



Village of Winnetka

Village Council Study Session

September 12, 2023 at 7:00 PM
Village Hall
510 Green Bay Road

AGENDA

- 1. Call to Order**
- 2. Public Comments**
- 3. Discussion**
 - a. Lakefront Regulations Discussion Regarding Construction in the Bluff Steep Slope Area Along Lake Michigan
- 4. Closed Session**
- 5. Adjournment**

NOTICE

All agenda materials are available at villageofwinnetka.org (*Governance > Agendas & Minutes*); the *Reference Desk at the Winnetka Library*; or in the *Manager's Office at Village Hall (2nd floor)*.

The Village of Winnetka, in compliance with the Americans with Disabilities Act, requests that all persons with disabilities who require certain accommodations to allow them to observe and/or participate in this meeting or have questions about the accessibility of the meeting or facilities, contact the Village ADA Coordinator, 510 Green Bay Road, Winnetka, Illinois 60093, 847-716-3543; T.D.D. 847-501-6041.



MEMORANDUM VILLAGE OF WINNETKA

COMMUNITY DEVELOPMENT DEPARTMENT

TO: ROBERT BAHAN, VILLAGE MANAGER
FROM: DAVID SCHOON, COMMUNITY DEVELOPMENT DIRECTOR
JIM BERNAHL, ENGINEERING DIRECTOR
DATE: SEPTEMBER 8, 2023
SUBJECT: LAKEFRONT PROPERTIES - BLUFF STEEP SLOPE REGULATIONS

INTRODUCTION

On Tuesday, September 12, 2023, the Village Council is scheduled to hold a Study Session to specifically discuss zoning and development regulations related to properties located on or near the bluffs of Lake Michigan ("lakefront properties"). At the Study Session, staff and the Village's coastal engineer, Caleb Barth with Baird Associates, will review the following information with the Village Council:

- Description of bluffs in Winnetka and their role in the lakefront ecosystem
- Existing development conditions on privately-owned land along Winnetka's lakefront
- Existing Winnetka zoning and development regulations overview
- Summary of North Shore communities zoning and development regulations overview
- Comparative bluff regulations with adjacent North Shore communities with the most similar bluff features to Winnetka – Glencoe & Kenilworth
- Potential purposes for steep slope regulations – applicable Comprehensive Plan goal as well as purpose statements from the recently adopted Permit Abeyance Period Ordinance.

Following the review of this material, staff requests direction from the Council regarding the need for any additional information on the topic as well as their collective thoughts regarding how to potentially proceed with steep slope development regulations, if any, and the approach such regulations could take. Should the Council decide that adoption of some type of steep slope development regulations is appropriate, the Village Council would first hold a public hearing on the proposed regulations at a future Council meeting. In providing direction to staff, the Council may want to consider identifying what the general purpose of establishing steep slope regulations would be.

On Friday, September 1, 2023, a letter was mailed to owners of property with lakefront as well as property owners within 250 feet of those properties. Also on the 1st, The Village's weekly e-newsletter contained information regarding the study session and the Village's Lakefront Regulations webpage was updated to include such information. (www.villageofwinnetka.org/lakefront)

The Village Council originally discussed this issue at a study session on Tuesday, January 10, 2023 (the "January Study Session"). At that meeting, staff reviewed what is allowed under the Village's current zoning regulations on lakefront properties and what other North Shore communities may allow on lakefront properties that contain bluffs. Then, in response to recent development activity along the

lakefront and potential additional development on the lakefront, the Village Council introduced on July 6, 2023, and then adopted on July 18, 2023, the following four ordinances.

- MC-07-2023, An Ordinance Amending the Text of the Winnetka Zoning Ordinance to establish a Lakefront Preservation Overlay District.
- M-09-2023, An Ordinance Amending the Official Zoning Map of the Village of Winnetka to Place Certain Property along Lake Michigan in the Lakefront Preservation Overlay District.
- MC-08-2023, An Ordinance Amending the Text of the Village Zoning Ordinance to Establish a Study and Permit Abeyance Period for Construction in the Steep Slope Area Along Lake Michigan.
- MC-09-2023, An Ordinance Amending the Text of the Winnetka Zoning Ordinance Regarding Amendments to Special Uses.

Of the four ordinances, the September 12 meeting is to follow up on Ordinance MC-08-2023 (**Attachment 1**). The general purpose of the Ordinance amendments was to establish a study period from July 6, 2023, to April 6, 2024, to pause construction activity within the steep slope zone, to ensure the Village has time to adequately analyze and adopt any necessary regulations, and to examine the effects of construction on the Winnetka bluffs along Lake Michigan (the “Permit Abeyance Period”).

DESCRIPTION OF BLUFFS IN WINNETKA AND THEIR ROLE IN THE LAKEFRONT ECOSYSTEM

Attachment 2 includes a separate memo from Caleb Barth with Baird Associates, which provides further information regarding the bluffs in Winnetka and their role in the lakefront ecosystem. It also includes information regarding the bluff ecosystem in a built and developed environment.

EXISTING LAKEFRONT DEVELOPMENT CONDITIONS ON PRIVATELY-OWNED PROPERTY

To provide the Village Council with context regarding the type of development that has taken place on the Winnetka bluffs, staff has looked at data from two different perspectives (1) what type of development can be observed on the steep slopes and (2) how much of the steep slope is covered by impermeable surfaces. ***The following information only includes development on the steep slope from toe of bluff to top of bluff. It does not include development landward from the top of bluff or lakeward from the toe of the bluff.***

Built Features. Reviewing aerial photographs and Google Earth bird’s eye view images as well as staff’s knowledge of lakefront development, the Community Development staff reviewed these images to identify what type of features have been constructed on the steep slopes of **privately-owned** property along the lake. Staff has identified 89 privately owned lakefront parcels/properties along the Winnetka lakefront. The following table summarizes the number of times staff observed a particular feature on a lot as well as the percentage of all lots that the feature was observed. It should be noted that some lots have more than one of these features.

	Beach House	Boat-house	Gazebo	Patio/ Decks/ Terrace	Pool/ Hot tub	Pool House	Principle Structure (Portion)	Other Accessory Structures	Tram	Steps/ Walkways
# of Times Observed on a Lot	3	16	1	46	12	3	18	2	5	70
% of All Lots on Which Feature Observed	3%	18%	1%	52%	13%	3%	20%	2%	6%	79%

Based upon what we observed, 12 properties (13%) appear to have none of these built features constructed on them. And if we exclude steps/walkways from the analysis, 34 properties (37%) appear

to have none of the other built features constructed on them. We would note that while some steps/walkways are rather modest and simple, others are significant structures, so excluding them from the analysis may not necessarily be appropriate. Staff would also note the limitations of this visual observation approach. Given the tree cover on some properties, it was difficult to identify all features that may have been constructed on a slope. Also, sometimes it was difficult to determine what the feature exactly was (e.g., was it a boathouse, beach house, pool house, or other accessory structure). Also, we did not do a calculation of where exactly the steep slope began or ended, we were only able to eyeball it based upon topo lines overlayed on the GIS aerial maps.

Impermeable Surface. Using our GIS maps and its impermeable surface layer, the Engineering staff was able to estimate the amount of impermeable surface upon the steep slope land area for lakefront property. Based upon this data base, approximately 10% of the total amount of steep slope land area along the lake is covered by what the Village defines as impermeable surface. The amount of the steep slope that is covered by impermeable surface varies from lot to lot. The following table summarizes the information for *privately-owned* lakefront lots.

% of Steep Slope of Privately-Owned Lots Covered with Impermeable Surface	# of Lots	% of Lots
0%	19	21%
>0% but <5%	19	21%
>5% but <10%	19	21%
>10% but <25%	21	24%
>25% but <50%	9	10%
>50%	2	2%
TOTAL	89	100%

It should be noted that the Village does not include wood decks or wood steps as impermeable surfaces as they allow water to drain through to the ground below them. Also, large stone revetments are not considered impermeable surfaces as they have large voids that allow water to pass through. Though this information provides us with an idea of how much of the steep slope is now covered by impermeable surface, it does not let us know how much of the steep slope has been disturbed by grading or landscaping activities that may impact the stability of the steep slopes. For instance, portions of the steep slope could have been landscaped with plant materials that are not the most conducive for stabilizing the bluff (e.g., such as traditional lawn grasses).

EXISTING VILLAGE ZONING REGULATIONS ALONG THE LAKEFRONT

At the January Study Session materials, a staff report was provided addressing zoning and development regulations (see **Attachment 3**). As noted in that material, all lakefront properties within the Village are currently zoned the R-2 Single Family Residential District. The R-2 District allows single family detached dwellings and accessory structures by right and allows churches, public and private schools, libraries, park district uses, and essential Village services (e.g., water plant, power plant, etc.) as special uses. The January Study Session materials reviewed the following zoning regulations as they relate to lakefront property.

For zoning purposes **only**,

- a 'lot' or 'zoning lot' shall not include any part of a platted lot that lies beyond the water's edge of Lake Michigan;
- lot area shall not include any part of a platted lot that lies beyond the water's edge of Lake Michigan;
- the water's edge of the lake shall be deemed a 'front lot line';
- in the R-2 District the minimum required front yard setback is 50 feet (see Figure 1);
- the water's edge of Lake Michigan" shall be deemed the outermost limits of that public street"; and
- Lake Michigan shall be considered a 'public street'.

(Note: Only the Zoning Ordinance of the Municipal Code defines Lake Michigan as a public street. The Zoning Ordinance includes definitions for "street line" and "public street" and states that "the water's edge of Lake Michigan" shall be deemed the outermost limits of that public street" and that "for the purposes of the Zoning Ordinance, Lake Michigan shall be considered a 'public street.'" These definitions only apply to the use of these terms in the Zoning Ordinance; the definitions do not apply to other provisions of the Municipal Code, such as the Nuisance Code.)

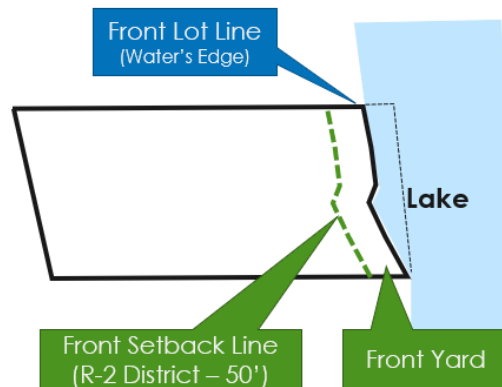


Figure 1

The January Study Session materials also noted which accessory structures are allowed within the minimum required front yard setback (e.g., bay windows, fences, and walls no more than 6.5' tall, walkways and stairs, open porches, terraces, and front porches, docks, and boat launches without boat houses.)

The staff report also noted that given the Village's definition of the front lot line along the lake and the fact that the lake level varies overtime, certain measurements for zoning purposes also change with the change in lake level. Those zoning measurements include:

- Lot Area
- Front Lot Line
- Lot Depth
- Average Lot Width (based upon Lot Area & Lot Depth)
- Minimum Required Front Yard Setback (based upon Front Lot Line)
- Minimum Required Total Side Yard (based upon Average Lot Width)
- Maximum Gross Floor Area (based upon Lot Area)
- Maximum Roofed Lot Coverage (based upon Lot Area)
- Maximum Impermeable Lot Coverage (based upon Lot Area)

To help visualize and understand how these zoning measurements and zoning standards are impacted by the changing lake water levels, an example was presented in the January Study Session materials of how the zoning regulations varied for one property due to the changing lake water levels.

EXISTING VILLAGE ENGINEERING REGULATIONS THAT APPLY ALONG THE LAKEFRONT

As included in the January Study Session materials (see **Attachment 4**), the Village has two major code provisions that engineering staff use to conduct its engineering reviews:

1. Stormwater Management Code, Chapter 15.26, which details the requirements for the discharge of stormwater and the grading of property, and
2. Flood Hazard Protection Ordinance, Chapter 15.68, which regulates areas of the Village within the floodplain, including portions of floodplain along the coast of Lake Michigan.

The Village also has an Engineering Design and Inspection Policy Manual that details standards for projects that are permitted within the Village. The manual includes standards for new private utilities such as sanitary and storm sewer services, and potable water services. In addition, the manual includes requirements for proper grading of lots and ingress/egress requirements.

For new homes, accessory structures, and significant alterations to the ground surface, the Engineering Department requires the applicant to obtain drainage and grading permits prior to construction. New or expanded structures must be elevated to the Flood Protection Elevation (FPE), which is defined as the base flood elevation plus 2 feet. Along Lake Michigan, the base flood elevation varies from 587 to 594. This requirement for elevated structures is usually easily met as the buildable area along the lake is typically much higher than the floodplain elevation, which is typically at lower elevations and below the slope or bluff area. Our code does have a provision for detached garages or other non-habitable accessory structures that allow those structures to be built within the floodplain and not be elevated as long as they are a “flow-through” structures that are made with flood resistant materials.

Currently, the Village does not require new homes constructed along the lakefront to provide stormwater detention if they can demonstrate that the entirety of the stormwater on the developed lot is captured by the on-site stormwater system and released in a controlled manner directly into the lake. This practice is also consistent with MWRD’s stormwater detention policy, as they also do not require detention for properties that drain directly to the lake. The Village does not allow stormwater to sheet flow over the bluff towards the lake, as this can cause erosion. The practice of allowing residential storm water to be discharged to the Lake, if it is controlled and brought to the bottom of the bluff, is consistent with other surrounding communities along the lakefront.

For all work on or adjacent to the bluff, including retaining walls adjacent to the top of the slope, a geotechnical and structural engineering plan is required. The geotechnical engineer and structural engineer must professionally certify that the retaining walls and slope will be stable and will be reasonably safe from failure, during construction, as well as upon completion of the project. This certification is required as part of the original permit submittal and must be reconfirmed as part of the as-built plan submittal at the conclusion of the project.

Throughout construction, silt fencing, inlet protection, tree protection, and other erosion prevention measures are required. The Village requires the permittee to submit a Stormwater Pollution Prevention Plan (SWPPP) that details the location and installation of all erosion control practices. The SWPPP must remain in place until the slope has been re-established and stabilized with vegetation.

OTHER NORTH SHORE COMMUNITIES ZONING & DEVELOPMENT REGULATIONS

The January Study Session materials included a summary of zoning and development regulations for the following North Shore communities with lakefront properties:

- Evanston
- Glencoe
- Highland Park
- Kenilworth
- Lake Forest
- Lake Bluff
- Wilmette

Determining the front lot line for zoning purposes varied between communities. As noted earlier, the water's edge shown on a plat of survey is considered the front lot line in Winnetka, while the other communities are as follows:

Water's Edge as shown on plat of survey (Rear Lot Line)

- Evanston
- Highland Park
- Kenilworth

Lot Line on Plat of Subdivision, if available (Rear Lot Line)

- Glencoe

Ordinary High-Water Mark (Rear Lot Line)

- Lake Forest

Mean Lake Level (Rear Lot Line)

- Wilmette

Plat of Survey Submitted with Application (Rear Lot Line)

- Lake Bluff



Determining the location of a lakefront property line for zoning purposes is important as it is used to determine compliance with such zoning standards as maximum gross floor area, maximum impermeable lot coverage, and maximum roofed lot coverage. Only two communities noted that their zoning ordinances **determine the lot area** for zoning purposes differently for lots along the lake than for lots not along the lake.

Kenilworth

- Uses toe of the bluff as the eastern lot line for calculating lot area.

Lake Forest

- For the area of any non-table land, that is land with a slope of 10% or greater, only 50% of that land area counts as lot area for calculating the allowable building square footage.

Not all North Shore communities have additional steep slope/bluff regulations for properties that specifically have such physical characteristics.

Have Steep Slope Regulations	Do Not Have Steep Slope Regulations
○ Glencoe ○ Highland Park ○ Kenilworth ○ Lake Bluff ○ Lake Forest	○ Evanston ○ Wilmette

Those communities that have steep slope regulations define steep slopes as follows:

10% (1V:10H) or Greater	20% (2V:10H) or Greater
○ Glencoe ○ Highland Park ○ Kenilworth ○ Lake Forest	○ Lake Bluff

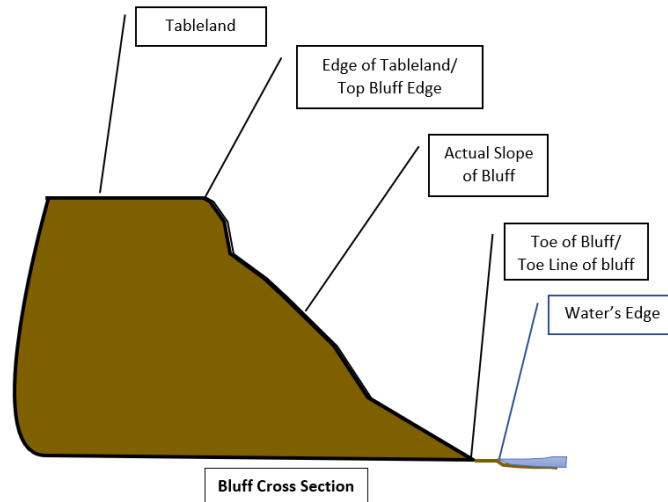


Figure 6

Attachment 3 includes additional information regarding steep slope regulations for the communities of Glencoe, Highland Park, Kenilworth, Lake Bluff, and Lake Forest

COMPARATIVE BLUFF REGULATIONS WITH NORTH SHORE COMMUNITIES WITH SIMILAR BLUFF FEATURES – GLENCOE & KENILWORTH

Given that steep slopes in Glencoe and Kenilworth have the most similar characteristics to the slopes in Winnetka, Caleb Barth with Baird Associates, has prepared a memo summarizing the steep slope regulations for each of these communities and how these regulations would apply to the different types of steep slopes in Winnetka. See **Attachment 5**.

PURPOSE OF STEEP SLOPE REGULATIONS

Should the Council wish to further study the establishment of steep slope regulations, the Council may first want to start with identifying what it would want to achieve with the adoption of such regulations. To assist the Council with identifying what may be the purpose for establishing steep slope regulations, the Comprehensive Plan includes the following goal and initiative related to the Lake Michigan bluffs.

Goal 6.5 *The Village will support policies that preserve and protect the unique natural resources of and the recreational opportunities provided by the Lake Michigan shoreline and bluffs.*

Initiative 6.5.2 *Study and consider establishing development regulations that requires construction on and adjacent to the bluffs along the Lake Michigan shoreline that protects, restores, and manages the stability of the bluffs and natural shoreline and that are contextually sensitive to the natural features of the bluffs.*

Bluffs are a unique and sensitive feature of the Lake Michigan shoreline, providing habitat for a variety of plants and animals, providing stability and protection for the tableland at the top of the bluffs, as well as serving as a popular destination for recreation and scenic views. Balancing restoration with the need to protect and preserve the natural environment of the shoreline would ensure that construction on or near the bluffs will aim to minimize the impact on the natural features and preserving them for future generations.

To further assist the Village Council, the recently adopted Permit Abeyance Period Ordinance contained the following purpose statements for adopting the Ordinance.

WHEREAS, *the Village now desires to ensure that construction on properties along Lake Michigan and the bluffs does not cause environmental or ecological damage to Lake Michigan or the surrounding areas of the Village or otherwise create harm to the public health, safety, or welfare of the Village, its residents, or visitors to the Village.*

WHEREAS, *the further purposes of this Ordinance are as follows:*

- *To protect the natural environment and the integrity of the Lake Michigan coastal area that is a distinctive and valuable natural feature of the Lake Michigan shoreline;*
- *To recognize the potential for hazards that could affect health and safety to persons and property from bluff and shoreline development;*
- *To maintain the stability of the coastal bluffs and shorelines and to reduce the risks of coastal erosion, undermining, slumping, or collapse of the bluffs, and to protect the waters of Lake Michigan from unnatural sedimentation;*
- *To promote the recommendations of the Village of Winnetka's Comprehensive Plan relative to the constraints that should be considered in developments that impact coastal areas and environments.*

As Goal 6.5 of the Comprehensive Plan and the purpose of the permit abeyance ordinance have been previously approved, the Council may wish to identify and refine its goals with the potential adoption of steep slope regulations.

SUMMARY AND NEXT STEPS

After hearing from staff, the Village's coastal engineer, and the public, and after the Council discussion, staff requests direction from the Council regarding the need, if any, for any additional information on the topic of steep slopes as well as their collective thoughts regarding how to potentially proceed with steep slope development regulations, if any, and the approach such regulations could take. Staff suggests that the Council consider the following questions when discussing the issue and providing staff with direction.

1. Based upon the information provided to the Council to date does the Council wish to further consider adopting new regulations for development on and near the bluff steep slope?
2. If the Council wishes to continue to consider adopting steep slope regulations, what would the Council identify as the major goals/purposes for such regulations?
3. Based upon the identified goals/purposes for new regulations, what type of buildings and structures should be allowed on and near steep slope bluffs? What type of landscaping should be allowed or required?
4. If certain types of buildings, structures, and landscaping are not to be allowed on a steep slope, how should the Village treat existing buildings, structures, and landscaping, including improvements to and maintenance of these existing buildings, structures, and landscaping?

ATTACHMENTS

- Attachment 1: MC-08-2023, An Ordinance Amending the Text of the Village Zoning Ordinance to Establish a Study and Permit Abeyance Period for Construction in the Steep Slope Area Along Lake Michigan.
- Attachment 2: Technical Guidance on Coastal Bluff Ecosystem Memo, prepared by Caleb Barth with Baird, dated September 7, 2023.
- Attachment 3: January 10, 2023, Village Council Study Session Staff Report Regarding Zoning and Development Regulations and Meeting Minutes.
- Attachment 4: January 10, 2023, Village Council Study Session Staff Report Regarding Engineering Regulations for Lake Front Properties
- Attachment 5: Comparing Steep Slope Regulations in Adjacent Communities and Their Application in Winnetka, prepared by Caleb Barth with Baird, dated September 7, 2023.

**AN ORDINANCE AMENDING THE TEXT OF THE WINNETKA ZONING
ORDINANCE TO ESTABLISH A STUDY AND PERMIT ABEYANCE PERIOD FOR
CONSTRUCTION IN THE STEEP SLOPE AREA ALONG LAKE MICHIGAN**

WHEREAS, the Village of Winnetka is a home rule municipality in accordance with Article VII, Section 6 of the 1970 Constitution of the State of Illinois and has the authority to exercise any power and perform any function pertaining to its government and affairs; and

WHEREAS, Lake Michigan and the lakefront of the Village have special environmental, recreational, cultural, historical, community, and aesthetic interests and values; and

WHEREAS, the preservation and protection of Lake Michigan and its Winnetka lakefront and adjoining lands and bluffs is critically important to the Village and its residents; and

WHEREAS, as set forth in Chapter 15.78, Lakefront Construction, of the “Winnetka Village Code,” as amended (“*Village Code*”), the Village adopted on March 21, 2023, building and other Village Code amendments and enforcement measures to ensure appropriate and necessary protections to preserve and protect Lake Michigan and its shoreline; and

WHEREAS, the Village now desires to ensure that construction on properties along Lake Michigan and the bluffs does not cause environmental or ecological damage to Lake Michigan or the surrounding areas of the Village or otherwise create harm to the public health, safety, or welfare of the Village, its residents, or visitors to the Village; and

WHEREAS, the further purposes of this Ordinance are as follows:

- To protect the natural environment and the integrity of the Lake Michigan coastal area that is a distinctive and valuable natural feature of the Lake Michigan shoreline;
- To recognize the potential for hazards that could affect health and safety to persons and property from bluff and shoreline development;
- To maintain the stability of the coastal bluffs and shorelines and to reduce the risks of coastal erosion, undermining, slumping, or collapse of the bluffs, and to protect the waters of Lake Michigan from unnatural sedimentation;
- To promote the recommendations of the Village of Winnetka’s Comprehensive Plan relative to the constraints that should be considered in developments that impact coastal areas and environments; and

WHEREAS, the Village plans to retain the services of a coastal engineer, hold public meetings and hearings, and develop more comprehensive amendments to the Village Code and provide related procedures to ensure that construction on the bluffs and the steep slope areas of the bluffs are consistent with the Village’s goals and policies; and

WHEREAS, the Village has determined a study and permit abeyance period is necessary to analyze the designated bluff areas that need to be protected (*“Permit Abeyance Period”*); and

WHEREAS, the study and development of more comprehensive amendments and related procedures will take a significant amount of time and effort on the part of Village staff; and

WHEREAS, construction on new or existing structures in or around the bluffs and the steep slope areas during the Permit Abeyance Period may irreversibly impair or otherwise damage the Village’s shoreline, bluff, and adjacent properties to the detriment of the Village and its residents; and

WHEREAS, to prevent that impairment and damage, and to ensure that the Village is able to undertake a thorough examination of this complex issue during the Permit Abeyance Period, this Ordinance amends the “Winnetka Zoning Ordinance,” as amended (*“Zoning Ordinance”*), to confirm and further promulgate the Village's regulatory authority of the Winnetka bluffs along Lake Michigan and adjacent property, and to impose a temporary pause on the issuance of building permits for construction on new or existing structures in and around the bluffs during the Permit Abeyance Period; and

WHEREAS, pursuant to Section 17.72.040 of the Zoning Ordinance, the Village Manager submitted an application for a text amendment to the Zoning Ordinance to impose the Permit Abeyance Period and provide the Village time to study bluff and steep slope regulations; and

WHEREAS, pursuant to Section 17.72.040 of the Zoning Ordinance, the Village gave proper notice of a public hearing by the Winnetka Village Council to consider the Permit Abeyance Period and related amendments to the Zoning Ordinance by publication in the *Chicago Tribune* on June 21, 2023, and by mail to lakefront property owners as well as property owners within 250 feet of lakefront properties; and

WHEREAS, the Village Council conducted a public hearing on July 6, 2023, regarding the imposition of a temporary pause on construction during the Village’s Permit Abeyance Period; and

WHEREAS, Section 11-48.2-2 of the Illinois Municipal Code, 65 ILCS 5/11-48.2-2, provides that the Village is empowered to adopt ordinances identifying areas of special historical, community, or aesthetic interest or value and to impose regulations within these areas on construction, alteration, demolition and use, and designed to preserve, protect, and enhance the unique and important aspects of the identified areas; and

WHEREAS, pursuant to these and other applicable authorities and the Village's home rule powers, the Village Council has determined that it is necessary and in the best interests of the Village and its residents to adopt amendments to the Zoning Ordinance as set forth in this Ordinance and to impose a temporary pause on the issuance of building permits for construction on or around the bluffs along Lake Michigan in Winnetka during the Permit Abeyance Period;

NOW, THEREFORE, the Council of the Village of Winnetka ordains as follows:

SECTION 1. RECITALS. The recitals above are incorporated into this Section as the findings of the Village Council, as if fully set forth in this Section.

SECTION 2. NEW CHAPTER 17.80 OF THE ZONING ORDINANCE. Title 17, titled “Zoning,” of the Village Zoning Ordinance is amended to add a new Chapter 17.80, titled “Bluff Construction Permit Abeyance Period,” which new Chapter 17.80 will read as follows:

“Chapter 17.80
BLUFF CONSTRUCTION PERMIT ABEYANCE PERIOD

Section 17.80.010 Purpose.

The purpose of this Chapter is to establish a study and permit abeyance period to ensure the Village has time to adequately analyze and adopt any necessary code amendments, regulations, and related procedures, and to examine the effects of construction on the bluffs in the Village located along Lake Michigan. Lake Michigan, its coastline and beaches, and its bluffs, provide a unique natural resource to the Village and to its residents that must be preserved and protected. This Chapter is intended to protect the bluffs and ensure that construction on the bluffs of Lake Michigan in the Village do not cause environmental or ecological damage to Lake Michigan or the surrounding areas of the Village, or otherwise create harm or risk to the public health, safety, and welfare of the Village, its residents, or visitors to the Village.

Section 17.80.020 Definitions.

For purposes of this Chapter, the following terms are defined as follows:

“Bluff” means an elevated segment of the Lake Michigan shoreline above the beach (or in the absence of the beach, the waterline) that normally has a precipitous front that is inclining steeply on the lakeward side.

“Construction Activity” means any act or process involving (i) the construction, alteration, modification, demolition, or removal of any new or existing structure or (ii) the adding, dumping, grading, or removing of soil, dirt, sand, rocks, fill, or vegetation.

“Lake Michigan” means that portion of Lake Michigan that borders the Village, to the extent of three miles beyond the corporate limits, but not beyond the limits of the State.

“Permit Abeyance Period” means the period of nine months commencing on July 6, 2023, and ending on April 6, 2024, during which time the Village will be analyzing Bluff and other areas that require protection.

“Steep Slope” means land comprising or adjacent to a Bluff where the slope in ascent or descent exceeds ten percent from the horizontal.

“Steep Slope Zone” means all land between the bottom of a Steep Slope and the top of the Steep Slope, and also the land that is 40 feet landward from the top of a Steep Slope.

Section 17.80.030 Permit Abeyance Period.

- A. Notwithstanding any other provision to the contrary in the Village Code (but subject to Section 17.80.040 of this Chapter), all Construction Activity that requires a permit is prohibited in the Steep Slope Zone during the Permit Abeyance Period. This prohibition does not apply to Construction Activity that (i) received all applicable Village permits prior to July 6, 2023, provided those permits do not expire or are not otherwise terminated in accordance with the Village Code; and (ii) Construction Activity for which an application was received by the Village prior to July 6, 2023, or between July 6 and July 18, 2023 (“Pending Applications”), and for which all applicable Village permits are issued in the ordinary course thereafter by the Village pursuant to all applicable provisions and procedures of the Village Code (“Pending Application Permits”), and provided those Permits do not expire or are not otherwise terminated in accordance with the Village Code. Pending Application Permits will not be issued without the written approval of the Village Engineer upon a determination, in consultation with the Village’s third-party coastal engineer, that the Construction Activity associated with the Pending Application Permit will not adversely impact the integrity of the Steep Slope Zone.
- B. Notwithstanding any other provision to the contrary in the Village Code (but subject to Section 17.80.040 of this Chapter), the Village will not accept any application, and will not grant any permits, for any Construction Activity within the Steep Slope Zone during the Permit Abeyance Period. This prohibition does not apply to Pending Applications or Pending Application Permits.

Section 17.80.040 Exceptions

The provisions of Section 17.80.030 of this Chapter will not apply to the following Construction Activities:

- A. Repairs or general maintenance for Bluffs or for structures existing as of July 6, 2023.

- B. Repairs or general maintenance of utility facilities, including, without limitation, stormwater outfalls, existing as of July 6, 2023.
- C. Restoration of property, facilities and structures that suffer a casualty loss or become damaged, provided that the restoration results in the facilities or structures being restored to a size that is substantially the same or smaller than the original facilities or structures.
- D. Construction Activities that occur entirely within a pre-existing building and do not disturb the soil.

Section 17.80.050 Severability.

If any provision of this Chapter or any part of this Chapter is held invalid by a court of competent jurisdiction, the remaining provisions of this Chapter shall remain in full force and effect, and shall be interpreted, applied, and enforced so as to achieve, as near as may be possible, the purpose and intent of this Chapter to the greatest extent permitted by law."

SECTION 3. EFFECTIVE DATE. This Ordinance will be in full force and effect upon passage, approval, and publication of this Ordinance in pamphlet form in the manner provided by law.

PASSED this 18 day of July, 2023, pursuant to the following roll call vote:

AYES: Trustees Albinson, Apatoff, Dearborn, Handler, and Orsic

NAYS: Trustee Dalman

ABSENT: _____

APPROVED this 18 day of July, 2023.

Signed:

Village President

Countersigned:

Village Clerk

Published by authority of the
President and Board of Trustees
of the Village of Winnetka,
Illinois, this 19 day of July, 2023.

Introduced: July 6, 2023

Passed and Approved: July 18, 2023

July 18, 2023

MC-08-2023

Memorandum

Office | 2924 Marketplace Drive, Suite 200, Madison, WI 53719, USA

Phone | +1 608 273 0592 Email | madison@baird.com

Reference # 13918.M4.Rev0

Status: Final

September 7, 2023

Attention: Robert Bahan
CC: James Bernhal, David Schoon, Kristin Kazenas, Peter Friedman
From: Caleb Barth

RE: TECHNICAL GUIDANCE ON COASTAL BLUFF ECOSYSTEM

The Village of Winnetka (Village) has requested that W.F. Baird & Associates Ltd. (Baird) assist in providing technical guidance to the Village Council for the development of lakefront regulations. The Village specifically requested guidance on the following topics:

- Role of bluffs along the lakefront ecosystem
- Bluff ecosystem in built and developed environment
- Impacts from development on erosion, the lake, etc.

Role of Bluffs Along the Lakefront Ecosystem

Coastal Lake Michigan's natural environment has undergone many changes since the glaciers retreated about 14,000 years ago. More than 90 percent of the land within the coastal zone was formerly moraine and old lakebed that over centuries evolved into gently rolling grasslands, savannas, bluffs, dunes, and the ravines, which were created by streams. The Village of Winnetka is located within the transition from the Lake Border moraine bluff coast¹ and the Chicago/Calumet lacustrine plain² (see Figure 1), which contributes to a variable bluff height. Since the arrival of permanent European settlers in the 1770s, the area's landscape and associated native plant communities underwent numerous changes induced by two centuries of rapid population growth. Additionally, the coastline was significantly modified with structures for shore protection, which permanently altered the littoral processes.

The Lake Michigan shoreline that remains consists of steep bluffs with narrow beaches at the base. The coastal bluffs consist of gray to brown glacial till interbedded with the glacial-lake sediments of clay, silt, sand, and sandy outwash. Silt and clay are the dominant bluff materials.

¹ A steep reach where the lake has eroded into the mass of rocks and sediment carried down and deposited by melting glaciers.

² A low-lying area which is an extension of the floor of ancestral Lake Michigan and has been submerged repeatedly during periods of high lake levels.

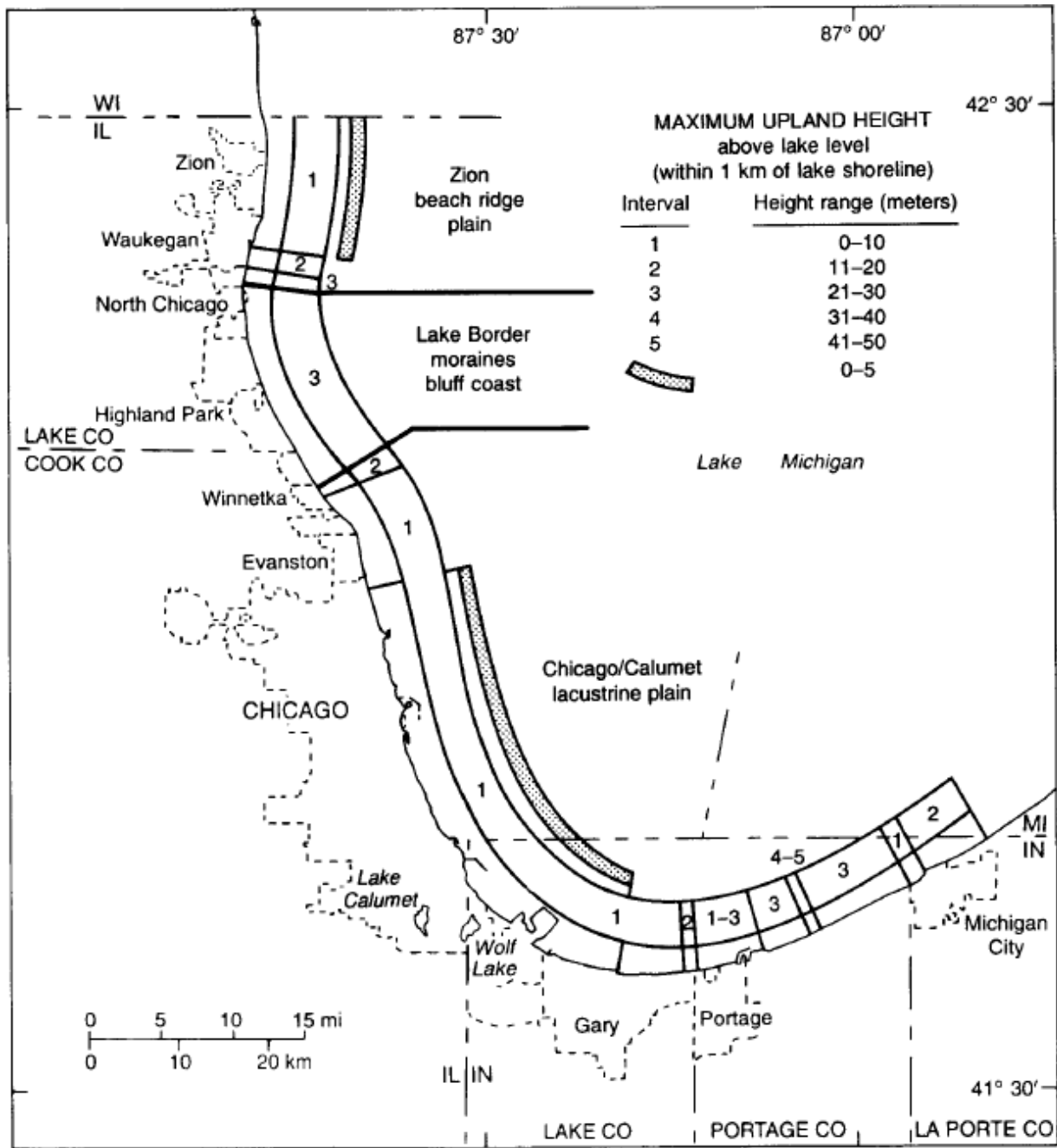


Figure 1: Generalized upland relief along the Illinois-Indiana coast and the extent and designation of the three coastal geomorphic areas (Chrzastowski, 1994).

The landward erosion of coastal bluffs is natural and occurs in response to processes acting from both the land and the water. From 1872-1987, the average measured bluff retreat rates along 30 km of the Lake Michigan shoreline from Wilmette to Waukegan were approximately 20-25 cm/yr (7.9-9.8 in/year) (Jibson, 1993). Development practices have significantly slowed the erosion of coastal bluffs due to forces from the lake.

The coastal bluffs in the Village provide habitat for specialized plants and wildlife within a heavily developed region. Migratory birds follow the coast of Lake Michigan and use the bluff area for foraging and breeding. Coastal bluffs provide suitable habitat for “urban” wildlife species, including whitetail deer, coyote, raccoon, possum, squirrel, rabbits, etc.

Bluff Ecosystem in Built and Developed Environment

The Lake Michigan coastal bluff ecological landscape in Illinois is highly variable and fragile, and has been heavily altered by development. Human-induced disturbances have had negative impacts to the bluff ecosystem through fire-suppression practices, altered hydrology and hydraulics, increased colonization of invasive species, and urbanization fragmentation³ Private land ownership dominates the bluff ecosystem, and the stewardship of these bluffs is the responsibility of each property owner.

A healthy bluff ecosystem generally consists of a mix of a canopy of large trees, a middle layer of small trees and shrubs, and a ground floor covered with wildflowers, native grasses, and similar native plants. Too much or too little shade from the large tree canopy will have negative consequences on the survivability of native undergrowth. Undergrowth should consist of a diverse mix of native, deep-rooted herbaceous vegetation to prevent soil erosion and ensure slope ability. Poor planning or maintenance of bluffs have impacted biodiversity and led to an influx of invasive species with negative impacts to slope stability, plant diversity, and wildlife habitat. A bluff ecosystem is highly variable from site to site due to a number of factors, including steepness, sunlight, and moisture. A trained professional should be consulted with regarding any development or restoration project for site-specific best management practices.



Figure 2: Piping Plover
(chicagopipingplovers.org)

Beach and dune habitats at the toe of the bluff are rare, and where they do occur, are often used for recreation. There are a number of specialized or endangered species that rely on beach and dune habitats for survival (e.g., piping plovers, etc.).

Impacts from Development on Erosion, the Lake, etc.

Development near coastal bluffs has significantly impacted coastal processes. The major impacts of bluff development on the natural environment are as follows:

- **Slowed Bluff Erosion** – Before coastal development, net erosion dominated nearly all of the Illinois Lake Michigan coast. Over time, wave erosion of the bluffs has been significantly decreased by a variety of shore protection systems, such as revetments, breakwaters, groins, and seawalls. Bluff erosion does continue, largely due to impacts of poor planning during development on the bluff or deferred maintenance (see Figure 3), such as:

³ The fragmentation of natural landscapes during urban expansion.

- **Surface water runoff** – development on the table land or within the steep slope area can create additional impervious surfaces or alter drainage paths. Surface water runoff will create erosion if not managed correctly.
- **Groundwater** – Excess groundwater will have negative effects on bluff stability. Development can impact groundwater levels and quality through poor surface water planning, septic system drainage, etc.
- **Vegetation** – Vegetation plays a key role in bluff stability. Native, deep-rooted vegetation increases bluff stability by capturing and storing surface water and groundwater and strengthening bluff soil. Turf grass offers very little bluff stabilization benefits due to its shallow roots.
- **Sediment Transport Impacts** – The net littoral drift is from north to south along this section of the southwest coast of Lake Michigan. As a result, most or all of the sand moving along the shore towards the south has been trapped or diverted offshore by the two harbors at the north end of the study reach (Waukegan and Great Lakes Naval Training Center Harbors). The prevalence of shore protection along this reach has further reduced the supply of sand through the elimination or reduction of bluff retreat. These factors have contributed to an ongoing reduction of beaches protecting the bluffs and the protective sand cover over the underlying glacial sediment.
- **Lakebed Downcutting** – The ultimate outcome of impacts to sediment transport is a dramatic increase in irreversible erosion or downcutting of the glacial sediment lakebed along this reach of the Illinois shore. This downcutting threatens the stability, performance, and, eventually, feasibility of shore protection structures and devices that protect riparian, industrial, and public land along this reach. Also, the lowering of the lakebed contributes to a permanent disappearance of natural beaches. If nearshore lakebed downcutting continues, deeper water will occur closer to shore, which will allow greater wave energy to impact the shore. Nearshore coastal structures will become more susceptible to failure, which could cause severe wave-induced coastal bluff erosion.

