.00 ft for areas with a regulatory floodway and areas without, respectively – failure to comply with these limits shall be considered grounds of permit revocation of any Zoning permit issued by the Community, for the proposed development in accordance with the Philadelphia Code Title 4 Subcode A. Nor shall any such permit be considered a guarantee of final Permit issuance for construction until all approvals in accordance with the Philadelphia Code Title 4 (Philadelphia Building Construction and Occupancy Code) have been obtained for the property and approved by the Community.

- **For Building Permit applications:**

- The Engineering Analysis will be reviewed as part of your L&I Permit application. If “No-Rise” is confirmed, a Permit will be issued for the proposed “Floodplain Development” in accordance with all rules and procedures applicable to the specific L&I Permit.
- If any other change to the special flood hazard area is determined, such as change in boundary conditions or flood zone designation, a CLOMR may still be required by the Floodplain Administrator.
 - Refer to the **'Is a Letter of Map Change (LOMC) Required for Your Work'** information Sheet for further guidance.



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Is the Proposed Work in a ‘Regulatory Floodway’?

What Is a ‘Regulatory Floodway’?

A “Floodway” is a specific area of a Special Flood Hazard Area (SFHA) typically associated with areas subject to “Riverine” flooding. It is an area that is heavily regulated and is defined per the provisions listed below:

- Per 44 CFR Chapter I Subpart A Section 59.1 a “Regulatory Floodway” is defined as:
 - **Regulatory Floodway** means the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height.
- In other words – the “Regulatory Floodway” is an area of the watercourse reserved to ensure that in a flooding condition, enough clear cross-sectional area remains to predictably allow for the water inundated areas adjacent to a watercourse to drain such water away. Sometimes, while a watercourse exists, the effective FIRM may not display a “Regulatory Floodway” due to Flood Insurance Study (FIS) limitations or a multitude of other reasons.

How to determine if your work is in a ‘Regulatory Floodway’

A “Regulatory Floodway” can be determined by reviewing the effective FIRM and FIS per the steps below:

- Visit the Federal Emergency Management Agency (FEMA) Flood Map Service Center at:
 - msc.fema.gov/portal/home
- Within the “Address” search field enter the address as identified by the City of Philadelphia Office of Property Assessment (OPA) for the Parcel containing the proposed work.
 - Use the zoom and pan features of the mapping service to accurately display the work area. It is recommended that you download a “Map Image” of the final location for your records.
- Review the Map Legend to determine if your work falls within the area “Designated” on the FIRM as a “Regulatory Floodway”. An example of a property with a “Regulatory Floodway” is shown below:



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Is the Proposed Work in a 'Regulatory Floodway'?

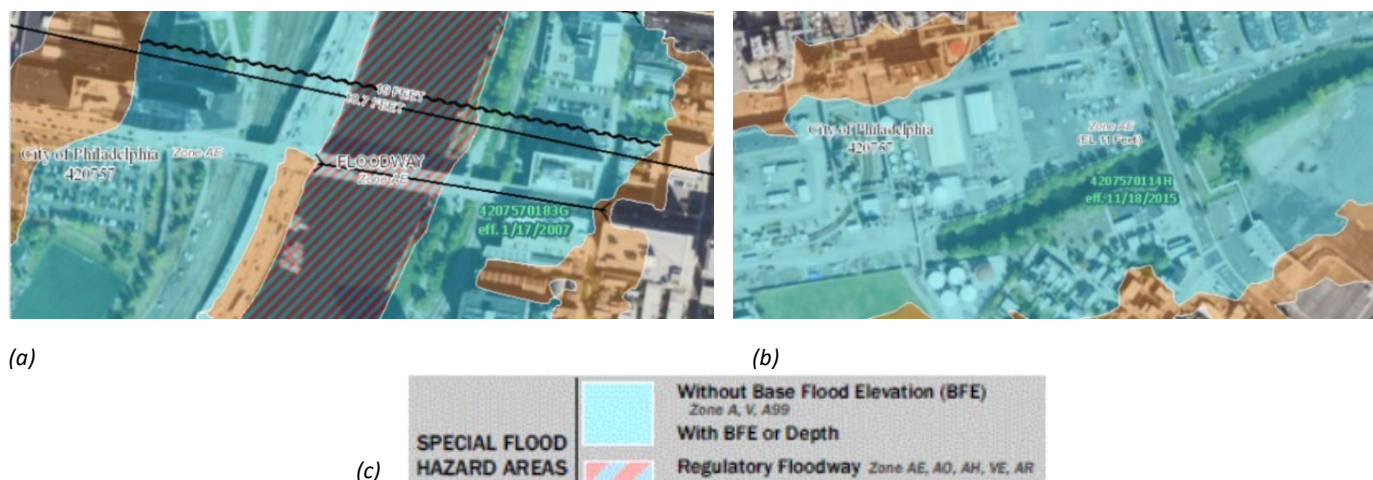


Figure 2: FIRM extract with (a) Zone AE parcel with "Regulatory Floodway", (b) Zone AE without "Regulatory Floodway" and (c) FIRM Legend

What if the floodplain has no 'Regulatory Floodway'?