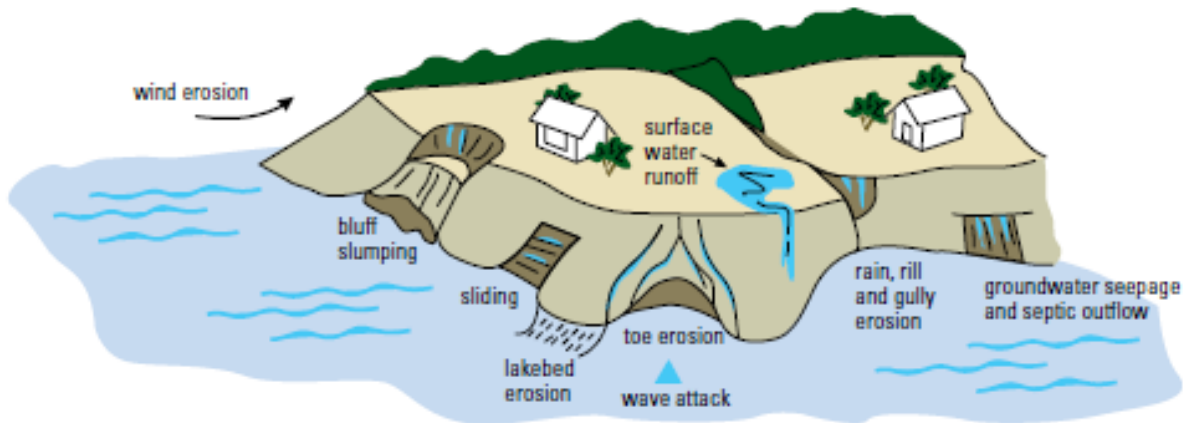


Figure 3: Causes and Effects of Coastal Erosion (UW Sea Grant, 2021)

References

Baird, 1999, *Lakebed Paving Plan Feasibility Study, Final Report*. Illinois Shoreline, Interim IV. U.S. Army Corps of Engineers.

Chrzastowski, Michael J., et al. "Coastal Geomorphology and littoral cell divisions along the Illinois-indiana coast of Lake Michigan." *Journal of Great Lakes Research*, vol. 20, no. 1, 1994, pp. 27–43.

Jibson, Randall W., et al. "Bluff recession rates along the Lake Michigan shoreline in Illinois." *International Journal of Rock Mechanics and Mining Sciences & Geomechanics Abstracts*, vol. 30, no. 2, 1993.

UW Sea Grant, 2021, *A Property Owner's Guide to Protecting Your Bluff*. University of Wisconsin Sea Grant Institute.

WDNR, 2015, *The ecological landscapes of Wisconsin: An assessment of ecological resources and a guide to planning sustainable management*. Chapter 19, Southern Lake Michigan Coastal Ecological Landscape. Wisconsin Department of Natural Resources, PUB-SS-1131U 2015, Madison.

**MINUTES
WINNETKA VILLAGE COUNCIL
STUDY SESSION
January 10, 2023**

(Approved: February 7, 2023)

A record of a legally convened meeting of the Council of the Village of Winnetka, which was held at Council Chambers on Tuesday, January 10, 2023, at 7:00 PM.

- 1) Call to Order. President Rintz called the meeting to order at 7:02 PM. Manager Bahan called the roll of the Village Council. Present: Trustees Rob Apatoff, Andy Cripe, Tina Dalman, Bob Dearborn, Kim Handler, and John Swierk. Absent: None. Also present: Village Manager Robert Bahan, Assistant Village Manager Kristin Kazenas, Village Attorney Peter Friedman, Deputy Village Clerk Berina Gradjan, Community Development Director David Schoon, Assistant Community Development Director Ann Klaassen, Community Development Building & Code Enforcement Manager Davorka Kirincic, Engineering Director Jim Bernahl, Assistant Engineering Director Emily Grimm, and approximately 47 persons in the audience.
- 2) Public Comment.
- 3) Lakefront Regulations Discussion.

President Rintz indicates that tonight's discussion will begin with an educational component regarding the lakefront regulations related to private and public land.

U.S. Army Corps of Engineers Team Leader Soren Hall informs Council of the agency's limitations and jurisdiction regarding the lakefront. Mr. Hall provides information on the history of the lake levels and confirms that the USACE is responsible for shoreline protection measures, provides information related to the shoreline individual and general permitting process, public interest related matters, overall lakefront maintenance, and the agency's statutory authorities. Mr. Hall discusses the various measures used to protect the shoreline consisting of revetments, groins, breakwaters, and sand nourishment.

Council discusses the individual and general permit process, potential for shoreline studies, aesthetics of the lakefront, natural shifts of the shoreline related to structures, public beach access, compliance measures, and the limitations and abilities of the U.S. Army Corps of Engineers.

Illinois Department of Natural Resources Division Manager Stephen Altman provides Council information related to Lake Michigan, the limitations of IDNR's permitting boundaries and processes, jurisdictional related matters, permitted projects, application processes, and the IDNR's shore protection projects, plans, and oversight.

Council discusses maintenance along the shoreline, IDNR limitations, permit issuance, jurisdictional matters related to the IDNR and municipal boundaries, and outside agency permitting authority.

Village Attorney Peter Friedman informs Council and members of the public on jurisdictional related matters on a Federal, State, and local level. Peter Friedman discusses lakefront regulations, building and zoning authority, matters related to property lines and public trust, land use and ownership along the lakefront, and property owner rights.

Council commends Peter Friedman on his transparency and thorough analysis related to the lakefront.

8:35 pm Council intermission.

8:47 pm Council reconvenes.

Community Development Director David Schoon provides information related to lakefront zoning and its permitted and special uses, lot area zoning, setbacks, and zoning measurements and standards along the water's edge. Mr. Schoon briefs Council on other North Shore community's lakefront rules and regulations for comparison purposes related to lakefront zoning and development.

Council discusses steep slope matters along the lakefront, setbacks, and flood elevations.

Engineering Director Jim Bernahl provides information related to shoreline data including public and private ownership along the lakefront, permitted shoreline protection projects and data related to in-water structures, permitting process and its code provisions, regulations, and requirements, permitting partnership with the Illinois Department of Natural Resources, the Illinois Environmental Protection Agency, and the U.S. Army Corps of Engineers. Mr. Bernahl elaborates on the lake water quality and the regulation of stormwater discharge and management plan.

Council discusses stormwater related matters, lakefront elevations and slopes, and permitting processes.

Public Comment.

Chuck Dowding addresses Council on concerns regarding public beach access and development.

Leo Birov addresses Council on matters related to construction along the lakeshore and property value.

Jenna Bradley addresses Council on matters related to real estate along the lakefront and encourages Council to allow a subcommittee for lakefront homeowners to discuss issues impacting private lakefront properties.

Steve Fussell addresses Council on private ownership and public lakefront access.

John Root addresses Council on jurisdictional matters along the lakefront and encourages Council to work with a coastal engineer.

Ted Wynnychenko addresses Council on public trust doctrine and matters related to public and private ownership.

Warren James encourages members of the public to attend the Park District Lakefront Master Plan Open House and addresses Council on lakefront matters.

Bob Zabor addresses Council on lakefront access and concerns.

Bill Jackson urges Council not to amend any regulations currently in place.

Martin Sinclair addresses Council regarding the public trust doctrine and the memorandum drafted by Village Attorney Peter Friedman.

Susie Schreiber addresses Council on updates related to the Lake Michigan Watershed Plans.

President Rintz suggests Council reconvene at a later date for a continuation study session on the Lakefront Regulations Discussion.

- 4) Adjournment. Trustee Dalman, seconded by Trustee Apatoff moved to adjourn the meeting. By voice vote, the motion carried. The meeting adjourned at 10:13 PM.

/s/Berina Gradjan, Deputy Village Clerk
Recording Secretary



MEMORANDUM VILLAGE OF WINNETKA

COMMUNITY DEVELOPMENT DEPARTMENT

TO: ROBERT BAHAN, VILLAGE MANAGER
FROM: DAVID SCHOON, COMMUNITY DEVELOPMENT DIRECTOR
DATE: JANUARY 8, 2023
SUBJECT: LAKEFRONT PROPERTIES - ZONING & DEVELOPMENT REGULATIONS

INTRODUCTION

Village Council has requested information regarding Village development regulations that specifically apply to properties within the Village that abut the lakefront of Lake Michigan ("lakefront properties"). In particular, the Council is interested in considering additional regulations regarding what can be constructed adjacent and within the bluff along Lake Michigan as well as structures that can be built from these properties into the waters of Lake Michigan. The purpose of this memo is to summarize what is currently allowed under the Village's current zoning regulations on these lakefront properties and what other North Shore communities may allow on lakefront properties that contains bluffs.

EXISTING VILLAGE ZONING REGULATIONS

All lakefront properties within the Village are currently zoned the R-2 Single Family Residential District (**Figure 1**). This zoning district also applies to other properties along Sheridan Road as illustrated in Figure 1 as well as other to properties in other areas of the community.

The R-2 District allows single family detached dwellings and accessory structures by right and the following uses by special use permit approval: churches, public and private schools, libraries, park district uses, and essential Village services (e.g., water plant, power plant, etc.). The special use process includes review and recommendations by the Plan Commission and Zoning Board of Appeals with final approval granted by the Village Council. Also, exterior changes to the buildings, structures and landscaping of those special uses require review and approval of a certificate of appropriateness by the Design Review Board.

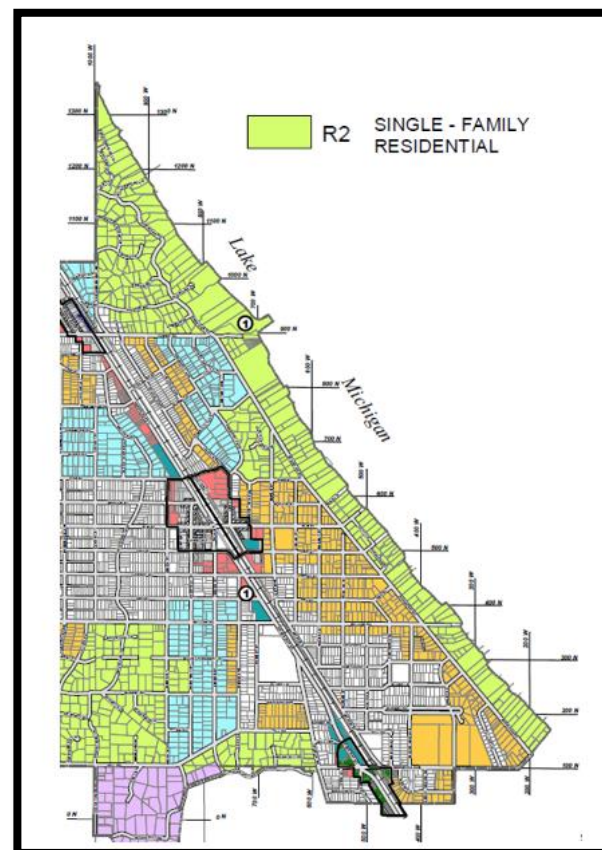


Figure 1

Table 1 compares the R-2 District with the other single family residential zoning districts in the Village. The R-2 District calls for larger lot sizes that the Zoning Ordinance describes as “small estate character.”

Table 1 Residential Zoning Hierarchy	R-1 ("estate" character)	R-2 ("small estate" character)	R-3 ("moderately intense" suburban character)	R-4 ("relatively intense" suburban character)	R-5 ("relatively intense" suburban character)
Minimum Lot Area	48,000 s.f.	24,000 s.f.	16,000 s.f.	12,600 s.f.	8,400 s.f.
Minimum Lot Width	150 ft.	100 ft.	75 ft.	60 ft.	60 ft.
Minimum Front Setback	50 ft.	50 ft.	40 ft.	30 ft.	30 ft.
Minimum Rear Setback	50 ft.	25 ft.	25 ft.	25 ft.	25 ft.

Table 1 – Residential Zoning Hierarchy

For zoning purposes, a *“lot’ or ‘zoning lot’ shall not include any part of a platted lot that lies beyond the water’s edge of Lake Michigan or with the boundaries of any other river, lake or stream that is under the ownership and control of the state of Illinois (See Figure 2). The Code also states that “lot area shall not include any part of a platted lot that lies beyond the water’s edge of Lake Michigan.”*

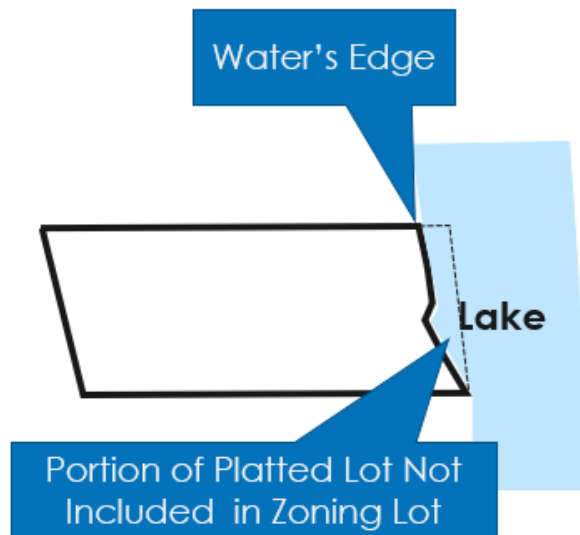


Figure 2

For zoning purposes, the Zoning Ordinance also states that *“for lots abutting Lake Michigan, the water’s edge of the lake shall be deemed a ‘front lot line’.”* The setback is *“the minimum required horizontal distance between any lot line and a line drawn parallel to that lot line at a distance equal to the minimum required yard.”* In the R-2 District the minimum required front yard setback is 50 feet. See Figure 3.

The Zoning Ordinance includes definitions for “Street Line” and “Public Street”. The Ordinance states that “The water’s edge of Lake Michigan” shall be deemed the outermost limits of that public street” and that “For the purposes of the Zoning Ordinance, Lake Michigan shall be considered a ‘public street.’” These definitions only apply to the use of these terms in the Zoning Ordinance; the definitions do not apply to other provisions of the Municipal Code, such as the Nuisance Code.

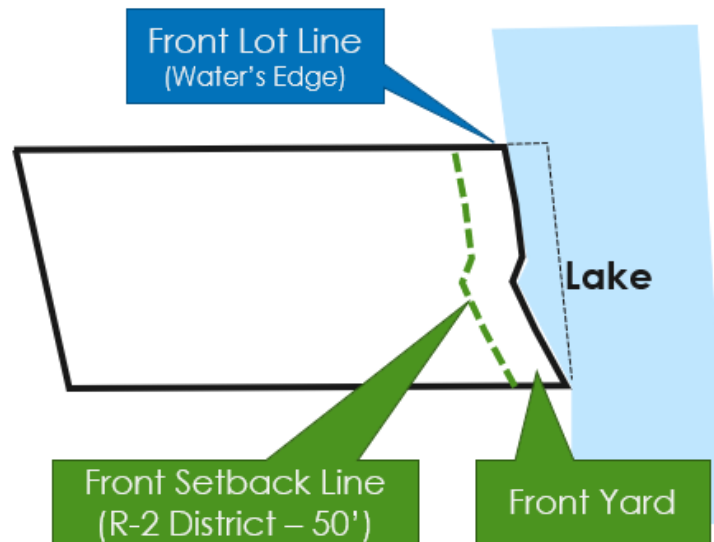


Figure 3

It should be noted that the Village does allow certain accessory structures within the minimum required front yard setback. Such structures included such items as:

- Certain building elements with specific limitations (e.g., eaves, bay windows, chimneys, etc.),
- Fences & walls no more than 6.5’ tall
- Walkways and stairs
- Open patios, open terraces, and front porches
- Docks
- Boat launches without boat houses

Given the Village’s definition of the front lot line along the lake and the fact that the lake level varies overtime, certain measurements for zoning purposes also change with the change in lake level. Those zoning measurements include:

- Lot Area
- Front Lot Line
- Lot Depth
- Average Lot Width (which is Lot Area divided by Lot Depth)

In addition to those zoning measurements changing with the lake level, the following zoning standards for a lot also change with the lake level.

- Minimum Required Front Yard Setback (In the R-2 District, it is 50' from the Front Lot Line)
- Minimum Sum of Setbacks (often also referred to as Minimum Required Total Side Yard)

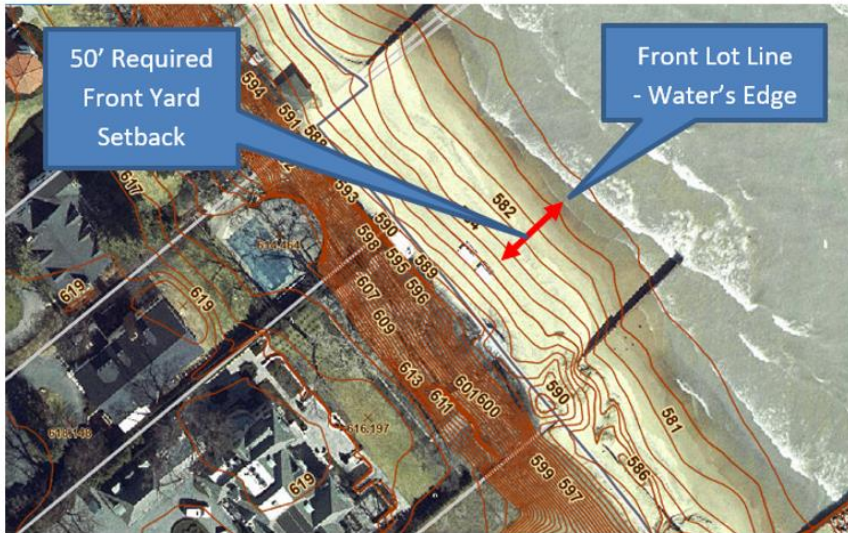
<u>Average Lot Width</u>	<u>Minimum Sum of Setbacks</u>
Less than 100 feet	25% of <i>average lot width</i> or 14 feet, whichever is greater
100 feet or more	30% of <i>average lot width</i>

- Gross Floor Area (Calculation based upon Lot Area)
- Roofed Lot Coverage (Calculation based upon Lot Area)
- Impermeable Lot Coverage (Calculation based upon Lot Area)

To help visualize and understand how these zoning measurements and zoning standards are impacted by the changing lake water levels, the image and table on the following pages illustrate this for one property along Lake Michigan.

The image of property below is from two different time periods. The image to the left is when the lake level was lower in 2005, and the image on the right for when the lake level was higher in 2020. The 50' setback in the images below starts at the water's edge and is measured inward. (Note: The grade of this slope from approximately the top of the bluff to the toe of the bluff appears to be approximately 47%)

Lower Lake Level - 2005



Higher Lake Level - 2020

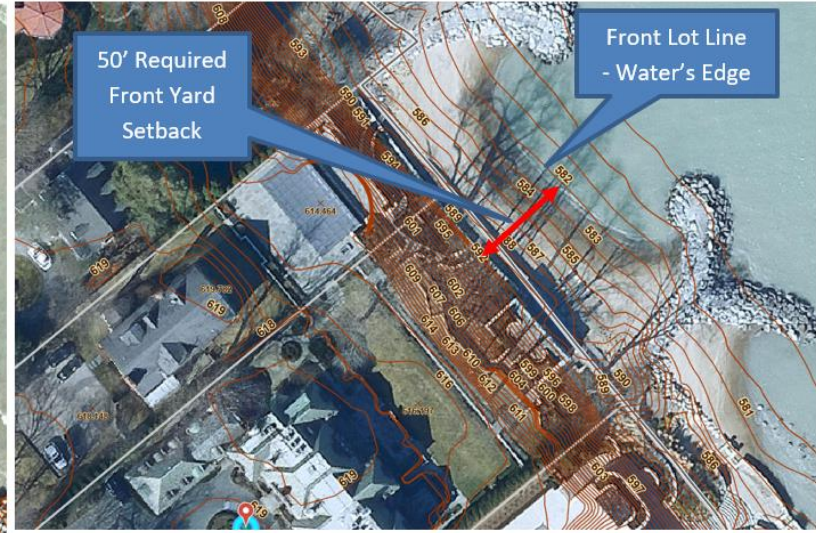


Figure 4

Though not for the same years, the property owner for this property submitted building permits to complete work on the property in 2002, a lower lake level time period, and again in 2019, a higher lake level time period. **Table 2** illustrates that given the change with the location of the front lot line due to the change in the water's edge, how the other zoning measurements and standards are impacted by that change in lake level.

Lower Lake Level (Date: Jan. 29, 2002)	Zoning Measurement & Standards	Higher Lake Level (Date: Dec. 3, 2019)
75,675 sf	Lot Area	64,716 sf
507 ft	Lot Depth	442 ft
149 ft	Average Lot Width	146 ft
19,220 sf	Max Gross Floor Area	16,699 sf
18,918 sf	Max Roofed Lot Coverage	16,179 sf
37,837 sf	Max Impermeable Lot Coverage	32,358 sf
50 ft	Min Front Yard Setback (from water's edge)	50 ft
12 ft	Min Side Yard Setback	12 ft
44.78 ft	Min Total Side Yard Setback	43.8 ft

Table 2

As illustrated above, improvements that were approved and constructed in one year (2002) may become zoning nonconforming in another (2019) due to the changes in the lake level (e.g., if 18,000 square feet of house and accessory buildings were constructed in 2002, they would have become nonconforming in 2019).

The Village does review site improvements in terms of their compliance with zoning requirements, except the Village's practice for at approximately twenty years or more has not been to review any lakefront work that requires a permit from the Illinois Department of Natural Resources (IDNR) & U.S. Army Corp of Engineers (USACE) for zoning compliance. Given that IDNR and USACE have been responsible for reviewing elements associated with revetments, breakwaters and docks which can extend landward of the water's edge, Village staff has not reviewed these elements.

OTHER NORTH SHORE COMMUNITIES ZONING & DEVELOPMENT REGULATIONS

Staff has reviewed zoning and development regulations for the following North Shore communities with lakefront properties, asked these communities to respond to a brief questionnaire, and have spoken with the appropriate staff:

- Evanston
- Glencoe
- Highland Park
- Kenilworth
- Lake Forest
- Lake Bluff
- Wilmette

In communicating with the communities, others indicated that they have had to often make interpretations regarding the location of the lot line along the lake for zoning purposes as their codes do not clearly define what that lot line is. Glencoe interprets the lakefront lot line to be what is shown on the plat of subdivision (not plat of survey) for the property. It could be what was on a plat recorded in the late 19th century or early 20th century. Lake Forest interprets the Ordinary High-Water Mark as that lakefront property line. Wilmette's Zoning Code defines that lakefront property line to be the mean lake level, which can sometimes be on dry land and at other times be submerged. Highland Park, Kenilworth, and Lake Bluff all noted that they follow what is provided on the plat of survey submitted with a building permit application.



Figure 5

Determining the location of a lakefront property line for zoning purposes is important as it is used to determine compliance with such zoning standards as maximum gross floor area, maximum impermeable lot coverage, and maximum roofed lot coverage. Only two communities noted that their zoning ordinances determines the lot area for zoning purposes differently for lots along the lake than for lots not along the lake. Most communities use a lot line along the lake that was shown on a plat of survey prepared by a survey. Lake Forest and Kenilworth do not. Kenilworth uses the toe of the bluff as the eastern lot line for calculating lot area. For the area of any non-table land, that is land with a slope of 10% or greater, Lake Forest only counts 50% of that land area as lot area for calculating the allowable building square footage.

In addition to zoning standards by Zoning District, five of the communities (Glencoe, Highland Park, Kenilworth, Lake Forest, and Lake Bluff) have additional steep slope/bluff regulations for properties that specifically have such physical characteristics (Figure 6). The other two communities, Evanston and Wilmette do not have such additional regulations. It should be noted that these steep slope regulations often apply to both bluffs and ravines, but for the purpose of this staff report we focus on the bluff regulations.

Communities without Steep Slope Regulations – Evanston & Wilmette

Evanston and Wilmette do not have steep slope regulations, so their standard zoning regulations guide the location of buildings, structures, and pavement surfaces for lakefront property. In speaking with Wilmette staff, given the limited lakefront with significant bluff areas, Wilmette has yet to find the need to established steep slope regulations.

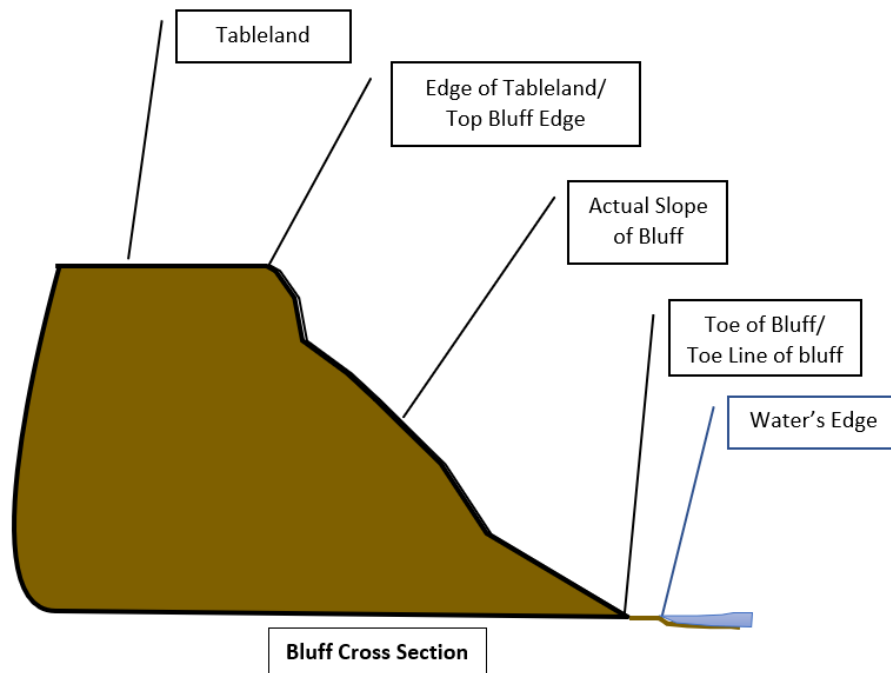


Figure 6

The following is a summary of Wilmette's zoning regulations in terms of how they apply to single family lakefront lots. The Wilmette Zoning Code defines the lot line along the lake as the rear lot line and is by definition the mean lake elevation level of 579 feet. The lot area is determined by the location of this measurement and from which other applicable zoning standards are measured and calculated (e.g., maximum gross floor area, maximum impermeable lot area, and maximum roofed lot coverage, and sometimes minimum required rear yard setback.) The mean lake elevation level of 579 feet is based upon the U.S. Army Corp of Engineers Long Term Average Annual of the monthly mean lake level since 1918, which is a stable measurement over time even with the fluctuation in the lake level.

The minimum required rear yard setback for a principal structure and for certain accessory structures is 20% of the lot depth, but no less than 40' and no more than 50'; **however, the setback cannot be less than the base flood elevation for a property.** The images below are from a 2020 Wilmette staff presentation regarding lakefront zoning regulations to its Village Council. The images show the actual lake level for a particular property for two periods of time (2012 and 2019) and where the actual lake levels fall in relationship to the mean lake level (579') and the base flood elevation for this property (585').

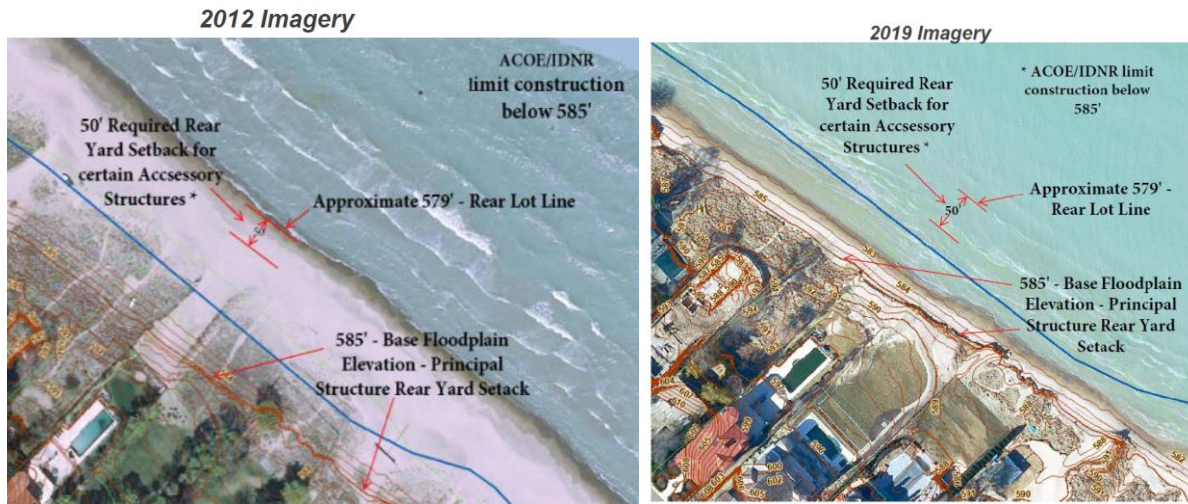


Figure 7

In terms of allowed accessory structures within the required setback, Wilmette allows beach houses, boat houses, fences up to 6.5', walkways, etc., but the allowance is dependent upon IDNR & USACE would allow.

The table in **Attachment A** includes a summary of Wilmette's and Evanston's zoning district regulations for properties along their lakefronts.

Communities with Steep Slope Regulations – Glencoe, Highland Park, Kenilworth, Lake Bluff, & Lake Forest

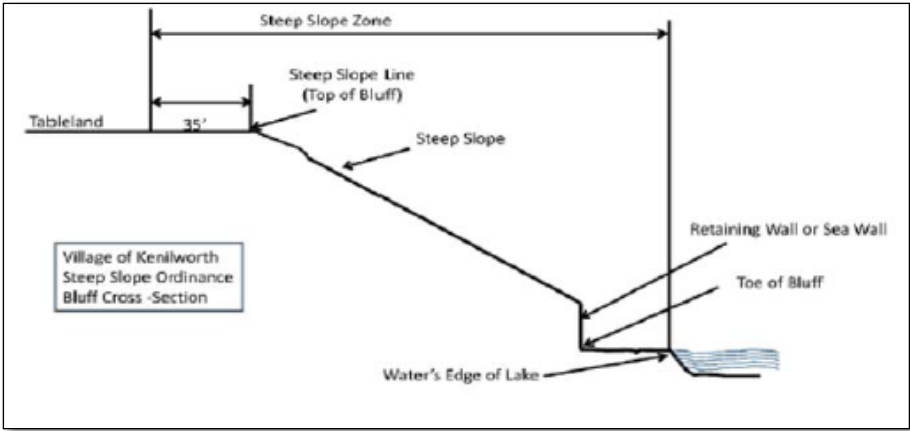
In addition to the standard zoning regulations for lakefront properties, the North Shore communities of Glencoe, Highland Park, Kenilworth, Lake Bluff, & Lake Forest have steep slope/bluff regulations for lake front properties. The standard zoning district requirements apply to a property unless the property contains a steep slope/bluff. **Attachment A** contains a table summarizing the standard zoning regulations as well as steep slope/bluff regulations. **Attachment B** includes copies of the steep slope/bluff regulations for these communities.

For communities that have steep slope regulations for the lakefront bluffs, a slope becomes regulated when an area has grades steeper than 10%. The exception appears to be Lake Bluff which uses 20%. (The slope of a line is generally represented as rise/run or vertical:horizontal (V:H). In some local ordinances the slope of a line is represented as horizontal:vertical (H:V).)

The communities then define the steep slope zone/bluff areas, which generally includes some point at the tableland down to some point along near the beach/water. Table 3 summarizes how each community defines steep slope zone/bluff areas.

	Table 3 - Steep Slope Zone/Bluff Area
Glencoe	• Slope Impact Area – That portion of a lot lying between <i>the toe line of a bluff</i> and the line representing <i>the intersection of the table land</i> of such with a 22-degree slope (2.5H:1V ratio) extending upward from toe of the bluff. (Steep Slope Zone + Slope Transition Area) • Steep Slope Line is a line representing the <i>intersection of the tableland</i> with a 27-degree slope that is 2H:1V extended upward from <i>toe of the bluff</i> (27 degrees). • Steep Slope Zone – That portion of the Slope Impact Area of a lot that lies between the Steep Slope Line and the toe line. • Slope Transition Area – That portion of the Slope Impact Area of a lot lying outside the Steep Slope Zone. • Toe or Toe Line of Bluff - Is that point in the bluff where the slope is less than a 5.7-degree slope (10H:1V) • Table Land - Is the land at top of a bluff where the slope is less than a 5.7-degree slope (10H:1V)
	Slope Impact Area (Slope Transition Area + Steep Slope Zone) Figure 8

	Table 3 - Steep Slope Zone/Bluff Area
Highland Park	Steep Slope – Land comprising or adjacent to a lake bluff where the slope in ascent or descent exceeds ten (10) percent from the horizontal (1V:10H) Figure 9 Steep Slope Zone - All land which lies between the bottom of a bluff steep slope (not defined) and a line being farthest from the bottom of a bluff steep slope and forty (40) feet from the top edge of a bluff steep slope. Top Edge (or Ridge) of Steep Slope – A line connecting the points at which the tableland and steep slope intersect. Tableland – Land where cross slope in any direction does not exceed 10% (1V:10H). Figure 10

	Table 3 - Steep Slope Zone/Bluff Area
Kenilworth	• Steep Slope - Land comprising or adjacent to a lake bluff where the slope in ascent or descent exceeds 10% from the horizontal (1V:10H). • Steep Slope Line. A line representing the intersection of the tableland and the steep slope. This line is commonly indicated on plats of survey or other documents as the top of bluff. • Steep Slope Zone. That portion of a lot that includes the steep slope and lies between the water's edge (not defined) of Lake Michigan and a line drawn 35 feet behind the steep slope line at the top edge of the bluff (not defined) and away from the bottom of the bluff. The steep slope zone shall include all retaining walls located between Lake Michigan and the steep slope line • Tableland- Land at the top of a bluff or ravine where the cross slope in any direction does not exceed 10%.  Figure 11
Lake Bluff	• Bluff - Any natural land area that drops in elevation from top bluff edge equal to or greater than 2'V for every 10'H, and that is located between the high-water mark (not defined*) at the edge of Lake Michigan and the top bluff edge. • Bluff Protection Area - The area of a bluff plus the area of that portion of the bluff property that lies between the top bluff edge and the required setback established pursuant to Chapter 12 Bluffs and Ravines (40' for principal buildings and structures). • Top Bluff Edge is the curvilinear line connecting the pots of a bluff where the previously unimproved and undisturbed land surface first begins to drop at a rate equal to or greater than 2'V for every 10'H.
Lake Forest	• Bluff Area - Includes all property within or adjacent to a bluff beginning at point of intersection of a line with the tableland, said line extending from toe of slope upward at a vertical angle of 2.5H:1V (22 degrees). • Bluff Edge – The point on the lake side of the table land where the slope of the land first exceeds 10%. • Table land is the land where the slope in any direction does not exceed 10%. • The toe of the slope is that point in the bluff where the slope is less than 2.5H:1V (22 degrees) or where the slope reverses direction.

*High water mark, or more technically called the Ordinary High-Water Mark, is generally understood to be the line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other items that consider the characteristics of the surrounding areas.

Based upon the identification of these steep slope zones/bluff areas, the community identifies **how close to the bluff that buildings, structures, and other improvements can be constructed.**

	Table 4 – Minimum Setback from Top of Steep Slope/Bluff Area
Glencoe	Allows buildings and structures to be constructed on the tableland as well as within the Slope Transition Area, but only within that area if the improvements meet applicable zoning requirements and meet the steep slope development standards.
Highland Park	Allows construction of improvements on the table land up to 40' from the top edge of a bluff steep slope. (Swimming pools can be up to 10' from bluff steep slope.)
Kenilworth	Allows construction of improvements on the table land up to 35' from top edge of bluff.
Lake Bluff	- Allows construction of improvements on the table land as follows: - Setback for principal structure from top bluff edge is 40'. - Setback for accessory structure or building that is equal to or less 440 sf in area - 10' from top bluff edge. - Setback for accessory structure or building greater than 440 sf in area – no closer to top bluff edge than 10' plus an additional 0.053 feet for every 1' that the accessory structure or building exceeds 440 sf in area. - Setback for swimming pool – no closer than 40' from any top bluff edge.
Lake Forest	Allows construction of improvements on the table land as follows: - In no case shall any structure or building foundation be located closer than 75 feet <u>to the bluff area</u> (see definition of bluff area in Table 3). - Exception, village engineer may approve encroachments into setback area for construction of landscape features, auxiliary buildings (slab foundations), bridges, wood decks or other similar facilities, if found the construction is appropriate only for requested location, will have no significant impact on bluff area, and is of relatively low value. - Zoning Board of Appeals may consider variation for construction of habitable facilities such as room additions or new residences, and construction of significant auxiliary building. They consider the standard findings of fact as well as additional one for such situation. - All construction activity. i.e., grading, excavating, filling, terracing, tree removal, stockpiling of excavated material, is prohibited within 50' of bluff edge, except as necessary to provide site drainage.

Communities also identify what can and cannot occur within the steep slope zone/bluff area.

	Table 5 – Construction Activity Allowed within Steep Slope/Bluff Area
Glencoe	• Following accessory items can be built within the Steep Slope Zone: Retaining walls for stabilization (not for increasing tableland or to create a shelf); Structures on exact foundation of previously existing structures; Cantilevered balconies projecting no more than 4'; Lifts, bridges, decks, walkways, steps & fences; Decks no larger than 50 sf; Boat houses. • Includes a set of development standards.
Highland Park	• Following accessory items can be constructed within the Steep Slope Zone: Retaining walls and other structures necessary for slope stabilization; Non-conforming structures may be remodeled or rebuilt in certain situations; Lifts, bridges, walkways, steps, and or fences that do not obstruct the flow of light and water; Utility service lines; Immediate action to remediate unstable slopes; Normal landscape maintenance; Decks & patios not exceeding 150 SF and located between the top edge and the 40' Steep Slope Zone setback. • Variations may be requested for accessory structures within Steep Slope Zone. • Also includes a set of development standards.
Kenilworth	• Following accessory items can be constructed within the Steep Slope Zone: Retaining walls and other structures necessary for slope stabilization; Non-conforming structures may be remodeled or rebuilt in certain situations; Cantilevering of structures over Steep Slope Line (top of bluff) is prohibited; Lifts, bridges, walkways, steps (with certain limitations), and/or fences that do not obstruct the flow of light and water; Utility service lines; Decks no larger than 100 SF on conditions exceptional engineering provided; One accessory building no larger than 150 SF and no taller than 11' in height subject to the structure not adversely impacting stability of property or adjacent property and top of roof not visible from adjacent tableland. • Also includes a set of development standards.
Lake Bluff	• Following items can be constructed in bluff protection area: Erosion control and bluff stabilization; Public utilities and public improvements; Drainage improvement to prevent erosion; General maintenance & landscaping; Action to remediate unstable slopes that pose imminent danger; Electric lift system. • Minimal grading and clearing of existing vegetation, and installation of landscaping may be allowed within bluff area; however, no such activity allowed within 50' of bluff edge. • Includes minimal development standards.
Lake Forest	• Minimal grading and clearing of existing vegetation as well as landscaping may be allowed within bluff area; however, no such activity allowed within 50' of bluff edge. • Bluff channel, toe, or slope stabilization. • Includes minimal development standards

In summary, the communities with such limitations nearly outright prohibit development on the bluff and within so many feet of the top of the bluff or severely limit what can be constructed on or near the bluff. We did not find that any of the other communities required construction on lakefront property to go before any board or commission, except if the property owner was requesting zoning variation from the Zoning Board of Appeals.

Development Regulations for Activity within Lake Michigan

The Highland Park Zoning Ordinance also contains Special Regulations for the LFOZ Lakefront Density and Character Overlay Zone, which includes a Lake Michigan Protection Zone, which regulates activities in Lake Michigan and the private property located between the lake and the termination of the lake side of the Steep Slope Zone.

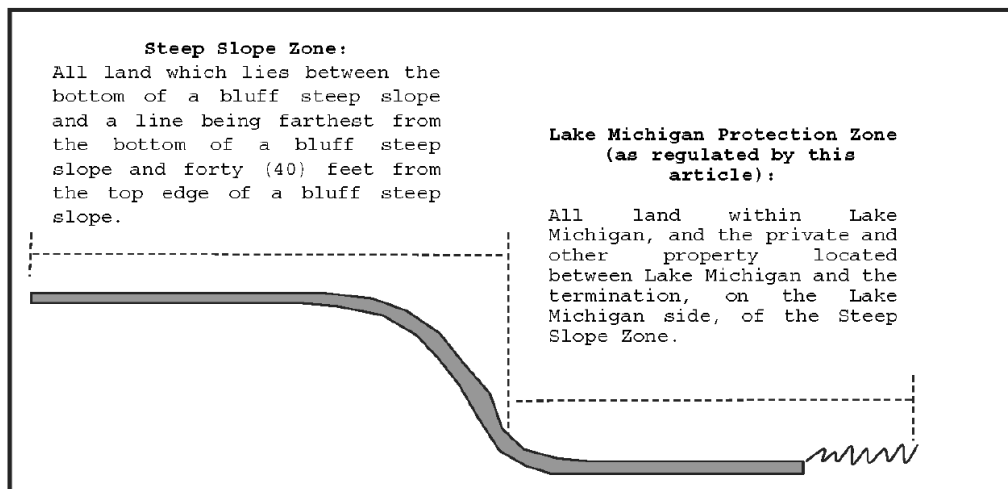


Figure 12

Regulated activity includes (1) the construction, alteration, modification, demolition, or removal of any new or existing Structure, or (2) the adding, dumping, dredging, or removing of sand, rocks, or any refuse, garbage, or other discarded materials. A copy of these regulations is included in **Attachment B**, and further details regarding these requirements are included in Engineering Department staff report.

SUMMARY AND NEXT STEPS

Village Council members have expressed an interest with considering amendments to the Village's zoning and development regulations for lakefront properties. This staff report summarized what is allowed under the Village's current zoning regulations on lakefront properties and what other North Shore communities allow on lakefront properties that contains bluffs. As the Council continues to consider this issue, the Council may wish to consider the following questions:

1. Do the Village's current zoning regulations allow a type of development the community prefers to see along the lakefront? If not, what changes could be made to the zoning regulations that would only allow the type of development the community would like to see?
2. Do the Villages' current zoning and development regulations adequately protect the steep slopes/bluffs on properties along the lakefront? If not, what changes could be made to better protect these areas?