If the above FEMA Map Service search does not display a "Regulatory Floodway" there are two common scenarios that might apply to your project:

- Within a "Riverine" floodplain with no "Regulatory Floodway" – Your site is subject to the cumulative development review as outlined in 44 CFR Chapter I Subpart A Section 60.3(c)(10) and 2018 IBC Section Appendix G Section G103.4, which states:
 - **G103.4 Activities in riverine flood hazard areas.** In riverine flood hazard areas where design flood elevations are specified but floodways have not been designated, the building official shall not permit any new construction, substantial improvement or other development, including fill, unless the applicant submits an engineering analysis prepared by a registered design professional, demonstrating that the cumulative effect of the proposed development, when combined with all other existing and anticipated flood hazard area encroachment, will not increase the design flood elevation more than 1 foot (305 mm) at any point.
 - Refer to the **'Is an Engineering Analysis Required for Your Work'** information sheet for guidance.
- Within a "Coastal" Floodplain – "Regulatory Floodways" only apply to "Riverine" floodplains. If no "Regulatory Floodway" exists on the FIRM panel associated with your floodplain you may be within a "Coastal" floodplain.
 - To determine if you are within a "Coastal" floodplain, please review the Flood Insurance Study (FIS) associated with your flooding source.
 - Alternatively, if the FIRM indicates transects in the vicinity of the project site in lieu of cross-sections – indicating "Coastal" and "Riverine" floodplains respectively.
 - **IMPORTANT NOTE:** Most, but not all, "Coastal" floodplains within the City of Philadelphia occur along the Delaware River, which is a "Coastal" floodplain, or its tributaries. Please review the FIS in detail for more information.

WHAT HAPPENS NEXT?

Depending on the outcome of the above search results – there are three basic scenarios for development:

If your project is within a "Regulatory Floodway" and the "Regulatory Floodway" is shown on the FIRM:

- **For Zoning Permit applications** – Refer to the **'Get a Zoning Permit'** information sheet for guidance.

- The Philadelphia Zoning Code heavily regulates "development" within the "Regulatory Floodway" per Philadelphia Code Title 14 Section 14-704(4)(c)(.1), which states:

14-704(4)(c)(.1) Within the Floodway

(.a) No encroachment (including fill, new construction, or any development) is permitted; except that docks, public utilities, trails, roadways, and bridges are permitted as long as they cause no increase in the Base Flood Elevation.

(.b) Public utility companies shall not place mobile homes or offices within the floodway.

(.c) Construction or substantial improvement of any structure used for the following is prohibited:

(i) the production or storage of: acetone; ammonia; benzene; calcium carbide; carbon disulfide; celluloid; chlorine; hydrochloric acid; hydrocyanic acid; magnesium; nitric acid and oxides of nitrogen; petroleum products (gasoline, fuel oil, and the like); phosphorus; potassium; sodium; sulphur and sulphur products; pesticides (including insecticides, fungicides, and rodenticides);

(ii) any activity requiring the maintenance of a supply of any of the materials listed in § 14-704(4)(c)(.1)(c)(i) in excess of 550 gallons or an equivalent volume; or

(iii) any purpose involving the production, storage, or use of any amount of radioactive substance.

- For development that do **not** meet the limitations listed above – a Variance from the Zoning Board of Adjustment (ZBA) will be required.

- **For Building Permit applications** – Refer to the **'Get a Building Permit'** information sheet for guidance.
- The Philadelphia Code and referenced Standards and Regulations, impose strict compliance requirements for all work within a "Regulatory Floodway" including, but not limited to:
 - **Engineering Analysis** – Refer to the **'Is an Engineering Analysis Required for Your Work'** information sheet for guidance.
 - **FEMA Letter of Map Change (LOMC)** – Refer to the **'Is a Letter of Map Change (LOMC) Required for Your Work'** information sheet for guidance.
 - **Commonwealth of PA Approval** – Refer to the **'Does the Work Require any Commonwealth of PA Approval'** information sheet for guidance.
 - All typical Floodplain Management Regulations apply to the development.

If your project is outside a "Regulatory Floodway" and the "Regulatory Floodway" is shown on the FIRM:

- **For Zoning Permit applications** – Refer to the **'Get a Zoning Permit'** information sheet for guidance.
- The regulations of the Zoning Code restate the basic requirements of the FEMA NFIP with the following additional restrictions per Philadelphia Code Title 14 Section 14-704(4)(c)(.2)(f), which states:

14-704(4)(c)(.2) Within the Special Flood Hazard Area

(.f) The following uses are prohibited within a Special Flood Hazard Area:

(i) Hospitals.

(ii) Group Living uses housing elderly or disabled persons or persons with limited mobility.



(iii) *Detention or correctional facilities.*

(iv) *A new manufactured home park or manufactured home subdivision, or substantial improvement to an existing manufactured home park or manufactured home subdivision.*

- For Building Permit applications – Refer to the '**Get a Building Permit**' information sheet for guidance.
 - The adopted Codes, Standard, and Regulations restate the requirements of the FEMA NFIP.
 - All typical Floodplain Management Regulations apply to the development.

If no "Regulatory Floodway" is shown on the FIRM:

- For Zoning Permit applications – Refer to the '**Get a Zoning Permit**' information sheet for guidance.
 - All typical Floodplain Management Regulations apply to your project, as listed above for "Floodplain Development" outside a "Regulatory Floodway".
- For Building Permit applications – Refer to the '**Get a Building Permit**' information sheet for guidance.
 - If the work occurs within a "Riverine" floodplain:
 - The cumulative development is subject to an Engineering Analysis per 44 CFR Chapter I Subpart A Section 60.3(c)(10) to ensure no change in BFE of more than 1 foot.
 - Refer to the '**Is an Engineering Analysis Required for Your Work**' information sheet for guidance.
 - If the work occurs within a "Coastal" floodplain:
 - The development is only subject to an Engineering Analysis if the work constructs or alters "dune" like structures that protect inland areas from storm surge and wave action.
 - Refer to the '**Is an Engineering Analysis Required for Your Work**' information sheet for guidance.



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Is the Proposed Work in the Waterfront Setback Overlay?

What is the 'Waterfront Setback' Overlay?

To protect the capacity and flow of waters within the City of Philadelphia, the Philadelphia Water Department (PWD) has established areas adjacent to such waters as "Waterfront Setback" Overlays, which are established as follows:

- The Philadelphia Code Title 14 (Zoning Code) Section 14-704(5) defines Waterfront Setback Overlays as:
 - 50-Foot wide areas measured perpendicular to and horizontally from the Top-of-Bank of all watercourses on the Hydrology Maps established by the Philadelphia Water Department (PWD).
 - Hydrology Maps identifying watercourses for which a waterfront setback must be defined are adopted as part of City of Philadelphia Bill# 120654 'Exhibit A.' For a copy of the adopted Hydrology Maps, visit: phila.legistar.com/.
 - To standardize measurement, Top-of-Bank is defined per Zoning Code Section 14-203(336) as:
 - **Top-of-Bank.** The **1st point at which the slope of the incline** from the ordinary high-water level of a water body changes by 10 degrees or more, as determined by a survey prepared by a licensed surveyor. If there is no major change within a distance of 50 ft. from the ordinary high-water level, then the top of bank will be the elevation 2-ft. above the ordinary high-water level, as determined by a survey prepared by a licensed surveyor.
 - As such, "Waterfront Setback" Overlays must be clearly identified and dimensioned on Site Plans that must be submitted with all Zoning and Building Permit applications for "Floodplain Development".

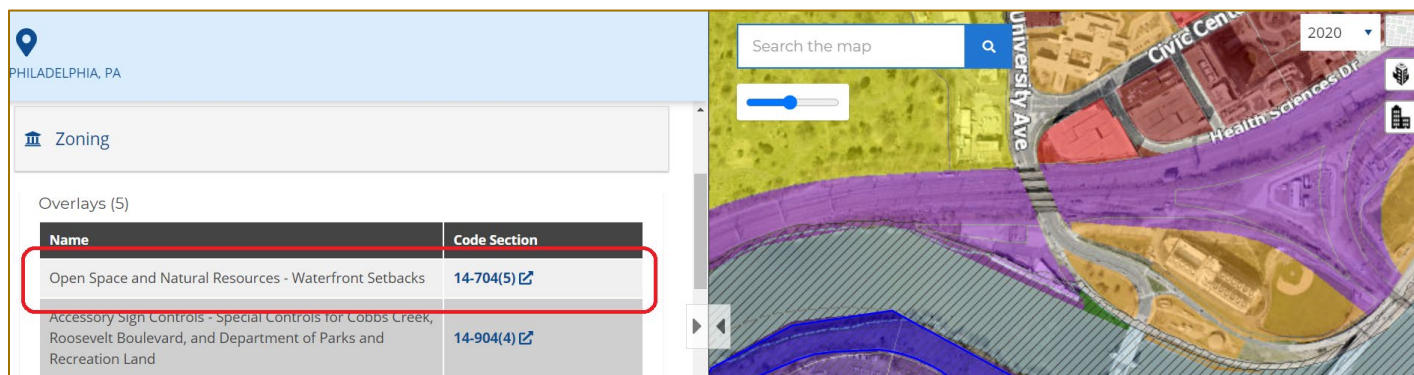


Figure 3: Zoning Overlay information with property located within “Waterfront Setback” Overlay via atlas.phila.gov

How to determine if your work is subject to Waterfront Setback area regulations?