ATTACHMENTS

- Attachment A: Table Summarizing Winnetka and Other North Shore Communities Standard Zoning Regulations as well as Steep Slope/Bluff Regulations.
- Attachment B: Steep Slope/Bluff Regulations for Glencoe, Highland Park, Kenilworth, Lake Bluff, & Lake Forest

ATTACHMENT A

	Lot Line Along Lake	Lakefront Residential, Institutional, Open Space Zoning Districts	Min Required Setback from Lake for Principal Structures	Allowed Accessory Structures w/in Required Setback from Lake	Other Components of Regulations for Lakefront Properties
Winnetka (<u>No</u> Steep Slope Ordinance)	Front Lot Line By code, it's the water's edge	R2 - Single Family Residential	R2 District - 50 ft	Certain building elements with limitations (e.g., eaves, bay windows, chimneys, etc.); Fences & walls no more than 6.5'; Walkways & stairs; Open patios, open terraces, and front porches; Docks, Boat launches without buildings, and others.	None
Evanston (<u>No</u> Steep Slope Ordinance)	Rear Lot Line Code does not specifically define, they have interpreted that it is the water's edge as shown on a plat of survey.	- R1 – Single Family Residential - OS – Open Space - U3 University Lakefront Campus	R1 District – 30 ft	R1 District – Parking – 5 feet; Accessory Structures – 3 ft Dependent upon what IDNR & USACE would allow	None
Glencoe (Has Steep Slope Ordinance)	Rear Lot line (could also be a side lot line) Code doesn't define, they typically use lot line shown on plat of subdivision, if available.	RA Single Family Residential	20% of lot depth STEEP SLOPE ORDINANCE - Ordinance applies to areas with grades steeper than 10%. - Principle structure cannot be constructed within the Steep Slope Zone. This is often more restrictive than the minimum setback requirements (20% of lot depth). - Steep Slope Zone – portion of lot that between the Steep Slope Line and the toe line. Steep Slope Line is a line representing the intersection of the tableland with a slope that is 2 horizontal to 1 vertical extended (2H:1V) upward from the toe of the bluff (27 degree). - Allows buildings and structures to be constructed on tableland as well as within Slope Transition Area, but only within that area if improvements meet applicable zoning requirements and meet steep slope development standards.	Zoning Code has no restrictions on type of accessory structures; Accessory structure setback is 5' from rear lot line. Steep slope ordinance is often more restrictive than the zoning code in this area. STEEP SLOPE ORDINANCE Following accessory items can be built within the Steep Slope Zone: Retaining walls for stabilization (not for increasing tableland or to create a shelf); Structures on exact foundation of previously existing structures; Cantilevered balconies projecting no more than 4'; Lifts, bridges, decks, walkways, steps & fences; Decks no larger than 50 sf; Boat houses.	STEEP SLOPE ORDINANCE Contains a set of development standards for construction within the Slope Impact Area.

	Lot Line Along Lake	Lakefront Residential, Institutional, Open Space Zoning Districts	Min Required Setback from Lake for Principal Structures	Allowed Accessory Structures w/in Required Setback from Lake	Other Components of Regulations for Lakefront Properties
Highland Park (Has Steep Slope Ordinance)	Rear Lot Line No special definition for lakefront properties. They follow the plat of survey, signed and sealed by the surveyor.	- R4 Low to Moderate Density Single Family Residential District - R6 Medium Density Single Family Residential District	R-4 District - 35 ft, or 20% of lot depth R-6 District – 25 ft, or 20 of lot depth STEEP SLOPE ORDINANCE - Ordinance applies to areas with grades steeper than 10%. - Steep Slope Zone (SSZ) - All land which lies between the bottom of a bluff steep slope and a line being farthest from the bottom of a bluff steep slope and forty (40) feet from the top edge of a bluff steep slope. - Allows construction of improvements on the table land up to 40’ from the top edge of a bluff steep slope. (Swimming pools can be up to 10’ from bluff steep slope.)	Detached accessory structures are allowed within a required rear yard, but as a matter of practice Steep Slope Zone will become the de facto setback. STEEP SLOPE ORDINANCE - Following accessory items can be constructed within Steep Slope Zone: Retaining walls and other structures necessary for slope stabilization; Non-conforming structures may be remodeled or rebuilt in certain situations; Lifts, bridges, walkways, stairs (not wider than 5’); landings (no more than 50 sf), steps, and or fences that do not obstruct the flow of light and water; Utility service lines; Immediate action to remediate unstable slopes; Normal landscape maintenance; Decks & patios not exceeding 150 SF and located between the top edge and the 40’ Steep Slope Zone setback. Only erosion or protection structures, like revetments, are allowed within the Lake Michigan Protection Zone. - Variations may be requested for accessory structures within Steep Slope Zone.	STEEP SLOPE ORDINANCE Contains a set of development standards for construction within the Slope Impact Area. The Highland Park Zoning Ordinance also contains Special Regulations for the LFOZ Lakefront Density and Character Overlay Zone, which includes a Lake Michigan Protection Zone, which regulates activities in Lake Michigan and the private property located between the lake the termination on the lake side of the Steep Slope Zone. Regulated activity includes (1) the construction, alteration, modification, demolition, or removal of any new or existing Structure, or (2) the adding, dumping, dredging, or removing of sand, rocks, or any refuse, garbage, or other discarded materials.
Kenilworth (Has Steep Slope Ordinance)	Rear Lot Line Plat of surveys typically indicate location of this lot line.	- R-1 Single Family Residential - M-2 Municipal Land - M-1 Mahoney Park	R1 - A minimum depth equal to the larger of 25 feet or 20% of the depth of the lot. (3) <i>Rear building lines on lots abutting Lake Michigan.</i> No principal building, or structural alteration to an existing principal building, on a lot abutting Lake Michigan may be located further from the front lot lie of the lot than the average of the rear building lines for the lots located on either side of the lot on which the new principal building or structural alteration is proposed; provided, however, there are exceptions for homes constructed prior to November 1, 2016. STEEP SLOPE ORDINANCE - Ordinance applies to areas with grades steeper than 10%. - Steep Slope Zone. That portion of a lot that includes the steep slope and lies between the water’s edge of Lake Michigan and a line drawn 35 feet behind the steep slope line at the top edge of the bluff and away from bottom of the bluff. The steep slope zone shall include all retaining walls located between Lake Michigan and the steep slope line - Allows construction of improvements on the table land up to 35’ from top edge of bluff.	STEEP SLOPE ORDINANCE Following accessory items can be constructed within the Steep Slope Zone: Retaining walls and other structures necessary for slope stabilization; Non-conforming structures may be remodeled or rebuilt on the exact same foundation and not extend beyond the existing envelope; Cantilevering of structures over Steep Slope Line (top of bluff) is prohibited; Lifts, bridges, walkways, steps (with certain limitations), and/or fences that do not obstruct the flow of light and water; Utility service lines; Decks no larger than 100 SF on conditions exceptional engineering provided; One accessory building no larger than 150 SF and no taller than 11’ in height subject to the structure not adversely impacting stability of property or adjacent property and top of roof not visible from adjacent tableland.	Per Zoning Ordinance definition for lot area, lot area only goes to toe of the bluff. STEEP SLOPE ORDINANCE Contains a set of development standards for construction within the Slope Impact Area.

	Lot Line Along Lake	Lakefront Residential, Institutional, Open Space Zoning Districts	Min Required Setback from Lake for Principal Structures	Allowed Accessory Structures w/in Required Setback from Lake	Other Components of Regulations for Lakefront Properties
Lake Bluff (Has Steep Slope - Bluff & Ravines - Ordinance)	Rear Lot Line (generally) No special definition for lakefront properties. They follow the plat of survey.	• C-E Country Estate Residence & E-1 Estate Residence (mostly) • RIO Recreational, Institutional, & Open Space • R-1 Residence & R-2 Residence (small sections)	C-E District – 100’ setback from Lake Michigan line(s) All other districts, typically 30’ BLUFF PROTECTION ORDINANCE • Ordinance applies to bluff areas with grades steeper than 20%. (2V:10H) • Bluff - Any natural land area that drops in elevation from top bluff edge equal to or greater than 2’V for every 10’H, and that is located between the high-water mark (not defined*) at the edge of Lake Michigan and the top bluff edge. • Bluff Protection Area - The area of a bluff plus the area of that portion of the bluff property that lies between the top bluff edge and the required setback established pursuant to Chapter 12 Bluffs and Ravines. • Setback for principal structure from top bluff edge is 40’.	Accessory structures less than 1,000 square feet in area can generally be built at a 5' setback. At-grade improvements such as walkways, patios, etc. have no setback. BLUFF PROTECTION ORDINANCE • Setback for accessory structure or building that is equal to or less 440 sf in area - 10' from any top bluff edge. • Setback for accessory structure or building greater than 440 sf in area – no closer to any top bluff edge than 10' plus an additional 0.053 feet for every 1' that the accessory structure or building exceeds 440 sf in area. • Setback for swimming pool – no closer than 40’ from any top bluff edge. • Following items can be constructed in bluff protection area: Erosion control and bluff stabilization; Public utilities and public improvements; Drainage improvement to prevent erosion; General maintenance & landscaping; Action to remediate unstable slopes that pose imminent danger; Electric lift system. • Minimal grading and clearing of existing vegetation, and installation of landscaping may be allowed within bluff area; however, no such activity allowed within 50’ of bluff edge.	STEEP SLOPE ORDINANCE • Contains minimal development standards for construction within the Slope Impact Area. •

	Lot Line Along Lake	Lakefront Residential, Institutional, Open Space Zoning Districts	Min Required Setback from Lake for Principal Structures	Allowed Accessory Structures w/in Required Setback from Lake	Other Components of Regulations for Lakefront Properties
Lake Forest (Has Steep Slope Ordinance)	Rear property line Code doesn't define, the standard interpretation is to use ordinary high-water mark.	- R-3 Single Family Residence - R-4 Single Family Residence - OA Open Area	R-4 – 50 feet R-3 – 40 feet STEEP SLOPE REQUIREMENTS - Ordinance applies to bluff areas with grades steeper than 10%. (1V:10H) - Bluff area includes all property within or adjacent to a bluff beginning at point of intersection of a line with the tableland, said line extending from toe of slope upward at a vertical angle of 22 degrees (which is 2.5 horizontal:1 vertical). - In no case shall any structure or building foundation be located closer than 75 feet to the bluff area, as defined above. - Exception, village engineer may approve encroachments into setback area for construction of landscape features, auxiliary buildings (slab foundations), bridges, wood decks or other similar facilities, if found the construction is appropriate only for requested location, will have no significant impact on bluff area, and is of relatively low value. - Zoning Board of Appeals may consider variation for construction of habitable facilities such as room additions or new residences, and construction of significant auxiliary building. They consider the standard findings of fact as well as additional one for such situation. - All construction activity. i.e., grading, excavating, filling, terracing, tree removal, stockpiling of excavated material, is prohibited within 50' of bluff edge, except as necessary to provide site drainage.	Fences, patios, decks, terraces, pool houses, sheds, garages – all must meet accessory structure setbacks unless they are no more than eight inches above existing grade. (Side yard – R-4 = 20', R-3 = 15') (Rear yard – R-4 = 10', R-3 = 10') Pools and tennis courts must be 20' from all property lines. STEEP SLOPE REQUIREMENTS - Minimal grading and clearing of existing vegetation as well as landscaping may be allowed within bluff area; however, no such activity allowed within 50' of bluff edge. - Bluff channel, toe, or slope stabilization.	The area of any non-table land, that is land with a slope of 10% or greater, is counted only at 50% when calculating the allowable building square footage. STEEP SLOPE REQUIREMENTS Contains minimal development standards for construction within the Slope Impact Area.
Wilmette (<u>No</u> Steep Slope Ordinance)	Rear Lot Line – Mean lake elevation of 579' (This sometimes on dry land and sometimes submerged.)	- R Single-Family Detached Residence - R1-H - Residential Sub-District - R-4 Multi-Family Residence	R District – 20% of lot depth, min 40' & max 50', but setback cannot be less than base flood elevation for property. Other Districts - 25' to 40'	Beach house, boat house, fence up to 6.5', walkways, etc. Dependent upon what IDNR & USACE would allow	The required rear yard setback cannot be less than FEMA's base floodplain elevation for the property.

GLENCOE - ARTICLE XV. STEEP SLOPE REGULATIONS

§ 9-110 INTRODUCTION.

(a) The topography of the Village of Glencoe is characterized by an abundance of ravines and bluffs. These are valuable land resources that should be protected. Bluffs and ravines play a central role in the management of storm water throughout the village; they are also ecologically fragile and inherently unstable. Their proper care and maintenance are important to avoid degradation that could adversely affect the entire community.

(b) Steep slope areas may contain sediment, rock, and soils (1) that are natural features subject to erosion, surface and subsurface movement of water, and other destabilizing forces, and (2) whose stability is affected by the quality and root structure of natural ground cover. Regulating proposed development according to the natural characteristics of steep slope terrain, such as degree of sloping, significant vegetation, soil stability, and existing drainage patterns will allow for development on top of steep slope areas, including bluffs and ravines, while minimizing the physical impact of such development. The public interest will be served by protecting people and property from the potentially hazardous geological and hydrological conditions characteristic of ravine and bluff areas.

(Ord. No. 2013-13-3343)

§ 9-111 STATEMENT OF PURPOSE; APPLICABILITY.

(a) The purpose of this article is to regulate development along or near steep slope areas to protect slope stability and overall drainage and water management in the village. The purpose of this article is not to regulate for aesthetic or habitat preservation purposes; rather, the purpose is to prevent erosion of ravines and bluffs by regulating and managing steep slopes for purposes of protecting the public health, safety, and welfare. This article protects people and property from the potentially hazardous geological and hydrological conditions characteristic of ravine and bluff areas and further recognizes that maintenance of stable ecological relationships minimizes environmental degradation of the land and Lake Michigan. Due to improper and unnecessary development within these sensitive areas, conditions are created that jeopardize life, property, and the natural ecosystem. It is the intent of this Article to establish appropriate controls. All land use and development on, within, and adjacent to the steep slope is controlled by this article. While this article provides for the reasonable use of steep slope areas and related lands, it does so while protecting the public health, safety, and welfare by:

- (1) Discouraging development that threatens the stability of steeply sloped terrain.
- (2) Encouraging appropriate engineering technology to result in stable slopes during and subsequent to development;
- (3) Encouraging building techniques that increase slope stability;

GLENCOE - ARTICLE XV. STEEP SLOPE REGULATIONS

(4) Reducing uncontrolled storm water runoff, soil erosion, and mud slides by minimizing grading, encouraging the preservation of trees and other vegetation, and, where necessary, requiring revegetation;

(5) Permitting development that is compatible with the natural characteristics of steep slope terrain, such as degree of sloping, soil suitability, and existing natural and man-made drainage patterns;

(6) Preserving the ravine and bluff environment through the retention of dominant steep slopes and ridges in their natural state; and

(7) Reducing the physical impact on steep slopes by encouraging innovative site and architectural design, minimizing grading, and requiring restoration of graded areas.

(b) Applicability: this article only applies to properties that include or are adjacent to a bluff along Lake Michigan or a ravine.

(Ord. No. 2013-13-3343)

§ 9-112 DEFINITIONS.

When used in this article, the following terms shall have the meanings herein ascribed to them, unless the context clearly requires otherwise:

BLUFF. An elevated segment of the Lake Michigan shoreline above the beach which normally has a precipitous front inclining steeply on the lakeward side.

CANTILEVER. Any portion of a principal structure that extends laterally beyond the foundation that supports it.

DIRECTOR OF PUBLIC WORKS OR DIRECTOR. The Village of Glencoe's Director of Public Works or his/her appointed designee.

DEVELOPMENT. Any man-made change (other than maintenance of existing structures, paved areas, or utilities) to improved or unimproved real estate, including without limitation the construction or installation of new, or enlargement or demolition of existing, structures, paved areas, or utilities; dredging, filling, drilling, mining, grading, paving, or excavation operations; and open storage of equipment or materials.

RAVINE. A deep gully or gorge worn by the flow of water to Lake Michigan.

SLOPE IMPACT AREA. For a lot that includes or is adjacent to a bluff or ravine, that portion of the lot lying between:

(1) The toe line of such bluff or ravine, and

(2) The line representing the intersection of the table land (or if no such intersection, the table land extended) of such lot with a 22 degree slope (2.5H:1V ratio) extending upward from the toe of bluff or ravine. For any lot that lacks table land, for the purpose

GLENCOE - ARTICLE XV. STEEP SLOPE REGULATIONS

identifying the slope impact area, the Director shall utilize the horizontal projection of the street line of the lot as the table land. In addition, the slope impact area also includes the area of the lot where the slope of the lot is steeper than 5.7 degrees (10H:1V ratio).

SLOPE TRANSITION AREA. That portion of the slope impact area of a lot lying outside the steep slope zone.

STEEP SLOPE LINE. A line representing the intersection of the table land (or if no such intersection exists, the table land extended) with a 27 degree slope (2H: 1V) extended upward from the toe of a bluff or ravine. For any lot that lacks table land, for the purpose identifying the steep slope line, the Director shall utilize the horizontal projection of the street line of the lot as the table land.

STEEP SLOPE ZONE. That portion of the slope impact area of a lot that lies between the steep slope line and the toe line.

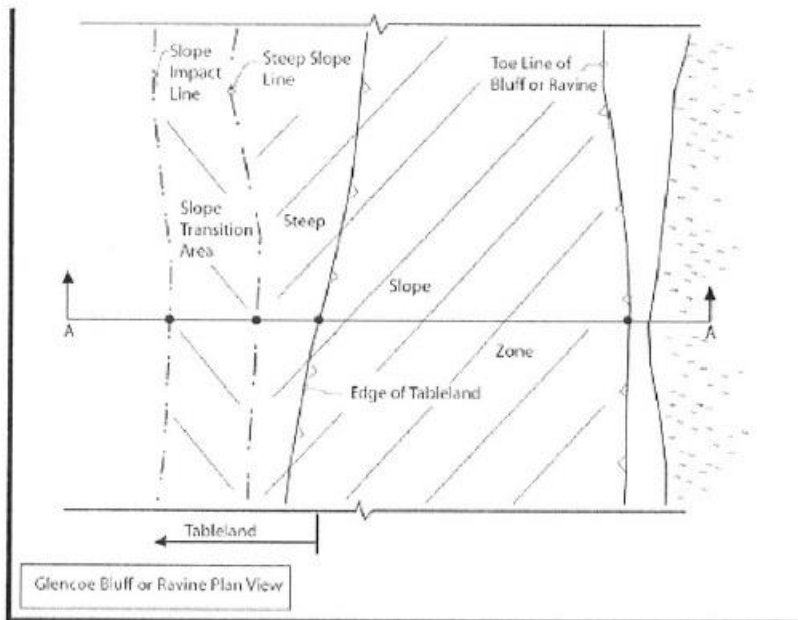
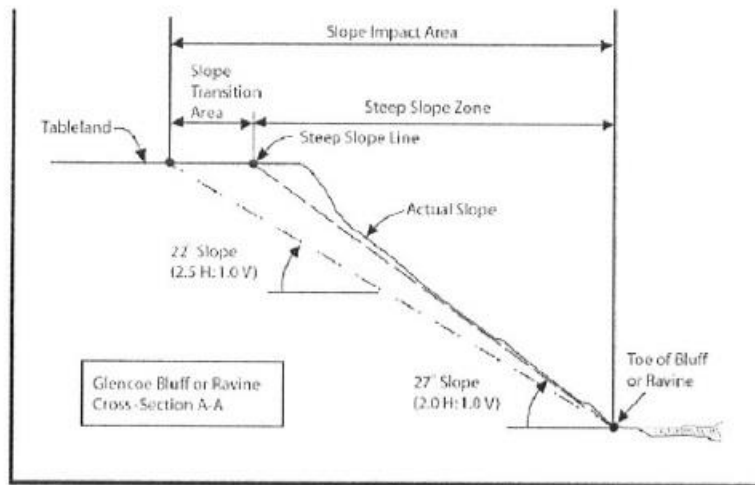
STREET LINE. The street line as defined in the zoning code.

TABLE LAND. Land at the top of a bluff or ravine where the slope is less than a 5.7 degree slope (10H:1V ratio)

TOE OR TOE LINE OF BLUFF AND RAVINE. The toe of the ravine or bluff slope is that point in the ravine or bluff where the slope is less than a 5.7 degree slope (10H:1V) or where the slope reverses direction. On compound slopes where there may be more than one possible toe location, the controlling point shall be whichever toe that provides the greatest slope impact area. In plan view, the toe of bluff or ravine is depicted as continuous line, and is referred to as the toe line.

(Ord. No. 2013-13-3343)

GLENCOE - ARTICLE XV. STEEP SLOPE REGULATIONS



§ 9-113 DEVELOPMENT IN SLOPE TRANSITION AREA.

(a) Any development that is otherwise authorized under the codes, ordinances, and regulations of the village may occur in the slope transition area, but only upon the Director's review and approval of an application therefor pursuant to this article. In addition, any structure or addition that meets all applicable zoning requirements may be built in the Slope Transition Area upon obtaining the necessary permits pursuant to Section

GLENCOE - ARTICLE XV. STEEP SLOPE REGULATIONS

9-116 and provided that the structure and construction techniques adhere to the Development Standards in Section 9-115.

(b) In addition, retaining walls and other structures which are necessary for slope stabilization may be constructed in the slope transition area in the manner approved by the Director of Public Works and in accordance with the following additional standards:

(1) Retaining walls shall not be used to increase table land.

(2) Retaining walls shall not be used to create a shelf or other table area within the slope transition area.

(c) Backfilling of a retaining wall is allowed only as necessary for slope stabilization.

(Ord. No. 2013-13-3343)

§ 9-114 DEVELOPMENT IN THE STEEP SLOPE ZONE.

Any development that is otherwise authorized under the codes, ordinances, and regulations of the village may occur in the steep slope zone, but only upon the Director's review and approval of an application therefor pursuant to this article; provided, however, that within the steep slope zone, only the following structures may be constructed:

(a) Retaining walls and other structures that are necessary for slope stabilization may be constructed in the steep slope zone in the manner approved by the Director and in accordance with the following additional standards:

(1) Retaining walls shall not be used to increase table land.

(2) Retaining walls shall not be used to create a shelf or other table area within the steep slope zone.

(3) Backfilling of a retaining wall is allowed only as necessary for slope stabilization.

(b) Structures on the exact foundation of a previously existing structure may be rebuilt, provided that the rebuilt or remodeled structure (i) does not extend beyond the previous foundation within the steep slope zone, and (ii) is undertaken pursuant to sealed plans of an architect or structural engineer certifying that the existing foundation (with appropriate engineering modifications, if any) will support the rebuilt or remodeled structure without material adverse impact on the steep slope zone.

(c) Cantilevering of structures over the steep slope zone. Cantilevering accessory building elements (such as second floor balconies) not exceeding four feet horizontal over a steep slope zone is permitted unless otherwise limited by code. In addition, such cantilevering cannot block natural sunlight or alter natural stormwater drainage in such a way to jeopardize slope stability.

GLENCOE - ARTICLE XV. STEEP SLOPE REGULATIONS

(d) Mechanical or electrical lifts, bridges, decks, walkways, steps, and/or fences which do not obstruct the flow of light and water, and utility service lines, provided that:

(1) Such structures conform to the provisions of this article; and

(2) Stairs constructed in the steep slope zone shall be no greater than five feet in width. Stair landings constructed in the steep slope zone shall be no larger than 50 square feet. Stair landings for the purpose of this article are defined as an intermediate platform on a flight of stairs, greater than 10 square feet, constructed for the purpose of allowing a change in stair direction down the steep slope zone and/or to break up ten or more stair steps.

(e) Decks can be no larger than 50 square feet unless applicant provides exceptional engineering, including stormwater management and vegetation, so that such deck will not jeopardize slope stability.

(f) Fences, provided that all fences must comply with all applicable village codes, ordinances, and regulations, including without limitation Chapter 9, Article 11 of the Village Code.

(g) Boat houses, provided that the Director has determined that the boat house structure as proposed will not adversely impact the stability of the property or adjacent property.

(Ord. No. 2013-13-3343)

§ 9-115 DEVELOPMENT STANDARDS.

(a) Any application for development in the slope impact area shall be reviewed by the Director, who will consider such application in light of the standards of this section relating to landscape planning, soil mechanics engineering, hydrology, geology, environmental design, and architecture. It is recognized, however, that each slope impact area has unique characteristics and encounters different dynamics affecting its stability and preservation. As a result, the Director may determine for any application that certain of the following standards may not apply in whole or in part to such application so long as the Director determines that the application for development in its totality satisfies the purposes of this article to a substantial degree without creating an economic hardship as provided in § 9-119 of this article.

(b) The standards applicable to development in a slope impact area are as follows:

(1) Safety control of steep slopes.

A. The development will not jeopardize slope stability on the subject site or neighboring properties.

B. Except as necessary for an approved development, no filling, grading, and earth moving shall be occur in a slope impact area.

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C. Whenever there is construction upon any property that includes or is adjacent to a steep slope zone, a fence will be erected temporarily along the top edge of the steep slope zone, during any construction and/or demolition activity upon such property.

(2) Construction techniques. All proposed structures shall have foundations designed in a manner consistent with sound engineering and geological principles. In addition, the following techniques shall be employed to enhance stabilization of the ravine or bluff:

A. Planning the development to recognize and fit the natural topography, soils, geology, hydrology, and other existing conditions on the proposed sites;

B. Orienting development so that filling, grading, and earth moving, landscaping and other site preparation is kept to an absolute minimum;

C. Preserving and enhancing the landscape through minimized disruption of natural terrain and existing vegetation;

D. Minimizing disruption or alteration of natural drainage ways;

E. Minimizing the time during which areas are bare and exposed;

F. Designing and properly locating structures so that structure's weight does not negatively impact slope stability; and

G. Considering the effect of undercutting at the base of a slope impact area caused by wave action, storm water flow, erosion, and/or channel changes.

(3) Hydrological controls.

A. Natural channels. Natural drainage ways shall be preserved to the maximum extent possible.

B. Controlled runoff. Concentrated runoff from impervious surfaces shall be collected and transported in a pipe or other approved manner to a municipal storm sewer system, if available.

C. Water discharge into steep slope. Whenever stormwater is transported across a property for discharge into a steep slope zone, the conveyance pipes shall be of non-segmented (continuous sections of minimum 100 ft.) pipe material, which shall be installed below ground by directional boring where possible.

D. Trenching. No pipe shall be installed within a steep slope zone by excavating a trench unless such trench is approved by the Director of Public Works.

E. Pipe materials. Flexible corrugated pipes shall not be used within a slope impact area unless directional boring is found to be infeasible in the sole determination of the Director.

F. Interceptor ditches. When required by the Director pursuant to sound professional engineering principles, interceptor ditches shall be established above steep slopes in order

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that soil shall not become saturated and the intercepted water shall be conveyed in a pipe or other approved manner to a municipal storm sewer system, if available, or to the bottom of ravine or bluff slopes in a manner designed to prevent erosion.

G. Discharge point stabilization. Natural drainage ways shall be stabilized by landscape integration and rip-rap or other means consistent with sound professional engineering practice, to a distance below drainage and culvert discharge points sufficient to convey the discharge without channel erosion and in such a manner as to dissipate the energy of the discharge as approved by the Director of Public Works.

H. Energy dissipater. All outflow from a stormwater conveyance pipe must discharge into an energy dissipater.

I. Early completion. The overall drainage system shall be completed and made operational at the earliest possible time during construction, the schedule of which shall be approved by the Director of Public Works.

J. Impact on adjacent property. The natural or usual flow of surface or subsurface water shall not be altered or obstructed in any way by grade changes that may adversely affect the property of another by contributing either to pooling or collection of waters or to the concentration or intensification of surface water discharge. However, development which might otherwise be prohibited hereinabove may be allowed if such waters are properly drained by a pipe or other approved manner to a municipal storm sewer system, if available, or to the bottom of ravine or bluff slopes. All grade changes shall comply with Chapter 9, Article XIII of the Village Code.

(4) Vegetation and revegetation.

A. Natural vegetation. Every effort shall be made to maintain natural vegetation in the slope impact area.

B. Smallest area. At all times, the smallest practical area of raw soil shall be exposed for as short a duration of time as practical. When required by the Director pursuant to sound professional engineering principles, temporary vegetation or other acceptable cover shall be used to protect areas of raw soil exposed during development and to prevent airborne or waterborne transportation of soil.

C. Revegetation. A mixed planting of perennial and woody species is recommended for use in the slope impact areas disturbed by development.

D. Erosion control mat. Temporary erosion control matting properly staked and trenched shall be provided over raw soil areas until new vegetation is established.

(5) Filling, grading, and earth moving.

A. Minimum alterations. Filling, grading, and earth moving shall be limited to the minimum required for building foundations, driveways, drainage control structures, and immediate yard areas. With the exception of restoration efforts, substantial filling, grading, and earth moving shall not be permitted and is prohibited.

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B. Erosion control. All filling, grading, and earth moving shall be accomplished in a manner that will create the lowest possible potential for airborne or waterborne transportation of soil.

C. Soil fill in steep slope zone. All fill in steep slope zone is prohibited, other than back-fill which is determined by the Director of Public Works to be necessary for slope stabilization.

D. Soil fill on table land. In conformance with generally accepted engineering standards, all fill on table land shall be stabilized to at least 90% of maximum dry density as determined in ASTM procedure D-1557 or equivalent.

E. Prompt completion. All filling, grading, and earth moving shall be accomplished in the shortest practical period of time, the schedule of which shall be approved by the Director of Public Works. All excavated material shall be removed from the slope impact area and no temporary or permanent material storage shall be permitted within the slope impact area. No existing natural vegetation shall be destroyed, removed or disturbed prior to the initiation of development activities.

(Ord. No. 2013-13-3343)

§ 9-116 REQUIRED PLANS AND PERMITS.

(a) Required plans. Any development or other activity in the slope impact area requiring a permit pursuant to the Village Code and applicable regulations shall be accompanied by the following plans and reports which must be submitted to and approved by the Director of Public Works prior to issuance of any permit or commencement of the proposed development.

(1) Means and methods of construction. Because work to be performed in the slope impact area may have adverse impacts on steep slopes, all permit applications shall contain a written description of the proposed means and methods of accomplishing such work (including without limitation the sequencing and timing of work, the equipment to be used, interim protective measures, and activities to monitor potential adverse impacts on the slope impact area), which means and methods shall be designed to minimize slope damage. Upon approval of the permit by the Director, such approved written description shall be the enforceable means and method of the authorized development activities.

(2) Professional engineering. All structures within slope impact areas shall be designed by a licensed structural engineer or geotechnical engineer and must bear the engineers license seal on submitted drawings and specifications satisfying good engineering practices and the standards of this article, unless the Director otherwise waives in writing this requirement.

(3) Subsoil investigation. Every application for a development permit in the slope impact area shall be accompanied by a report, prepared by a licensed professional civil

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engineer or structural engineer trained and experienced in the practice of geotechnical engineering, which report shall include the following:

A. Soil types and subsurface materials. A description (the result of a thorough subsurface investigation using techniques such as borings, test pits, site tests, laboratory tests, or other procedures performed to a depth sufficient to determine foundation conditions for the proposed construction) of the soil and subsurface materials found on the subject site (with particular emphasis on the area to be impacted by the proposed development) to a depth extending below any proposed excavation as well as the engineering properties of the subsurface soil materials.

B. Observations. A description of existing observable slide areas, scarps, tension cracks, eroded areas, leaning trees, etc.

C. History. A historical review of bluff or ravine stability considering owner photographs, previous reports and topographic surveys; air photos, Corps of Engineers' studies, Village of Glencoe information, etc.

D. Drainage. A description of surface patterns of water flow and seeps as well as indication of the presence or absence of permeable zones in underlying soils.

E. Stability. A geotechnical stability analysis of the slope and structure with factors of safety calculated for the existing and proposed conditions by a method that satisfies both force and moment equilibrium for long-term and short-term soil strength parameters.

F. External influences. A description of any existing or anticipated problems from undercutting at the base of a slope impact area caused by wave action, ravine flows, erosion, or channel changes.

G. Absence of special hazards. An opinion that the soil types, soil stability, subsurface hydrology, and external influences affecting the site will not cause any significant hazards for the proposed use; or if they may cause such hazards, an opinion that such hazards can be overcome, together with a reasonably detailed description of how it is proposed to overcome them.

(4) Grading plan. In addition to any other permit requirements, each application for a permit involving development under this article shall be accompanied by a grading plan, which plan shall include the following:

A. A topographic survey, showing property contours at one foot intervals for tableland and five foot intervals for steep slopes, including special notes and details of the existing terrain;

B. Proposed filling, grading, and earth moving details, including the dimensions, elevations, and contours of any proposed filling, grading, and earth moving;

C. A schedule of when each stage of the project will be completed, including the estimated starting and completion dates; and

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D. A provision requiring the placement of a temporary fence on the table land at the top edge of steep slope zone until construction is completed.

(5) Hydrological control plan. Applications for any development permits shall include a plan for intercepting and containing drainage at the site and from the structure.

(6) Vegetation plan. A vegetation plan, subject to the tree removal provisions of this Code (and particularly Article III of Chapter 34), shall be submitted with each application for a development permit, which plan shall include the following:

A. A description of proposed revegetation of disturbed areas, specifying the materials to be used;

B. A written description detailing methods of slope stabilization and revegetation, together with the rationale for selecting the plant materials and planting techniques proposed to be used; and

C. A timetable and sequencing program for implementing the vegetative plan.

(7) Additional submittals; waivers. The Director of Public Works may require additional plans as needed for review. The Director of Public Works may release an applicant from any element of the aforementioned plan submittals to the extent that the Director determines that such element(s) will not materially assist in the evaluation of the proposed action's impact on slope stability.

(b) Permit issuance; terms. Each permit application for development shall be made in compliance with the building code, the zoning ordinance, other applicable codes, ordinances, or regulations, including this article. The seal of an Illinois licensed structural or geotechnical engineer shall appear on all plans and specifications included as part of a permit application. Upon the Director determining that an application satisfies the requirements of this article, the Director shall cause a permit to be issued for development within the Slope Impact Area. The following provisions are to be imprinted upon each permit issued for any development activities authorized by the administration of this article and (whether so imprinted or not) shall be incorporated into and made a part of any such permit:

(1) Limited obligation. Compliance with the procedures of this article and the issuance of any related permits shall not be construed to impose any legal or other obligation upon the Village of Glencoe or its elected or appointed officials, employees, agents, attorneys, or representatives. Any permit issued pursuant to this article is for the benefit of the public and not for the benefit of any individual.

(2) Civil claims. Compliance with the procedures of this article and the issuance of related permits shall not relieve the permittee and the property owner from civil liability claims.

(3) Endorsement. Compliance with the procedures of this article and the issuance of related permits do not imply approval of the need for, or the benefit or efficacy of, the

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proposed development; nor does it constitute any assertion that the proposed development will not result in damage to the property in question or to adjoining property.

(4) Closing report. A licensed professional structural engineer or geotechnical engineer must inspect all work in the steep slope zone while in progress and, upon completion of the work, deliver to the director a written report bearing the engineer's license seal, stating that all development is in accordance with the approved plan and specifications for the project. Such a report must be delivered prior to the village's final inspection, acceptance, and closing of the project.

(c) Special terms. In connection with the issuance of a permit pursuant to this article, the Director may impose special conditions as deemed necessary to ensure the effectiveness of plans for development on a property, and to protect the long-term stability of a bluff or ravine, or otherwise to notify future owners of the bluff or ravine conditions of such property.

(Ord. No. 2013-13-3343)

§ 9-117 STABILITY OF THE STEEP SLOPES.

(a) General.

(1) In order to provide for long-term slope stability and to prevent failure of slope stability that may adversely impact neighboring properties, all property owners whose property includes or is adjacent to a slope impact area are required to comply with the provisions of this article.

(2) Any development within the slope impact area must meet all plan submittal requirements in accordance with this article.

(3) Private storm drainage lines conveying storm water runoff either to a public storm sewer or to the ravine channel or the toe of the bluff shall be maintained by the owner thereof. Private drainage lines which leak water onto the surface of a steep slope must be repaired within 30 days of notification by the village.

(4) Intentional depositing of lawn waste or other natural or man-made debris which may damage underlying vegetation or impede the free flow of water through channels within a slope impact area shall be prohibited.

(5) Any tree removal within the slope impact area shall be in accordance with the Article III of Chapter 34 (Tree Preservation) of this Code and the provisions of this article.

(6) No swimming pool discharge (emptying) shall be directed toward or directly discharged into a slope impact area.

(b) Maintenance and upkeep.

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(1) Any authorized structure in the slope impact area may be repaired, maintained, or altered but only in compliance with the Village Code and Zoning Code.

(2) Landscape maintenance or routine arboreal activities may be undertaken in the slope impact area.

(c) Restoration. All governmental entities, private property owners, and all other private entities having authorized access to ravine or bluff steep slopes and engaged in the maintenance, repair, or construction of utilities or other structures within a slope impact area, or engaged in any modifications to a steep slope, shall adhere to the applicable provisions of the Village Code, including this article, utilizing best management practices.

(d) Emergency activities. Nothing in this article shall prevent the village from permitting development activities on an emergency basis when deemed necessary by the Director to remediate an unstable or insecure slope that presents an immediate threat to health, safety, and welfare, or stability of an authorized building.

(1) Emergency development activity (including installation or construction of structures) shall only be permitted provided that the remedial action involves the least possible disruption of the natural features of the site as possible and is in conformance with the standards and policies of this article.

(2) Emergency development activity (including installation or construction of structures) shall only be permitted to provide remedial action that is the most reasonable action to address the emergency situation under the circumstances.

(Ord. No. 2013-13-3343)

§ 9-118 TREE REMOVAL IN THE SLOPE IMPACT AREA.

(a) All trees removed in the slope impact area shall comply with Chapter 34 of the Village Code.

(b) There may be cases when removal of a tree or tree stump may jeopardize slope stability. The Village Arborist shall review each tree permit in the slope impact area to determine whether the proposed removal of the tree will jeopardize slope stability and whether the proposed removal of the tree is consistent with good forestry practices.

(c) Tree replacement requirements shall be as set forth in Section 34-26 of the Village Code.

(Ord. No. 2013-13-3343)

§ 9-119 APPEALS OF DIRECTOR'S DECISIONS.

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(a) Any determination of the Director of Public Works under this article may be appealed to the Village Manager by filing a request for review in writing within 35 days after the Director issues his or her determination. Any decision of the Village Manager may be further appealed to the Board of Trustees of the village by filing a request for review in writing within 35 days after the Manager issues his or her decision. The decision of the Board of Trustees will be final.

(b) In reviewing the determination of the Director, the Village Manager or the Board of Trustees (as the case may be) will consider only whether the determination of the Director in applying the regulations of this article imposes an unreasonable and undue economic hardship that materially limits the property owner from making reasonable use of such owner's property or otherwise imposes requirements which are unreasonably burdensome to the property owner given the benefits thereof to the village. After receiving written submittals from the property owner and the Director (and after a hearing if the Manager or Board of Trustees determines that such a hearing will be instructive), a decision on such appeal must be issued in writing no more than 60 days after the delivery of the final submittal by the owner or Director or after the close of the hearing, whichever is later.

(c) In considering an appeal under this section, the Village Manager or Board of Trustees may reverse, affirm, or modify the determination of the Director, or remand the determination back to the Director for further consideration, with or without instructions.

(d) The Village Manager or Board of Trustees may issue further procedural rules governing appeals under this section.

(Ord. No. 2013-13-3343)

§ 9-120 ZONING VARIATIONS.

Nothing in this article is intended to limit the ability of an owner from seeking a variation from the otherwise applicable zoning regulations affecting such owner's property. To the extent that the regulations of this article materially restrict the ability of a property to be developed or materially increase the cost of such development, the Zoning Board of Appeals may determine that the effects of this article can, in appropriate circumstances, constitute a practical difficulty or unreasonable hardship.

(Ord. No. 2013-13-3343)

§ 9-121 ENFORCEMENT AND PENALTIES.

(a) For any property affected by the provisions of this article, the property owner, any developer, and their agents, employees, contractors, subcontractors, licensees, and invitees are each jointly and severally responsible for compliance with the terms of this article.

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(b) In the event any violation of any provision of this article occurs, the property owner shall be responsible for the violation, its correction, and for otherwise bringing the property into compliance with the terms of this article. Such compliance may require restoration of the site as closely as possible to its original undisturbed condition, topography, and/or vegetation in order to eliminate the violation.

(c) Whoever violates any provision of this article, or who shall interfere with the enforcement of the same, shall be fined in an amount of not less than \$50 nor more than \$750 per each violation of any section of this article. Every day that a violation continues shall be deemed a separate punishable violation.

(d) The village shall have the right to issue a stop work order for any work that is performed in the slope impact area either (i) without all permits that are required to this article or (ii) in violation of the permits so issued.

(Ord. No. 2013-13-3343)

§ 9-122 CORRECTIVE MEASURES.

In addition to the monetary penalties provided for herein, the village may apply to a court of competent jurisdiction for an order against the parties responsible to re-establish or restore the grade, slope, stability, vegetation, and/or drainage systems of a slope impact area in order to eliminate and/or prevent an adverse impact upon any adjacent or subservient property, and for such other and further relief as may be appropriate in the circumstances.

(Ord. No. 2013-13-3343)

§ 9-123 ADMINISTRATION; FEES; CONFLICTING REGULATIONS.

(a) Except as otherwise provided, the Director is hereby authorized and directed to prepare any necessary or desirable forms, practices, and procedures in order to implement the provisions of this article.

(b) As part of any application, and as a condition of any permit, an applicant shall be required to pay all fees and charges due under this article. The Village Board may from time-to-time establish and publish application, permit, and inspection fees in furtherance of the administration of this article. To the extent that the village incurs third-party expenses in connection with the administration of this article with respect to a particular application, such third-party expenses shall be additional fees chargeable to such application.

(c) To the extent that there are conflicting regulations in the village's building code or elsewhere in the Village Code, the provisions of this article shall control.

(Ord. No. 2013-13-3343)

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§ 9-124 EFFECTIVE DATE.

Nothing in this article shall be applied to prevent the completion, in accordance with previously issued permits or approvals, of any development that has received all required permits and approvals prior to April 18, 2013, provided that such development is completed in compliance with all such permits, approvals, and other requirements of law.

(Ord. No. 2013-13-3343)

**HIGHLAND PARK - TITLE XV - LAND USAGE - Chapter 150 ZONING CODE
EXCERPTS**

Chapter 150 ZONING CODE

ARTICLE II. INTERPRETATION AND DEFINITIONS - EXCERPTS

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Sec. 150.201. Rules of Construction.

The language in the text of this Chapter shall be interpreted in accordance with the following rules of construction:

- (A) The singular number includes the plural number, and the plural the singular;
- (B) The word "shall" is mandatory; the word "may" is permissive; and
- (C) The masculine gender includes the feminine and neuter.

Sec. 150.202. Definitions.

Whenever in this Chapter the following words and phrases are used, they shall, for the purposes of this Chapter, have the meanings respectively ascribed to them in this Section, except when the context otherwise clearly indicates. Whenever in this Chapter other words are used, those other words shall have the meanings normally ascribed to them.

Bluff: An elevated segment of the Lake Michigan shoreline above the beach which normally has a precipitous front inclining steeply on the lakeward side.

Bottom, or Toe, Ravine Slope or Toe of Bluff Slope: The lowest elevation of soil grade adjacent to the base of a ravine or a bluff slope, as the case may be.

grass waterways). Additionally, development does not include fence installation, pole placement, drilling or other minor auxiliary construction activity which does not affect stormwater runoff rates or volumes as long as the development activity is not located in a Regulatory Floodplain, wetland or channel.

Environmentally Sensitive Area: An area with one or more of the following characteristics: (1) surface waters, including lakes, ponds, and streams; (2) steep slopes; (3) regulatory floodplain; (4) regulatory floodway; (5) hydric soils; (6) soils classified as subject to erosion; (7) stream corridors; (8) mature stands of native vegetation; (9) high quality aquatic resources; (10) habitats of endangered species and (11) Medium and High Priority Open Space Parcels identified in the North Branch of the Chicago River Open Space Plan.

IDNR/OWR: Illinois Department of Water Resources, Office of Water Resources, previously known as IDOT/DWR.