Parcels subject to “Waterfront Setback” Overlay restrictions can be determined via the City’s “Atlas” map service:

- Visit the City’s “Atlas” map service, search for the project address and review the Zoning information applicable to the parcel via: atlas.phila.gov/.
 - See Figure 3 for an example of a parcel subject to Waterfront Setback Zoning Overlay.
- Once a Parcel has been confirmed as subject to “Waterfront Setback” Overlay the following must be prepared for both Zoning and Building Permit applications:
 - A Site Plan that identifies the “Waterfront Setback Area” must be prepared and submitted with the Permit applications identifying the 50-foot zone.
 - Where development occurs within 75 feet of the Top-of-Bank, the Site Plan must be prepared by a Commonwealth of PA Professional Land Surveyor (PLS) with all measurements taken from the Top-of-Bank elevations as previously defined.

WHAT HAPPENS NEXT?

If located within the “Waterfront Setback” Overlay, specific rules apply to development including, but not limited to:

- For Zoning Permit applications, per Philadelphia Zoning Code Section 14-704(5):
 - All structures are prohibited except piers, docks and structures accessory to public parks.
 - Parking lots and “directly connected impervious surfaces” as defined by PWD, are prohibited.
 - Streets and driveways for subdivisions or other related development are prohibited except within CDO Zoning District with specific requirements.
 - Specific use registrations apply to areas adjacent to the Delaware and Schuylkill Rivers.

- For Building Permit applications, depending on the applicable scenario for the development:
 - **If within the floodplain or no “Regulatory Floodway” exists for a “Riverine” floodplain:**
(The Delaware River is a “Coastal” floodplain, and not a “Riverine” floodplain)
 - If within a “Regulatory Floodway”, refer to the **‘Is the Proposed Work in a Regulatory Floodway’** information sheet for guidance.
 - Obtain Commonwealth of PA Dept. of Environmental Protection (PA DEP) Waterway Obstructions and Encroachments Permit Approval per 25 PA Code Chapter 105 Subchapter A Section 105.11.
 - Refer to the **‘Does the Work Require any Commonwealth of PA Approval’** information sheet for guidance.
 - Provide an Engineering Analysis – Refer to the **‘Is this Proposed Work in a Regulatory Floodway’** information sheet for guidance.
 - **If no “Regulatory Floodway” exists for a “Coastal” floodplain:**
(The Delaware River is a “Coastal” floodplain, and not a “Riverine” floodplain)
 - Obtain PA DEP Waterway Obstructions and Encroachments Permit Approval as stated above.
 - Engineering Analysis may be required if work occurs on “dune” like structures – Refer to the **‘Is the Proposed Work in a Regulatory Floodway’** information sheet for guidance.
 - **If outside of the floodplain:**
 - Obtain PA DEP Permits as stated above.
 - No City of Philadelphia Floodplain Management Regulations shall apply to the work.

NOTE: PA DEP Waterway Obstructions and Encroachment Permits apply to both (i) Work within a “Designated Floodway” or (ii) Work, in the case where no “Designated Floodway” exists, within 50-ft from the top-of-bank line of the subject watercourse. See the definition for “Floodway” per 25 PA Code Chapter 105 Subchapter A Section 105.1 and Section 105.3(a)(4) Re: “Scope” for limits of PA DEP Permitting.



Is a Letter of Map Change (LOMC) Required for Your Work?

What is a 'LOMC'?

An LOMC is a letter issued by the Federal Emergency Management Agency (FEMA) to reflect an official revision and/or an amendment to an effective Flood Insurance Rate Map (FIRM). LOMCs can be used if a property owner thinks their property has been inadvertently mapped in a SFHA. Alternatively, an LOMC may be required if proposed development sufficiently effects existing floodplain boundaries or elevations as outlined in applicable regulations.

When is an LOMC required or appropriate for your work?

FEMA offers several LOMC types, with each appropriate or required based on the proposed development or property situation as outlined in 44 CFR Parts 65 and 72 and summarized below:

- **Conditional Letter of Map Revision (CLOMR) and subsequent Letter of Map Revision (LOMR):**
 - A CLOMR/LOMR is mandatory per FEMA via 44 CFR Section 65.12 for the following:
 - Development within a "Regulatory Floodway" causes an increase in Base Flood Elevation (BFE) of more than 0.00 FT at any point within a floodplain with a "Regulatory Floodway".
 - OR
 - Cumulative development within a "Riverine" Floodplain without a "Regulatory Floodway" causes an increase in BFE of more than 1.00 FT at any point within the floodplain.
- **IMPORTANT NOTE:** The Delaware River, which is a "Coastal" floodplain, is not subject to this requirement.
- A CLOMR/LOMR may also be required by the Floodplain Administrator via 44 CFR Section 65.8 for the following:
 - A LOMR for correcting map data with new or improved data per 44 CFR Section 65.6(b).
 - For this condition a LOMR shall be mandatory if the new data is being used to determine floodplain boundaries or elevations for the project design.
 - A CLOMR and LOMR for changes to hydrologic conditions per 44 CFR Section 65.6(c)(1) such as deforestation or larger scale development of a watershed.



- A CLOMR and LOMR for changes to hydraulic conditions per 44 CFR Section 65.6(c)(2) including watercourse alterations or floodway revisions per 44 CFR Section 65.7.
 - For this condition a CLOMR shall be mandatory for Building Permit applications and a LOMR shall be mandatory for issuance of a Certificate of Occupancy (CO).
- A CLOMR and LOMR for changes to any boundary conditions identified on the effective FIRM per 44 CFR Section 65.6(c)(3) including topographic changes to a site.
 - For this condition a CLOMR shall be mandatory for Building Permit applications and a LOMR shall be mandatory for issuance of a Certificate of Occupancy (CO).
- **Conditional Letter of Map Revision based on Fill (CLOMR-F) and subsequent Letter of Map Revision based on Fill (LOMR-F):**
 - A CLOMR-F/LOMR-F may be requested by an owner or lessee of property when development proposes to elevate a site or structure above the applicable Base Flood Elevation (BFE) - thus effectively exempting the portions elevated from the floodplain regulations of the National Flood Insurance Program (NFIP) with the following limitations per 44 CFR Section 65.5:
 - Development related to a CLOMR-F/LOMR-F cannot result in any of the following conditions as determined by the Floodplain Administrator:
 - No change in BFE, any floodplain boundary identified on the effective FIRM, or any change in a Special Flood Hazard Area (SFHA) Zone designation.
 - No fill placement within a Coastal High Hazard or Coastal A Zone.
 - No fill placement within a "Regulatory Floodway".

- **Conditional Letter of Map Amendment (CLOMA) or subsequent Letter of Map Amendment (LOMA):**
 - A CLOMA/LOMA may be requested by an owner or lessee of property when existing natural conditions indicate that a site or structure has been inadvertently identified within a SFHA per 44 CFR Section 70.1.
 - **IMPORTANT NOTE:** A CLOMA/LOMA does **not** require input by the Floodplain Administrator.

How to apply for a FEMA LOMC?

If an owner or lessee of property wishes to secure an LOMC review, or if an LOMC is required by the Floodplain Administrator, an application to FEMA for an LOMC per the following directions must be submitted:

- For CLOMR-F, LOMR-F, and LOMA reviews – Submit a complete MT-1 Application to FEMA. See [fema.gov/flood-maps/change-your-flood-zone/paper-application-forms/mt-1](https://www.fema.gov/flood-maps/change-your-flood-zone/paper-application-forms/mt-1) for more information.
- For CLOMR, LOMR, and PMR reviews – Submit a completed MT-2 Application to FEMA. See www.fema.gov/flood-maps/change-your-flood-zone/paper-application-forms/mt-2 for more information.
- A Community Acknowledgement Form must be secured as part of the above FEMA LOMC Applications. Refer to the '[Get a Community Acknowledgment Form \(for FEMA LOMCs\)](#)' information sheet for guidance.



What does a FEMA approval of an LOMC look like?



Cover Letter

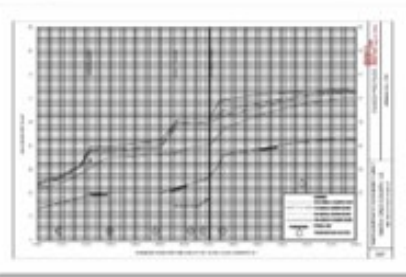


Determination Document



Annotated FIRM

Annotated FIS Tables



Annotated FIS Profiles

How does an LOMC affect Building Permit applications for floodplain development?

FEMA LOMC Approvals / Determinations regularly contain information regarding the floodplain that differs from that listed on the effective FIRM and FIS enforced by the City of Philadelphia. As such, to reconcile these differences the following shall be considered by the Building Official at time of Permit application per 44 CFR Section 60.3(h):

■ For a CLOMR and subsequent LOMR:

- The CLOMR determination shall be used for Building Permit compliance if such determination indicates more restrictive floodplain conditions than those illustrated on the effective FIRM and FIS per 44 CFR Section 65.12(b).
 - These 'worse' conditions can be increase in BFE, expansion of Special Flood Hazard Area (SFHA), increase in flood damage potential for Coastal floodplains, etc. as determined by the Floodplain Administrator.

- **IMPORTANT NOTE:** If a CLOMR FEMA determination indicates that such "worse" conditions apply to multiple parcels, then all parcels identified within the CLOMR shall be subject to the above regulation. Refer to the **'Get a Community Acknowledgment Form (for FEMA LOMCs)'** information sheet for guidance on property owner notification for LOMC requests that effect adjacent properties.