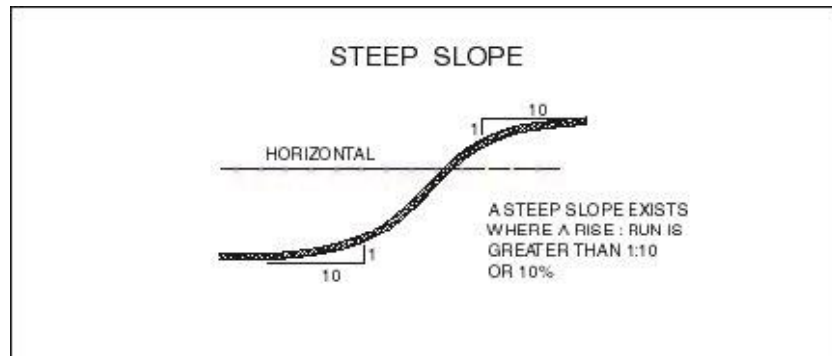
Ravine: A deep gully or gorge worn by the flow of water to Lake Michigan and designated by the City's Ravine Topography Map, dated October 19, 2005, as may be amended.

Regulatory Floodplain: Regulatory Floodplains may be either riverine or non-riverine depressional areas. Floodplain boundaries shall be delineated by projecting the base flood elevation onto the best available topography. A flood prone area is a Regulatory Floodplain if it meets any on the following descriptions:

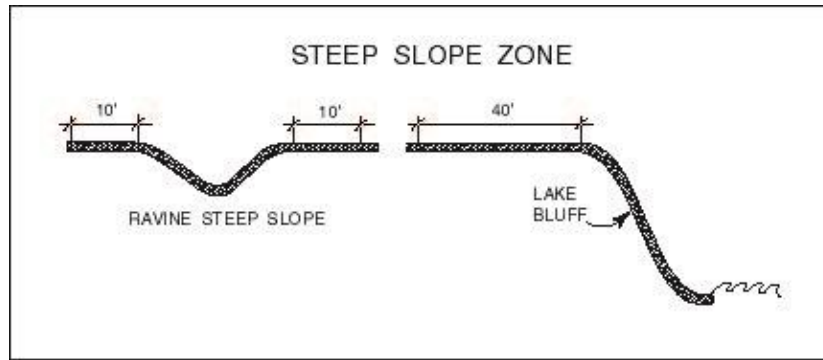
- a. Any riverine area inundated by the base flood where there is at least 640 acres of tributary drainage area;
- b. Any non-riverine area with a storage volume of 0.75 acre-foot or more when inundated by the base flood; or
- c. Any area indicated as a Special Flood Hazard Area on the FEMA Flood Insurance Rate Map and located with the best available topography to be inundated by the base flood.

Special Setback: The minimum distance between swimming pools and the nearest line of the steep slope zone.

Steep Slope: Land comprising or adjacent to a ravine or lake bluff where the slope in ascent or descent exceeds ten (10) percent from the horizontal.



Steep Slope Zone: All land which lies between the bottom of a ravine steep slope and a line being farthest from the bottom of a ravine steep slope and ten (10) feet from the top edge of a ravine steep slope; and all land which lies between the bottom of a bluff steep slope and a line being farthest from the bottom of a bluff steep slope and forty (40) feet from the top edge of a bluff steep slope.



Tableland: Land where the cross slope in any direction does not exceed ten (10) percent.

Top Edge (or Ridge) of Steep Slope: A line connecting the points at which tableland and a steep slope intersect.

Tree Removal Permit: That permit required by this Chapter to be issued in order to Remove:

1. Any Protected Tree within the corporate limits of the City; or
2. Any Tree in the Steep Slope Zone within the corporate limits of the City.

Waters of the United States: Those areas that are under the U.S. Army Corps of Engineers' jurisdiction.

Sec. 150.703.1. Special Regulations for the LFOZ Lakefront Density and Character Overlay Zone.

- (A) *Purpose.* The LFOZ Lakefront Density and Character Overlay Zone is intended to preserve the density and character of lots in the R4 Low-To-Moderate Density Residential District located along the lakefront. Lake Michigan and the parcels located along the lakefront are important elements in defining the City's character. Many of the parcels along the lakefront have lot areas that are substantially larger than the minimum lot area requirements of the R4 District. The LFOZ Overlay Zone is intended to preserve the spacious character and existing density of the area. The preservation and appropriate development of the lakefront area requires, with certain exceptions, the establishment of special lot width and lot area regulations for newly subdivided lots in the LFOZ Overlay Zone. These new restrictions recognize the existing conditions of many of the lakefront lots and require new development in the LFOZ Overlay Zone to be consistent with these existing conditions. The LFOZ Overlay Zone is intended to address, among other things, a recent development trend in the City to subdivide larger lots along the lakefront. These new lots are, in many cases, inconsistent with the existing conditions along the lakefront. In addition to protecting the character and density of the area, the LFOZ Overlay Zone is intended to protect and preserve the ravines, lake bluffs, and beaches in the area, as well as Lake Michigan itself, and to prevent unnecessary erosion of properties in the LFOZ Overlay Zone, that may be affected or caused by increased development, whether on lots in the LFOZ Overlay Zone or within the abutting portions of Lake Michigan. This Section is specifically intended to permit property owners within the LFOZ Overlay Zone to develop their properties and to construct structures on the beach and in Lake Michigan, as further set forth in this Section and in the most environmentally and ecologically sensitive manner possible. The LFOZ Overlay Zone is consistent with the goals of the Lakefront District Neighborhood Strategic Plan, an element of the Master Plan, which plan was adopted by the City Council after numerous neighborhood planning meetings at which lakefront property owners and other City residents participated. The LFOZ Overlay Zone has been created and shall be mapped on the Zoning Map in furtherance of these public purposes.
- (B) *Overlay Zone.* The LFOZ Overlay Zone appears on the Zoning Map as an "overlay zone" imposed on top of certain properties located along the lakefront in the R4 District. Development of property in the LFOZ Overlay Zone must comply with the regulations of the LFOZ Overlay Zone and with the R4 District regulations. Except as required by Subsection (C) of this Section, the R4 District regulations shall apply to all lots in the LFOZ Overlay Zone. Where there is any conflict between the LFOZ Overlay Zone and the R4 District, the provisions of the LFOZ Overlay Zone shall apply.
- (C) *Zoning Relief.* Nothing in this Section 150.703.1 shall be interpreted to deny the right of any property owner to seek a variation or other applicable zoning relief from the provisions of this Section, pursuant to the applicable procedures set forth in this Code.
- (D) *Special Bulk Regulations.*
- (1) *Minimum Area for Single-Family Residence.* Except only as provided in Paragraph (4) of this Subsection, no subdivision of any lot in the LFOZ Overlay Zone shall create any new lot that has a minimum area for a single-family residence of less than 40,000 square feet.
 - (2) *Average Width.* Except only as provided in Paragraph (4) of this Subsection, no subdivision of any lot in the LFOZ Overlay Zone shall create any new lot that has an average width of less than 100 feet.
 - (3) *Minimum Lot Area Per Dwelling Unit, Single-Family.* Except only as provided in Paragraph (4) of this Subsection, no subdivision of any lot in the LFOZ Overlay Zone shall create any new lot that has a minimum lot area per single-family dwelling unit of less than 40,000 square feet.

- (4) *Effective Date.* The special bulk regulations set forth in this Subsection (D) shall only apply to subdivisions for which a complete application is filed with the City after December 11, 2000, being the effective date of the LFOZ Overlay Zone and regulations (the "Effective Date")
- (5) *Exceptions.* The special bulk regulations set forth in this Subsection (D) shall not apply to any subdivision (i) that consists of a lot or lots the boundaries of which were described as property boundaries in a deed recorded prior to the Effective Date, or (ii) that results in the increase in size of any lot in the LFOZ Overlay Zone that, as of the Effective Date, was less than 40,000 square feet in size ("Existing Small Lot") and that does not result in the decrease in size of any other Existing Small Lot.

(E) *Lake Michigan Protection Regulations.*

- (1) *Definitions.* Wherever the following words or phrases are used, they shall, for the purposes of this Subsection 170.703.1(E), have the meanings respectively ascribed to them in this Subsection 170.703.1(E), except when the context otherwise indicates:

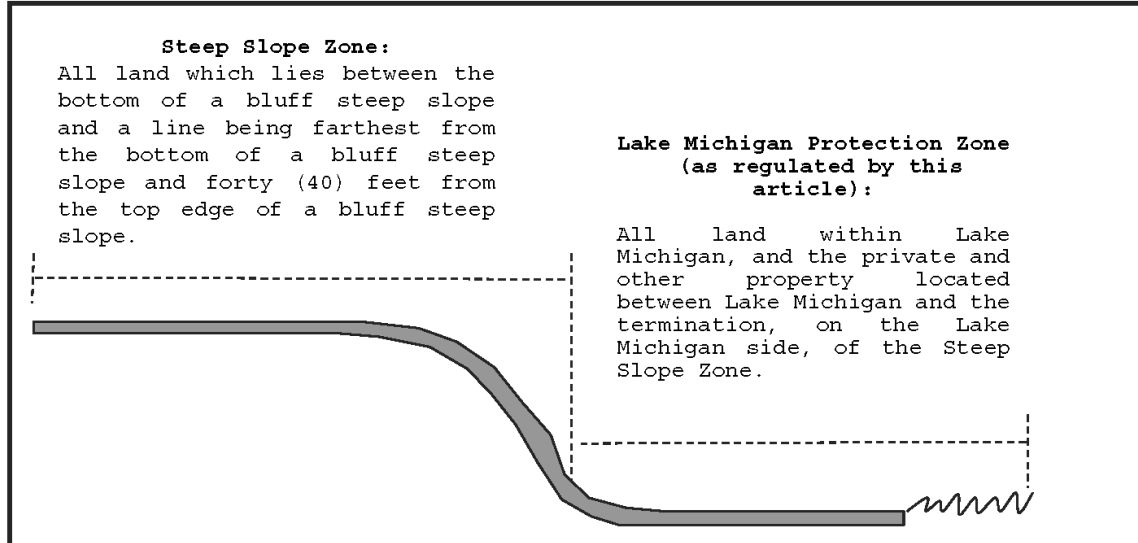
Adjacent Properties shall mean and include, whether or not located within the corporate limits of the City, (a) the first three properties located upwater from the subject property, and (b) the first ten properties located downwater from the subject property.

Applicant shall mean the record owner of the Subject Property.

Commission shall mean the Natural Resources Commission.

Lake Michigan shall mean that portion of Lake Michigan that borders the City of Highland Park, to the extent of three miles beyond the corporate limits, but not beyond the limits of the State.

Lake Michigan Protection Zone shall mean (a) Lake Michigan, and (b) the private and other property located between Lake Michigan and the termination, on the Lake Michigan side, of the Steep Slope Zone, as depicted below.



Permit Application shall mean the application for a building permit to conduct a regulated activity in the Lake Michigan Protection Zone, as required by Chapter 170 of this Code.

Regulated Activity shall mean any act or process within the Lake Michigan Protection Zone involving (1) the construction, alteration, modification, demolition, or removal of any new or existing Structure, or (2) the adding, dumping, dredging, or removing of sand, rocks, or any refuse, garbage, or other discarded materials.

Steep Slope Zone shall have the meaning ascribed to it by Section 150.202 of this Zoning Ordinance.

Structure shall mean any improvement or structure in the Lake Michigan Protection Zone, including, without limitation, any revetment or groin.

Subject Property shall mean the property within or abutting that portion of the Lake Michigan Protection Zone on which the proposed Regulated Activity is to take place.

- (2) *Review Prior to Building Permit Issuance.* Except as provided in subsections (E)(9) and (E)(11) of this Section, whenever an applicant submits a permit application to perform a regulated activity in the Lake Michigan Protection Zone, the procedures and requirements set forth in subsections (E)(4), (E)(5), (E)(6) and (E)(7) of this Section and the standards set forth in subsection (E)(3) of this Section apply in addition to the procedures and requirements of Chapter 170 of this Code.
- (3) *Standards.* In addition to the standards and requirements set forth in Chapter 170 of this Code, no building permit for a regulated activity in the Lake Michigan Protection Zone shall be approved unless all of the following standards have been met or satisfied, to the satisfaction of both the city's Building Official and the applicant's duly registered professional geologist, structural engineer or professional engineer, who must certify that the standards have been satisfied with his or her signature, date, and seal:
 - (a) The proposed regulated activity and/or structure shall not unreasonably impede access to or pedestrian movement along the beach or to Lake Michigan;
 - (b) The proposed regulated activity and/or structure shall not create new nor amplify existing erosion problems on the subject property and on adjacent properties;
 - (c) The proposed regulated activity and/or structure shall be for the purposes of erosion control, water gathering, and/or public access only;
 - (d) There will not be an unnecessary adverse environmental or ecological impact on the subject property or on any of the adjacent properties as a result of the proposed structure and/or the regulated activity; and
 - (e) The applicant has properly obtained any and all permits required by the federal, state, and county governments for the regulated activity and/or the structure.
- (4) *Additional Permit.* Application requirements for regulated activities.
 - (a) As part of a permit application for a regulated activity in the Lake Michigan Protection Zone, and in addition to any documents and information required by Chapter 170 of this Code, the applicant shall file the following documents and information with the Department of Community Development:
 - (i) A statement of the purpose and planning objectives to be achieved by the proposed Regulated Activity;
 - (ii) A plat of survey of the Subject Property;
 - (iii) A conceptual plan showing the Subject Property and the Adjacent Properties, including any and all existing Structures in the portion of the Lake Michigan Protection Zone abutting those properties;
 - (iv) Development and site plans showing the proposed Structure, if applicable;
 - (v) A demolition plan, if applicable;
 - (vi) An elevation plan, which shall include sectional views of the proposed Structure, if applicable;

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- (vii) Copies of any and all permits required by the federal, state, and county governments for the Regulated Activity and/or the Structure;
 - (viii) Engineering details of the proposed Structure and/or the Regulated Activity, which shall include, if applicable:
 - (A) The height, length, and width of the proposed Structure;
 - (B) The spacing between the proposed Structure and other Structures in the Lake Michigan Protection Zone abutting any of the Adjacent Properties; and
 - (C) The materials of which the proposed Structure will be composed;
 - (ix) A geo-technical investigation report of the site;
 - (x) A statement outlining structure success in various water levels;
 - (xi) A statement describing the long-term maintenance requirements and plan for the proposed Structure;
 - (xii) A written description of the proposed means and methods of undertaking the Regulated Activity;
 - (xiii) An explanation, in narrative form, of the following:
 - (A) Any and all erosion problems on the Subject Property for which the Structure and/or Regulated Activity is designed to correct or remedy;
 - (B) The environmental and ecological impact on the Property and the Adjacent Properties that are expected to result from the Structure and/or Regulated Activity;
 - (C) How the proposed Structure and/or Regulated Activity is the least environmentally and ecologically intrusive means of achieving the stated purpose; and
 - (D) The nature and composition of existing protections, including existing Structures, of the shoreline in that portion of the Lake Michigan Protection Zone abutting either the Subject Property or the Adjacent Properties, and the impact and effectiveness of those protections on the shoreline, the lakebed, and on erosion of the Subject Property and Adjacent Properties; and
 - (xiv) A non-refundable application fee, in the amount set forth in the City's Annual Fee Resolution.
 - (b) All plans, specifications, and design analyses or calculations must be signed and sealed by a duly registered Professional Geologist, Structural Engineer or Professional Engineer experienced in the design and construction of shore and/or coastal facilities.
- (5) *Notice.*
- (a) Prior to the commencement of any regulated activity in the Lake Michigan Protection Zone:
 - (i) The applicant shall provide written notice of his or her filing of an application for a building permit to the owners of: (a) all lots or parcels of land within 100 feet of the subject property; (b) all adjacent properties; (c) all additional properties for which notice must be sent in connection with the issuance of a shore protection project permit by the Illinois Department of Natural Resources; and (d) all homeowners associations of which at least one owner of an adjacent property is a member and which have registered with the City as desiring notice pursuant to this subparagraph 150.703.1(5)(a)(i). The notice shall be in a

form approved by the City and shall be given by regular first class U.S. Mail. For purposes of this subsection, a notice addressed to the name and address on the most recent Lake County tax record shall be deemed sufficient. Further, for purposes of this subsection, a lot or parcel of land shall be deemed to "abut" the subject property if the lot or parcel of land shares a common boundary or point with the subject property, or is separated from the subject property by only a public or private right-of-way.

- (ii) The applicant shall file with the City, within 14 days after the filing of the permit application, written certification that the notice required by subsection 150.703.1(E)(5)(a)(i) has been properly mailed, in a form provided by the City. The City shall not process, and shall return to the applicant, any permit application for which such notice was not given or for which such certification was not filed as provided in this subparagraph 150.703.1(E)(5)(a). Nothing in this subparagraph shall be deemed as prohibiting the Director of Community Development from providing notice of a contemplated regulated activity that is not specifically covered or required by this subparagraph.
- (b) If, after a building permit is issued for a regulated activity, the applicant desires to make any significant changes to the permitted regulated activity, which changes are necessitated by on-site conditions not reasonably anticipated when the final engineering plan was submitted for review and approval by the Director of Community Development, the applicant must provide written notice in the same manner as, and in accordance with all requirements of, subparagraph 150.703.1(E)(5)(a).
- (6) *Public Safety Emergency Permits.* A permit for the removal or demolition of an existing Structure may be granted by the City Director of Public Works upon his or her determination that the structure poses an immediate threat to the public health, safety, or welfare. If the Director of Public Works makes such a determination, the provisions of subsections (E)(4), (E)(5), (E)(6), and (E)(7) of this Section shall not apply.
- (7) *Recordation.* The applicant shall cause to be recorded against the subject property, in the office of the Lake County Recorder, a restrictive covenant, requiring the applicant, and all of the applicant's transferees, heirs, assigns, and successors in interest to the subject property, to perform, at the applicant's sole cost and expense, all regular maintenance and upkeep of the structure.
- (8) *Partial Exemption for Structures Also Regulated Within The Steep Slope Zone.* The review and permitting processes set forth in Section 150.703.1(E) of these Lake Michigan Protection Zone regulations shall not be necessary if the proposed structure meets all of the following criteria:
 - (a) The proposed structure is of a type, other than fences, to which Section 150.1906(C) of the Steep Slope Zone regulations of this Zoning Code applies;
 - (b) The proposed structure is located in part in the Lake Michigan Protection Zone and in part in the Steep Slope Zone;
 - (c) The portion of the proposed structure that is located within the Lake Michigan Protection Zone is necessary to the structural or functional integrity of the structure as a whole;
 - (d) The proposed structure protrudes no further than 15 feet into the Lake Michigan Protection Zone; and
 - (e) The portion of the proposed structure that is located within the Lake Michigan Protection Zone is no larger than 75 square feet.

(Ord. 33-01, passed 5/29/01; Ord. 21-06, J. 32, p. 57-68, passed 3/13/06; Ord. 28-10, J. 36, p. 105-109, passed 3/22/10; Ord. 23-11, J. 37, p. 117-120, passed 2/28/11; Ord. O30-2020 , § 2, passed 2/24/20)

ARTICLE XIX. STEEP SLOPE ZONE¹

Sec. 150.1901. Introduction

The topography of the City of Highland Park is occupied by an abundance of ravines and bluffs. These areas exhibit steep slopes which may contain unstable sediment, rock and soils. Development on potentially unstable soils or other rock can be hazardous to life and property. Development in these areas should utilize construction methods which minimize the impact upon or removal of vegetation, including Trees, and ensure slope stabilization and minimize erosion.

The City's ravines and bluffs are valuable scenic resources which should be preserved and the steep slopes associated with these areas should be protected in order to preserve the City's unique visual setting, promote its economic well-being, and encourage architectural splendor.

Regulating the intensity of development according to the natural characteristics of steep slope terrain, such as degree of sloping, significant vegetation, and soil stability and existing drainage patterns, will allow for suitable development while minimizing the physical impact of such development on sensitive ravine and bluff steep slope areas.

(Ord. 38-01, J. 27, p. 146-167, passed 6/25/01; Ord. 26-08, J. 34, p. 050-068, passed 4/14/08)

Sec. 150.1902. Statement of Purpose.

- (A) The ravine and coastal steep slopes are an inherent natural resource which imparts a unique and substantial character to the City of Highland Park. This unique character has a direct relationship to property values, not only for Lots containing or adjacent to ravine and bluff steep slopes, but for Lots throughout the City. It is vital to understand that these steep sloped areas are interdependent throughout their reaches. Erosion, slope failures, and loss of vegetation along one portion of a slope can have an adverse impact upon adjacent sloped areas. Because these areas may be abused (intentionally or unintentionally) so as to create conditions which jeopardize property values and the natural ecosystem, appropriate controls are necessary. Thus, it is the intent of this Article to ensure that all land use and development controlled by this Article:
- (1) Protects people and property from the potentially hazardous geological and hydrological conditions characteristic of ravine and bluff areas;
 - (2) Recognizes and furthers maintenance of stable ecological relationships and minimizes environmental degradation of the land and Lake Michigan;
 - (3) Recognizes that construction should not contribute to erosion or slope destabilization; and
 - (4) Utilizes building techniques that adhere to the criteria stipulated in this Article.
- (B) The regulations set forth in this Article provide for the reasonable use of steep slope areas and related lands while protecting the public health, safety, and welfare by:

¹Editor's note(s)—Article XIX amended in toto by Ord. 38-01, J. 27, p. 146-167, passed 6/25/01.

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- (1) Requiring analysis to determine whether certain types of soil conditions exist (such as loose or easily eroded or rocky soils) and ensuring the utilization of appropriate engineering technology to result in stable slopes during and subsequent to development;
 - (2) Reducing storm water runoff, soil erosion, and mud slides by minimizing grading, encouraging the preservation of Trees and other vegetation and, where necessary, requiring revegetation ;
 - (3) Permitting intensity of development compatible with the natural characteristics of steep slope terrain, such as degree of sloping, soil suitability and existing natural and man-made drainage patterns;
 - (4) Preserving the scenic quality of the ravine and bluff environment through the retention of dominant steep slopes and ridges in their natural state;
 - (5) Reducing the physical impact of top of slope and bluff development by encouraging innovative site and architectural design, minimizing grading and requiring restoration of graded areas; and
 - (6) Discouraging development in steeply sloped terrain.

(Ord. 38-01, J. 27, p. 146-167, passed 6/25/01; Ord. 26-08, J. 34, p. 050-068, passed 4/14/08)

Sec. 150.1903. Aesthetic and Safety Control of Steep Slopes

As set forth above, this Article has as its purpose protection of public health and safety by attempting to prevent erosion and protecting the aesthetics of ravines and bluffs through the regulation and management of the Steep Slope Zone. It is not the intent of this Article to remove areas of use nor is it the purpose of this Article to increase development costs.

- (A) Earth Moving and Construction in the Steep Slope Zone. Except as set forth in this Article, no earth moving shall occur in a Steep Slope Zone, including earth moving associated with permitted construction outside of the Steep Slope Zone, and no structures shall be constructed in a Steep Slope Zone. In addition, whenever there is construction upon property abutting a Steep Slope Zone, a fence must be erected temporarily along the edge of the Steep Slope Zone, during any construction and/or demolition activity upon such property.
- (B) Geotechnical Characteristics. All proposed structures shall be designed in a manner consistent with sound engineering and geological principles. In the design of the stability of all proposed structures, consideration shall be given to the effect of undercutting at the base of steep slopes or bluffs caused by wave action, storm water flow, erosion and/or channel changes. The design of all proposed structures shall comply with the applicable provisions of this Code, including, without limitation, Chapter 170 of this Code.
- (C) Basic Technical Standards. All land use and development controlled by this Article shall be judged by the application of the following basic standards of landscape planning, soil mechanics engineering, hydrology, geology, environmental design and architecture. These standards are supplemented elsewhere in this Article.
 - (1) Planning development to recognize and fit the natural topography, soils, geology, hydrology and other existing conditions on the proposed sites.
 - (2) Orienting development so that earth moving, landscaping and other site preparation is kept to an absolute minimum.
 - (3) Preserving and enhancing the landscape through minimized disruption of natural terrain and existing vegetation.
 - (4) Minimizing disruption or alteration of natural drainage ways.

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- (5) Minimizing the time in which areas are bare and exposed.
 - (6) Minimizing the amount of impervious surface to be placed on the tableland adjacent to steep slopes.
 - (7) Designing and properly locating structures so that structure weight does not jeopardize slope stability.

(Ord. 26-08, J. 34, p. 050-068, passed 4/14/08)

Sec. 150.1904. Special Setbacks.

Swimming pools are prohibited within ten (10) feet of the Steep Slope Zone. However, at or above grade pool decks and patios may extend into this special setback; but in no case shall these structures encroach upon or extend into the Steep Slope Zone, except to the extent permitted under the terms of Section 150.1906 of this Article.

Sec. 150.1905. Maintenance of the Steep Slope Zone.

(A) *General.*

- (1) Owners of ravine or bluff steep slope real estate shall have and properly maintain storm drainage lines conveying storm water runoff either to a public storm sewer or to the ravine channel. Owners of steep slope real estate shall, within 30 days after receipt of notice from the City, repair private drainage lines which leak water onto the surface of a steep slope. Owners of steep slope real estate shall also remove dumped lawn waste or other natural or man-made debris which may damage underlying vegetation or impede the free flow of water through channels. However, naturally fallen Trees which are not impeding the free flow of water need not be removed.
- (2) No Tree, Shrub, Herbaceous Plant or Tree Stump shall be Removed from within the Steep Slope Zone except in accordance with Section 150.1909 of this Article.
- (3) Swimming pool discharge (emptying) shall be in compliance with the provisions of Chapter 171 of this Code.

(B) *Restoration.* All governmental entities, private property owners, and all other private entities having authorized access to ravine or bluff steep slopes and engaged in the maintenance, repair, or construction of utilities or other structures within a Steep Slope Zone, or engaged in any modifications to a steep slope, shall adhere to the applicable provisions of this Chapter, including, without limitation, this Article.

(C) *Protection.* Prior to the recordation of a plat of subdivision, the City Council may require covenants placed upon such plat as may be necessary to ensure the long-term maintenance of the above-described slope control measures.

(Ord. 43-98, J. 24, passed 6/9/98; Ord. 38-01, J. 27, p. 146-167, passed 6/25/01; Ord. 26-08, J. 34, p. 050-068, passed 4/14/08; Ord. 75-14, J. 40, p. 212-219, passed 07/28/14)

Sec. 150.1906. Exemptions.

Within the Steep Slope Zone, the following structures may be constructed and rebuilt and the following activities are permitted:

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- (A) Provided a building permit has been issued by the Director in accord with the terms of this Article, retaining walls and other structures which are necessary for slope stabilization may be constructed in the Steep Slope Zone in the manner approved by the Director, and in accordance with the following:
- (1) Structures that exceed 60 inches in height shall be constructed of concrete block, reinforced concrete, or steel pilings.
 - (2) The design of all retaining walls and structures shall be certified by a licensed professional civil or structural engineer.
- (B) Legal non-conforming structures may be remodeled or rebuilt in the Steep Slope Zone if (i) the rebuilt or remodeled structure does not extend beyond the previously-existing footprint of the structure within the Steep Slope Zone, (ii) the applicant can provide proof satisfactory to the Director of the location of the previous legal non-conforming structure, and (iii) the applicant has been issued a building permit within one year after the date on which the structure was damaged or demolished. All such remodeling or rebuilding shall comply with the following:
- (1) Any retaining wall must be constructed of concrete block, reinforced concrete or steel pilings if it (a) is located in the Steep Slope Zone, (b) is greater than 60 inches in height, and (c) has 30 percent or more of its face area replaced as a result of routine maintenance or incidental repair; and
 - (2) The design of all rebuilt or remodeled structures shall be certified by a licensed professional civil or structural engineer.
- (C) The installation of mechanical or electrical lifts, bridges, walkways, steps, and/or fences which do not obstruct the flow of light and water, and utility service lines, in the manner approved by the Director and subject to conformance with the standards and policies of this Chapter. Stairs constructed in the Steep Slope Zone shall be no greater than five feet in width. Landings constructed in the Steep Slope Zone shall be no wider than five feet and of a total area no greater than 50 square feet. No fence shall be constructed across the channel of a ravine and, when constructed within a ravine, such fence shall be set back at least 10 feet from the bottom or toe of the ravine slope.
- (1) The height and profile of such structures shall be minimized to the maximum extent possible.
 - (2) A landing, for purposes of this Article, is defined as an intermediate platform on a flight of stairs, greater than 10 square feet, constructed for the purpose of allowing a change in stair direction down the Steep Slope Zone and/or to break up a sequence of 10 or more stair steps.
- (D) Immediate action may be taken to remediate an unstable or insecure slope that poses an imminent menace to an authorized structure or to the health, safety, or welfare of the public or nearby property if, in the opinion of the Director, an emergency situation exists and the Director has issued a permit to remedy the emergency situation. Any remedial action undertaken pursuant to this Section 150.1906(D) shall involve the least possible disruption of the natural features of the site and shall be in conformance with the standards and policies of this Chapter, including this Article, to the maximum extent possible.
- (E) Normal landscape maintenance or routine arboreal activities, including small scale planting of ornamental flowers or shrubs, and/or the removal of diseased, dead or damaged Trees, provided such activities shall be carried out in conformance with the standards of vegetation or revegetation set forth in this Article, including, without limitation, the processes set forth in Section 150.1909 of this Article.
- (F) Upon the issuance of all permits required pursuant to this Code, decks and patios having a total ground cover area not exceeding 150 square feet may be located within the Steep Slope Zone between the top edge and the ten foot Steep Slope Zone setback line for ravines and between the top edge and the forty foot Steep Slope Zone setback for bluffs. In no event shall the total area of such decks and patios

in the Steep Slope Zone upon any Lot of Record exceed 300 square feet. Accessory structures other than decks and patios may not be located in the Steep Slope Zone except upon the granting of a variation therefor, in accordance with and pursuant to Article XII and Section 150.1912 of this Chapter (Ord 94-99, adopted 11/8/99; Ord. 11-03, J. 29, p. 38-40, passed 1/27/03; Ord. 26-08, J. 34, p. 050-068, passed 4/14/08)

Sec. 150.1907. Required Plans - Review Required.

Every application for a building permit or for a variation from the provisions of this Article shall be accompanied by the following plans and reports which must be submitted to and approved by the Director prior to issuance of any permit for construction, demolition, or earth moving within the Steep Slope Zone and/or within ten (10) feet of the Steep Slope Zone.

- (A) *Means and Methods of Construction.* Because work to be performed in the Steep Slope Zone may have adverse impacts on steep slopes, all permit applications shall contain a written description of the proposed means and methods of accomplishing such work, which means and methods shall be carefully selected to minimize slope damage. Upon approval of the building permit by the Director, such written description shall be the enforceable means and method of construction.
- (B) *Report and Subsoil Investigation.* Every application for a building permit for construction or earth moving in the Steep Slope Zone and/or within ten (10) feet of the Steep Slope Zone shall be accompanied by a report, prepared by a licensed professional civil engineer or structural engineer, trained and experienced in the practice of geotechnical engineering, which report shall include the following:
 - (1) *Soil Types and Subsurface Materials.* A description (the result of a thorough subsurface investigation using techniques such as borings, test pits, in situ tests, laboratory tests or other procedures performed to a depth sufficient to determine foundation conditions for the proposed construction) of the soil and subsurface materials found on the subject site to a depth extending below any proposed excavation, as well as the engineering properties of the subsurface soil materials.
 - (2) *Stability.* A description of the stability of surface patterns of water flow, as well as indication of the presence or absence of permeable zones in underlying soils.
 - (3) *External Influences.* A description of any existing or anticipated problems from undercutting at the base of steep slopes caused by wave action, ravine flows, erosion or channel changes.
 - (4) *Absence of Special Hazards.* An opinion that the soil types, soil stability, subsurface hydrology, and external influences affecting the site will not cause any significant hazards for the proposed use; or if they may cause such hazards, an opinion that such hazards can be overcome, together with a reasonably detailed description of the method proposed to overcome such hazards.
- (C) *Earth Moving Plan.* In addition to the requirements for an earth moving permit as set forth in this Code, each application for a building permit pursuant to this Article shall be accompanied by an earth moving plan, which plan shall include the following:
 - (1) A topographic survey, showing property contours at one foot intervals for tableland and five (5) foot intervals for steep slopes, including special notes and details of the existing terrain;
 - (2) Proposed earth moving details, including the dimensions, elevations, and contours of any proposed earth moving;

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- (3) A description of the methods to be employed in disposing of soil and other material removed, including the location of the disposal site;
 - (4) A time-table of when each stage of the project will be completed, including the estimated starting and completion dates; and
 - (5) A provision requiring the placement of a temporary snow fence on the tableland at the top edge of the Steep Slope Zone until construction is completed.
- (D) *Hydrological Control Plan.* Construction documents shall include a plan for intercepting and containing drainage at the site and from the structure.
- (E) *Vegetation Plan.* A vegetation plan, subject to the provisions of Section 150.1909 of this Article, prepared or approved in writing by a landscape professional trained and experienced in both the characteristics of plant material and proper procedures for installation, shall be submitted with each application for a building permit, which plan shall be consistent with all rules and regulations promulgated pursuant to Section 150.1909(G) of this Chapter, and shall include the following:
- (1) An inventory describing the existing floral and Tree cover of the site, including identification of Undesirable Species and Protected Trees, as these terms are defined in Article II of this Chapter, showing those areas where the vegetation will be removed as part of the proposed development;
 - (2) A description of proposed revegetation of disturbed areas, specifying the materials to be used;
 - (3) A written description detailing methods of slope stabilization and revegetation, together with the rationale for selecting the plant materials and planting techniques proposed to be used; and
 - (4) A maintenance guideline, instructing steep slope owners of necessary actions to be taken following construction and/or earth moving in order to maintain plantings in good and serviceable health.

(Ord. 38-01, J. 27, p. 146-167, passed 6/25/01; Ord. 26-08, J. 34, p. 050-068, passed 4/14/08; Ord. 75-14, J. 40, p. 212-219, passed 07/28/14)

Sec. 150.1908. Development Standards.

During construction and/or earth moving within the Steep Slope Zone, the permittee shall adhere to the following standards:

- (A) *Hydrological Controls.*
- (1) *Natural Channels.* Natural drainage ways shall be preserved to the maximum extent possible.
 - (2) *Controlled Run-Off.* Whenever stormwater is transported across a property for discharge into a Steep Slope Zone, the conveyance pipes shall be of a non-segmented (continuous), smooth walled material, to be installed below ground by directional boring whenever possible.
 - (a) No pipe shall be installed within a Steep Slope Zone by excavating a trench unless approved by the City Engineer or Director.
 - (b) Flexible corrugated pipes shall not be used in the Steep Slope Zone unless directional boring is found to be infeasible in the sole determination of the Director, in which case an alternate method must be approved by the Director.
 - (3) *Interceptor Ditches.* When sound professional engineering practice dictates and when required by the Director, interceptor ditches shall be established above steep slopes in order that soil shall not become saturated and the intercepted water shall be conveyed in a pipe or other approved

manner to a municipal storm sewer system, if available, or to the bottom of ravine or bluff slopes in a manner designed to prevent erosion.

- (4) *Discharge Point Stabilization.* Natural drainage ways shall be stabilized by landscape integration and rip-rap or other means consistent with sound professional engineering practice, to a distance below drainage and culvert discharge points sufficient to convey the discharge without channel erosion and in such a manner as to dissipate the energy of the discharge. Discharge must be into an energy dispersion device as approved by the Director.
 - (5) *Early Completion.* The overall drainage system shall be completed and made operational at the earliest possible time during construction.
 - (6) *Impact on Adjacent Property.* The natural or usual flow of surface or subsurface water shall not be altered or obstructed in any way by grade changes that may adversely affect the property of another by either contributing to pooling or collection of waters or to the concentration or intensification of surface water discharge. However, construction which might otherwise be prohibited pursuant to this Section 150.1908(A)(6) may be allowed if such waters are properly drained by a pipe or other approved manner to a municipal storm sewer system, if available, or to the bottom of ravine or bluff slopes.
- (B) *Vegetation and Revegetation.*
- (1) *Native Vegetation.* Every effort shall be made to maintain native vegetation in the Steep Slope Zone.
 - (2) *Smallest Area.* At all times, the smallest practical area of raw soil shall be exposed for as short a duration of time as practical. When sound professional engineering practice dictates and when required by the Director, temporary vegetation, or other acceptable cover shall be used to protect areas of raw soil exposed during development and to prevent airborne or waterborne transportation of soil.
 - (3) *Revegetation.* A mixed planting of native perennial grasses and woody species with deep root systems shall be used to landscape steep slope areas disturbed by construction, demolition, and/or earth moving.
- (C) *Earth Moving.*
- (1) *Minimum Alterations.* Earth moving shall be limited to the minimum required for building foundations, driveways, drainage control structures, and immediate yard areas. With the exception of conservation or restoration efforts, substantial earth moving shall not be permitted and is prohibited.
 - (2) *Erosion Control.* All earth moving shall be accomplished in a manner which will create the lowest possible potential for airborne or waterborne transportation of soil.
 - (3) *Soil Fill on Steep Sloped Land.* All fill on steep sloped land is prohibited, other than back-fill which is determined by the Director to be necessary for slope stabilization.
 - (4) *Soil Fill on Tableland.* In conformance with generally accepted engineering standards, all fill on tableland shall be stabilized to at least ninety (90) percent of maximum density as determined in ASTM procedure D-1557 or equivalent.
 - (5) *Prompt Completion.* All earth moving shall be accomplished in the shortest practical period of time. All excavated material shall be removed from the Steep Slope Zone and no temporary or permanent material storage shall be permitted within the Zone. No existing natural vegetation shall be destroyed, removed or disturbed prior to the initiation of construction, demolition, or earth moving activities.

Sec. 150.1909. Removal or Damage of Trees in the Steep Slope Zone

- (A) *General.* It shall be unlawful to Remove or perform any act that results in the death, likely death, loss in value, loss in aesthetic value or substantial destruction of any Tree, Shrub, Herbaceous Plant, or Tree Stump in the Steep Slope Zone, including, without limitation, any actions that may cause a Tree to become diseased or hazardous to persons or property, as determined by the City Forester or his or her designee, without first obtaining a Removal Permit issued by the City Forester.
- (B) *Application for a Removal Permit.* Except as provided in Section 150.1909(F) of this Chapter, any person wanting to Remove any Tree, Shrub, Herbaceous Plant, or Tree Stump from the Steep Slope Zone shall prepare and submit an application for a Removal Permit with the City Forester. All applications for a Removal Permit shall comply with the following;
- (1) *Trees, Shrubs and Herbaceous Plants.* An application for the removal of any Tree, Shrub, or Herbaceous Plant shall include the applicable Removal Permit fee, as set forth in Section 150.1909(B)(3) of this Chapter, and a vegetation plan prepared in accordance with Section 150.1907 of this Article. The City Forester shall issue a Tree Removal Permit upon a determination that:
- (a) Sufficient proof has been provided by a certified arborist or a landscape professional trained and experienced in steep slope vegetation management that the existing canopy in the Steep Slope Zone is too dense to permit the growth of understory vegetation on the slope;
- (b) The proposed removal of the Tree, Shrub, or Herbaceous Plant, and the vegetation plan, are consistent with good forestry practices, including means and methods intended to improve the stability of steep slope terrain and remove invasive species, provided removal does not reduce the tree crown cover on the slope to less than 40 percent; and
- (c) The proposed removal is, in the sole determination of the City Forester, consistent with; (i) the rules and regulations promulgated pursuant to Section 150.1909(G) of this Chapter; and (ii) the purpose and standards of this Article.
- (2) *Tree Stumps.* An application for the removal of a Tree Stump shall include a description of procedures that will be used to prevent soil erosion in the area from which the Tree Stump is to be removed. Such procedures shall include replacement of soil and replanting of plant species that will secure the soil and prevent soil erosion. The City Forester shall issue the Removal Permit if he determines that the procedures to be used will adequately prevent soil erosion in the area where the Tree Stump is to be removed.
- (3) *Permit Fees.* The fee for a Removal Permit issued pursuant to this Section 150.1909(B) shall be as follows:
- (a) For non-Invasive Trees: The fee shall be in the amount set according to Chapter 94 of this Code.
- (b) For non-Invasive Shrubs and Herbaceous Plants:
the fee shall be in the amount set forth in the Annual Fee Resolution.
- (c) For Tree Stumps and for Invasive species and plant materials; there shall be no fee.
- (C) *Replacement of Trees Removed with a Permit.*
- (1) Except as provided in Section 150.1909(C)(2) of this Chapter, each Tree authorized to be Removed, pursuant to this Article, shall be replaced with replacement Trees, the species of which shall be included in the vegetation plan previously approved by the City Forester, having a combined six (6) inch caliper and no individual replacement Tree being less than one and one-half inches (1-½") caliper. All

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- such replacement Trees shall be planted on the same Lot from which the Tree has been Removed in accordance with the vegetation plan. Such replacement shall be made within six (6) months of the date of issuance of the Removal Permit. An extension of time may be granted by the City Council upon request, provided, however that no such extension shall exceed twelve (12) months from the date of issuance of the Removal Permit.
- (2) The tree replacement requirement set forth in Section 150.1909(C)(1) of this Chapter shall not apply in the following circumstances:
- (a) If the City Forester determines that the required replacement of Trees would result in unreasonable crowding of Trees upon the Lot, affecting the growth and survivability of existing understory vegetation, the permittee shall pay the City a fee in lieu of making such replacement, as set forth in Section 94.403(C)(6) of the City Code.
 - (b) Removal of Trees performed in conjunction with the implementation of a Vegetation Plan prepared in compliance with Section 150.1907(E) of this Chapter and approved by the City Forester.
 - (c) Removal of Invasive Trees.
- (D) *Removal of any Tree, Shrub, Herbaceous Plant, or Tree Stump Without a Removal Permit.*
- (1) Any person found to have Removed any Tree, Shrub, Herbaceous Plant, or Tree Stump without a Removal Permit issued by the City Forester shall be required to:
- (a) Prepare and implement a vegetation plan, in accordance with Section 150.1907 of this Article; and
 - (b) Pay a fee at the rate set forth in the Annual Fee Resolution for the review and approval of such Vegetation Plan.
- (2) Where a person has Removed a Tree without a Removal Permit, in addition to complying with Section 150.1909(D) (1) of this Article, such person shall be required to replace each Tree so Removed with replacement Trees having a combined six (6) inch caliper and no individual replacement Tree being less than one and one-half inches (1-½") caliper. In addition, the following requirements shall apply:
- (a) Replacement Trees shall be planted in the Steep Slope Zone of the same Lot from which Trees have been Removed.
 - (b) If the City Forester determines that the required replacement of Trees would result in unreasonable crowding of Trees upon the Steep Slope Zone of the Lot, affecting the growth and survivability of existing understory vegetation, then either: (i) such replacement Trees shall be planted elsewhere on the Lot from which the Tree has been Removed; or (ii) Shrubs and/or Herbaceous Plants shall be planted on the Lot, upon prior written approval of the City Forester.
 - (c) No fee in lieu of replacement shall be allowed for Trees Removed from the Steep Slope Zone without a Tree Removal Permit.
- (E) *Tree and Tree Stump Removal, Replacement and Restoration.*
- (1) Any damage done to the Steep Slope Zone during Tree, Shrub, Herbaceous Plant, or Tree Stump Removal and replacement must be restored in accordance with the vegetation plan and the provisions of this Article.
- (2) No machinery that cannot otherwise be carried by a person shall be used in the Steep Slope Zone for the removal or planting of any Trees, or in associated restoration activities.
- (F) *Exempt Activities.* This Section 150.1909 shall not be deemed or construed as prohibiting or limiting any of the following activities:
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- (1) Seasonal collection of leaves;
 - (2) Prescribed burning of plant materials, upon prior written approval of the City Fire Department;
 - (3) Pruning of Shrubs;
 - (4) Pruning of Trees, if performed in accordance with the standards set by the International Society of Arboriculture;
 - (5) Control or removal of Herbaceous Plants identified as "invasive" in the rules and regulations promulgated pursuant to Section 150.1909(G) of this Chapter;
 - (6) Removal of fallen dead woody debris;
 - (7) Removal of buckthorn with Stump treatment (but not including Tree Stump removal); and
 - (8) Planting of vegetation.
- (G) *Promulgation of Rules.* The City Manager is hereby authorized and directed to promulgate such rules and regulations, in consultation with the City Forester, as may be necessary for the implementation of this Section 150.1909. The rules and regulations promulgated pursuant to this Section 150.1909(G) shall include, without limitation, the following: (1) classification of plant materials according to whether such materials are native to the City, whether they are threats to the viability of native species, and similar considerations; (2) guidelines for review and approval of Removal Permits, in accordance with the classification of plant materials; and (3) recommendations for responsible Steep Slope Zone land management.
- (H) *Definitions.* For purposes of this Section 150.1909 only, the following terms have the following meanings, except when the context clearly indicates otherwise:
- (1) *Herbaceous Plant* shall mean an annual, perennial or biennial plant without a woody stem that seasonally dies down to the soil level.
 - (2) *Invasive* means a species or plant material identified as "invasive" in the rules and regulations promulgated pursuant to Section 150.1909(G) of this Chapter.
- (Ord. 38-01, J. 27, p. 146-167, passed 6/25/01; Ord. 35-03, J. 29, p. 134, passed 05/27/03; Ord. 26-08, J. 34, p. 050-068, passed 4/14/08; Ord. 28-10, J. 36, p. 105-109, passed 3/2/10; Ord. 75-14, J. 40, p. 212-219, passed 07/28/14)

Sec. 150.1910. Permits.

- (A) Each application for a building permit (which includes demolition and earth moving) shall be made in compliance with this Chapter, including this Article, and Chapter 170 of this Code. The seal of an Illinois licensed professional civil or structural engineer shall appear on all plans and specifications pursuant to which any building permit is issued for construction within the Steep Slope Zone and/or within ten (10) feet of such Steep Slope Zone. In addition, the following provisions shall be imprinted upon any building permit issued for any construction, demolition, or any earth moving activities authorized by the administration of this Article:
- (1) *Limited Obligation.* Compliance with the procedures of this Article and the issuance of any related permits shall not be construed to impose any legal or moral obligation upon the City of Highland Park or its elected or appointed officials.
 - (2) *Civil Claims.* Compliance with the procedures of this Article and the issuance of related permits shall not relieve the permittee and the property owner from civil liability claims by other property owners.
 - (3) *Endorsement.* Compliance with the procedures of this Article and the issuance of related permits do not imply approval of the need for or the benefit or efficacy of the proposed construction; nor does it

constitute any assertion that the proposed construction will not result in damage to the property in question or to adjoining property.

- (B) *Closing Certification and Report.* A licensed professional civil or structural engineer must inspect all work in the Steep Slope Zone while in progress, and provide certification and a written report stating that all construction is in accordance with the approved plan and specifications for the project prior to the City's final inspection, acceptance and closing of the project.

(Ord. 26-08, J. 34, p. 050-068, passed 4/14/08)

Sec. 150.1911. Appeals.

Any decision or ruling of the Zoning Administrator that is made in interpreting, applying, and/or enforcing the regulations contained in this Article may be appealed in accordance with and pursuant to Article XIII of this Chapter. The Zoning Board of Appeals, upon receipt of a notice of such an appeal, and prior to deciding the appeal, shall refer the matter to the Natural Resources Commission for its review and report to the Zoning Board of Appeals.

(Ord. 26-08, J. 34, p. 050-068, passed 4/14/08; Ord. 23-11, J. 37, p. 117-120, passed 2/28/11)

Sec. 150.1912. Reserved.

Editor's note(s)—Ord. O29-2020 , § 2, passed Feb. 24, 2020, repealed § 150.1912 which pertained to variations and derived from Ord. 94-99, passed Nov. 8, 1999; Ord. 26-08, J. 34, p. 050-068, passed April 14, 2008; and Ord. 23-11, J. 37, p. 117-120, passed Feb. 28, 2011.

Sec. 150.1913. Enforcement and Penalties.

- (A) Both the developer and the property owner, their agents, employees, contractors, subcontractors, licensees, and invitees are responsible for compliance with the terms of this Article.
- (B) In the event any violation of any provision of this Article occurs, the property owner shall be responsible for correcting the violation and bringing the property into compliance with the terms of this Article. Such compliance may require restoration of the site as closely as possible to its original undisturbed condition, topography, and/or vegetation in order to eliminate the violation.
- (C) The City shall have the right, but not the obligation, to issue a stop work order, in accordance with Chapter 170 of this Code, for any work that is performed in the Steep Slope Zone without all permits that are required pursuant to this Article.
- (D) Whoever violates any provision of this Article, other than Section 150.1909, or who shall interfere with the enforcement of the same, shall be fined in accordance with Section 150.112 of this Code. Every day on which such violation occurs, or on which the enforcement of any provision of this Article other than Section 150.1909 is interfered with, until a work plan is approved and a permit is issued, shall be considered a separate and distinct offense.
- (E) Whoever violates any provision of Section 150.1909, or who shall interfere with the enforcement of the same, shall be fined in the amount set forth in the Annual Fee Resolution for each such violation. A separate and distinct violation shall be deemed to have occurred for: (1) each Tree, Shrub, Herbaceous Plant, or Tree Stump Removal from the Steep Slope Zone without a Removal Permit issued by the City Forester; and (2) each day that such violation exists, or on which the enforcement of Section 150.1909 is interfered with, until a work plan is approved and a permit is issued.

(Ord. 38-01, J. 27, p. 146-167, passed 6/25/01, Ord. 11-03, J. 29, p. 38-40, passed 1/27/03; Ord. 26-08, J. 34, p. 050-068, passed 4/14/08; Ord. 33-14, J. 40, p. 99-102; Ord. 75-14, J. 40, p. 212-219, passed 07/28/14)

Sec. 150.1914. Corrective Measures.

In addition to the monetary penalties provided for herein, the City may apply to a court of competent jurisdiction for an order upon the parties responsible to re-establish or restore the grade, slope, stability, vegetation, and/or drainage systems of a steep slope property in order to eliminate and/or prevent an adverse impact upon any adjacent or subservient property, and for such other and further relief as may be appropriate in the circumstances.

Sec. 150.1915. Amendments to Article XIX.

Notwithstanding any other provision of this Code, including specifically, but without limitation, the provisions governing amendments to the Zoning Code set forth in Article XV of this Chapter, the City Council may consider and approve the amendment of any provision of Article XIX without a prior public hearing, consideration or recommendation by the Plan and Design Commission. Before exercising its powers under this Section, the City Council shall set, notice and conduct public hearing. No other procedure shall be required. Any amendment to this Article XIX shall be evidenced by an ordinance duly adopted. The concurrence of four members of the City Council shall be sufficient to approve any ordinance adopted pursuant to the authority and power granted by this Section.

(Ord. 26-08, J. 34, p. 050-068, passed 4/14/08; Ord. 59-15, passed 6/8/15)

VILLAGE OF KENILWORTH

CHAPTER 154: STEEP SLOPE REGULATIONS

Section

- 154.01 Findings
- 154.02 Statement of purpose; applicability
- 154.03 Definitions
- 154.04 Development in the Steep Slope Zone
- 154.05 Development standards
- 154.06 Required plans and permits
- 154.07 Stability of the steep slopes
- 154.08 Tree removal and replacement in the Steep Slope Zone
- 154.09 Appeals of code officials' decisions
- 154.10 Zoning variations
- 154.11 Administration; fees; conflicting regulations
- 154.12 through 15.98 Reserved.
- 154.99 Enforcement and penalties

§ 154.01 FINDINGS.

(A) The topography of the Village of Kenilworth includes bluffs and other steep slope areas. These are valuable land resources that should be protected. Bluffs and other steep slope areas play a central role in the management of storm water throughout the village; they are also ecologically fragile and inherently unstable. Their proper care and maintenance are important to avoid degradation that could adversely affect the entire community.

(B) Steep slope areas may contain sediment, rock, and soils (i) that are natural features subject to erosion, surface and subsurface movement of water, and other destabilizing forces, and (ii) whose stability is affected by the quality and root structure of natural ground cover. Regulating proposed development according to the natural characteristics of steep slope terrain, such as degree of sloping, significant vegetation, soil stability, and existing drainage patterns will allow for development on top of steep slope areas, including bluffs, while minimizing the physical impact of such development. The public interest will be served by protecting people and property from the potentially hazardous geological and hydrological conditions characteristic of ravine and other steep slope areas.

(Ord. 1163, passed 12-14-2015)

§ 154.02 STATEMENT OF PURPOSE; APPLICABILITY.

(A) *Purpose.*

(1) The purpose of this chapter is to regulate development along or near steep slope areas to protect slope stability and overall drainage and water management in the village. The purpose of this chapter is not to regulate for aesthetic or habitat preservation purposes; rather, the purpose is to

prevent erosion of ravines and bluffs by regulating and managing steep slopes for purposes of protecting the public health, safety, and welfare. This chapter protects people and property from the potentially hazardous geological and hydrological conditions characteristic of ravine and bluff areas and further recognizes that maintenance of stable ecological relationships minimizes environmental degradation of the land and Lake Michigan. Due to improper and unnecessary development within these sensitive areas, conditions are created that jeopardize life, property, and the natural ecosystem. It is the intent of this chapter to establish appropriate controls. All land use and development on, within, and adjacent to the steep slope is controlled by this chapter.

(2) While this chapter provides for the reasonable use of steep slope zones and related lands, it does so while protecting the public health, safety, and welfare by:

- (a) Discouraging development that threatens the stability of steeply sloped terrain;
- (b) Encouraging appropriate engineering technology to result in stable slopes during and subsequent to development;
- (c) Encouraging building techniques that increase slope stability;
- (d) Reducing uncontrolled storm water runoff, soil erosion, and mud slides by minimizing grading, encouraging the preservation of trees and other vegetation, and, where necessary, requiring revegetation;
- (e) Permitting development that is compatible with the natural characteristics of steep slope terrain, such as degree of sloping, soil suitability, and existing natural and man-made drainage patterns;
- (f) Preserving the ravine and bluff environment through the retention of dominant steep slopes and ridges in their natural state; and
- (g) Reducing the physical impact on steep slopes and related areas by encouraging innovative site and architectural design, minimizing grading, and requiring restoration of graded areas.

(B) *Applicability.* This chapter only applies to properties that include or are adjacent to a bluff along Lake Michigan or that portion of the Skokie Ditch located east of Sheridan Road and north of Kenilworth Avenue.

(Ord. 1163, passed 12-15-2015)

§ 154.03 DEFINITIONS.

When used in this chapter, the following terms shall have the meanings herein ascribed to them, unless the context clearly requires otherwise. In the case of any difference of meaning between the text of this chapter and any caption or illustration, the text shall control.

ACCESSORY BUILDING. A detached, one-story, covered structure designed to provide enclosed storage or a screened or unscreened sitting area in the Steep Slope Zone.

BLUFF. An elevated segment of the Lake Michigan shoreline above the beach which normally has a precipitous front inclining steeply on the lakeward side.

CANTILEVER. Any portion of a principal structure that extends laterally beyond the foundation that supports it.

CODE OFFICIAL. The code official shall be the Building Commissioner.

DEVELOPMENT. Any man-made change (other than minor common maintenance of existing structures, paved areas, or utilities) to improved or unimproved real estate, including without limitation the construction or installation of new, or enlargement or demolition of existing, structures, paved

areas, or utilities; dredging, filling, drilling, mining, grading, paving, or excavation operations; and open storage of equipment or materials.

RAVINE. A deep gully or gorge worn by the flow of water to Lake Michigan. In this chapter, all references to ravine shall refer that portion of the Skokie Ditch located east of Sheridan Road and north of Kenilworth Avenue.

STEEP SLOPE. Land comprising or adjacent to a lake bluff or ravine where the slope in ascent or descent exceeds 10% from the horizontal.

STEEP SLOPE LINE. A line representing the intersection of the tableland and the steep slope. This line is commonly indicated on plats of survey or other documents as the **TOP OF BLUFF**.

STEEP SLOPE ZONE.

(1) In the case of a ravine, that portion of a lot that includes the steep slope of the ravine and lies between the bottom of the ravine and a line drawn ten feet behind the steep slope line at the top edge of the ravine and away from the bottom of the ravine. For the purposes of this chapter, the **RAVINE** means the Skokie Ditch east of Sheridan Road. The **STEEP SLOPE ZONE** shall include all retaining walls located between the bottom of the ravine and the steep slope line.

(2) In the case of a bluff, that portion of a lot that includes the steep slope and lies between the water's edge of Lake Michigan and a line drawn 35 feet behind the steep slope line at the top edge of the bluff and away from the bottom of the bluff. The **STEEP SLOPE ZONE** shall include all retaining walls located between Lake Michigan and the steep slope line.

TABLELAND. Land at the top of a bluff or ravine where the cross slope in any direction does not exceed 10%.

(Ord. 1163, passed 1214-2015)

Figure 154 - 1. Illustration of defined terms for Ravine

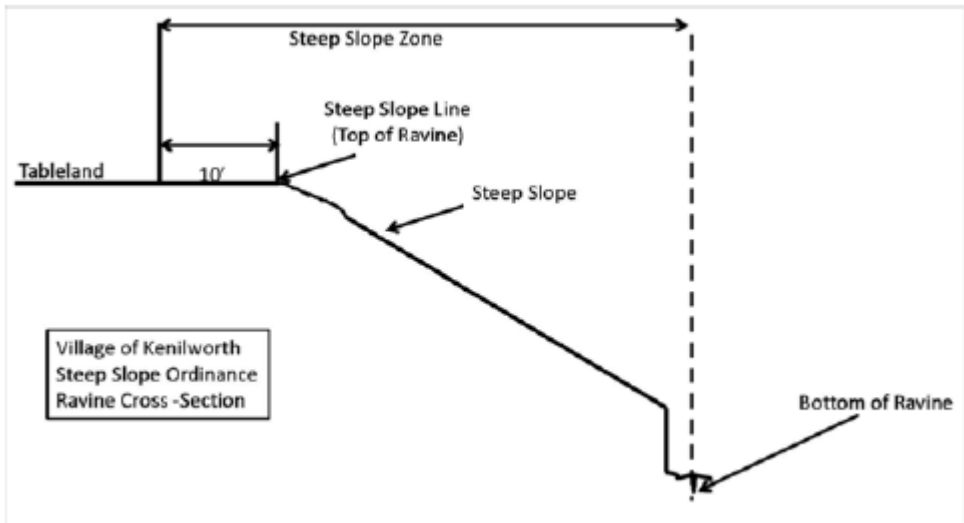
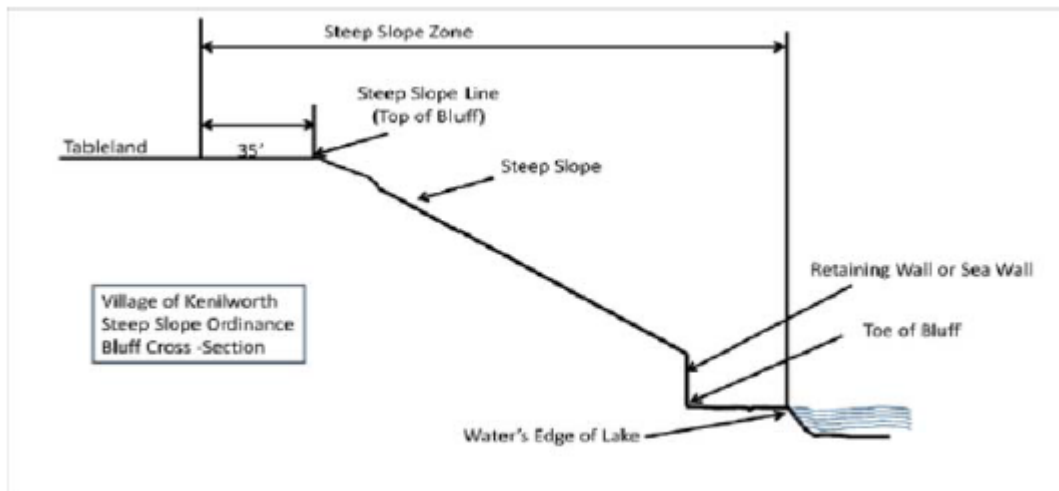


Figure 154— 2 Illustration of defined terms for Bluff Steep Slope Zone



(Ord. 1163, passed 12-14-2015)

§ 154.04 DEVELOPMENT IN THE STEEP SLOPE ZONE.

Any development that is otherwise authorized under the codes, ordinances, and regulations of the village may occur in the Steep Slope Zone, but only upon the code official's review and approval of an application therefor pursuant to this chapter; provided, however, that only the following structures may be constructed:

(A) *In Steep Slope Zones that are bluffs or ravines.*

(1) Retaining walls and other structures that are necessary or beneficial for safe continued use of property and slope stabilization may be constructed in the Steep Slope Zone in the manner approved by the code official and in accordance with the following additional standards:

- (a) Retaining walls shall not be used to increase table land.
- (b) Retaining walls shall not be used to create a shelf or other table area within the Steep Slope Zone.
- (c) Backfilling of a retaining wall is allowed only as necessary for slope stabilization.

(2) Structures on the exact foundation of a previously existing structure may be rebuilt, provided that the rebuilt or remodeled structure (i) does not extend beyond the previous foundation within the Steep Slope Zone, (ii) does not extend above the previous height of the structure within the Steep Slope Zone, and (iii) is undertaken pursuant to sealed plans of an architect or structural engineer certifying that the existing foundation (with appropriate engineering modifications, if any) will support the rebuilt or remodeled structure without material adverse impact on the Steep Slope Zone.

(3) Cantilevering of structures over the steep slope line shall not be permitted.

(B) *In Steep Slope Zones that are bluffs.*

(1) Mechanical or electrical lifts, bridges, decks, walkways, steps, and/or fences which do not obstruct unnecessarily the flow of light and water, and utility service lines, provided that:

- (a) Such structures conform to the provisions of this chapter; and
- (b) Stairs constructed in the Steep Slope Zone shall be no greater than five feet in width. Stair landings constructed in the Steep Slope Zone shall be no larger than 50 square feet. Stair landings for the purpose of this chapter are defined as an intermediate platform on a flight of stairs, greater than

ten square feet, constructed for the purpose of allowing a change in stair direction down the Steep Slope Zone and/or to break up ten or more stair steps.

(2) Decks can be no larger than 100 square feet unless applicant provides exceptional engineering, including stormwater management and vegetation, so that such deck will not jeopardize slope stability.

(3) Fences, provided that all fences must comply with all applicable village codes, ordinances, and regulations, including without limitation Chapter 153 of this code.

(4) One accessory building no larger than 150 square feet in area and no more than 11 feet in height; provided, further, that the code official has determined that (a) the accessory building as proposed will not adversely impact the stability of the property or adjacent property and (b) the top of roof is not visible from adjacent tableland.

(Ord. 1163, passed 12-14-2015)

§ 154.05 DEVELOPMENT STANDARDS.

(A) *Review of application.* Any application for development in the Steep Slope Zone shall be reviewed by the code official, who will consider such application in light of the standards of this section relating to landscape planning, soil mechanics engineering, hydrology, geology, environmental design, and architecture. It is recognized, however, that each Steep Slope Zone has unique characteristics and encounters different dynamics affecting its stability and preservation. As a result, the code official may determine for any application that certain of the following standards may not apply in whole or in part to such application so long as the code official determines that the application for development in its totality satisfies the purposes of this chapter.

(B) *Standards.* The standards applicable to development in a Steep Slope Zone are as follows:

(1) *Filling, grading, and earth moving.*

(a) *Minimum alterations.* Filling, grading, and earth moving shall be limited to the minimum required for removal and replacement of foundations, driveways, drainage control structures, and immediate yard areas. Substantial filling, grading, and earth moving shall not be permitted and is prohibited.

(b) *Erosion control.* All filling, grading, and earth moving shall be accomplished in a manner that will create the lowest possible potential for airborne or waterborne transportation of soil. Temporary erosion control matting shall be properly staked and trenched nightly where large areas of soil are exposed.

(c) *Soil fill in Steep Slope Zone.* All fill in the Steep Slope Zone is prohibited, other than back-fill which is determined by the code official to be necessary for slope stabilization.

(d) *Soil fill on table land.* In conformance with generally accepted engineering standards, all fill on table land shall be stabilized to at least 90% of maximum dry density as determined in ASTM procedure D-1557 or equivalent.

(e) *Prompt completion.* Any earth moving shall be accomplished in the shortest practical period of time, the schedule of which shall be approved by the code official. All excavated material shall be removed from the Steep Slope Zone and no temporary or permanent material storage shall be permitted within the Steep Slope Zone. No existing natural vegetation shall be destroyed, removed or disturbed prior to the initiation of development activities.

(2) *Safety control of steep slopes.*

(a) The development will not jeopardize slope stability on the subject site or neighboring properties.

(b) Except as can be shown to be essential or beneficial for an approved development, no filling, grading, and earth moving shall occur in a Steep Slope Zone.

(c) Whenever there is construction upon any property that includes or is adjacent to a Steep Slope Zone, a fence will be erected temporarily along the top edge of the Steep Slope Zone, during any construction and/or demolition activity upon such property.

(3) *Construction techniques.* All proposed structures shall have foundations designed in a manner consistent with sound engineering and geological principles. In addition, the following techniques shall be employed to enhance stabilization of the ravine or bluff:

(a) Planning the development to recognize and fit the natural topography, soils, geology, hydrology, and other existing conditions on the proposed sites;

(b) Orienting development so that filling, grading, and earth moving, landscaping and other site preparation is kept to an absolute minimum;

(c) Preserving the landscape through minimized disruption of natural terrain and existing vegetation;

(d) Minimizing disruption or alteration of natural drainage ways;

(e) Minimizing the time during which areas are bare and exposed;

(f) Designing and properly locating structures so that structure's weight does not negatively impact slope stability; and

(g) Considering the effect of undercutting at the base of a Steep Slope Zone caused by wave action, storm water flow, erosion, and/or channel changes.

(h) Providing for management of silt runoff during the construction period.

(4) *Vegetation and revegetation.*

(a) *Natural vegetation.* Unless being revegetated as part of the development, every effort shall be made to maintain natural vegetation in the Steep Slope Zone.

(b) *Smallest area.* At all times, the smallest practical area of raw soil shall be exposed for as short a duration of time as practical. When required by the code official pursuant to sound professional engineering principles, temporary vegetation or other acceptable cover shall be used to protect areas of raw soil exposed during development and to prevent airborne or waterborne transportation of soil.

(c) *Revegetation.* A mixed planting of perennial and woody species is recommended for use in the Steep Slope Zone disturbed by development.

(d) *Erosion control mat.* Temporary erosion control matting properly staked and trenched shall be provided over raw soil areas until new vegetation is established.

(5) *Hydrological controls.*

(a) *Natural channels.* Natural drainage ways shall be preserved to the maximum extent possible.

(b) *Controlled runoff.* Concentrated runoff from impervious surfaces shall be collected and transported in a pipe or other approved manner to a municipal storm sewer system, if available. In no instance shall runoff be transported to, directed toward, or be allowed to collect in any pipe or conveyance that is part of the combined storm/sanitary sewer system of the village.

(c) *Water discharge into steep slope.* Whenever stormwater is transported across a property for discharge into a Steep Slope Zone, the conveyance pipes shall be of non-segmented (continuous

sections of minimum 100 feet) pipe material, which shall be installed below ground by directional boring where possible.

(d) *Trenching*. No pipe shall be installed within a Steep Slope Zone by excavating a trench unless such trench is approved by the code official.

(e) *Pipe materials*. Flexible corrugated pipes shall not be used within a Steep Slope Zone unless directional boring is found to be infeasible in the sole determination of the code official.

(f) *Interceptor ditches*. When required by the code official pursuant to sound professional engineering principles, interceptor ditches shall be established above steep slopes in order that soil shall not become saturated and the intercepted water shall be conveyed in a pipe or other approved manner to a municipal storm sewer system, if available, or to the bottom of ravine or bluff slopes in a manner designed to prevent erosion. In no instance shall runoff be transported to, directed toward, or be allowed to collect in any pipe or conveyance that is part of the combined storm/sanitary sewer system of the village.

(g) *Discharge point stabilization*. Natural drainage ways shall be stabilized by landscape integration and rip-rap or other means consistent with sound professional engineering practice, to a distance below drainage and culvert discharge points sufficient to convey the discharge without channel erosion and in such a manner as to dissipate the energy of the discharge as approved by the code official.

(h) *Energy dissipater*. All outflow from a stormwater conveyance pipe must discharge into an energy dissipater designed to slow fast moving stormwater and prevent soil erosion.

(i) *Early completion*. The overall drainage system shall be completed and made operational at the earliest possible time during construction, the schedule of which shall be approved by the code official.

(j) *Impact on adjacent property*. The natural or usual flow of surface or subsurface water shall not be altered or obstructed in any way by grade changes that may adversely affect the property of another by contributing either to pooling or collection of waters or to the concentration or intensification of surface water discharge.

(Ord. 1163, passed 12-14-2015)

§ 154.06 REQUIRED PLANS AND PERMITS.

(A) *Required plans*. Any development or other activity in the Steep Slope Zone requiring a permit pursuant to this code and applicable regulations shall be accompanied by the following plans and reports which must be submitted to and approved by the code official prior to issuance of any permit or commencement of the proposed development.

(1) *Means and methods of construction*. Because work to be performed in the Steep Slope Zone may have adverse impacts on steep slopes, all permit applications shall contain a written description of the proposed means and methods of accomplishing such work (including without limitation the sequencing and timing of work, the equipment to be used, interim protective measures, and activities to monitor potential adverse impacts on the Steep Slope Zone), which means and methods shall be designed to minimize slope damage. Upon approval of the permit by the code official, such approved written description shall be the enforceable means and method of the authorized development activities.

(2) *Professional engineering*. All development within Steep Slope Zone shall be designed by a licensed structural engineer or geotechnical engineer and must bear the engineer's license seal on submitted drawings and specifications satisfying good engineering practices and the standards of this chapter, unless the code official otherwise waives in writing this requirement.

(3) *Subsoil investigation.* Every application for a development permit in the Steep Slope Zone shall be accompanied by a report, prepared by a licensed professional civil engineer or structural engineer trained and experienced in the practice of geotechnical engineering, which report shall include the following:

(a) *Soil types and subsurface materials.* A description (the result of a thorough subsurface investigation using techniques such as borings, test pits, site tests, laboratory tests, or other procedures performed to a depth sufficient to determine foundation conditions for the proposed construction) of the soil and subsurface materials found on the subject site (with particular emphasis on the area to be impacted by the proposed development) to a depth extending below any proposed excavation as well as the engineering properties of the subsurface soil materials.

(b) *Observations.* A description of existing observable slide areas, scarps, tension cracks, eroded areas, leaning trees, and the like.

(c) *History.* As available, a historical review of bluff or ravine stability considering owner photographs, previous reports and topographic surveys; air photos, Corps of Engineers' studies, Village of Kenilworth information, and the like.

(d) *Drainage.* A description of surface patterns of water flow and seeps as well as indication of the presence or absence of permeable zones in underlying soils.

(e) *Stability.* A geotechnical stability analysis of the slope and structure with factors of safety calculated for the existing and proposed conditions by a method that satisfies both force and moment equilibrium for long-term and short-term soil strength parameters.

(f) *External influences.* A description of any existing or anticipated problems from undercutting at the base of a Steep Slope Zone caused by wave action, ravine flows, erosion, or channel changes.

(g) *Absence of special hazards.* An opinion that the soil types, soil stability, subsurface hydrology, and external influences affecting the site will not cause any significant hazards for the proposed use; or if they may cause such hazards, an opinion that such hazards can be overcome, together with a reasonably detailed description of how it is proposed to overcome them.

(4) *Grading plan.* In addition to any other permit requirements, each application for a permit involving development under this chapter shall be accompanied by a grading plan, which plan shall include the following:

(a) A topographic survey, showing the Steep Slope Line (top of bluff) as well as property contours at one foot intervals for tableland and five foot intervals for steep slopes, including special notes and details of the existing terrain;

(b) Proposed filling, grading, and earth moving details, including the dimensions, elevations, and contours of any proposed filling, grading, and earth moving;

(c) A schedule of when each stage of the project will be completed, including the estimated starting and completion dates; and

(d) A provision requiring the placement of a temporary fence on the table land at the top edge of Steep Slope Zone until construction is completed.

(5) *Hydrological control plan.* Applications for any development permits shall include a plan for intercepting and containing drainage at the site and from the structure.

(6) *Vegetation plan.* A vegetation plan, subject to the tree preservation provisions of Chapter 150 of this code, shall be submitted with each application for a development permit, which plan shall include the following:

(a) A description of proposed revegetation of disturbed areas, specifying the materials to be used;

(b) A written description detailing methods of slope stabilization and revegetation, together with the rationale for selecting the plant materials and planting techniques proposed to be used; and

(c) A timetable and sequencing program for implementing the vegetative plan.

(7) *Additional submittals; waivers.* The code official may require additional plans as needed for review. The code official may release an applicant from any element of the aforementioned plan submittals to the extent that the code official determines that such element(s) will not materially assist in the evaluation of the proposed action's impact on slope stability.

(B) *Permit issuance; terms.* Each permit application for development shall be made in compliance with Chapter 150 of this code and other applicable codes, ordinances, or regulations, including this chapter. The seal of an Illinois licensed structural or geotechnical engineer shall appear on all plans and specifications included as part of a permit application. Upon the code official determining that an application satisfies the requirements of this chapter, the code official shall cause a permit to be issued for development within the Steep Slope Zone. The following provisions are to be imprinted upon each permit issued for any development activities authorized by the administration of this chapter and (whether so imprinted or not) shall be incorporated into and made a part of any such permit:

(1) *Limited obligation.* Compliance with the procedures of this chapter and the issuance of any related permits shall not be construed to impose any legal or other obligation upon the village or its elected or appointed officials, employees, agents, attorneys, or representatives. Any permit issued pursuant to this chapter is for the benefit of the public and not for the benefit of any individual.

(2) *Civil claims.* Compliance with the procedures of this chapter and the issuance of related permits shall not relieve the permittee and the property owner from civil liability claims.

(3) *Endorsement.* Compliance with the procedures of this chapter and the issuance of related permits do not imply approval of the need for, or the benefit or efficacy of, the proposed development; nor does it constitute any assertion that the proposed development will not result in damage to the property in question or to adjoining property.

(4) *Closing report.* A licensed professional structural engineer or geotechnical engineer must inspect all work in the Steep Slope Zone while in progress and, upon completion of the work, deliver to the code official a written report bearing the engineer's license seal, stating that all development is in accordance with the approved plan and specifications for the project. Such a report must be delivered prior to the village's final inspection, acceptance, and closing of the project.

(C) *Special terms.* In connection with the issuance of a permit pursuant to this chapter, the code official may impose special conditions as deemed necessary to ensure the effectiveness of plans for development on a property, and to protect the long-term stability of a bluff or ravine, or otherwise to notify future owners of the bluff or ravine conditions of such property.

(Ord. 1163, passed 12-14-2015)

§ 154.07 STABILITY OF THE STEEP SLOPES.

(A) *General.*

(1) In order to provide for long-term slope stability and to prevent failure of slope stability that may adversely impact neighboring properties, all property owners whose property includes or is adjacent to a Steep Slope Zone are required to comply with the provisions of this chapter.

(2) Any development within the Steep Slope Zone must meet all plan submittal requirements in accordance with this chapter.

(3) Private storm drainage lines conveying storm water runoff either to a public storm sewer or to the ravine channel or the toe of the bluff shall be maintained by the owner thereof. Private drainage lines which leak water onto the surface of a steep slope must be repaired within 30 days of notification by the village.

(4) Intentional depositing of lawn waste or other natural or man-made debris which may damage underlying vegetation or impede the free flow of water through channels within a Steep Slope Zone shall be prohibited.

(5) Any tree removal within the Steep Slope Zone shall be in accordance with the tree preservation standards of Chapter 150 of this code and the provisions of this chapter.

(6) No swimming pool discharge (emptying) shall be directed toward or directly discharged into a Steep Slope Zone.

(B) *Maintenance and upkeep.*

(1) Any authorized structure in the Steep Slope Zone may be repaired, maintained, or altered but only in compliance with this code, including this title.

(2) Landscape maintenance or routine arboreal activities may be undertaken in the Steep Slope Zone.

(C) *Restoration.* All governmental entities, private property owners, and all other private entities having authorized access to ravine or bluff steep slopes and engaged in the maintenance, repair, or construction of utilities or other structures within a Steep Slope Zone, or engaged in any modifications to a steep slope, shall adhere to the applicable provisions of the this code, including this chapter, utilizing best management practices.

(D) *Emergency activities.* Nothing in this chapter shall prevent the village from permitting development activities on an emergency basis when deemed necessary by the code official to remediate or restore an unstable or insecure slope, or a slope that has sloughed, that presents an immediate threat to health, safety, and welfare, or stability of an authorized building.

(1) Emergency development activity (including installation or construction of structures) shall only be permitted provided that the remedial action involves the least possible disruption of the natural features of the site as possible and is in conformance with the standards and policies of this chapter.

(2) Emergency development activity (including installation or construction of structures) shall only be permitted to provide remedial action that is the most reasonable action to address the emergency situation under the circumstances.

(Ord. 1163, passed 12-14-2015)

§ 154.08 TREE REMOVAL AND REPLACEMENT IN THE STEEP SLOPE ZONE.

(A) *General.* The village's tree preservation requirements in Chapter 150 of this code shall apply to all proposed tree removals and tree replacements in the Steep Slope Zone.

(B) *Additional standards.* In addition to the requirements of Chapter 150 of this code, there may be cases when removal of a tree or tree stump may jeopardize slope stability and for all proposed tree removals in the Steep Slope Zone, the following shall apply:

(1) The code official shall review each tree removal in the Steep Slope Zone to determine whether the proposed removal of the tree will jeopardize slope stability.

(2) Any applicant seeking to remove a tree in the Steep Slope Zone shall provide the village with a report from a certified arborist as to whether the proposed removal of the tree is consistent with good forestry practices and certification from a geotechnical engineer as to the stability of the slope.

(Ord. 1163, passed 12-14-2015)

§ 154.09 APPEALS OF CODE OFFICIAL'S DECISIONS.

(A) Any determination of the code official under this chapter may be appealed to the Board of Trustees by filing a request for review in writing within 35 days after the code official issues his or her determination. The Board of Trustees may designate a committee of the Board to hear the request for review and make a written recommendation to the Board of Trustees. The decision of the Board of Trustees will be final.

(B) In reviewing the determination of the code official, the Board of Trustees will consider only whether the determination of the code official in applying the regulations of this chapter imposes an unreasonable and undue economic hardship that materially limits the property owner from making reasonable use of such owner's property or otherwise imposes requirements which are unreasonably burdensome to the property owner given the benefits thereof to the village. After receiving written submittals from the property owner and the code official (and after a hearing if the Board of Trustees determines that such a hearing will be instructive), a decision on such appeal must be issued in writing no more than 60 days after the delivery of the final submittal by the owner or code official or after the close of the hearing, whichever is later.

(C) In considering an appeal under this section, the Board of Trustees may reverse, affirm, or modify the determination of the code official, or remand the determination back to the code official for further consideration, with or without instructions.

(D) The Board of Trustees may issue further procedural rules governing appeals under this section.

(Ord. 1163, passed 12-14-2015)

§ 154.10 ZONING VARIATIONS.

Nothing in this chapter is intended to limit the ability of an owner to seek a variation from the otherwise applicable zoning regulations affecting such owner's property. To the extent that the regulations of this chapter materially restrict the ability of a property to be developed the Zoning Board of Appeals may determine that the effects of this chapter can, in appropriate circumstances, constitute a practical difficulty or unreasonable hardship.

(Ord. 1163, passed 12-14-2015)

§ 154.11 ADMINISTRATION; FEES; CONFLICTING REGULATIONS.

(A) Except as otherwise provided, the code official is hereby authorized and directed to prepare any necessary or desirable forms, practices, and procedures in order to implement the provisions of this chapter.

(B) As part of any application, and as a condition of any permit, an applicant shall be required to pay all fees and charges established in the annual fee ordinance. To the extent that the village incurs third-party expenses in connection with the administration of this chapter with respect to a particular application, such third-party expenses shall be additional fees chargeable to such application.

(C) To the extent that there are conflicting regulations in the village's building regulations or elsewhere in this code, the provisions of this chapter shall control.

(Ord. 1163, passed 12-14-2015)

§§ 154.12 THROUGH 15.98 RESERVED.

§ 154.99 ENFORCEMENT AND PENALTIES.

(A) *Generally.* Any person violating any provision of this chapter shall be subject to the penalty provisions of § 10.99 of this code, except where another specific penalty is provided.

(B) *Joint responsibility.* For any property affected by the provisions of this chapter, the property owner, any developer, and their agents, employees, contractors, subcontractors, licensees, and invitees are each jointly and severally responsible for compliance with the terms of this chapter.

(C) *Correction and restoration.* In the event any violation of any provision of this chapter occurs, the property owner shall be responsible for the violation, its correction, and for otherwise bringing the property into compliance with the terms of this chapter. Such compliance may require restoration of the site as closely as possible to its original undisturbed condition, topography, and/or vegetation in order to eliminate the violation.

(D) *Stop work.* The village shall have the right to issue a stop work order for any work that is performed in the Steep Slope Zone either (i) without all permits that are required to this chapter or (ii) in violation of the permits so issued.

(E) *Corrective measures.* In addition to the monetary penalties provided for herein, the village may apply to a court of competent jurisdiction for an order against the parties responsible to re-establish or restore the grade, slope, stability, vegetation, and/or drainage systems of a Steep Slope Zone in order to eliminate and/or prevent an adverse impact upon any adjacent or subservient property, and for such other and further relief as may be appropriate in the circumstances.

(Ord. 1163, passed 12-14-2015)

VILLAGE OF LAKE BLUFF - TITLE 10 ZONING REGULATIONS

CHAPTER 1

INTERPRETATION AND DEFINITIONS - EXCERPTS

SECTION:

10-1-1: Interpretation, Purpose And Conflict

10-1-2: Definitions

10-1-1: INTERPRETATION, PURPOSE AND CONFLICT:

The regulations contained in this title shall be held to be the minimum requirements necessary for the promotion of the public safety, health, convenience, comfort, morals, prosperity and general welfare. They shall not nullify the more restrictive provisions of covenants, agreements, resolutions, other ordinances or laws, but shall prevail, notwithstanding such provisions which are less restrictive. (Ord. 87-38, 12-14-1987)

10-1-2: DEFINITIONS:

For the purposes of this title, the following terms, phrases, and words shall have the meanings given herein:

BLUFF:

Any natural land area that has a drop in elevation from the top bluff edge equal to or greater than two feet (2') vertical for every ten feet (10') horizontal, and that is located between the high water mark at the edge of Lake Michigan and the top bluff edge.

BLUFF PROTECTION AREA:

The area of a bluff plus the area of that portion of the bluff/ravine property that lies between the top bluff edge and the required setback established pursuant to subsection 10-12-3B1 of this title.

BLUFF/RAVINE PROPERTY:

Any lot that contains a bluff, a ravine, or both.

TOP BLUFF EDGE:

The curvilinear line connecting the points of a bluff where the previously unimproved and undisturbed land surface first begins to drop in elevation at a rate equal to or greater than two feet (2') vertical for every ten feet (10') horizontal. Improvements or fill located in the area that would be considered the "top bluff edge" pursuant to this definition, as of March 9, 1999, being the effective date of this definition and chapter 12 of this title, shall not be considered in determining the "top bluff edge".

VILLAGE OF LAKE BLUFF - TITLE 10 ZONING REGULATIONS

CHAPTER 12

BLUFFS AND RAVINES

SECTION:

10-12-1: Purpose And Intent

10-12-2: Application Of Provisions

10-12-3: Setback Requirements

10-12-4: Buildings And Structures

10-12-5: Construction Activity In Bluff And Ravine Protection Areas

10-12-6: Construction Activity On Bluff And Ravine Property

10-12-7: Protection And Maintenance Of Bluff And Ravine Property

10-12-8: Walkout Basements

10-12-9: Nonconformities

10-12-1: PURPOSE AND INTENT:

The village ravine and bluff areas provide a unique natural resource to the village and to its residents that must be preserved and protected. Bluffs and ravines are inherently fragile and subject to erosion due to glacially formed soils containing unstable sediment, rock, and silt. Development and construction activity in and around bluffs and ravines could be hazardous to people and property and could accelerate the erosion process. The purpose and intent of this chapter is to accomplish the following goals through the establishment of reasonable regulations to protect and maintain bluffs and ravines in the village:

- A. Protect people and property against damage or destruction caused by accelerated erosion resulting from development and construction activities in or around bluffs and ravines.
- B. Protect bluffs and ravines against unnecessary damage or destruction caused by certain development and construction activities.
- C. Maintain proper water runoff in order to decrease the effects of erosion on bluffs and ravines.
- D. Minimize the disruption or alteration of natural drainage occurring in or around bluffs and ravines.
- E. Protect the property values of properties on which bluffs and ravines are located.