- The CLOMR determination may be used for Building Permit compliance if such determination indicates less stringent floodplain conditions than those listed on the effective FIRM and FIS as follows:
 - Approved by the Floodplain Administrator upon comparison of effective and LOMC products.
 - Property owner undertaking development within the scope of the CLOMR proceeds at their own risk and confirms all development pursued under a CLOMR is subject to review and approval of a final FEMA LOMR Determination. This may mean returning the site to Pre-Development conditions if no LOMR is approved by FEMA.
 - No Final nor Temporary Certificate of Occupancy (CO) shall be issued for any part of the project with



Is a Letter of Map Change (LOMC) Required for Your Work?

a CLOMR determination..

- The LOMR determination shall be used for Building Permit compliance regardless of if such determination indicates "more" or "less stringent" floodplain conditions.
 - While the effective FIRM may not be revised, a LOMR is an "approval" by FEMA and must be referenced for floodplain management regulations per 44 CFR Section 60.3(h).
 - To be considered accurate a LOMR application must be submitted to FEMA no more than six (6) months after the construction related to the LOMR has been completed per 44 CFR Section 65.3. This ensures that any flooding conditions predicted by the development or newly acquired data are adequately documented with FEMA in a timely manner and sufficient property owner notification is provided to all effected properties.
- **For a CLOMR-F and subsequent LOMR-F:**
 - The CLOMR-F determination may be used for Building Permit compliance if the following conditions apply:
 - Property owner undertaking development within the scope of the CLOMR proceeds at their own risk and confirms all development pursued under a CLOMR is subject to review and approval of a final FEMA LOMR Determination. This may mean returning the site to Pre-Development conditions if no LOMR is approved by FEMA.
 - The LOMR-F determination shall be used for Building Permit compliance if the following condition applies:
 - The proposed development is consistent with the conditions of the LOMR-F based on the conditions of the Community Acknowledgement Form previously issued by the Floodplain Administrator as part of the CLOMR-F Application process. This is to ensure that the work being proposed is consistent with such Acknowledgement and determine if the property continues to be "reasonably safe from flooding."

- **IMPORTANT NOTE:** A LOMR-F does **not** change the effective FIRM as published by FEMA and referenced by the Community for Permitting purposes. It simply results in a FEMA Determination to identify if the specific parcel, building or structure, or portion thereof, is elevated to or above BFE – which may have implications on insurance requirements. This will result in the Community to continue to identify the property within the floodplain for all permitting and compliance purposes. The owner or lessee of property must retain the FEMA Determination letter to ensure NFIP regulations are not applied to portions of the site covered under such Determination. For more information see Section 2.1 of the "FEMA Guidance: MT-1 Technical" document available at: [fema.gov/media-collection/guidance-femas-risk-mapping-assessment-and-planning](https://www.fema.gov/media-collection/guidance-femas-risk-mapping-assessment-and-planning).

- **For a CLOMA and subsequent LOMA:**

- The CLOMA determination shall not be used for Building Permit compliance.
- The LOMA determination shall be used for Building Permit compliance.
 - **IMPORTANT NOTE:** A LOMA does **not** change the effective FIRM as published by FEMA and referenced by the Community for Permitting purposes. This will result in the Community to continue to identify the property within the floodplain for all permitting and compliance purposes. The owner or lessee of property must retain the LOMA to ensure NFIP regulations are not applied to portions of the site covered under such Determination.



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Does the Work Require any Commonwealth of PA Approval?

IMPORTANT NOTE: The following is GUIDANCE ONLY and does NOT constitute any formal determination on behalf of ANY US Federal or Commonwealth of PA Department or Agency. Please review all applicable US Federal and PA Statutes, Codes, Standards and Regulations to determine if additional Permits or Approvals are required prior to start of work.

When is Commonwealth of PA Agency Approval required for floodplain development?

Participation by the City of Philadelphia in the National Flood Insurance Program (NFIP) requires all necessary "State Agency" approvals be obtained prior to the issuance of any "Floodplain Development" Permits.

- All Commonwealth of PA Approvals pertaining to a given floodplain development project must be obtained prior to the issuance of a Permit by L&I per 2018 IBC Appendix G Section G103.2:
 - **G103.2 Other permits.** It shall be the responsibility of the building official to ensure that approval of a proposed development shall not be given until proof that necessary permits have been granted by federal or state agencies having jurisdiction over such development.
- The typical "State Agencies" encountered during floodplain development include:
 - PA Department of Health (PA DOH):
 - Any construction activity related to a "Health Care Facility" per 28 PA Code Chapter 51.

- PA Department of Environment Protection (PA DEP):
 - Waterway Obstructions and Encroachments Permit Approval which includes the following per 25 PA Code Chapter 105 Subchapter A Section 105.11.
 - All work within a "designated" "Regulatory Floodway" as identified on the effective Flood Insurance Rate Map (FIRM).
 - All work within 50 feet of the "Top-of-Bank" of any body of water within the Commonwealth of PA that does **not** have a "designated" "Regulatory Floodway" on the effective FIRM (if no designated floodway exists the DEP uses this area as the "assumed floodway").
 - **IMPORTANT NOTE:** Please contact PA DEP directly for applicability.
 - Any work that involves the change to existing channel capacity, cross section, current or any other "Watercourse Alteration" including dredging.
- Floodplain Management Approval of "Floodplain Development" per 25 PA Code Chapter 106 Section 106.11 for:
 - All "Floodplain Development" conducted by, or on behalf of, the City of Philadelphia or any Commonwealth of PA recognized "Public Utility".