VILLAGE OF LAKE BLUFF - TITLE 10 ZONING REGULATIONS

F. Preserve and enhance the physical and aesthetic qualities of bluffs and ravines by, among other things, minimizing the disruption or damage to existing vegetation. (Ord. 99-9, 3-8-1999)

10-12-2: APPLICATION OF PROVISIONS:

The provisions of this chapter shall apply generally and uniformly to all areas and zoning districts within village. The provisions of this chapter shall also apply cumulatively and simultaneously with the other provisions of this title and the village subdivision regulations and building codes, and no approvals or permits issued pursuant to such regulations or codes shall be deemed to authorize any activity that does not also comply with the applicable provisions of this chapter. Furthermore, if ever a provision of this chapter and another provision in this title or the village subdivision regulations or building codes are inconsistent, provisions resulting in the maximum protection and preservation of bluffs and ravines shall govern, except where limited by law. (Ord. 99-9, 3-8-1999)

10-12-3: SETBACK REQUIREMENTS:

A. Ravines: Except as otherwise expressly provided in subsection C of this section, no principal structure or building, no accessory structure or building that requires the issuance of a building permit pursuant to this code, and no driveway shall be erected or altered on any lot so as to place any portion of any such building, structure, or driveway within ten feet (10') from any top ravine edge.

B. Bluffs:

1. Principal Structures And Buildings: Except as otherwise expressly provided in subsection C of this section, no principal structure or building or driveway shall be erected or altered on any lot so as to place any portion of any such building, structure, or driveway within forty feet (40') from any top bluff edge.

2. Small Accessory Structures And Buildings: Except as otherwise expressly provided in subsection C of this section, no accessory structure or building that is equal to or less than four hundred forty (440) square feet in area and that requires the issuance of a building permit pursuant to this code shall be erected or altered on any lot so as to place any portion of any such building or structure within ten feet (10') from any top bluff edge.

3. Large Accessory Structures And Buildings: Except as otherwise expressly provided in subsection C of this section, no accessory structure or building that is greater than four hundred forty (440) square feet in area and that requires the issuance of a building permit pursuant to this code shall be erected or altered on any lot so as to place any portion of any such building or structure closer to any top bluff edge than ten feet (10'), plus an additional 0.053 feet for every one foot (1') that the accessory structure or building exceeds four hundred forty (440) square feet in area.

VILLAGE OF LAKE BLUFF - TITLE 10 ZONING REGULATIONS

C. Exceptions:

1. **Nonimpervious And Other Improvements:** Notwithstanding the setback requirements in subsections A and B of this section, any nonimpervious improvement including, without limitation, a paver patio, and any other improvement that does not require the issuance of a building permit pursuant to this code, including, without limitation, a swing set or similar apparatus, may be located up to but no further than the top ravine edge of a ravine or the top bluff edge of a bluff, as the case may be; provided, however, that such improvement does not, as determined in advance by the village engineer, adversely affect stormwater drainage or unnecessarily accelerate erosion of the bluff or ravine or otherwise create a hazardous condition or public nuisance.

2. **Swimming Pools:** Notwithstanding the setback requirements in subsections A and B of this section:

- a. No swimming pool shall be located within twenty feet (20') from any top ravine edge; and
- b. No swimming pool shall be located within forty feet (40') from any top bluff edge. (Ord. 99-9, 3-8-1999; amd. Ord. 99-15, 5-24-1999)

10-12-4: BUILDINGS AND STRUCTURES:

A. **General Prohibition:** Except as expressly permitted pursuant to subsection B of this section, no principal or accessory building or structure, no permanent fence, and no other at grade improvement of any kind shall be constructed, placed, or maintained in any bluff or ravine.

B. **Permitted Structures:** Notwithstanding the general prohibition set forth in subsection A of this section, the following improvements may be permitted in a bluff or ravine in accordance with the regulations of this subsection and the other applicable regulations of this chapter, provided such improvement would not, as determined in advance by the village engineer, adversely affect stormwater drainage, or unnecessarily accelerate erosion of the bluff or ravine, or otherwise create a hazardous condition or public nuisance:

1. **Paths And Steps At Grade:** Paths and steps at grade of no greater than six feet (6') in width shall be allowed in any bluff or in any ravine.

2. Decks:

a. **Ravines:** Decks and other similarly elevated structures shall be allowed to extend over the top ravine edge of a ravine; provided, however, that no pier foundations or supports shall be placed or maintained on or beyond the top ravine edge.

b. **Bluffs:** Decks and other similarly elevated structures shall be allowed to extend over the top bluff edge of a bluff and to be located in a bluff.

3. **Benches:** Benches shall be allowed to be located or maintained within a bluff or ravine.

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4. Stairs: Stairs and associated landings shall be permitted in any ravine or bluff that is located on bluff/ravine property that is at least one and one-half (1.5) acres.

5. Electric Lift Systems: An electric lift system, and associated equipment and appurtenances thereto, shall be permitted on a bluff upon the issuance of a special use permit pursuant to subsection 10-4-2E of this title; provided, however, that: a) only one electric lift system may be permitted on a property; and b) as a condition of issuance of the special use permit, the owner agrees in writing to permit the village to inspect the electric lift system at least once a year to confirm that the electric lift system complies with all applicable provisions of this code and the special use permit. (Ord. 2016-17, 6-27-2016)

10-12-5: CONSTRUCTION ACTIVITY IN BLUFF AND RAVINE PROTECTION AREAS:

A. General Prohibition: Except as expressly permitted pursuant to subsection B of this section, no construction activities, including, without limitation, grading, excavating, filling, terracing, or stockpiling or dumping of excavated material, shall be permitted in any bluff or ravine protection area.

B. Permitted Construction Activities: Notwithstanding the general prohibition set forth in subsection A of this section, the following construction activities shall be permitted in a bluff or ravine protection area, with the prior approval of the village engineer and in accordance with the following regulations and other applicable regulations of this chapter:

1. Erosion control and slope stabilization activities.
2. Public utility and other public improvement projects.
3. Drainage improvements that are necessary to prevent or mitigate erosion.
4. General maintenance and landscaping, including the removal of diseased, dead, or damaged trees.
5. Action necessary to remediate an unstable or unsecure slope that poses an imminent danger to persons or property.
6. The construction of an electric lift system on a bluff in accordance with section 10-12-4 of this chapter.

C. Protection Standards: All construction activities permitted pursuant to this subsection shall be performed in a manner: 1) to cause the least possible disruption of the natural features of a bluff or ravine protection area; and 2) to be consistent with the purposes and intent of this chapter as expressed in section 10-12-1 of this chapter. Specifically, during any such permitted construction activities, natural drainage shall be maintained to the maximum extent possible. Runoff from impervious surfaces shall be conveyed to existing storm sewers, wherever possible, or, if approved by the village engineer, channeled into the bluff or ravine in a manner to minimize the impact or damage to the bluff or ravine protection area. (Ord. 99-9, 3-8-1999; amd. Ord. 2016-17, 6-27-2016)

VILLAGE OF LAKE BLUFF - TITLE 10 ZONING REGULATIONS

10-12-6: CONSTRUCTION ACTIVITY ON BLUFF AND RAVINE PROPERTY:

The following restrictions and requirements shall apply to all construction activities on bluff/ravine property:

A. Plat Of Survey Required: Unless otherwise waived by the village engineer, any application for a building permit for any construction activity on any bluff/ravine property shall include a plat of survey prepared within one year of the date of application for the subject permit. The plat shall be sealed by a licensed surveyor and shall include, at a minimum, the following elements and information:

1. The lot lines of the bluff/ravine property;
2. The curvilinear line defining the top ravine edge or top bluff edge, or both, as the case may be (see section 10-13-1, illustrations 15A and 15B of this title);
3. The total square footage of the bluff/ravine property along with supporting calculations;
4. The location of all existing improvements on the bluff/ravine property in relation to the top ravine edge or the top bluff edge, or both, as the case may be;
5. The location of all proposed new improvements in relation to the top ravine edge or the top bluff edge, or both, as the case may be, clearly distinguished from existing improvements (see section 10-13-1, illustrations 15A and 15B of this title);
6. The existing and proposed grades;
7. The existing and proposed top of foundation elevations, using the same elevation data as used for site grades;
8. Bench mark with elevation and location clearly defined;
9. The location of all existing and proposed utility lines, including storm drainage facilities; and
10. A demonstration of the ways in which the applicant will ensure that all construction activities are in compliance with this chapter and that all such activities will be performed in a manner: a) to cause the least possible disruption of the natural features of a bluff or ravine protection area; and b) to be consistent with the purpose and intent of this chapter as expressed in section 10-12-1 of this chapter.

B. Fencing: A temporary fence shall be erected along a line that is ten feet (10') from the top ravine edge or top bluff edge, or both, as the case may be, during any development or construction activity on bluff/ravine property. For any construction activity that is permitted pursuant to this chapter to be within said ten foot (10') area, such fencing as the village engineer shall determine is necessary to prevent adverse impacts on the ravine or

VILLAGE OF LAKE BLUFF - TITLE 10 ZONING REGULATIONS

bluff, or both, as the case may be, shall be required. Any such fence shall be removed upon completion of the development or construction activity.

C. Grading And Restoration: Upon completion of any development or construction activity on bluff/ravine property, appropriate grading and restoration work shall be performed, as required by the village engineer, in order to ensure protection of the bluff and ravine protection areas. (Ord. 99-9, 3-8-1999)

10-12-7: PROTECTION AND MAINTENANCE OF BLUFF AND RAVINE PROPERTY:

A. Filling And Dumping Prohibited: No garbage, construction debris, or landscaping materials shall be dumped or filled in any bluff or ravine protection area.

B. Drainage: Measures shall be required to control stormwater runoff from structures and other improved surfaces on bluff/ravine properties. Wherever feasible, such runoff shall be collected and carried to municipal storm drainage facilities located away from ravines and bluffs. If discharge directly into municipal storm drainage facilities is not feasible, drainage shall be collected and discharged directly into the base of the ravine or bluff channel via continuous, nonperforated drain lines designed to collect stormwater runoff prior to the runoff reaching the ravine or bluff area. Such drainage lines shall be buried on the slopes of the ravine or bluff, and required excavations shall be located to minimize damage to trees and the slope of the ravine or bluff. In no event shall the point source discharge of water be allowed on or near any side of any ravine or bluff. A complete site drainage plan shall be required as part of the site plan submittal required pursuant to subsection 10-12-6A of this chapter.

C. Vegetation: Native vegetation shall be maintained to the greatest extent possible within all bluff and ravine protection areas. Section 10-13-1 of this title, illustration 16, provides a nonexclusive list of native vegetation that bluff/ravine property owners are encouraged to utilize within all bluff and ravine protection areas. (Ord. 99-9, 3-8-1999)

10-12-8: WALKOUT BASEMENTS:

Notwithstanding the otherwise applicable provisions of subsection 10-5-6B1 of this title, for any principal structure on bluff/ravine property that has a walkout basement with a rear wall located in a ravine or within a ravine protection area, a percentage of the floor area of the walkout basement shall be included in the gross floor area of the bluff/ravine property. The total additional square footage to be included in the gross floor area calculation for any such walkout basement shall be forty percent (40%) of the total area, in square feet, of all portions of the finished floor that are enclosed by lines extending perpendicular from the basement wall facing the ravine to the opposite basement wall across the full width of the exposed portion of the basement wall at a height of two feet (2') above grade. The resulting square footage shall be included in the gross floor area of the bluff/ravine property. See section 10-13-1 of this title, illustration 17. (Ord. 99-9, 3-8-1999)

VILLAGE OF LAKE BLUFF - TITLE 10 ZONING REGULATIONS

10-12-9: NONCONFORMITIES:

A. Damage Or Destruction:

1. If all or any part of any structure, building, or any other type of at grade improvement that is, as of March 9, 1999, nonconforming with regard to the provisions of this chapter, is damaged, destroyed, or torn down by any means, whether or not within the control of the owner thereof, then the particular type of structure, building, or improvement may be repaired, restored, rehabilitated, or rebuilt; provided, however, that no such repair, restoration, rehabilitation, or rebuilding shall be made that would create any new nonconformity or that would increase the degree of any nonconformity existing prior to such damage, destruction, or tear down, as provided in subsection B of this section.

2. Notwithstanding subsection A1 of this section, all such repairs, restorations, rehabilitations, and rebuilding shall be in strict conformity with the applicable zoning district regulations and with the regulations of this chapter unless a building permit is obtained and restoration is actually begun within one year after the date of such damage, destruction, or tear down and is diligently pursued to completion.

B. Horizontal Extension; Change In Type Of Structure: For purposes of this section, the horizontal extension of a nonconforming structure, or the change in the type of structure, shall be construed to increase the degree of the existing nonconformity of the structure unless such horizontal extension or such change in the type of structure conforms to all applicable zoning regulations including the regulations set forth in this chapter. (Ord. 99-15, 5-24-1999)

CITY OF LAKE FOREST - CHAPTER 159: ZONING

§ 159.002 RULES AND DEFINITIONS. - **EXCERPTS**

BLUFF AREA. Includes all property within or adjacent to a bluff beginning at the point of intersection of a line with the table land, said line extending from the toe of the slope upward at a vertical angle of 22 degrees. (See Appendix A.)

BLUFF EDGE. The point on the lake side of the table land where the slope of the land first exceeds 10%. (See Appendix A.)

TABLE LAND. Land where the slope in any direction does not exceed 10%.

TOE OF SLOPE. The toe of the ravine or bluff slope is that point in the ravine or bluff where the slope is less than 22 degrees or where the slope reverses direction. On compound slopes where there may be more than one possible toe location, the controlling point shall be whichever toe location provides the greater ravine or bluff area.

§ 159.015 STEEP SLOPES.

(A) Purpose. The provisions contained herein are adopted to protect public and private property from damage or destruction resulting from the natural erosion processes occurring within the ravines and bluffs along the shore of Lake Michigan, or abnormal or accelerated ravine and bluff erosion resulting from land development and construction activities occurring on adjacent or nearby properties, and to protect the fragile ravine and bluff ecosystem from unwarranted damage or destruction caused by land development and construction activities.

(B) Applicability. The provisions contained herein shall apply to all land development construction activities on all properties abutting ravines and bluffs as delineated by hashed lines on Appendix F.

(C) Requirements and restrictions.

(1) Building setbacks.

(a) From ravines. All building construction shall be on table land, but in no case shall any structure or building foundation be located closer than 20 feet to the ravine area.

(b) From bluffs. All building construction shall be on table land, but in no case shall any structure or building foundation be located closer than 75 feet to the bluff area.

(2) Construction activity.

(a) Adjacent to ravines. All construction activity; i.e., grading, excavating, filling, terracing, tree removal, stockpiling of excavated material, is prohibited within 20 feet of the ravine area, except as may be necessary to provide site drainage improvements, as may be approved and/or required by the City Engineer.

CITY OF LAKE FOREST - CHAPTER 159: ZONING

(b) Adjacent to bluffs. All construction activity, i.e., grading, excavating, filling, terracing, tree removal, stockpiling of excavated material, is prohibited within 50 feet of the bluff edge, except as may be necessary to provide site drainage improvements, as may be approved and/or required by the City Engineer.

(3) Site landscaping. Upon completion of construction activities, minimal grading and clearing of existing vegetation may be allowed within the bluff or ravine area in order to install new vegetation and lawn landscaping. However, no such grading, clearing or landscaping will be permitted within 20 feet of the ravine edge or within 50 feet of the bluff edge.

(4) Site drainage. A site grading permit, approved by the City Engineer, shall be required before any site grading work may take place. Measures shall be required to control stormwater runoff from impervious areas, lawns and footing drains. Wherever feasible, such runoff shall be collected and carried to established storm drainage facilities located away from the ravine or bluff area as the case may be. If discharge into an established storm drainage structure is not feasible, drainage shall be collected and discharged into the ravine channel or from the top of the bluff to its base in a manner which minimizes disruption of the ravine or bluff slope and potential erosion of the bluff slope and potential erosion of the bluff toe or the ravine toe and channel, subject to the specific approval of the City Engineer.

(5) Channel modification. Where the City Engineer finds that an unstable ravine or bluff slope or toe exists or is likely, or where the configuration of the ravine channel has resulted in erosion or suggests the probability of future erosion, channel, toe or slope stabilization measures may be required by the City Engineer.

(6) Required information. Prior to submission to the city of a request for tentative approval of a plat of subdivision or review of an application for a building permit, the owner or agent of the owner of property, subject to this section, shall submit to the City Engineer all applicable site information, including, but not limited to, topography, existing trees and vegetation, ravine and/or bluff conditions (including establishment of the limits of the ravine or bluff area), geological and soil conditions, proposed plans for landscaping and lawn installation, and such other information as may be deemed necessary by the City Engineer in order to implement the policy and requirements of this section.

(D) Review guidelines and approval procedures.

(1) The City Surveyor and Engineer may approve encroachments into the bluff or ravine setback area for the construction of landscape features, auxiliary buildings (slab foundation), bridges, wood decks or other similar facilities, if the City Surveyor and Engineer finds that:

(a) The proposed construction is appropriate only for the requested location;

(b) The proposed construction will have no significant impact on the ravine or bluff area; and

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(c) The proposed construction is of relatively low value, except for items related to ravines such as vehicular bridges.

(2) The Zoning Board of Appeals may consider variations from the requirements of this section for construction of habitable facilities such as room additions or new residences, and construction of significant auxiliary buildings. In considering such variations, the following guidelines, in addition to the four findings of fact as set forth in § 159.042(F)(4)(b) shall be considered:

(a) Construction in the 20 foot setback for the 22 degree slope intersect could be recommended if there exists adequate toe of slope improvements;

(b) Construction in the 22 degree slope angle could be recommended if there exists adequate slope or other improvements that effectively increase the stable slope angle;

(c) Variation from building on land that exceeds 10% slope but is outside of the 20 foot setback from the 22 degree slope angle could be recommended if entire slope shows no indication of instability; and

(d) Variation from any restriction could be recommended if the requested construction is less nonconforming than the existing residence and the ravine or bluff slope does not show any indication of instability; or if the applicant submits evidence based on current geotechnical engineering practices such as the Simplified Bishop Method of stability analysis whereby variables of soil shear strength, ground water level, unit weight of soil and slope angles are considered which result in the determination that the particular slope is stable at an angle greater than 22 degrees.

(Prior Code, § 46-15) (Ord. eff. 1-15-1972; Ord. 91-1(A), passed 1-7-1991)

APPENDIX A: EXAMPLE OF LOT TYPES

(Prior Code, Ch. 46, App. A., Exh. 1) (Ord. eff. 1-15-1972; Ord. 91-1(A), passed 1-7-1991)

APPENDIX B: LOT WIDTH AND LOT DEPTH EXPLAINED

(Prior Code, Ch. 46, App. A., Exh. 2) (Ord. eff. 1-15-1972; Ord. 91-1(A), passed 1-7-1991)

APPENDIX C: REQUIRED YARDS

(Prior Code, Ch. 46, App. A., Exh. 3) (Ord. eff. 1-15-1972; Ord. 91-1(A), passed 1-7-1991)

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APPENDIX D: BUILDINGS; PRINCIPAL AND ACCESSORY

(Prior Code, Ch. 46, App. A, Exh. 4) (Ord. eff. 1-15-1972; Ord. 91-1(A), passed 1-7-1991)

APPENDIX E: EXAMPLE OF LOT-IN-DEPTH SUBDIVISION

(Prior Code, Ch. 46, App. A, Exh. 5) (Ord. eff. 1-15-1972; Ord. 91-1(A), passed 1-7-1991)

APPENDIX F: STEEP SLOPES MAP





MEMORANDUM VILLAGE OF WINNETKA

ENGINEERING DEPARTMENT

TO: Robert M. Bahan, Village Manager
FROM: James Bernahl, Director of Engineering / Village Engineer
CC: Emily Grimm, Assistant Village Engineer
DATE: January 6, 2023
SUBJECT: Engineering Regulations for Lake Front Properties

Overview

The Village Council has requested information regarding current Engineering regulations and permitting requirements for properties along the lakeshore including proposed work within the bluff and along the coastal beach of Lake Michigan. Included within this memo is an overview of current Engineering design standards as well as required Federal, State, and County permitting requirements. There are 112 properties in the Village of Winnetka that abut the lakefront, two owned by the Village along with various right of ways, and eight owned by the Winnetka Park District. Based upon Engineering records along the lakeshore of Winnetka there are 25 groins and 16 breakwaters. Please see the attached lakefront property map and exhibit showing the locations and dates of installation of groins and breakwaters within our Village.

Winnetka Existing Engineering Regulations

The Village's has two major code provisions that the engineering staff use to conduct its engineering reviews. The first is the Stormwater Management Code, Title 15, Chapter 15.26. This code details the requirements for the discharge of stormwater and the grading of a residential, institutional, or commercial property. The second applicable section of code is the Flood Hazard Protection Ordinance, Title 15, Chapter 15.68. This section of code regulates the areas of the Village within the floodplain, and there are portions of floodplain along the coast of Lake Michigan. The Village also has an Engineering Design and Inspection Policy Manual that details standards for projects that are permitted within the Village. This manual also includes standards for new private utilities such as sanitary and storm sewer services, and potable water services. In addition, this manual includes requirements for proper grading of lots and ingress / egress requirements. This document is available on the Village's website and a link to the manual is provided below:

<https://www.villageofwinnetka.org/DocumentCenter/View/199/Public-Works-and-Engineering-Design-Guidelines-PDF?bidId=>

For new homes, the Engineering Department requires the applicant to obtain drainage and grading permits prior to construction. For new homes being proposed along the lakefront, structures must be elevated to the Flood Protection Elevation (FPE). The FPE is defined as the base flood elevation plus 2 feet. Along Lake Michigan, the base flood elevation varies from 587 to 594. This requirement for elevated structures is usually easily met as the buildable area along the lake is

typically much higher than the floodplain elevation, which is typically at lower elevations and below the slope or bluff area. The FPE requirement also applies for accessory structures such as pool houses, workshops, or guest houses. Our code does have a provision for detached garages, or other small non-habitable accessory structures that allow those structures to be built within the floodplain and not elevated as long as they are a “flow-through” structure that is made with flood resistant materials.

Currently, the Village does not require new homes constructed along the lakefront to provide stormwater detention if they can demonstrate that the entirety of the stormwater on the developed lot is captured by the on-site stormwater system and released in a controlled manner directly into the lake. Detention is not required in these cases because the runoff is being managed on the property and is not being sent to the Village’s storm sewer system. By avoiding the developed property’s stormwater discharge to the Village sewer system there is no adverse effect caused to downstream properties. This practice is also consistent with MWRD’s stormwater detention policy, as they also do not require detention for properties that drain directly to the lake.

Throughout much of Winnetka, including east of Green Bay Road, the Village has separate sanitary and storm sewer systems. It should also be noted that all stormwater east of Green Bay Road is collected through the separate Village storm sewer system and is conveyed into Lake Michigan . The separate stormwater system has been in place for decades. Allowing properties to directly discharge to the lake reduces the additional volume of stormwater entering the Village storm sewer thus increasing the capacity of the stormwater system. The stormwater system east of Green Bay Road are currently undersized compared to the current design standards by the Village and MWRD, and there are problematic flooding areas on the east-side that need to be evaluated and addressed. An Engineering Department objective for 2023 is to begin the analysis of improving the east-side storm sewer system.

For lakefront properties, stormwater must be captured on-site and released via a storm sewer service line to the lake. The standard storm service line is a minimum of six inches in diameter. If a different sized pipe is proposed, the design engineer must provide calculations to verify the proposed pipe can control the property’s stormwater entirely onsite. The proposed storm sewer service line must be taken to the bottom of the bluff to ensure that the outfall does not erode the bluff. There also must be erosion control measures installed at the outfall to dissipate energy and prevent beach erosion. The Village does not allow stormwater to sheet flow over the bluff towards the lake, as this can cause erosion. The practice of allowing residential storm water to be discharged to the Lake, if it is controlled and brought to the bottom of the bluff, is consistent with other surrounding communities along the lakefront.

For applications proposing to use a singular large pipe, or multiple smaller pipes in tandem, to discharge residential stormwater to the lake, these applications must meet the same requirements noted above. The Engineering Department requires that the design firm certify the proposed discharge pipe is properly sized to manage the release rate volume and velocity. In addition, the firm must also certify the required erosion protection placed at the outfall of the pipe is properly designed to dissipate the energy of the storm water. A drainage and grading permit is required this type of work.

For all work on or adjacent to the bluff, including retaining walls adjacent to the top of the slope, a geotechnical and structural engineering plan is required. The geotechnical engineer and structural engineer must professionally certify that the retaining walls and slope will be stable and will be reasonably safe from failure, during construction, as well as upon completion of the project. This certification is required as part of the original permit submittal and must be reconfirmed as part of the as-built submittal at the conclusion of the project. All certifications must be on the company's letterhead, and be signed, sealed, and dated by the professional engineers of record. The structural engineer must also certify that their design meets or exceeds the recommendations of the geotechnical engineer.

Throughout construction, silt fencing, inlet protection, tree protection, and other erosion prevention measures are required. The Village requires the permittee to submit a Stormwater Pollution Prevention Plan (SWPPP) that details the location and installation of all erosion control practices. The SWPPP must remain in place until the slope has been re-established and stabilized with vegetation.

With respect to groins, breakwaters, etc. the Village currently does not issue permits for these types of structures that extend out into the Lake Michigan. While the Village currently has three licensed profession engineers (PEs) on staff, they do not have the specific knowledge or experience to independently review detailed structural applications or certify shoreline improvement projects.

Coordination with Federal, State, and County Agencies

Construction adjacent to Lake Michigan requires permits from the Illinois Department of Natural Resources (IDNR), the Illinois Environmental Protection Agency (IEPA), and the U.S. Army Corps of Engineers (USACE). The IDNR, Office of Water Resource (OWR) issues permits for construction on Lake Michigan. A joint application form is used by these three regulating bodies, but must be submitted separately to each agency.

On Lake Michigan, the IDNR/OWR's regulatory jurisdiction is the toe-of-bluff or the Ordinary High Water Mark (OHWM) of 581.5, whichever is more restrictive. The IDNR/OWR issues a joint permit with the IEPA. The IDNR uses Part 3704 Rules to review all applications for permit for construction in Lake Michigan; these rules can be found here: <https://www2.illinois.gov/dnr/WaterResources/Documents/3704.pdf>

The USACE has established a Lake Michigan Regional General Permit (LMRGP) for activities located within Lake Michigan. These activities are reviewed under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act. More information on this permit can be found here: https://www.lrc.usace.army.mil/Portals/36/docs/regulatory/pdf/LMRGP/2020_LMRGP.pdf

The owner must obtain all necessary regulatory permits from IDNR, IEPA, and the USACE. Permits for all work located within these jurisdictions must be obtained, or have a letter of determination that no permit is required, by the affected jurisdictions, and submitted to the Village, prior to the issuance of a Village permit.

MWRD Authority

The Base Flood Elevation (BFE) of Lake Michigan varies from 587-594 along the Village's eastern boundary, depending on the location. If a lot falls within multiple coastal BFE zones, the most restrictive elevation is used. Any work below the BFE will be determined to be inside the floodplain and requires a Watershed Management Ordinance (WMO) permit from the MWRD. Any proposed structures within the floodplain must be elevated to the Flood Protection Elevation (FPE), which is the BFE plus two feet. Since the area is classified as a VE zone, or a coastal zone, the structures cannot be elevated using fill, they must be built on piers or piles.

As a general rule, MWRD requires permits for projects along the Lake for the following development activities:

- Qualified storm sewer construction
- Potential or actual wetland impacts
- Potential or actual impacts to riparian areas
- Construction or reconstruction of outfalls to the Lake
- Construction of or modifications to habitable structures

New or modified storm sewer outfalls must comply with the standards outlined in the WMO. Single-family storm sewer services are allowed to discharge directly to the Lake if all of the requirements for storm sewer outfalls are met.

The WMO explicitly exempts projects solely in Lake Michigan, such as groins and breakwaters, that are approved by the USACE and IDNR that do not involve a qualified sewer.

Projects between the OHWM of the Lake and the BFE that do not include any of the permit triggers listed above are not subject to detention or compensatory storage, per MWRD policy. Given the proximity of these residential projects to the Lake, requiring volume control or detention serves no benefit to downstream properties and is thus not required by the MWRD.

Permits for work under the MWRD's jurisdiction must be obtained or have a letter of determination that no permit is required and submitted to the Village prior to the issuance of a Village permit. Although the Village is an Authorized Community and has the authority to internally review MWRD permits, as a practice, for proposed projects located within the bluff or coastal limits, the Village authorizes MWRD to review, and requires that the permit be approved and issued directly by the MWRD.

Northshore Lakefront Community Comparisons

Lake Bluff, Lake Forest, Highland Park, Glencoe, and Kenilworth have steep slope ordinances that limit the type of development that can be constructed on the bluff. For a more detailed breakdown of these ordinances, refer to the memo from Community Development. All of these communities allow storm sewer discharges into the Lake, if the storm water is taken to the bottom of the bluff, and appropriate erosion control at the outfall is provided. Two communities, Wilmette and Evanston, do not have steep slopes ordinances, and, like Winnetka, rely on their stormwater and floodplain ordinances to regulate these areas.

Only one community, Highland Park, has regulations that extend out past the toe of the bluff and defines a Lake Front Overlay Zone (LFOZ). The ordinance defines a “Lake Michigan Protection Zone” that extends 3 miles into the Lake. The Lake Michigan Protection Zone includes all lands within Lake Michigan and the private and other property located between Lake Michigan and the termination of the Steep Slope Zone. This section of code has specific zoning regulations, as well as Lake Michigan protection regulations. The purpose of the ordinance is intended to preserve the spacious character and existing density of the area. The Lake Front Overlay Zone is also intended to protect and preserve the ravines, lake bluffs, and beaches in the area, and to prevent erosion by increased development. This code section does not explicitly prohibit any specific structures in the Lake, but does require that all structures abide by the standards outlined in the ordinance, and all structures in the Lake are reviewed and approved by the City. If there is a particularly complex or large project to be permitted in the Lake, Highland Park has indicated that staff will contract with an engineering firm knowledgeable in coastal engineering to review if needed. Highland Park did emphasize that the need for an outside review is evaluated on a case-by-case basis.

All of these communities still rely on the knowledge and expertise of the USACE and IDNR to review and inspect groins, break walls, and other structures that extend out into the Lake as part of Federal and State review and approval process.

In Winnetka and surrounding communities if a permit is received directly, or the municipality is notified of a permit application by IDNR/USACE/IEPA, related to work in Lake Michigan, the municipality will review the application for completeness and offer comments as needed. Historically, municipalities do not deny applications for groins or breakwaters, that are approved by IDNR and USACE, that are proposed to be installed for erosion and shoreline protection. However, as noted above, depending on the complexity of the application, a municipality may seek consulting services.

A summary of existing groins and breakwaters in Lake Michigan for surrounding communities is included below. As can be seen in the table below, the Village of Winnetka is similar to other surrounding communities in the amount of in-water structures.

Municipality/ Permit Authority	Number of existing groins	Number of existing breakwaters
Lake Bluff	20	7
Lake Forest	36	8
Highland Park	72	10
Glencoe	19	3
Winnetka	25	16
Kenilworth	5	1
Wilmette	8	7
Evanston	5	8

Other Studies and Investigations

The Illinois Costal Management Program (CMP) is a non-regulatory division of IDNR that is dedicated to protecting and enhancing the environmental, economic, and social value of Illinois' Great Lakes Costal Region. Since its inception, the CMP has completed dozens of valuable projects in all areas of progressive costal management through its committed team of scientists, communicators, and other coastal professionals.

The CMP releases a section 309 Assessment and Strategy every five years. The purpose of the section 309 assessment is to determine problems and opportunities within nine enhancement area, which include wetlands coastal hazards, public access, marine debris, cumulative and secondary impacts, special area management plans, Great Lakes resources, energy and government facility siting, and aquaculture. The plan includes Phase I assessments for all 9 enhancement areas, and phase II assessments for high priority areas. Costal hazards, public access, and energy and government facility siting were all deemed high priority areas. The latest Section 309 Assessment covers 2016-2020 and can be found here: <https://www2.illinois.gov/dnr/cmp/Documents/Section309/ICMPSection309PlanFINAL.pdf> (note that former Village of Winnetka Public Works Director Steve Saunders was on the Costal Advisory Group for this report and provided input and participated in the information gathering for the report.)

The IDNR also has a Shoreline Management Working Group that includes a research and data team. The team draws from the expertise from the Illinois State Geological Survey (ISGS) that helps improve our understanding of coastal change through solution-focused monitoring and research. This work has included monitoring coastal topography and bathymetry to better understand how the shoreline responds to fluctuating lake levels, storms, and winter ice. This work has also specifically assessed the shoreline change between Winthrop Harbor and Waukegan, IL over the past 8 decades in the context of weather data.

Attachments:

Attachment A: Stormwater Management Code, Title 15, Chapter 15.26

Attachment B: Flood Hazard Protection Ordinance, Title 15, Chapter 15.68

Attachment C: Lakefront Property Map

Attachment D: Approved Historical Permits Map

Attachment A
Stormwater Management Code

Chapter 15.26

STORMWATER MANAGEMENT CODE

Sections:

- 15.26.010 Title.
- 15.26.020 Scope.
- 15.26.030 Rules of construction.
- 15.26.040 Definitions.
- 15.26.050 Enforcement and penalties.
- 15.26.060 Separate systems for sanitary and storm sewers.
- 15.26.070 Watershed management permits.
- 15.26.080 Responsibility of owner.
- 15.26.090 Inspection of stormwater sewer connection.
- 15.26.100 Construction requirements.
- 15.26.110 Storm and surface water connections.
- 15.26.120 Use of stormwater sewers.

Section 15.26.010 Title.

This chapter shall be known, cited and referred to as the Winnetka Stormwater Management Code.
(MC-5-2014 § 5, 04/17/2014)

Section 15.26.020 Scope.

This chapter establishes the minimum requirements for construction activities in the Village pertaining to storm sewers for buildings, including their design, construction, maintenance, operation and connection into the public stormwater sewer systems.

(MC-5-2014 § 5, 04/17/2014)

Section 15.26.030 Rules of construction.

A. In the event of a conflict between the provisions of this chapter and any other provision of this code or applicable statutes, the provision imposing the stricter regulation, as determined by the Director of Public Works, shall prevail unless such interpretation is otherwise prohibited by law.

B. Words in the singular shall include the plural and words used in the plural shall include the singular.

(MC-5-2014 § 5, 04/17/2014)

Section 15.26.040 Definitions.

A. Terms Defined in Other Ordinances and Codes. Terms used in this chapter, but not otherwise defined, shall have the meanings ascribed to them in the Building Code, the Zoning Ordinance, this code or the codes adopted by reference in Chapter 15.08 of this Code, including without limitation, the Watershed Management Ordinance adopted by reference in section 15.08.040(J) of this code, except that wherever the term "Director" is used in the Building Code, for purposes of this chapter it means the Director of Public Works, and wherever the term "Department" is used in the Building Code, for purposes of this chapter it means the Department of Public Works. The following terms shall have the meanings ascribed to them in the Illinois State Plumbing Code, 1993 Edition, as promulgated by the Department of Public Health in Title 77 of the Illinois Administrative Code, Chapter I, subchapter r, Part 890, as amended, which definitions are adopted by reference: building drain, building sewer, sewage, public sanitary sewer, storm sewer, combined building sewer.

B. Definitions. For purposes of this chapter, certain words are defined as follows:

"Natural outlet" means any outlet into a watercourse, pond, ditch, lake, or other body of surface or groundwater.

"WMO" or "Watershed Management Ordinance" means the Metropolitan Water Reclamation District of Greater Chicago Countywide Watershed Management Ordinance, October 2013, as amended, and as adopted by reference in Section 15.08.040(J) of this code.

(MC-5-2014 § 5, 04/17/2014)

Section 15.26.050 Enforcement and penalties.

Enforcement of this chapter, including penalties for violations, shall be pursuant to the provisions of Section 15.04.080 of this code.

(MC-5-2014 § 5, 04/17/2014)

Section 15.26.060 Separate systems for sanitary and storm sewers.

Each building shall be provided with a separate outlet for stormwater. The building stormwater service pipe shall be connected and fitted into the public stormwater sewer, if any, by the owner of the property being served. No sewer connections that will permit sanitary sewage to drain into any public stormwater sewer shall be made. No storm or surface water from any building or property shall be permitted to drain into any public sanitary sewer.

(MC-5-2014 § 5, 04/17/2014)

Section 15.26.070 Watershed management permits.

A. Permits Required. No building drain, private stormwater sewer for connection to any public sewer system shall be laid, nor shall any person lay, alter or disturb any part of any public sewer or drain connected into any public sewer system, nor shall any person perform land grading, stormwater management, or other development regulated by the Cook County Watershed Management Ordinance, without first having obtained a permit for such work from the Director of Public Works. In the event a permit from the Metropolitan Water Reclamation District of Greater Chicago is required for connection to the sewer system, such permit shall be obtained before the Village permit becomes effective and before any work begins.

B. Permit Applications. Applications for sewer permits shall be submitted by the owner on forms provided by the Director of Public Works. The application shall be accompanied by all required fees and deposits, which shall be set by resolution of the Village Council. The sewer contractor shall have a permit bond on file with the Director of Public Works prior to Village's acceptance of a sewer permit application. Any remaining permit or other fees owed to the Village shall be paid in full prior to any approved permit being released or in force.

(MC-5-2014 § 5, 04/17/2014)

Section 15.26.080 Responsibility of owner.

A. Except as provided in the following paragraph 2, the owner of the property to which storm sewer service is supplied shall be responsible for installing, repairing and maintaining, at the owner's expense, all drains, connections and fittings for the building sewer connections into the public sewer systems.

B. All repairs to that portion of the main public sewer line or pipe encompassed within its outer circumference shall be made by and at the expense of the Village. All repairs to the building sewer, including that portion of the connection, "Y," or "T" lying outside of the outer circumference of the main public sewer line or pipe, shall be made by and at the expense of the owner of the premises served. Where the depth of a portion of the building sewer requiring repair under a public right-of-way exceeds 12 feet below grade, repairs shall require the inspection and approval of the Village Engineer prior to the commencement of and at the completion of any repair work, and the Village shall reimburse the owner of the premises served 50% of the reasonable and customary cost of the below grade sewer repair work approved by the Village Engineer. Notwithstanding any of the foregoing, the owner of the premises served shall in all circumstances be responsible for the entire cost of surface restoration required as the result of any repair work.

C. In the event that a failure develops or occurs in that portion of the building sewer to be maintained by the owner of the premises, the Village may close the public water service valve and discontinue the service of water to the premises until the required repairs are made to the defective portion of the building sewer by the owner of the premises.

(MC-5-2014 § 5, 04/17/2014)

Section 15.26.090 Inspection of stormwater sewer connection.

A written notice of intention to make a connection with a public stormwater sewer shall be filed at the office of the Director of Public Works at least twenty-four (24) hours before such connection is made. Every connection shall be left uncovered until it has been inspected and approved by the Director of Public Works, or an inspector from his or her office.

(MC-5-2014 § 5, 04/17/2014)

Section 15.26.100 Construction requirements.

A. Public Works and Engineering Design Guidelines. All design and construction of storm sewers, detention facilities, stormwater management facilities, and land grading, and other stormwater management or runoff control activities shall be in conformance with the Public Works and Engineering Design Guidelines.

B. Drainage of Surface Water. To diminish or remove any adverse impact of surface water drainage and run-off on an adjacent property, no new building, other structure or addition shall be constructed which will result in the surface water run-off, during and following construction of any such improvement, at a rate greater than the water run-off immediately prior to such construction and no building permit shall be issued unless and until the Village Engineer determines that the construction complies with the applicable requirements of this chapter, the Public Works and Engineering Design Guidelines, and the Watershed Management Ordinance.

C. Land Grading. No permit shall be issued for any land grading that will permanently alter the existing land elevation or grade of a parcel of property so as to cause surface water runoff to be diverted onto or detained on abutting or nearby property, significantly alter existing drainage patterns, or increase or concentrate stormwater runoff onto abutting or nearby property.

D. Stormwater Detention Required. Developments required to provide storm water detention on site, include, but are not limited to multiple lot single family residential subdivisions, single family residential subdivisions of an individual lot, multi-family residential development and commercial developments.

E. Stormwater Detention Design Standards.

1. New home construction on a previously developed lot shall provide storm water detention for the volume difference between using the runoff coefficient based upon the maximum impermeable lot coverage, per the Village of Winnetka's Zoning Code, and the runoff coefficient based upon the existing condition, for a 100-year storm event. The allowable release rate for both conditions will be determined by using a runoff coefficient of 0.15 and the rainfall intensity for a 3-year storm event. New home construction on a previously undeveloped site, or the redevelopment of a site for a different use (i.e. single family to multi-family, or commercial redevelopment) shall provide storm water detention for the total required detention volume based upon a 100-year storm event, using a runoff coefficient based upon the maximum impermeable lot coverage, and the allowable release rate using a runoff coefficient of 0.15 and a rainfall intensity for a 3-year storm event.

2. Improvements to an existing home and/or lot, causing an increase in impermeable lot coverage greater or equal to 25%, shall provide storm water detention for the difference between the proposed and existing condition, for a 100-year storm event and an allowable release rate based upon a 3-year storm event and a runoff coefficient of 0.15. The actual proposed lot coverage may be used to calculate the proposed runoff coefficient.

3. The storm water detention facilities shall be designed in accordance with the requirements of the Metropolitan Water Reclamation District of Greater Chicago for storm water detention as modified by the rainfall frequencies set forth in Bulletin 70 "Frequency Distribution and Hydroclimatic Characteristics of Heavy Rainstorms in Illinois" prepared by the Illinois State Water Survey, 1989. Design high water level (HWL) will consist of the elevation of the storm water in a 100-year storm event.

4. Stormwater storage volume located within best management practices, such as a rain garden or the aggregate base of permeable pavement, that are not otherwise required for site development shall be credited toward the required detention volume.

5. For projects required to provide storm water detention by the WMO, the detention design shall meet the requirements of Article 5 of the Watershed Management Ordinance.

(MC-5-2014 § 5, 04/17/2014)

Section 15.26.110 Storm and surface water connections.

A. General Requirement. Except as provided in subsection B of this section, all storm or surface water connections, except downspouts for draining roofs, shall be connected to an approved building stormwater service pipe.

B. Roof Downspouts. All downspouts shall drain onto the ground unless doing so will result in an adverse effect on other private or public properties from such drainage. Downspouts drainage shall be diverted toward an on-site drainage system such as a yard inlet or swale, prior to entering the public storm sewer system. No roof downspout shall connect to the storm sewer service line unless the owner of the property first obtains a permit from the Director of Public Works.

(MC-5-2014 § 5, 04/17/2014)

Section 15.26.120 Use of stormwater sewers.

A. Prohibited Uses. It is unlawful to discharge or permit to be discharged to any public or private storm sewer any substances, materials, or waters if it appears likely in the opinion of the Director of

Public Works that such works can harm either the sewers or equipment; have an adverse effect on the receiving water body; violate limits established by regulatory agencies having jurisdiction over discharge to the receiving waters; or can otherwise endanger life or public property, or constitute a nuisance.