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Does the Work Require any Commonwealth of PA Approval?

- PA Department of Community and Economic Development (PA DCED):
 - Special Permits for the following activities when occurring within a floodplain per 12 PA Code Chapter 113 Section 113.6(b):
 - Hospitals – public or private
 - Nursing homes – public or private
 - Jails
 - New construction or substantial improvement of mobile home parks or subdivisions
- **Additional Commonwealth of PA “State Agency” Approvals may be required – Please review all applicable PA statutes, Codes, Standards, and Regulations for more information.**
 - For more information contact PA Emergency Management Agency (PEMA) by visiting: pema.pa.gov/Floodplain-Management/Pages/default.aspx and follow the links provided in the “For More Information” section.

Will a ‘State Agency’ require Input from the City of Philadelphia for their Approval?

PA “State Agencies” typically require Local Municipalities to confirm that work approved by such Agencies are consistent with Local Floodplain Management Regulations. To ensure this consistency exists, the State Agency will require the Local Municipality to issue a “Floodplain Consistency Letter” as outlined in 25 PA Code Chapter 105 Subchapter A Section 105.14(b)(g).

Refer to the **‘Get a Floodplain Consistency Letter (for PA DEP Approvals)’** information Sheet for guidance.

WHAT HAPPENS NEXT?

Once “State Agency” Permit or Approval has been obtained retain all approval documents. They may be requested by the Building Official and/or Floodplain Administrator based on the following conditions:

- When work requires a Zoning or Building Permit:
 - Submit Zoning and/or Building Permit Applications for the proposed floodplain development to L&I per Philadelphia Code Title 14 Section 14-104 and Title 4 Subcode A Section A-301 respectively.
 - Provide a copy of the “Floodplain Consistency Letter” provided by the Floodplain Administrator as part of the “State Agency” Approval alongside your L&I Permit Application.
 - Review the conditions of the “Floodplain Consistency Letter” and make sure your L&I Permit Applications meet all conditions outlined in the “Floodplain Consistency Letter”.
 - Refer to the **‘Get a Zoning Permit’** and **‘Get a Building Permit’** information sheets for further guidance.
- When work does **not** require a Zoning or Building Permit:
 - Contact the City of Philadelphia Floodplain Administrator to confirm if neither a Zoning nor Building Permit is required for the proposed work.
 - Retain all “State Agency” Approvals for your records.



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Is the Work a Dock, Public Utility, Roadway, Trail or Bridge?

Why are Docks, Public Utilities, Roadways, Trails, and Bridges regulated separately?

The City of Philadelphia's Regulations adopted as part of its participation in the National Flood Insurance Program (NFIP) includes specific requirements that exceed the minimum NFIP Requirements. Specifically:

- Within a "Regulatory Floodway" the Philadelphia Code Title 14 (Zoning Code) Chapter 14-700 Section 14-704(4)(c)(1) heavily regulates the "development" activity permitted, stating:

14-704(4)(c)(1) Within the Floodway.

(a) No encroachment (including fill, new construction, or any development) is permitted; except that docks, public utilities, trails, roadways, and bridges are permitted as long as they cause no increase in the Base Flood Elevation (BFE).

(b) Public utility companies shall not place mobile homes or offices within the floodway.

(c) Construction or substantial improvement of any structure used for the following is prohibited:

(i) The production or storage of acetone, ammonia, benzene, calcium carbide, carbon disulfide, celluloid, chlorine, hydrochloric acid, hydrocyanic acid, magnesium, nitric acid and oxides of nitrogen, petroleum products (gasoline, fuel oil, and the like), phosphorus, potassium, sodium, sulphur and sulphur products, pesticides (including insecticides, fungicides, and rodenticides).

(ii) Any activity requiring the maintenance of a supply of any of the materials listed in § 14-704(4)(c)(1)(c)(i) in excess of 550 gallons or an equivalent volume.

(iii) Any purpose involving the production, storage, or use of any amount of radioactive substance.

- o As such, Zoning Permit applications that propose any of the above activity are prohibited except for docks, public utilities, trails, roadways, and bridges which are permitted only if substantiated to cause no increase in BFE.
- Refer to the **'Does Work Involve a Rise in Base Flood Elevation (BFE)'** information sheet for guidance.

WHAT HAPPENS NEXT?

Upon submission of a Zoning Permit application for any "Development" within a "Designated Floodway" the Department will review the proposed development with all applicable provisions of the Zoning Code including the above limitations for prohibited activity.

Please refer to the **'Get a Zoning Permit'** information Sheet for further guidance.