(MC-5-2014 § 5, 04/17/2014)

Attachment B
Flood Hazard Protection Regulations

Chapter 15.68

FLOOD HAZARD PROTECTION REGULATIONS

Sections:

15.68.010 Regulations of National Flood Insurance Program adopted.

15.68.020 Definitions.

15.68.025 Administration and Enforcement

15.68.030 Duties of the Director.

15.68.040 Base flood elevation.

15.68.050 Occupation and use of flood fringe areas.

15.68.060 Occupation and use of identified floodways.

15.68.070 Occupation and use of floodplain areas where floodways are not identified.

15.68.080 Permitting requirements applicable to all floodplain areas.

15.68.090 Other development requirements.

15.68.100 Variances.

15.68.110 Disclaimer of liability.

15.68.120 Penalties.

15.68.130 Construction and other code provisions.

15.68.140 Effect of regulations.

15.68.010 Regulations of National Flood Insurance Program adopted.

The rules and regulations of the National Flood Insurance Program as codified in the Code of Federal Regulations, Title 44, Chapter 1, subchapter B, Part 59, et seq., as amended, are adopted by reference and filed in the office of the Village Clerk. (Prior code § 28.01)

(MC-4-2021, § 2, Amended 8/3/2021)

15.68.020 Definitions.

Terms used in this chapter mean as follows:

"Accessory structure" means a non-habitable building, used only for parking of vehicles or storage, that is on the same parcel of property as the principal building and the use of which is incidental to the use of the principal building.

"Act" means "An Act in Relation to the Regulation of the Rivers, Lakes and Streams of the State of Illinois," Illinois Revised Statutes 1991, Chapter 19, Paragraph 52, et seq.

"Applicant" means any person, firm, corporation or agency which submits an application pursuant to this chapter.

"Appropriate use" means a use of the regulatory floodway that is listed in 17 Illinois Administrative Code 3708 and that will not cause a rise in the base flood elevation and will not create a damaging or potentially damaging increase in flood heights or velocity or be a threat to public health and safety. Approved appropriate uses are specified in Section 15.68.060(D) of this chapter.

"Average lot grade" means the mathematical average of the ground elevation as measured at all of the corners of the buildable area of a parcel of land. As used in this definition, the term "buildable area" shall have the same definition as provided in Section 17.04.020(B)(6) of this Code.

"Base flood" means the flood having a one percent probability of being equaled or exceeded in any given year. The base flood is also known as the one hundred (100) year frequency flood event. The base flood is often referred to as the 100-year flood.

"Base flood elevation (BFE)" means the height in relation to the North American Vertical Datum (NAVD) of 1988 (or other datum, where specified) of the crest of the base flood. Application of the BFE at any location is as defined in Section 15.68.040 of this Code.

"Basement" means any area of the building, including any sunken room or sunken portion of a room, having its floor below ground level (subgrade) on all sides.

"Building" means a structure that is principally above ground and is enclosed by walls and a roof. The term includes a gas or liquid storage tank, a manufactured home, mobile home or a prefabricated building.

"Channel" means any river, stream, creek, brook, branch, natural or artificial depression, ponded areas, flowage, slough, ditch, conduit, culvert, gully, ravine, wash, or natural or man-made drainageway, which has a definite bed and banks or shoreline, in or into which surface or groundwater flows, either perennially or intermittently.

"Channel modification" means alteration of a channel by changing the physical dimensions or materials of its bed or banks. Channel modification includes damming, rip-rapping or other armoring, as well as widening, deepening, straightening, relocating, lining and significant removal of native vegetation from the bottom or banks. "Channel modification" does not include the clearing of dead or dying vegetation, debris or trash from the channel. Channelization is a severe form of channel modification typically involving relocation of the existing channel (e.g., straightening).

"Coastal high hazard area" means an area of special flood hazard extending from offshore to the inland limit of a primary frontal dune along an open coast, and any other area subject to high velocity wave action from storms or seismic sources. A coastal high hazard area is identified on a community's FIRM by the designation of zone VE.

"Compensatory storage" means an artificially excavated, hydraulically equivalent volume of storage within the special flood hazard area used to balance the loss of natural flood storage capacity when artificial fill or structures are placed within the floodplain.

"Conditional approval of a designated floodway map change" means preconstruction approval by IDNR/OWR and FEMA of a proposed change to the floodway map. This preconstruction approval, pursuant to 17 Ill. Adm. Code Part 3708, gives assurances to the property owner that once an appropriate use is constructed according to permitted plans, the floodway map can be changed, as previously agreed, upon review and acceptance of as-built plans.

"Conditional Letter of Map Revision (CLOMR)" means a letter which indicates that the Federal Emergency Management Agency will revise base flood elevations, flood insurance rate zones, flood boundaries or floodway as shown on an effective Flood Hazard Boundary Map or Flood Insurance Rate Map, once the as-built plans are submitted and approved.

"Control structure" means a structure designed to control the rate of flow that passes through the structure, given a specific upstream and downstream water surface elevation.

"Critical facility" means any facility which is critical to the health and welfare of the population and, if flooded, would create an added dimension to the disaster. Damage to these critical facilities can impact the delivery of vital services, can cause greater damage to other sectors of the community, or can put special populations at risk.

"Dam" means all obstructions, wall embankments or barriers, together with their abutments and appurtenant works, if any, constructed for the purpose of storing or diverting water or creating a pool. Underground water storage tanks are not included.

"Detention facility" means a facility that provides for storage of stormwater runoff and controlled release of this runoff during and after a flood or storm.

"Development" means any engineered change to real estate, including:

1. Construction, reconstruction, repair or placement of a building or any addition to a building;
2. Installing a manufactured home on a site or preparing a site for a manufactured home;
3. Drilling, mining, installing utilities, construction of roads, bridges, or similar projects;
4. Demolition of a structure or redevelopment of a site;
5. Construction or erection of levees, walls, fences, dams or culverts; channel modification; filling, dredging, grading, excavating, paving, or other nonagricultural alterations of the ground surface; storage of materials; deposits of solid or liquid waste;
6. Any other human activity that might change the direction, height or velocity of flood or surface water, including extensive vegetation removal.

"Development" does not include maintenance of existing buildings and facilities such as re-roofing or re-surfacing of roads when there is no increase in elevation, or gardening, plowing, and similar agricultural practices that do not involve filling, grading or construction of levees.

"Director" or "Director of Engineering" means the Director of Engineering of the Village. The Director performs the duties of Village Engineer pursuant to Section 2.64.010(D) of this Winnetka Village Code.

"Elevation certificate" means a form published by the Federal Emergency Management Agency that is used to certify the elevation to which a building has been elevated.

"Erosion" means the general process where soils are moved by flowing water or wave action.

"Exempt organizations" means organizations which are exempt from the operation of this chapter pursuant to state law including state, federal or local units of government.

"FEMA" means Federal Emergency Management Agency and its regulations at 44 C.F.R. 59-79, effective as of October 1, 2000. This incorporation does not include any later editions or amendments.

"Flood" means a general and temporary condition of partial or complete inundation of normally dry land areas from overflow of inland or tidal waves, or the unusual and rapid accumulation or runoff of surface waters from any source. Flood also includes the collapse or subsidence of land along the shore of a lake or other body of water as a result of erosion or undermining caused by waves or currents of water exceeding anticipated cyclical levels or suddenly caused by an unusually high water level in a natural body of water, accompanied by a severe storm, or by an unanticipated force of nature, such as flash flood or an abnormal tidal surge, or by some similarly unusual and unforeseeable event which results in a general and temporary condition of partial or complete inundation of normally dry land areas from the overflow of inland or tidal waters.

"Flood frequency" means a period of years, based on a statistical analysis, during which a flood of a stated magnitude may be expected to be equaled or exceeded.

"Flood fringe" means that portion of the floodplain outside of the regulatory floodway.

"Flood Insurance Rate Maps (FIRM)" means a map prepared by the Federal Emergency Management Agency that depicts the special flood hazard area within a community. This map includes insurance rate zones and floodplains and may or may not depict floodways.

"Flood insurance study" means an examination, evaluation, and determination of flood hazards and if appropriate, corresponding water surface elevations.

"Floodplain" means that land typically adjacent to a body of water with ground surface elevations at or below the base flood. Floodplains may also include detached special flood hazard areas, ponding areas, and the like. The floodplain is also known as the special flood hazard area (SFHA).

1. "Floodplains" are those lands within the jurisdiction of the Village of Winnetka that are subject to inundation by the base flood. The SFHAs of the Village are generally identified as such on Map Number 17031C, Panels 0232J, 0234J, and 0253J, dated August 19, 2008 and Map Number 17031C, Panels 0113K, 0251K, 0252K, and 0254K September 10, 2021, of the countywide FIRM for Cook County, Illinois prepared by the FEMA.

2. The SFHAs for those parts of unincorporated Cook County that are within the 1½ mile extraterritorial jurisdiction of the Village of Winnetka and that may be annexed into the Village are designated for the Skokie River on Map Number 17031C, Panels, 0232J, 0234J, and 0253J, dated August 19, 2008 and Map Number 17031C, Panels 0113K, 0251K, 0252K and 0254K, dated September 10, 2021, of the countywide FIRM for Cook County, Illinois, prepared by the FEMA.

"Floodproofing" means any combination of structural and nonstructural additions, changes or adjustments to structures which reduce or eliminate flood damage to real estate or improved real property, water and sanitary facilities, structures and their contents.

"Floodproofing certificate" means a form published by FEMA that is used to certify that a building has been designed and constructed to be structurally dry floodproofed to the flood protection elevation.

"Flood protection elevation" or "FPE" means the elevation of the base flood or 100-year frequency flood plus two feet of freeboard at any given location in the special flood hazard area.

"Freeboard" means an increment of elevation added to the based flood elevation to provide a factor of safety of uncertainties in calculations, unknown localized conditions, wave actions and unpredictable effects such as those caused by ice or debris jams.

"Historic structure" means any building that is:

1. Listed individually in the National Register of Historic Places or preliminarily determined by the Secretary of the Interior as meeting the requirements for individual listing on the National Register;
2. Certified or preliminarily determined by the Secretary of the Interior as contributing to the historic district or a district preliminarily determined by the Secretary of the Interior to qualify as a registered historic district;
3. Individually listed on the State inventory of historic places by the Illinois Historic Preservation Agency;
4. Individually listed on a local inventory of historic places that has been certified by the Illinois Historic Preservation Agency.

"Hydrologic and hydraulic calculations" means engineering analysis which determine expected flood flows and flood elevations based on land characteristics and rainfall events.

"IDNR/OWR" means the Illinois Department of Natural Resources/Office of Water Resources.

"Letter of Map Amendment (LOMA)" means official determination by FEMA that a specific structure is not in a 100-year flood zone; amends the effective Flood Hazard Boundary Map or FIRM.

"Letter of Map Revisions (LOMR)" means letter from FEMA that revises base flood or one hundred year frequency flood elevations, flood insurance rate zones, flood boundaries or floodways as shown on an effective FBFM or FIRM.

"Lowest floor" means the lowest floor of the lowest enclosed area (including basement). An unfinished or flood-resistant enclosure usable solely for parking of vehicles, building access or storage, in an area other than a basement area is not considered a building's lowest floor; provided that such enclosure is not built so as to render the building in violation of the applicable non-elevation design requirements of this Code.

"Manufactured home" means a building, transportable in one or more sections, which is built on a permanent chassis and is designated for use with or without a permanent foundation when attached to the required utilities. The term manufactured home does not include a recreational vehicle.

"Manufactured home park or subdivision" means a parcel (or contiguous parcels) of land divided into two or more manufactured home lots for rent or sale.

"Minimum average lot grade" is the number arrived at by applying the following formula: $(FPE-2') - [(Total\ Required\ Side\ Yard-12') \times 0.0833]$.

"Mitigation" means and includes those measures necessary to minimize the negative effects which floodplain development activities might have on the public health, safety and welfare. Examples of mitigation include compensatory storage, soil erosion and sedimentation control, and channel restoration.

"Moderate Wave Action Area (MoWA)" means a special flood hazard area subject to the potential for breaking wave heights of greater than or equal to 1.5 feet, but less than 3 feet, where the primary source of flooding is astronomical tides, storm surges, seiches, and/or tsunamis. A MoWA is an area within zone AE on a FIRM that is between the inland limit of zone VE and a LiMWA, where identified. (Also known as "Coastal A Zone")

"Natural" when used in reference to channels, means those channels formed by the existing surface topography of the Earth prior to engineered changes. A natural stream tends to follow a meandering path; its floodplain is not constrained by levees; the area near the bank has not been cleared, mowed or cultivated; the stream flows over soiled and geologic materials typical of the area with no substantial alteration of the course or cross-section of the stream caused by filling or excavating. A modified channel may regain some natural characteristics over time as the channel meanders and vegetation is re-established. Similarly, a modified channel may be restored to more natural conditions through regrading and revegetation.

"NAVD" means North American Vertical Datum of 1988; reference surface set by the National Geodetic Survey is the vertical control datum based upon the General Adjustment of the North American Datum of 1988, established in 1991 by the minimum-constraint adjustment of geodetic leveling observation in Canada, the United States, and Mexico.

"New construction" means structures for which the start of construction commenced on or after the effective date of a floodplain management regulation adopted by the Village and includes any subsequent improvements to such structures.

"Ordinary high water mark (OHWM)" means the point on the bank or shore up to which the presence and action of surface water is so continuous so as to leave a distinctive mark such as by erosion, destruction or prevention of terrestrial vegetation, predominance of aquatic vegetation or other easily recognized characteristics.

"Public flood control project" means a flood control project which will be operated and maintained by a public agency to reduce flood damages to existing buildings and structures which includes a hydrologic and hydraulic study of the existing and proposed conditions of the watershed. Nothing in this definition shall preclude the design, engineering, construction or financing, in whole or in part, of a flood control project by persons or parties who are not public agencies.

"Publicly navigable waters" means all streams and lakes capable of being navigated by watercraft.

"Regional permits" means regional permits are offered for pre-approved projects which are considered minor projects that are permissible per Ill. Adm. Code Part 3708 rules for Northeastern Illinois Designated Floodways. A complete listing of the terms and conditions for specific project types can be obtained from the IDNR/OWR website.

"Registered Land Surveyor" means a land surveyor registered in the state of Illinois, under the Illinois Professional Land Surveyors Act of 1989, 225 ILCS 330/1 through 330/49.

"Registered or Licensed Professional Engineer (P.E.);" means an engineer registered in the state of Illinois, under the Illinois Professional Engineering Practice Act of 1989, 225 ILCS 325/1 et seq.

"Regulatory floodway" means the channel, including on-stream lakes, and that portion of the floodplain adjacent to a stream or watercourse as designated by IDNR/OWR, which is needed to store and convey the existing 100-year frequency flood discharge with no more than a one-tenth (0.1) foot increase in stage due to the loss of flood conveyance or storage, and no more than a 10 percent increase in velocities.

1. The floodways are designated for the Skokie River on Map Number 17031C, Panels 0232J, 0234J, and 0253J, dated August 19, 2008, of the countywide FIRM for Cook County, Illinois, prepared by the FEMA.

2. The floodways for those parts of unincorporated Cook County that are within the 1½ mile extraterritorial jurisdiction of the Village of Winnetka and that may be annexed into the Village are designated for the Skokie River on Map Number 17031C, Panels, 0232J, 0234J, and 0253J, dated August 19, 2008 and Panels 0113K, 0251K, 0252K, and 0254K September 10, 2021, of the countywide FIRM for Cook County, Illinois, prepared by the FEMA.

3. To locate the designated floodway boundary on any site, the designated floodway boundary should be scaled off the designated floodway map and located on a site plan, using reference marks, to both maps. Where interpretation is needed to determine the exact location of the designated floodway boundary, IDNR/OWR should be contacted for interpretation.

"Repair, remodeling or maintenance" means development activities that do not result in any increases in the outside dimensions of a building or any changes to the dimensions of a structure.

"Repetitive loss" means flood-related damages sustained by a building on two separate occasions during a 10-year period for which the cost of repairs at the time of each such flood event, on the average, equals or exceeds 25 percent of the market value of the building before the damaged occurred.

"Riverine floodplain" means any floodplain subject to flooding from a river, creek, intermittent stream, ditch, on-stream lake system or any other identified channel. This term does not include areas subject to flooding from lakes, ponding areas, areas of sheet flow, or other areas not subject to overbank flooding.

"Runoff" means the water derived from melting snow or rain falling on the land surface, flowing over the surface of the ground or collected in channels or conduits.

"Sedimentation" means the processes that deposit soils, debris, and other materials either on other ground surfaces or in bodies of water or watercourses.

"Special flood hazard area (SFHA)" means any base flood area subject to flooding from a river, creek, intermittent stream, ditch, or any other identified channel or ponding and shown on a Flood Boundary and Floodway Map, Flood Hazard Boundary Map or Flood Insurance Rate Map as Zone A, AO, A1-30, AE, A99, AH, VO, V30, VE, V, M, E or X.

"Start of construction" includes substantial improvement and means the date the building permit was issued, provided the actual start of construction, repair, reconstruction, rehabilitation, addition placement or other improvement, was within 180 days of the permit date. The actual start means the first placement of permanent construction of a building on a site, such as the pouring of slab or footings, the installation of piles, the construction of columns or any work beyond the stage of excavation, including the placement of a manufactured home on a foundation. For a substantial improvement, actual start of construction means the first alteration of any wall, ceiling, floor, or other structural part of a building whether or not that alteration affects the external dimensions of the building.

"Statewide permits" means permits that are offered for pre-approved projects that are considered minor projects which are permissible per the IDNR/OWR Part 3700 rules. A complete listing of the statewide permits and permit requirements can be obtained from the IDNR/OWR website.

"Structure" means the results of a human change to the land construction on or below the ground, including the construction, reconstruction or placement of a building or any addition to a building, the installation of a manufactured home on a site or the preparation of a site for a manufactured home, and construction or erection of levees, walls, fences, bridges or culverts; drilling, mining, filling, dredging, grading, excavating; and the storage of materials.

"Substantial damage" means damage of any origin sustained by a building whereby cost to repair the building to its before damaged condition equals or exceeds 50 percent of the market value of the building before the damage occurred, regardless of actual repair work performed. The term includes flood related damages sustained by a building on two separate occasions in a 10-year period, in which the cost of the repairs, on average, equals or exceeds 25 percent of the market value of the building at the time of each such flood event.

"Substantial improvement" means any reconstruction, rehabilitation, addition, or improvement of a building, taken over a 10-year period in which the cost, as substantiated by an executed contract that outlines the entire scope of work, in which the percentage of improvements, figured (cumulatively) by dividing the cost of each improvement by the market value of the building prior to the start of construction of each improvement, equals or exceeds 50 percent.

1. Substantial improvement is considered to occur when the first alteration of any wall, ceiling, floor, or other structural part of the building commences, whether or not that alteration affects the external dimensions of the building. This term includes buildings which have incurred repetitive loss or substantial damage, regardless of the actual work done.

2. The term does not, however, include either:

- a. Any project for improvement of a building 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 solely necessary to assure safe living conditions, or

- b. Any alteration of a historic structure listed on the National Register of Historic Places or the Illinois Register of Historic Places, provided that the alteration will not preclude the building's continued designation as a historic structure.)

"Transition section" means reaches of the stream or floodway where water flows from a narrow cross-section to a wide cross-section, or vice versa.

"Village Engineer" means a registered professional engineer appointed by the Village Manager.

"Violation" means the failure of a structure or other development to be fully compliant with this Code.

"WMO" or "Watershed Management Ordinance" means the Metropolitan Water Reclamation District of Greater Chicago Countywide Watershed Management Ordinance, October 2013, as amended, and as adopted by reference in Section 15.08.040(J) of this code. (Prior code § 28.02) (MC-4-2021, § 2, Amended 8/3/2021; MC-5-2020, § 31, Amended 11/17/2020; MC-7-2019, Amended, 08/20/2019; MC-5-2018, Amended, 08/07/2018, reflects new FEMA maps and new formula for Minimum Average Lot Grade; MC-5-2014 §§ 13-15, 04/17/2014; MC-2-2008, Amended, 05/06/2008; MC-4-2006, Amended, 07/18/2006, Added definitions: Average Lot Grade and Minimum Average Lot Grade; MC-5-2001, Amended, 08/21/2001; MC-3-2000, Amended, 09/05/2000, IDNR/OWR replaces DWR, Regulatory Floodway redefined, reflects new FEMA maps)

Section 15.68.025 Administration and Enforcement.

The administration and enforcement of this Chapter shall be in accordance with this Section.

A. No person, firm, corporation, or governmental body shall commence any development activities, including new construction, substantial improvements, and alterations of a watercourse wholly within, partially within or in contact with the floodplains until a floodplain development permit is obtained from the Director. No permit shall be issued by the Director until the requirements of this Code have been met.

B. No person, firm, corporation, or governmental body shall commence any development of a critical facility on land below the 0.2% annual chance flood elevation without first obtaining a floodplain development permit from the Director.

C. A local floodplain development permit shall not be issued by the Director for Development in a Floodway without the applicant first obtaining a state floodway permit from IDNR/OWR, except as noted in Section 15.68.060.

D. The Director shall review all proposed Development by comparing field surveyed topography of the site to the FIRM and shall make interpretations, where needed, as to the location of the floodplain boundaries, floodway boundaries, and BFE.

1. Any development that is located on land below the BFE, located in the mapped floodway, or associated with a Zone AO or VE is subject to the requirements of this Code. A LOMA-Floodway (LOMR-FW) shall be required before issuing a floodplain development permit for land higher than the BFE if located within a mapped floodway.

2. Any development located on land below the BFE that was filled after the date of the site's first floodplain designation on a flood map is subject to the requirements of this Code.

3. Any development located on land below the BFE that is that is hydraulically connected to the Floodplain, but not shown on the current FIRM, is subject to the provisions of this Code.

4. The Director shall maintain documentation of the pre-existing ground elevation at the site and, if applicable, certification that this ground elevation existed prior to the date of the site's first FIRM identification in the floodplain.

E. If the development site is within a floodway or in a floodplain for which a detailed study has not been conducted, the Director shall require that the minimum requirements of Section 15.68.070 be met.

F. A floodplain development permit or approval shall become invalid unless the actual start of construction, for work authorized by such permit, is commenced within 180 days after its issuance, or if the work authorized is suspended or abandoned for a period of 180 days after the work commences. The Director shall ensure that all development activities happen in a timely manner. All permitted work shall be completed within 12 months after the date of issuance of the permit or the permit shall expire. Time extensions, of not more than 180 days each, may be granted, in writing, by the Director. Time

extensions shall be granted only if the original permit is compliant with this Code and the FIRM and FIS in effect at the time the extension is granted.

G. Letters of Map Revision. The Director shall require a CLOMR prior to issuance of a development permit for proposed floodway encroachments that will cause an increase in the BFE; and proposed development which will increase the BFE by more than 0.1 feet in riverine area where FEMA has provided a BFE but no floodway.

H. Once a CLOMR has been issued, the development permit may be issued for site grading and structures necessary in the area of the map change to achieve the final LOMR. Upon completion, the applicant shall submit as-built certifications, as required by FEMA, to achieve a final LOMR prior to the release of final development permits. Review Section 15.68.050, subsection G for the construction of buildings in any floodplain issued a LOMR based on fill.

I. Application. An application for a floodplain development permit shall be made on a form provided by the Director.

1. The application shall be accompanied by drawings of the site, drawn to scale, showing property line dimensions and legal description for the property and sealed by a Registered P.E., licensed architect or Registered Land Surveyor; existing grade elevations, using the NAVD 88, and all proposed changes in grade resulting from excavation or filling; the location and dimensions of all existing and proposed buildings, additions to buildings, sewage disposal and water supply facilities; floodplain limits based on elevation or depth, as applicable; floodway limits, as applicable; location and dimensions of all structures, including but not limited to fences, culverts, decks, gazebos, agricultural structures, and accessory structures.

2. For all proposed buildings, the elevation of the lowest floor (including basement) and lowest adjacent grade shall be shown on the submitted plans and the development will be subject to the requirements of Section 15.68.080 of this Code.

J. To assure that property owners obtain permits as required in this Code, the Director may take any and all actions as outlined in Section 15.68.120.

(MC-4-2021, § 2, Amended 8/3/2021)

Section 15.68.030 Duties of the Director.

The Director shall be responsible for the general administration and enforcement of this chapter, which shall include the following duties and responsibilities.

A. Check all new development sites to determine whether they are in a floodplain using criteria listed in Section 15.68.040 of this Code or for critical facilities, using the 0.2% annual chance flood elevation, if defined.

B. If the site is in a floodplain, determine whether the site is in a coastal high hazard area, moderate wave action area, floodway, flood fringe or in a floodplain for which a detailed study has not been conducted.

C. If the site is within a flood fringe, require that the minimum requirements of Sections 15.68.050 and 15.68.080 be met.

D. If the site is within a floodway, require that the minimum requirements of Sections 15.68.060 and 15.68.080 be met.

E. If the site is located within a floodplain for which no detailed study has been completed and approved, require that the minimum requirements of Sections 15.68.070 and 15.68.080 be met.

F. If the site is within a coastal high hazard area (or moderate wave action area), require that the minimum requirements of Section 15.68.080 be met.

G. Inspect all projects before, during and after construction to assure proper elevation of the Building and to ensure compliance with the provisions of this Code.

H. Schedule, on an annual basis, an inspection of the floodplain and document the results of the inspection.

I. Review elevation certificates and floodproofing certificates for accuracy and require incomplete or deficient certificates be corrected and maintained in permit files including:

1. Elevation certificate certifying the elevation of the lowest floor (including basement) of a residential or non-residential building subject to Section 15.68.080 of this Code, or an elevation certificate certifying the elevation of the lowest horizontal structural member of the lowest floor, where required by Section 15.68.080 of this Code and/or;

2. Floodproofing certificate certifying the elevation to which a non-residential building has been dry floodproofed, using a floodproofing certificate, for all buildings required to be dry floodproofed pursuant to Section 15.68.080 of this Code.

3. Certification of structural design and methods of construction for VE zone construction as required by Section 15.68.080 of this Code.

4. Certification of breakaway wall design, when applicable, as provided in Section 15.68.080 of this Code.

J. Maintain for public inspection and furnish upon request all permit records, including but not limited to base flood data, floodplain and regulatory floodway maps, copies of federal or state permit documents, variance documentation, soil compaction records, conditional letter of map revision, letter of map revision, letter of map amendment, as-built elevation, floodproofing certificates and elevation certificates for all buildings constructed subject to this Code.

K. Floodway Permits. For all development projects in a floodway, ensure that construction authorization has been granted by IDNR/OWR or a delegated community, or written documentation is provided stating that a permit is not required from IDNR/OWR, issued pursuant to 615 ILCS 5/5 et seq. floodway permit requirements are specified in Sections 15.68.060 and 15.68.070 of this Code.

L. Permits for dams may be required from IDNR/OWR. The Floodplain Administrator shall contact IDNR/OWR to determine if a permit is required and for application details. Any work involving the construction, modification, or removal of a dam, per 17 Ill. Adm. Code Part 3702 (Rules for Construction of Dams), shall obtain an IDNR/OWR permit prior to the issuing a local permit.

M. Ensure any and all required federal, state, and local permits are received prior to the issuance of a floodplain development permit, including, but not limited to, permits pertaining to the Clean Water Act, Public Water Supply, Endangered Species Act, and Illinois Endangered Species Protection Act.

N. Establish procedures for administering and documenting determinations, as outlined below, of Substantial Improvement and substantial damage made pursuant to Section 15.68.080 of this Code.

1. Determine the market value or require the applicant to obtain an appraisal of the market value prepared by a qualified independent appraiser, of the building before the start of construction of the proposed work. In the case of repair, the market value of the building shall be the market value before the damage occurred and before any repairs are made.

2. Compare the cost to perform the improvement, the cost to repair a damaged building to its pre-damaged condition, or the combined costs of improvements and repairs, if applicable, to the market value of the building, including the cost of volunteer labor and donated materials must be included.

3. Compare the cost to perform the improvement, the cost to repair a damaged building to its pre-damaged condition, or the combined costs of improvements and repairs, if applicable, to the market value of the building, including the cost of volunteer labor and donated materials must be included.

4. Determine and document whether the proposed work constitutes substantial improvement or substantial damage.

5. Notify the applicant if it is determined that the work constitutes substantial improvement or repair of substantial damage and that compliance with the flood resistant construction requirements of the Village and this Code is required.

O. Cooperation with Other Agencies.

1. Cooperate with state and federal floodplain management agencies to improve base flood and floodway data and to improve the administration of this Code;

2. Submit data to IDNR/OWR and FEMA for proposed revisions of a regulatory map within 6 months whenever a modification of the floodplain may change the BFE or result in a change to the floodplain map;

3. Submit reports as required for the NFIP; and

4. Notify FEMA of any proposed amendments to Section 15.68 of this Code.

P. Promulgate rules and regulations as necessary to administer and enforce the provisions of Section 15.68, subject however to the review and approval of IDNR/OWR and FEMA for any ordinance changes.

Q. Notify IDNR/OWR and adjacent communities in writing 30 days prior to the issuance of a permit for the alteration or relocation of a watercourse.

R. If a variance is to be granted, the Director shall review the requirements of Section 15.68.100 of this Code to make sure they are met. In addition, the Director shall complete all notifications requirements, prepare a staff report and recommendations.

S. Enforce the provisions of Section 15.68 of this Code, investigate violations, issue notices of violation or stop work orders, and require corrective action, as outlined in Section 15.68.120 of this Code. (Prior code § 28.03)

(MC-4-2021, § 2, Amended 8/3/2021; MC-5-2014 §§ 16, 17, 04/17/2014)

15.68.040 Base flood elevation.

This chapter's protection standard is based on the Regulatory Flood Profiles for the Countywide Flood Insurance Study for Cook County dated September 10, 2021. If a BFE is unavailable for a particular site, then the protection standard shall be according to the best existing available data from federal, state or other sources. When a party disagrees with the best available data or should no other data source exist, that party may finance the detailed engineering study needed to replace existing data with better data and submit it to IDNR/OWR and FEMA for approval.

A. Base Flood for Skokie River SFHA. The BFE for the SFHAs of the Skokie River shall be as delineated on the 100 year flood profiles in the Countywide Flood Insurance Study for Cook County prepared by the FEMA and dated September 10, 2021, and such amendments to such study and maps as may be prepared from time to time.

B. Base Flood for SFHAs within the Village's Extraterritorial Jurisdiction. The BFE for the SFHAs of those parts of unincorporated Cook County that are within the one and one-half mile extraterritorial jurisdiction or that may be annexed into the Village shall be as delineated on the base flood profiles in the Countywide Flood Insurance Study for Cook County prepared by the FEMA and dated September 10, 2021, and such amendments to such study and maps as may be prepared from time to time.

C. Base Flood for AH and AO Zones. The BFE for each SFHA delineated as an AH zone or AO zone shall be that elevation (or depth) delineated Countywide FIRM of Cook County and as described in § 601.4.B-C of the WMO.

D. Base Flood for A Zones. The BFE for each of the remaining SFHAs delineated as an A zone on the Countywide FIRM of Cook County shall be according to the best existing data available from federal, state, or other sources. When no BFE exists, the BFE shall be determined according to § 601.6 of the WMO. Flood flows should be based on anticipated future land use conditions in the watershed as determined from adopted local and regional land use plans. Along any watercourse draining more than one square mile, the above analyses shall be submitted to IDNR/OWR for approval. (Prior code § 28.04)

E. The BFE for any zone VE floodplain, and for a zone AE floodplain in an area subject to flooding effects from Lake Michigan, shall be the highest elevation specified on the FIRM among all flood zones affecting the proposed development. Where development is proposed to encroach upon a riverine Zone AE which is subject to flooding effects from Lake Michigan, the requirements of Section 15.68.070 of this Code shall apply to the entire floodplain. (Prior code § 28.04)

(MC-4-2021, § 2, Amended 8/3/2021; MC-5-2014 §§ 18, 19, 04/17/2014; MC-2-2008, Amended, 05/06/2008)

Section 15.68.050 Occupation and use of flood fringe areas.

Development in and/or filling of the flood fringe is subject to the provisions of this section and will only be permitted if protection is provided against the base flood and if other applicable requirements of this chapter are met. No use will be permitted if it adversely affects the capacity of drainage facilities or systems. Developments located within the flood fringe shall meet the requirements of this section, along with the requirements of Section 15.68.080 of this chapter.

A. Floodplain Development Permit Required. No person, firm, corporation or governmental body, other than exempt organizations, shall commence any development in the SFHA without first obtaining a floodplain development permit from the Director.

B. Application and Site Plan. Application for a floodplain development permit shall be made on a form provided by the Director. The application shall meet the requirements of Article 3 of the WMO and Section 15.68 of this Code. For all proposed buildings, the elevation of the lowest floor (including basement) and lowest adjacent grade shall be shown on the submitted plans and the development will be subject to the requirements of Section 15.68.080 of this chapter. The drawing shall be sealed by a registered professional engineer.

C. Review of Application. Upon receipt of a floodplain development permit application, the Director shall compare the elevation of the site to the BFE. If, upon review, the Director determines that the development is located on land that is higher than the base flood elevation of the current FIRM and that has not been filled since the date of the site's first FIRM identification, the property shall be considered outside of the SFHA and, therefore, not subject to the requirements of this chapter. The Director shall maintain documentation of the existing ground elevation at the development site and certification that this ground elevation existed prior to the date of the site's first FIRM identification.

D. Duties and Responsibilities of Director. The Director shall be responsible for obtaining from the applicant copies of all other local, state, and federal permits, approvals or permit-not-required letters that may be required for the proposed activity. The Director shall not issue a permit unless copies of all other local, state and federal permits have been submitted by the applicant.

E. Preventing Increased Damages. No development in the flood fringe shall create a threat to public health and safety.

F. Use of Fill to Elevate Site.

1. Fill shall not be used to elevate a site unless the average lot grade is equal to or greater than the minimum average lot grade.

2. If fill is being used to elevate the site above the BFE, the applicant shall submit sufficient data and obtain a Letter of Map Revision from FEMA for the purpose of removing the site from the

floodplain. Notwithstanding anything to the contrary in the Letter of Map Revision or in this chapter, no person who obtains a map revision removing a site from the floodplain shall be entitled to build the lowest floor of a residential building below the BFE, except as provided in Section 15.68.050(G) of this chapter.

G. Constructing Lowest Floor Below BFE. A person who has obtained a letter of map revision that removes a site in the flood fringe from the floodplain due to the use of fill to elevate the site above the BFE, may apply for a permit from the Village to construct the lowest floor of a residential building below the BFE in the flood fringe. The Director shall not issue such a permit unless the applicant has complied with all of the criteria set forth in the following paragraphs of this subsection.

1. Compensatory storage shall be provided in compliance with the requirements of this chapter.
2. The elevation of the lowest opening in the basement wall (i.e. window wells, access ways) shall be at or above the FPE.
3. The lowest grade adjacent to the foundation shall be at or above the FPE, for a minimum distance of 10 feet beyond the outside face of the structure.
4. The grade around the perimeter of the structures, measured at a distance of 20 feet from the structure, shall be above the BFE.
5. The ground around the building shall be compacted fill that meets all requirements of this subsection (G) and is at least five feet thick under the basement floor slab. Nothing in this subsection (G) shall be interpreted to require the removal or replacement of fill that was placed as part of a LOMR-F permit, if such fill consists of material, including soil of similar classification and degree of permeability, that meets the requirements of this subsection (G).
6. The fill material shall be compacted to at least 95% of Standard Laboratory Maximum Dry Density (Standard Proctor), according to ASTM Standard D-698. Fill soils shall be fine-grained soils of low permeability, such as those classified as CH, CL, SC, or ML according to ASTM Standard D-2487, Classification of Soils for Engineering Purposes.
7. The fill material must be homogeneous i.e., all of one material, and isotropic, i.e., having the engineering properties must be the same in all directions.
8. All fill material and compaction shall be designed, certified and inspected by an Illinois Registered Professional Engineer or Registered Soils Engineer, as warranted by the site conditions.
9. The basement floor shall be at an elevation that is no more than five feet below the BFE.
10. There shall be a granular drainage layer beneath the floor slab, and a minimum of ¼-horsepower sump pump with a backup power supply shall be provided to remove the seepage flow. The pump shall be rated at four times the estimated seepage rate and shall discharge above the BFE and away from the building in order to prevent flooding of the basement or uplift of the floor under the effect of the seepage pressure.

11. The drainage system shall be equipped with a positive means of preventing backflow.

12. All foundation elements shall be designed to withstand hydrostatic pressure in accordance with accepted engineering practices.

H. Compensatory Storage.

1. Whenever any portion of a floodplain is authorized for use, the volume of space which will be occupied by the authorized fill or structure below the BFE shall be compensated for and balanced by a hydraulically equivalent volume of excavation taken from below the BFE, provided all of the conditions § 602.7-9 of the WMO and of the following paragraphs 2 and 3 of this subsection shall be met.

2. In no case shall the depth of excavation for any compensatory storage in the front and side yards of the lot exceed 18 inches, as measured from the previously existing natural grade. The rear yard may be permitted to have a greater depth of excavation, if necessary.

3. The use of mechanical means to drain the compensatory storage area will not be permitted.

(MC-4-2021, § 2, Amended 8/3/2021; MC-5-2018, Amended, 08/07/2018; MC-5-2014 § 20, 04/17/2014; MC-2-2008, Amended, 05/06/2008; MC-4-2006, Amended, 07/18/2006; MC-5-2001, Amended, 08/21/2001)

15.68.060 Occupation and use of identified floodways.

Any development, redevelopment, site modification or building modification within a regulatory floodway is subject to the provisions of this section and shall be permitted only if the criteria of this section and applicable requirements of this chapter are met. All floodway modifications shall be the minimum necessary to accomplish the purpose of the project. The development shall also meet the requirements of Section 15.68.080 of this chapter.

A. Floodplain Development Permit. No person, firm, corporation or governmental body not exempted by state law shall commence any development in a floodway without first obtaining a floodplain development permit from the Director.

B. Application. Application for a floodplain development permit shall be made on a form provided by the Director, which shall include at least the information required by Article 3 of the WMO.

C. Review and Approval of Permit Applications. The Director shall be responsible for obtaining from the applicant copies of all other local, state, and federal permits and approvals that may be required for the proposed activity. The Director shall not issue the floodplain development permit unless copies of all required federal and state permits have been submitted by the applicant. A registered professional engineer under the employ or contract of the Village shall review and approve applications reviewed under this section.

D. Preventing Increased Damages; List of Appropriate Uses. No development shall be allowed in a floodway unless it is for appropriate uses that will not cause a rise in the base flood elevation, will not create a damaging or potentially damaging increase in flood heights or velocity and will not be a threat to public health and safety. Only those appropriate uses listed in 17 Ill. Adm. Code 3708 and § 602.27 of the WMO will be allowed. Appropriate uses do not include the construction or placement of any new buildings, structures, fill, building additions, buildings on stilts, fencing (including landscaping or planting designed to act as a fence) and storage of materials except as specifically defined above as an appropriate use.

E. Engineering Criteria for Appropriate Uses in the Regulatory Floodway. Within the regulated floodway as identified on the Countywide FIRMs for Cook County, the construction of an appropriate use will be considered permissible; provided that, the proposed project meets the requirements of § 602.7-9 and 25-28 of the WMO, along with the following engineering criteria, and is so stated in writing with supporting plans, calculations and data by a registered professional engineer; and provided that, any structure meets the protection requirements of Section 15.68.080 of this chapter:

1. Preservation of Flood Conveyance, so as Not to Increase Flood Stages Upstream. For appropriate uses, all effective regulatory floodway conveyance lost due to the project will be replaced for all flood events up to and including the 100-year frequency flood. In calculating effective regulatory floodway conveyance, the following factors shall be taken into consideration:

a. Regulatory floodway conveyance,

$$'K' = \frac{1.486}{n} AR^{2/3}$$

where "n" is Manning's roughness factor, "A" is the effective area of the cross-section, and "R" is the ratio of the area to the wetted perimeter (see Open Channel Hydraulics, Ven Te Chow, 1959, McGraw-Hill Book Company, New York);

b. The same Manning's "n" value shall be used for both existing and proposed conditions unless a recorded maintenance agreement with a federal, state or local unit of government can assure the proposed conditions will be maintained or the land cover is changing from a vegetative to a nonvegetative land cover;

c. Transition section shall be provided and used in calculations of effective regulatory floodway conveyance. The following expansion and contraction ratios shall be used unless an applicant's engineer can prove to IDNR/OWR through engineering calculations or model tests that more abrupt transitions may be used with the same efficiency;

i. When water is flowing from a narrow section to a wider section, the water should be assumed to expand no faster than at a rate of one foot horizontal for every four feet of the flooded stream's length.

ii. When water is flowing from a wide section to a narrow section, the water should be assumed to contract no faster than at a rate of one foot horizontal for every one foot of the flooded stream's length.

iii. When expanding or contracting flows in a vertical direction, a minimum of one foot vertical transition for every ten (10) feet of stream length shall be used.

iv. Transition sections shall be provided between cross-sections with rapid expansions and contractions and when meeting the regulatory floodway delineation on adjacent properties.

v. All cross-sections used in the calculations shall be located perpendicular to flood flows.

2. Preservation of Floodway Storage so as Not to Increase Downstream Flooding. Compensatory storage shall be provided for any regulatory floodway storage lost due to the proposed work from the volume of fill or structures placed and the impact of any related flood control projects. Compensatory storage for fill or structures shall meet the requirements of § 602.7-9 of the WMO.

3. Preservation of Floodway Velocities so as Not to Increase Stream Erosion or Flood Heights. For all appropriate uses the proposed work will not result in an increase in the average channel or regulatory floodway velocities, unless a water resource benefit is realized and unless scour, erosion and sedimentation will be avoided by the use of rip-rap or other design measures.

4. Construction of New Bridges or Culvert Crossings and Roadway Approaches. The proposed structures shall not result in an increase of upstream flood stages when compared to the existing conditions for all flood events up to and including the one hundred (100) year frequency event, unless the area of the increased flood stages is under the ownership or control of the applicant.

a. The engineering analysis of upstream flood stages shall be calculated using the flood study flows, and corresponding flood elevations for tailwater conditions for the flood study specified in Section 15.68.040 of this chapter.

b. Lost floodway storage shall be compensated for in accordance with subsection (E)(2) of Section 15.68.060.

c. Velocity increases shall be mitigated in accordance with subsection (E)(3) of Section 15.68.060.

d. If the crossing is proposed over a public water that is used for recreational or commercial navigation, an IDNR/OWR permit must be obtained by the applicant.

e. The hydraulic analysis for the backwater caused by the bridge showing the existing conditions and proposed regulatory profile shall be submitted to IDNR/OWR for concurrence that a CLOMR is not required by subsection E of Section 15.68.060.

f. All excavations for the construction of the crossing shall be designed per subsection (E)(8) of Section 15.68.060.