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Floodplain Management Inspection Checklist

IMPORTANT NOTE: This checklist serves as a Guide to L&I Building Inspectors to address common components relating to new construction or substantially improved buildings. Additional criteria may apply based upon the project scope.

The Department will inspect all development in the Special Flood Hazard Area (SFHA). For new construction and/or substantially improvement of buildings the following documents are required during inspections:

1. A completed **FEMA Elevation Certificate** upon completion of the lowest floor (including basement, crawlspace, or enclosed floor). The Building Inspector will collect this form from the development site, prior to any "vertical" work. Such Form must be completed based on "Building Under Construction" conditions (See Form Item C1)
 - a) Stop Work Order shall be issued if vertical construction begins without a completed and reviewed Elevation Certificate.
2. A completed **FEMA Elevation Certificate** of the completed construction prior to the issuance of the Certificate of Occupancy (CO). The building Inspector will collect this form through the eEclipse Permit Completion Hold document portal. Such Form must be completed based on the "Finished Construction" conditions (See Form Item C1)
 - a) Final or Temporary Certificate of Occupancy will not be issued until the Certificate has been received and accepted by the Department.
3. For commercial and/or mixed-use structures being dry floodproofed, a completed **FEMA Floodproofing Certificate for Non-Residential**

Structures. This is to be completed once the development is constructed, prior to the issuance of the Certificate of Occupancy (CO). The building Inspector will collect this form through the eEclipse Permit Completion Hold document portal.

- a) Final or Temporary Certificate of Occupancy will not be issued until the Certificate has been received and accepted by the Department.
4. For structures being wet floodproofed with engineered flood vent openings, a **Certification Statement from a Professional Engineer** shall be provided to confirm minimum area of net clear openings for automatic (ie by gravity) entry and exit of floodwaters consistent with submitted construction document. The building Inspector will collect this form through the eEclipse Permit Completion Hold document portal.
 - a) Final or Temporary Certificate of Occupancy will not be issued until the Certificate has been received and accepted by the Department.
 5. Where identified by the Plans Examiner/Floodplain Administrator, a final **FEMA Letter of Map Change (LOMC) Certificate** may be required upon completion of the map revision prior to the issuance. The building Inspector will collect this form through the eEclipse Permit Completion Hold document portal.
 - a) Final or Temporary Certificate of Occupancy will not be issued until the Certificate has been



received and accepted by the Department.

Items and systems to be checked during the construction process:

1. PRE-INSPECTION

a. Review Building Permit Files

- i. Flood Protection Form – General
- ii. Elevation Certificate – Building Permit

2. INSTALLATION OF LOWEST ENCLOSED FLOOR

a. Not below grade on all four sides (including crawlspace)

b. Collect Elevation Certificate – Building under construction

- i. Vertical may not begin until reviewed and approved.
 - 1. If work continues, then issue **Stop Work Order** on entire job until approved
- ii. How to review:
 - 1. Compare to Elevation Certificate – Building Permit
 - 2. If there is any change, contact the Plans Examiner who approved Building Permit.
- iii. File in permit record.

3. DURING CONSTRUCTION

a. Spaces below BFE+18" are only used for:

- i. Parking
- ii. Building Access (stairs and elevators only)
- iii. Incidental Storage

b. Materials used at BFE+18" and below are flood damage resistant

- i. Must be able to be inundated with water for up to 72 hours without damage.
 - 1. See FEMA TB-2 "Flood Damage Resistant Materials Requirements" for examples.
 - a. Pages 7-11 – No untreated wood or MDF products allowed.

c. Mechanicals/Utilities (HVAC, ducts,

electrical, etc.)

- i. Not below BFE+18"
 - 1. Confirm on Elevation Certificate, C2e + Comment Section at bottom of Page 2.
 - a. Comment Section must identify which mechanical/utility elevation is identified.
 - i. Any mechanical/utility other than one noted that is below will be in violation.

d. Flood Vents

- i. Requirements
- ii. Two vents per each enclosed space (elevator shafts do not need flood vents)
- iii. Bottom of vent must be less than 12" above grade
- iv. Vents must be on at least two sides of the structure
- v. Review specifications in Building Permit Plans
 - 1. Air vents not allowed
 - 2. Vents that require manual opening not allowed
- vi. If engineered flood vent openings are used, Statement of Certification from a professional engineer to be submitted to confirm consistency with submitted construction documents
- vii. Check Elevation Certificate
 - 1. Section A8 and/or A9 – flood vents



e. Elevators

- i. Requirements
 - 1. Programmed to rest on floor above BFE+18"
 - 2. Float switch installed
 - 3. Mechanicals placed BFE+18"

4. FINAL CONSTRUCTION

a. Collect Elevation Certificate – Final Construction

- i. How to review:
 - 1. Compare to Elevation Certificate – Building Permit
 - 2. If there is any change, contact the Plans Examiner who approved Building Permit.
- ii. File in permit record.

b. Collect Final Letter of Map Changer (LOMC) Certificate where identified by Plans Examiner