5. Reconstruction or Modification of Existing Bridges, Culverts and Approach Roads.

a. The bridge or culvert and roadway approach reconstruction or modification shall be constructed with no more than one-tenth foot increase in backwater over the existing flood profile for all flood frequencies up to and including the one hundred (100) year event, if the existing structure is not a source of flood damage.

b. If the existing bridge or culvert and roadway approach is a source of flood damage to buildings or structures in the upstream floodplain, the applicant's engineer shall evaluate the feasibility of redesigning the structure to reduce the existing backwater, taking into consideration the effects on flood states on upstream and downstream properties.

c. The determination as to whether or not the existing crossing is a source of flood damage and should be redesigned shall be prepared in accordance with IDNR/OWR Rules 17 Ill. Adm. Code 3708 (Floodway Construction in Northeastern Illinois) and submitted to IDNR/OWR for review and concurrence before a permit is issued.

d. Hydraulically equivalent compensatory storage shall be required to mitigate any potential increase in flow or flood elevations due to the removal or modification of an existing bridge or culvert.

6. On-Stream Structures Built for the Purpose of Backing Up Water. Any increase in upstream flood stages greater than zero feet when compared to the existing conditions, for all flood events up to and including the one hundred (100) year frequency event shall be contained within the area under the ownership or control of the applicant. A permit or letter indicating a permit is not required must be obtained from IDNR/OWR, dam safety section, for a dam safety permit or waiver for any structure built for the purpose of backing up water in the stream during normal or flood flow. All dams and impoundment structures as defined in Section 15.68.020 of this chapter shall meet the permitting requirements of 17 Ill. Adm. Code 3702 (Construction and Maintenance of Dams).

7. Floodproofing of Existing Habitable, Residential and Commercial Structures. If construction is required beyond the outside dimensions of the existing building, the outside perimeter of the floodproofing construction shall be placed no further than ten (10) feet from the outside of the building. Compensation of lost storage and conveyance will not be required for floodproofing activities.

8. Excavation in the Floodway. When excavation is proposed in the design of bridges and culvert openings, including the modifications to and replacement of existing bridge and culvert structures, or to compensate for lost conveyance for other appropriate uses, transition sections shall be provided for the excavation. The following expansion and contraction ratios shall be used unless an applicant's engineer can prove to IDNR/OWR through engineering calculations or model tests that more abrupt transitions may be used with the same efficiency.

a. When water is flowing from a narrow section to a wider section, the water should be assumed to expand no faster than at a rate of one foot horizontal for every four feet of the flood stream's length;

b. When water is flowing from a wide section to a narrow section, the water should be assumed to contract no faster than at a rate of one foot horizontal for every one foot of the flooded stream's length;

c. When expanding or contracting flows in a vertical direction, a minimum of one foot vertical transition for every ten (10) feet for stream length shall be used; and

d. Erosion/scour protection shall be provided inland upstream and downstream of the transition sections.

9. Seeding and Stabilization Plan. For all activities located in a floodway, a seeding and stabilization plan shall be submitted by the applicant.

10. General Criteria for Analysis of Flood Elevations.

a. The flood profiles, flows and floodway data in the regulatory floodway study, referenced in Section 15.68.040 of this chapter, shall be used for analysis of the base conditions. If the study data appears to be in error or conditions have changed, the IDNR/OWR shall be contacted for approval and concurrence on the appropriate base conditions data to use.

b. If the one hundred (100) year regulatory floodway elevation at the site of the proposed construction is affected by backwater from a downstream receiving stream with a large drainage area, the proposed construction shall be shown to meet the requirements of this section for the one hundred (100) year frequency flood elevations of the regulatory floodway conditions and conditions with the receiving stream at normal water elevations.

c. If the applicant learns from IDNR/OWR, local governments, or a private owner that a downstream restrictive bridge or culvert is scheduled to be removed, reconstructed, modified, or a regional flood control project is scheduled to be built, removed, constructed or modified within the next five years, the proposed construction shall be analyzed and shown to meet the requirements of this section for both the existing conditions and the expected flood profile conditions when the bridge, culvert or flood control project is built.

11. Conditional Letter of Map Revision. If the appropriate use would result in a change in the regulatory floodway location or the one hundred (100) year frequency flood elevation, the applicant shall submit to IDNR/OWR and to FEMA all the information, calculations and documents necessary to be issued a conditional regulatory floodway map revision and received from IDNR/OWR a conditional approval of the regulatory floodway change before a permit is issued. The final regulatory floodway map will not be changed by IDNR/OWR until as-built plans or record drawings are submitted and accepted by FEMA and IDNR/OWR. In the case of nongovernmental projects, the municipality in incorporated areas and the county in an unincorporated area shall concur with the proposed conditional regulatory floodway map revision before IDNR/OWR approval can be given. No filling, grading, dredging or excavating shall take place until a conditional approval is issued. Once a CLOMR has been issued, a permit may be issued for site grading and structures necessary in the area of the map change to achieve the final LOMR. Upon completion, the applicant shall submit as-built certifications, as required by FEMA, to achieve a final LOMR prior to the release of final development permits. The regulatory floodway map will be revised upon acceptance and concurrence by IDNR/OWR and FEMA of the as-built plans, and the effective date of the LOMR is reached.

12. Professional Engineer's Supervision. All engineering analyses shall be performed by or under the supervision of an Illinois registered professional engineer, retained by the applicant.

F. State Review in delegated communities. For those projects listed below located in a regulatory floodway, the following criteria shall be submitted to IDNR/OWR for their review and concurrence prior to the issuance of a permit:

1. IDNR/OWR will review an engineer's analysis of the flood profile due to a proposed bridge pursuant to subsection (E)(4) of Section 15.68.060.

2. IDNR/OWR will review an engineer's determination that an existing bridge or culvert crossing is not a source of flood damage and the analysis indicating the proposed flood profile, pursuant to subsection (E)(5) of Section 15.68.060.

3. The IDNR/OWR will review alternative transition sections and hydraulically equivalent storage pursuant to subsections (E)(1), (2) and (8) of Section 15.68.060.

4. The IDNR/OWR will review and approve, prior to the start of construction, any Department projects, dams (as defined in Section 15.68.120 of this chapter) and all other state, federal and local units of government projects, including projects of the Village.

G. Other Permits. In addition to the other requirements of this chapter, a Floodplain development permit for a site located in a floodway shall not be issued unless the applicant first obtains a permit or written documentation that a permit is not required from IDNR/OWR, issued pursuant to 615 ILCS 5/5, et seq.

H. Dam Safety Permits. Any person performing work involving the construction, modification or removal of a dam (as defined in Section 15.68.020 of this chapter) pursuant to 17 Ill. Adm. Code 3702 (Rules for Construction of Dams) shall obtain an IDNR/OWR Dam Safety Permit prior to the start of construction of a dam. If the Director finds a dam that does not have an IDNR/OWR permit, the Director shall immediately notify the Dam Safety Section of IDNR/OWR. If the Director finds a dam that is believed to be in an unsafe condition, the Director shall immediately notify the owner of the dam, IDNR/OWR, Dam Safety Section, and the Illinois Emergency Management Agency (IEMA).

I. Activities That Qualify for a Regional Permit from IDNR/OWR. The following activities may be permitted without a registered professional engineer's review, provided they meet the other requirements of this chapter.

1. Underground and overhead utilities that:

- a. Do not result in any increase in existing ground elevations;
- b. Do not require the placement of above ground structures in the floodway;
- c. In the case of underground stream crossings, the top of the pipe or encasement is buried a minimum of three feet below the existing stream bed; and
- d. In the case of overhead utilities, no supporting towers are placed in the watercourse and are designed in such a fashion as not to catch debris.

2. Storm and sanitary sewer outfalls that:

- a. Do not extend riverward or lakeward of the existing adjacent natural bank slope;
- b. Do not result in an increase in ground elevation; and
- c. Are designed so as not to cause stream erosion at the outfall location.

3. Construction of sidewalks, athletic fields (excluding fences), properly anchored playground equipment and patios at grade.

4. Construction of shoreline and streambank protection:

- a. When such construction does not exceed one thousand (1,000) feet in length;
- b. When materials used in such construction are not placed higher than the existing top of bank; and
- c. When materials used in such construction are placed so as not to reduce the cross-sectional area of the stream channel or bank of the lake. (Prior code § 28.06)

(MC-4-2021, § 2, Amended 8/3/2021; MC-5-2018, Amended, 08/07/2018; MC-5-2014 § 21, 04/17/2014; MC-2-2008, Amended, 05/06/2008)

15.68.070 Occupation and use of floodplain areas where floodways are not identified.

In SFHA or floodplains (including AO zones, AH zones and unnumbered A zones) where no floodways have been identified and no BFEs have been established and which drains more than one square mile, no development shall be permitted unless the cumulative effect of the proposals, when combined

with all other existing and anticipated uses and structures, shall not significantly impede or increase the flow and passage of the floodwaters and will not significantly increase the BFE. The development must meet all applicable requirements of this chapter and 17 Ill. Adm. Code Part 3700. The development shall also meet the requirements of Section 15.68.080 of this chapter.

A. Floodplain Development Permit. No person, firm, corporation or governmental body, not exempt by state law, shall commence any development in an SFHA or floodplain without first obtaining a floodplain development permit from the Director, as applicable. Application for a floodplain development permit shall be made on a form provided by the Director.

B. Duties of Director. The Director shall be responsible for obtaining from the applicant copies of all other local, state, and federal permits, approvals or permit-not-required letters that may be required for this type of activity. The Director shall not issue the floodplain development permit unless copies of all required local, state, and federal permits have been submitted to the Director by the applicant.

C. Preventing Increased Damages. No development in the SFHA, where a floodway has not been determined, shall create a damaging or potentially damaging increase in flood heights or velocity or threat to public health, safety, and welfare.

D. Standards within Riverine SFHAs. Within all riverine SFHA's where the floodway has not been determined, the following standards shall apply.

1. The developer shall have a registered professional engineer state in writing and show through supporting plans, calculation and data that the project meets the engineering requirements of the WMO and Section 15.68.

2. A floodplain development permit shall not be issued unless the applicant first obtains a permit from IDNR/OWR or written documentation that a permit is not required from IDNR/OWR.

3. Dam Safety Permits. Any person performing work involving the construction, modification or removal of a dam (as defined in Section 15.68.020 of this chapter) shall obtain an IDNR/OWR Dam Safety Permit or letter indicating a permit is not required prior to the start of construction of a dam. If the Director finds a dam that does not have an IDNR/OWR permit, the Director shall immediately notify the Dam Safety Section of IDNR/OWR. If the Director finds a dam which is believed to be in unsafe condition, the Director shall immediately notify the owner of the dam, IDNR/OWR, Dam Safety Section, and the Illinois Emergency Management Agency (IEMA).

4. Activities That Qualify for a Regional or Statewide Permit from IDNR/OWR. The following activities may be permitted without a registered professional engineer's review or calculations of a base flood elevation and regulatory floodway. Such activities shall meet the other requirements of this chapter:

a. Underground and overhead utilities that:

i. Do not result in any increase in existing ground elevations;

ii. Do not require the placement of above ground structures in the floodway;

iii. In the case of underground stream crossings, the top of the pipe or encasement is buried a minimum of three feet below the existing streambed;

iv. In the case of overhead utility lines, the lines shall be constructed above the estimated 100-year flood elevation or attached above the low chords of an existing bridge (with the permission of the bridge owner). No supporting towers shall be placed in the watercourse and shall be designed in such a fashion as not to catch debris.

v. Disturbance of streamside vegetation shall be kept to a minimum during construction to prevent erosion and sedimentation.

- b. Storm and sanitary sewer outfalls that:
 - i. Do not extend riverward or lakeward of the existing adjacent natural bank slope;
 - ii. Do not result in an increase in ground elevation; and
 - iii. Are designed so as not to cause stream bank erosion at the outfall location.
- c. Construction of shoreline and streambed protection:
 - i. When such construction does not exceed one thousand (1,000) feet in length;
 - ii. When materials used in such construction are not placed higher than the existing top of bank; and
 - iii. When materials used in such construction are placed so as not to reduce the cross-sectional area of the stream channel by more than ten (10) percent.
- d. The construction of light poles, sign posts and similar structures.
- e. The construction of sidewalks, driveways, athletic fields (excluding fences), patios and similar surfaces which are built at grade.
- f. The construction of properly anchored, unwallled, open structures such as playground equipment, pavilions and carports built at or below existing grade that would not obstruct the flow of floodwaters.
- g. The placement of properly anchored buildings not exceeding seventy (70) square feet in size, nor ten (10) feet in any one dimension (e.g., animal shelters and tool sheds).
- h. The construction of additions to existing buildings which do not increase the first floor area by more than twenty (20) percent, which are located on the upstream or downstream side of the existing building, and which do not extend beyond the sides of the existing building that are parallel to the floodwaters.
- i. Minor maintenance dredging of a stream channel where:
 - i. The affected length of stream is less than one thousand (1,000) feet;
 - ii. The work is confined to reestablishing flows in natural stream channels; or
 - iii. The cross-sectional area of the dredged channel conforms to that of the natural channel upstream and downstream of that site.

5. The flood-carrying capacity within any altered or relocated watercourse shall be maintained.

E. Compensatory Storage. Whenever any portion of a floodplain, (including AO zones, AH zones and unnumbered A zones) where no floodways have been identified and no base flood or one hundred (100) year frequency flood elevations have been established and which drains more than one square mile, is authorized for use, the volume of space which will be occupied by the authorized fill or structure below the BFE shall be compensated for and balanced by a hydraulically equivalent volume of excavation taken from below the base flood or one hundred (100) year frequency flood elevation. The excavation volume shall meet the requirements of § 602.7-9 of the WMO. (Prior code § 28.07)

(MC-4-2021, § 2, Amended 8/3/2021; MC-5-2018, Amended, 08/07/2018; MC-5-2014 § 22, 04/17/2014; MC-2-2008, Amended, 05/06/2008)

Section 15.68.080 Permitting requirements applicable to all floodplain areas.

In addition to the requirements found in Sections 15.68.050, 15.68.060 and 15.68.070 of this chapter for development in flood fringes, regulatory floodways, and SFHA or floodplains where no

floodways have been identified (Zones AO, AH, AE, A1--A30, A99, VO, V1-V30, VE, V, M, E or X), § 601 and § 602 of the WMO and the following requirements shall be met:

A. **Public Health Standards.** No developments in the SFHA shall include locating or storing chemicals, explosives, buoyant materials, animals' wastes, fertilizers, flammable liquids, pollutants, or other hazardous or toxic materials below the FPE unless such materials are stored in a floodproofed and anchored storage tank and certified by a P.E. or floodproofed building constructed according to the requirements of Section 15.68.080 D.3 of this chapter.

B. **Water and Sewer Lines.** New and replacement water supply systems, wells, sanitary sewer lines and on-site disposal systems may be permitted providing all manholes or other above ground openings located below the FPE are watertight and shall meet the requirements of § 602.15-17 of the WMO. New and replacement on-site sanitary sewer lines or waste disposal systems shall be located and constructed to avoid impairment to them or contamination from them during flooding.

C. **Carrying Capacity and Notification.** For all projects involving channel modification, fill or stream maintenance (including levees), the flood carrying capacity of the watercourse shall be maintained and the project shall meet the requirements of § 606 and § 607 of the WMO. In addition, the Village shall notify adjacent communities in writing thirty (30) days prior to the issuance of a permit for the alteration or relocation of the watercourse.

D. **Public utilities and facilities** such as telecommunication, gas and electric shall be located and constructed to minimize or eliminate flood damage.

E. **All other activities**, defined as development, such as pools, fences, filling, paving, etc., shall be designed so as not to alter flood flows or increase potential flood damages.

F. **Protecting Buildings.** All buildings located within the SFHA, shall be protected from flood damage below the FPE. However, existing buildings located within a regulatory floodway shall also meet the more restrictive appropriate use standards included in Section 15.68.060 of this chapter. These building protection criteria apply to the following situations:

1. New construction or placement of a new building.
2. A substantial improvement to an existing building.
3. Installing a manufactured home on a new site or a new manufactured home on an existing site.
4. A substantially damaged building under repair, the entire building must meet the flood protection standards of this section. Substantial damage shall be figured cumulatively during a 10-year period by comparing the cost to repair the building to its pre-damage condition with the market value of the building immediately prior to the damage, for each event in which the building sustains damage, and adding the percentages of damage for each event.
5. Installing a travel trailer or recreational vehicle on a site for more than 180 consecutive days.

G. **Building Protection Methods.** Building protection requirements may be met by one of the following methods.

1. **Residential Buildings:** In zones A, AO, AH, and AE, the lowest floor, including basement, of new construction of residential buildings, and substantially improved residential buildings, must be elevated to the FPE, and are subject to the more specific additional requirements below:

a. If fill, including grading to redistribute onsite material to alter existing topography, is used as a means of elevation:

i. The fill shall be placed in layers no greater than one foot deep before compaction, must extend at least 20 feet beyond the foundation before sloping below the FPE in lieu of a geotechnical

report, and shall meet the requirements of § 602 of the WMO. The fill shall be protected against erosion and scour and shall be composed of clean rock or soil and not include debris or refuse material. The fill shall not adversely affect the flow or surface drainage from or onto neighboring properties.

ii. In order to construct a home with or without a basement, on a permanent landfill, the following equation must be satisfied:

$$\text{Minimum Average Lot Grade} = (\text{FPE}-2') - [(\text{Total Required Side Yard}-12') \times 0.0833].$$

Therefore, if the average lot grade elevation on a site is above the elevation as defined by this equation, then a structure with its lowest floor below the BFE may be constructed. Otherwise, the structure must be protected in accordance with Section 15.68.080.E.2 of this Code.

b. If the building's lowest floor is elevated above ground level with an enclosed or unenclosed area below the lowest floor:

i. The building shall be elevated on piles, walls, columns, or other foundation that is permanently open to floodwaters.

ii. All enclosed areas below the FPE shall provide for equalization of hydrostatic pressures by allowing the automatic entry and exit of floodwaters. A minimum of two (2) permanent openings shall be provided on at least two walls located below the BFE and no more than one (1) foot above finished grade. The openings shall provide a total net area of not less than one (1) square inch for every one (1) square foot of enclosed area subject to flooding, or the design must be certified by a Registered P.E. as providing the equivalent performance in accordance with accepted standards of practice. Refer to FEMA TB1, Openings in Foundation Walls and Walls of Enclosures, for additional guidance.

iii. All electrical lines, switches, receptacles, and fixtures must be located above the FPE except to the minimum extent required by applicable building or life-safety codes. Any switches, receptacles, and/or fixtures required by applicable building or life-safety codes to extend below the FPE shall be rated, or located in enclosures rated, for prolonged submersion.

iv. The building, foundation, and supporting members shall be adequately anchored to prevent flotation, collapse, or lateral movement of the building resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy, and be designed so as to minimize exposure to current, waves, ice, and floating debris.

v. All building components below the FPE shall be constructed of materials resistant to flood damage.

vi. Water and sewer pipes, electrical and telephone lines, submersible pumps, and other service facilities may be located below the FPE provided they are waterproofed.

vii. The area below the FPE shall be used solely for parking, storage, or building access and not later modified or occupied as habitable space.

2. Nonresidential Buildings: In zones A, AO, AH, and AE, the lowest floor (including basement) of new construction of nonresidential buildings, and substantial improvement of nonresidential buildings, must either (1) be elevated to or above the FPE, subject to the more specific additional requirements of Sections 15.68.080.G.1.a through 15.68.080.G.1.b above; or (2) be structurally dry-floodproofed, provided a Registered P.E. or architect has developed and/or reviewed the structural design, specifications, and plans for construction, and the Registered P.E. or architect submits a FEMA Floodproofing Certificate, certifying that the design and methods of construction are in accordance with accepted standards of practice for meeting the requirements of ASCE 24-14, and the following conditions:

- a. Below the FPE, the building and attendant utility and sanitary facilities shall be watertight with walls substantially impermeable to the passage of water and structural components capable of resisting hydrostatic and hydraulic loads and the effects of buoyancy.
- b. The building design shall take into account flood velocities, duration, rate of rise, hydrostatic and hydrodynamic forces, the effects of buoyancy and impacts from debris or ice.
- c. Floodproofing measures shall be incorporated into the building design and shall be operable without human intervention and without an outside source of electricity.
- d. The building, utility, and sanitary facilities' design and construction will prevent the effect of sewer backup into the building.
- e. For purposes of this subsection, levees, berms, floodwalls and similar works are not considered floodproofing.

3. In a coastal high hazard area (zone VE) and in any area of zone AE designated as a moderate wave action area, the building protection requirements of this Section 15.68.080E. must be met according to the following criteria:

- a. All new construction and substantial improvements shall be elevated on pilings or columns so that the bottom of the lowest horizontal structural member of the lowest floor (excluding the pilings or columns) is elevated to or above the FPE, and the pile or column foundation and structure attached thereto is anchored to resist flotation, collapse, and lateral movement due to the effects of wind and water loads acting simultaneously on all building components.

- i. Water loading values used shall be those associated with the base flood.

- ii. Wind loading values shall be those defined according to American Society of Civil Engineers 7-16 Minimum design loads and associated criteria for buildings and other structures, or other equivalent standard.

- b. A registered professional engineer or architect shall develop or review the structural design, specifications and plans for the construction, and shall certify that the design and methods of construction to be used are in accordance with accepted standards of practice for meeting the provisions of Section 15.68.080.E.4.a.

- c. All new construction and substantial improvements shall have the space below the lowest floor either free of obstruction or constructed with non-supporting breakaway walls, open wood lattice-work, or insect screening intended to collapse without causing collapse, displacement, or other structural damage to the elevated portion of the building or supporting foundation system.

- i. A breakaway wall shall have a design safe loading resistance of not less than 10 and no more than 20 pounds per square foot.

- ii. Use of breakaway walls which exceed a design safe loading resistance of 20 pounds per square foot (either by design or where so required by local or state codes) may be permitted only if a registered professional engineer or architect certifies that the designs proposed meet all of the following conditions:

- a) Breakaway wall collapse shall result from a water load less than that which would occur during the base flood; and

- b) The elevated portion of the building and supporting foundation system shall not be subject to collapse, displacement, or other structural damage due to the effects of wind and water loads acting simultaneously on all building components (structural and non-structural). Water loading values shall be those associated with the base flood. Wind loading values shall be those defined according to American Society of Civil Engineers 7-16 Minimum design loads and associated criteria for buildings and other structures, or equivalent standard.

c) All space enclosed by breakaway walls, open wood lattice-work, or insect screening below the lowest floor shall be used solely for parking of vehicles, building access, or storage.

4. In Zones A, AO, AH and AE, detached accessory structures and detached garages may be constructed with the lowest floor below the FPE in accordance with the following:

a. The building shall not be used for human habitation, must not include areas intended or used for cooking, and must not include bathrooms, toilet rooms, or shower rooms.

b. All areas below the BFE shall be constructed with flood resistant materials.

c. The structure must have at least two permanent openings on at least two walls not more than one foot above grade and below the BFE, with one square inch of opening for every one square foot of floor area.

d. The building shall be located outside of the regulatory floodway unless the building can be constructed and placed on a building site so as not to block flood flows nor reduce floodway storage, can meet the appropriate use criteria of Section 15.68.060, and all other requirements of Sections 15.68.050, 15.68.060 and 15.68.070.

e. The structure shall be anchored to prevent flotation and overturning.

f. All electrical lines, switches, receptacles, and fixtures must be located above the FPE except to the minimum extent required by applicable building or life-safety codes. Any switches, receptacles, and/or fixtures required by applicable building or life-safety codes to extend below the FPE shall be rated, or located in enclosures rated, for prolonged submersion.

g. The building shall be valued at less than \$25,000.00 as substantiated by a signed contract be no more than one-story in height, and shall have a roofed lot coverage of less than five hundred 500 square feet.

h. The building shall be used only for the storage of vehicles or tools and may not contain other rooms, greenhouses or similar uses. (Ord. MC-181-97 § 2, 1997; prior code § 28.08). All flammable or toxic materials (gasoline, paint, insecticides, fertilizers, etc.) shall be stored above the FPE.

i. The lowest floor elevation should be documented, and the owner advised of the flood insurance implications of building with the lowest floor below the BFE.

5. Nonconforming structures located in a regulatory floodway may remain in use, but may not be enlarged, replaced or structurally altered, except to the extent such enlargement, replacement or alteration is permitted by Section 15.68.060 of this chapter. A nonconforming structure damaged by flood, fire, wind or other natural or man-made disaster may be restored provided the value of the damage is less than fifty (50) percent of the structure's market value before it was damaged, and provided that the restoration conforms to all applicable provisions of this chapter.

H. Retaining Walls and Grading Requirements.

1. When retaining walls are used either to bridge the grade differential between the FPE of the clay building pad for a new structure and the existing average lot grade on the site, or to create a vertical surface for any portion of a side of a compensatory storage area, the cumulative height of the retaining walls in the front and side yards shall not exceed 24 inches.

2. When slopes are used to provide a transition between the existing grade and the proposed grade for the top of the permanent fill, or for the construction of a compensatory storage basin, those slopes will be limited to a maximum of 1:6, or 1 foot of vertical rise for every six feet of horizontal run.

3. If a proposed construction or development project cannot meet the requirements of this Subsection F, then the use of permanent fill to elevate the structure out of the SFHA shall be prohibited and the structure shall be protected in accordance with Section 15.68.080.E.2 of this Code.

4. In floodplain zones AO and AH, drainage paths shall be provided to guide water around and away from the buildings.

5. Within a coastal high hazard area or within a moderate wave action area, bulkheads, seawalls, revetments, and other erosion control structures shall not be connected to the foundation or superstructure of a building, and shall be designed and constructed so as not to direct floodwaters or increase flood forces or erosion impacts on the foundation or superstructure of any building.

6. Man-made alterations of sand dunes within a coastal high hazard area (zone V, V1-30, or VE) or within a moderate wave action area are prohibited unless an engineering report documents that the alterations will not increase potential flood damage by reducing the wave and flow dissipation characteristics of the sand dunes.

7. Non-structural fill within a coastal high hazard area (zone V, V1-30, or VE) or within a moderate wave action area shall be permitted only if an engineering report demonstrates that the fill will not cause wave runup, ramping, or deflection of floodwaters that cause damage to buildings.

8. The use of fill for structural support of buildings within a coastal high hazard area (zone V, V1-30, or VE) or within a moderate wave action area is prohibited. (Prior code § 28.08)

(MC-4-2021, § 2, Amended 8/3/2021; Ord MC-5-2018, Amended, 08/07/2018: MC-5-2014 § 23, 04/17/2014; Ord. MC-2-2008, Amends, 05/06/2008; MC-4-2006, Amended, 07/18/2006; MC-5-2001, Amended, 08/21/2001; MC-3-2000, Amended, 09/05/2000, Reflects new FEMA maps; Ord. MC-181-97 § 2, 1997)

15.68.090 Other development requirements.

The Village Council shall take into account flood hazards, to the extent that they are known, in all official actions by the Council related to land management, use and development.

A. New subdivisions and annexation agreements within the SFHA shall be reviewed to assure that the proposed developments are consistent with Sections 15.68.050, 15.68.060, 15.68.070 and 15.68.080 of this chapter and the need to minimize flood damage. Plats or plans for new subdivisions shall include a signed statement by and Illinois Registered Professional Engineer that the plat or plans account for changes in the drainage of surface waters in accordance with the Plat Act (765 ILCS 205).

B. Proposals for new subdivisions and additions to subdivisions shall include BFE data and floodway delineations. Where this information is not available from an existing study, the applicant's Registered Professional Engineer shall be responsible for calculating the BFE pursuant to Section 15.68.040(D) of this chapter and submitting it to the IDNR/OWR for review and approval as best available regulatory data.

C. New streets, blocks, lots, parks and other public grounds shall be located and laid out in such a manner as to preserve and utilize natural streams and channels. Wherever possible, the floodplains shall be included within parks or other public grounds.

D. The Village Council shall not approve any annexation agreement or any plat of subdivision located outside the corporate limits unless such agreement or plat is in accordance with the provisions of this chapter. (Prior code § 28.09)

(MC-4-2021, § 2, Amended 8/3/2021)

15.68.100 Variances.

No variances shall be granted to any development located in a regulatory floodway, as defined in Section 15.68.020 of this chapter. However, when a development proposal is located outside of a regulatory floodway, and whenever the standards of this chapter place undue hardship on a specific development proposal, the applicant may apply to the Director or to the Metropolitan Water Reclamation District of Greater Chicago for a variance. Only the Metropolitan Water Reclamation District of Greater Chicago may grant variances from the requirements of the WMO. The Director shall

review the applicant's request for a variance from Village standards that exceed the requirements of the WMO and shall submit his or her recommendation to the Village Council.

A. No variances shall be granted unless the applicant demonstrates that all of the following criteria have been met:

1. The development activity cannot be located outside the SFHA.
2. An exceptional hardship would result if the variance were not granted.
3. The relief requested is the minimum necessary.
4. There will be no additional threat to public health, safety or welfare.
5. There will be no additional threat to beneficial stream uses and functions, including aquatic habitat.
6. There will be no nuisance created.
7. There will be no additional public expense for flood protection, rescue or relief operations, policing, or repairs to roads, utilities, or other public facilities.
8. The activity is not in a regulatory floodway.
9. The applicant's circumstances are unique and do not represent a general problem.
10. The provisions of Sections 15.68.050(E) and 15.68.070(D) are met.

B. The Director shall notify an applicant in writing that a variance of the requirements of Section 15.68.080 of this chapter that would lessen the degree of protection to a building will do any of the following:

1. Result in increased premium rates for flood insurance up to amounts as high as \$25.00 for one hundred dollars \$100.00 of insurance coverage.
2. Increase the risks to life and property.
3. Require that the applicant proceed with knowledge of these risks and that he or she will acknowledge in writing that he or she assumes the risk and liability.

C. Variances requested in connection with restoration of a site or building listed on the National Register of Historical Places or documented as worthy of preservation by the Illinois Historic Preservation Agency may be granted using criteria more permissive than the requirements of subsections (A) and (B) of this section. (Prior code § 28.10)

(MC-4-2021, § 2, Amended 8/3/2021; MC-5-2014 § 24, 04/17/2014)

15.68.110 Disclaimer of liability.

The degree of flood protection required by this chapter is considered reasonable for regulatory purposes and is based on available information derived from engineering and scientific methods of study. Larger floods may occur or flood heights may be increased by man-made or natural causes. This chapter does not imply that development, whether inside or outside of the SFHA, will be free from flooding or damage. This chapter does not create liability on the part of the Village or any officer or employee of the Village for any flood damage that results from reliance on this chapter or any administrative decision made under this chapter. (Prior code § 28.11)

(MC-4-2021, § 2, Amended 8/3/2021)

Section 15.68.120 Penalties.

Failure to comply with the requirements of a permit or with the conditions of a variance resolution shall be deemed to be a violation of this chapter. In addition, upon due investigation, the Director may

determine that a violation of the minimum standards of this chapter exist.

A. The Director shall notify the owner in writing of such violation. The notice constitutes a suspension of any floodplain development permit. The notice shall include a statement informing the owner that any such violation may be considered a willful act to increase flood damages and may cause coverage by a Standard Flood Insurance Policy to be suspended. The notice shall contain a brief description of the violations, section of the chapter violated, the requirement to stop all work in violation of this chapter, and a statement informing the violator that they may contest the notice in writing within 10 days, correct the violation in ten days, or apply for a permit, as applicable.

B. If the owner fails to respond to the notice or to correct the violation within 10 days after the issuance of the notice, the Village may file an action in the Circuit Court of Cook County seeking issuance of an injunction requiring conformance with this chapter or entry of such other order as the Court deems necessary to secure compliance with this chapter.

C. Any person who violates a provision of this chapter shall, upon conviction, be fined not less than \$50.00 nor more than \$750.00 for each offense.

D. A separate offense shall be deemed committed upon each day during or on which a violation occurs or continues.

E. The Village may record a notice of violation on the title to the property.

F. Nothing in this chapter shall prevent the Village from taking such other lawful action to prevent or remedy any violations. All costs connected with such action shall accrue to the person or persons responsible.

(Prior code § 28.12) (MC-4-2021, § 2, Amended 8/3/2021; MC-5-2018, Amended, 08/07/2018)

15.68.130 Construction and other code provisions.

The provisions of this chapter shall be deemed additional requirements to minimum standards required by other provisions of this code. In case of conflicting requirements, the most restrictive shall apply. (Prior code § 28.13)

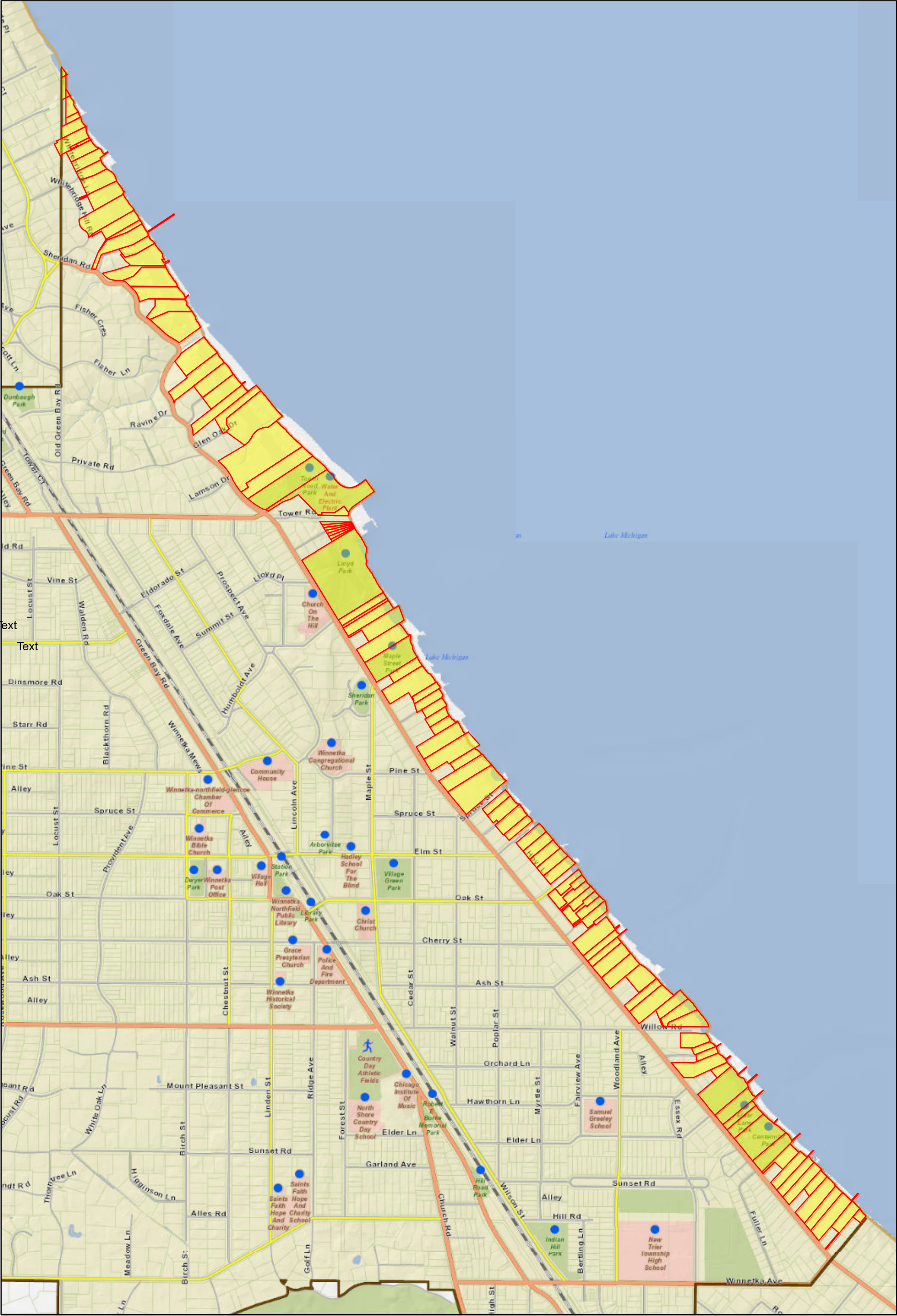
(MC-4-2021, § 2, Amended 8/3/2021)

15.68.140 Effect of regulations.

Nothing in this chapter is intended to repeal, abrogate or impair any existing easements, covenants or deed restrictions. Where the requirements of this chapter and other ordinances, easements, covenants or deed restrictions conflict or overlap, whichever imposes the more stringent restrictions shall prevail. (Prior code § 28.14)

(MC-4-2021, § 2, Amended 8/3/2021; Ch. 15.68 amended, Ord. MC-5-2001, 08/21/01)

Attachment C
Lakefront Property Map



Winnetka Lakeshore Properties 112 properties

Attachment D
Approved Historical Permits Map



Village of Winnetka Shoreline Protection Projects

1175 WHITEBRIDGE HILL RD 2011 Stone revetment removal and replacement

1175 WHITEBRIDGE HILL RD 2014 Groin and breakwater for shoreline protection

799 SHERIDAN RD 2019 Breakwater protected beach system comprised of the three quarry stone breakwaters

771 SHERIDAN RD 2017 Breakwater construction

667 SHERIDAN RD 2016 Remove existing concrete pier, construct quarry stone breakwater

609 SHERIDAN RD 2014 Quarry stone breakwater

609 SHERIDAN RD 2015 Quarry stone breakwater

595 SHERIDAN RD 2021 Raise the crest elevation of the existing south breakwater

565 SHERIDAN RD 2018 Quarry stone breakwater, raising an existing groin

703 SHERIDAN RD 2017 To construct a concrete pier on steel piles, quarry stone breakwater

627 SHERIDAN RD 2015 breakwater construction





Village of Winnetka Shoreline Protection Projects

523 HOYT LN 2021

Quarry stone revetment,
breakwater maintenance

519 HOYT LN 2019 Quarry stone
revetment, installation of stormwater outfall,
and repair of existing breakwater

480 OAK ST 2006

Quarry stone
revetment

429 SHERIDAN RD 2015

Pocket breakwater
beach system with
two quarry stone and
steel breakwaters

419 SHERIDAN RD 2015

Pocket breakwater
beach system with
two quarry stone and
steel breakwaters

411 SHERIDAN RD

2012 Quarystone
revetment

333 WILLOW RD 2016

Steel groin, quarry
stone breakwater
and spur, remove
old timber crib

299 SHERIDAN RD

2021 Expand beach
at Elder Lane and
Centennial Parks

225 SHERIDAN RD

2021 Expand beach
at Elder Lane and
Centennial Parks

195 SHERIDAN RD 2013 Steel
sheet pile groin with
an attached quarry stone
breakwater, reconstruct
an existing revetment

Baird.

W.F. Baird & Associates Ltd.

Memorandum

Office | 2924 Marketplace Drive, Suite 200, Madison, WI 53719, USA

Phone | +1 608 273 0592 Email | madison@baird.com

Reference # 13918.M3.Rev0

Status: Final

September 7, 2023

Attention: Robert Bahan

CC: James Bernhal, David Schoon, Kristin Kazenas, Peter Friedman

From: Caleb Barth

RE: COMPARING STEEP SLOPE REGULATIONS IN ADJACENT COMMUNITIES AND THEIR APPLICATION IN THE VILLAGE OF WINNETKA

The Village of Winnetka (Village) has requested that W.F. Baird & Associates Ltd. (Baird) assist in providing technical guidance to the Village Council for the development of lakefront regulations. The following memorandum summarizes regulations in the adjacent Villages of Glencoe and Kenilworth and how they would apply to the Village steep slope area.

Steep Slope Regulations in Adjacent Communities

A high-level review of the villages of Glencoe and Kenilworth steep slope ordinances was undertaken and summarized in this memo. Pertinent definitions for the review of this information include:

- **Bluff** – An elevated segment of the Lake Michigan shoreline above the beach which normally has a precipitous front inclining steeply on the lakeward side.
- **Slope Transition Area** – That portion of the Slope Impact Area of a lot lying outside the Steep Slope Zone (Glencoe only).
- **Steep Slope** – Land comprising or adjacent to a lake bluff or ravine where the slope in ascent or decent exceeds 10% from the horizontal.
- **Steep Slope Line**
 - Glencoe – A line representing the intersection of the Table Land with a 27-degree slope (2H : 1V) extending upward from the toe of a bluff or ravine. For any lot that lacks a Table Land, for the purpose of identifying the steep slope line, the horizontal projection of the street line of the lot.
 - Kenilworth – A line representing the intersection of the Table Land and the steep slope.
- **Steep Slope Zone**
 - Glencoe – The portion of the Slope Impact Area of a lot that lies between the Steep Slope Line and the Toe of Bluff.

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Commercial in Confidence



- Kenilworth – That portion of a lot that includes the steep slope and lies between the water's edge of Lake Michigan and a line drawn 35 feet behind the steep slope line at the top edge of the bluff and away from the bottom of the bluff. The Steep Slope Zone shall include all retaining walls located between Lake Michigan and the steep slope line.
- **Table Land** – Land at the top of a bluff or ravine where the slope is less than a 10% slope (10H : 1V).
- **Toe of Bluff** – The toe of the ravine or bluff slope is that point in the ravine or bluff where the slope is less than a 10% slope (10H : 1V) or where the slope reverses direction.

The Village of Glencoe regulates development along the coastal bluffs within two (2) zones: the Slope Transition Area and the Steep Slope Zone. Together these two areas are the Slope Impact Zone. These are depicted in Figure 1.

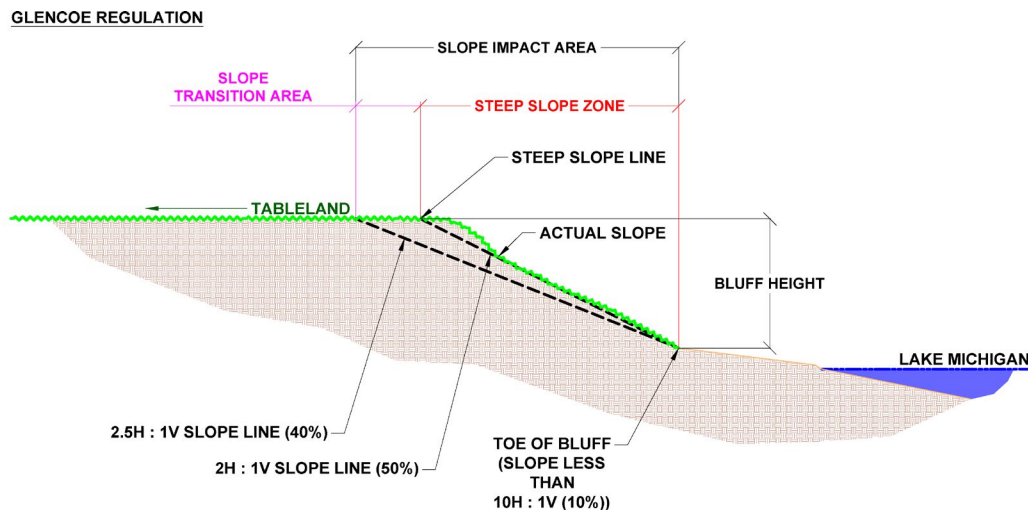


Figure 1: Sketch of the Steep Slope Regulated Area per the Village of Glencoe Regulations

The Village of Kenilworth regulates development along the coastal bluffs within one (1) zone, the Steep Slope Zone, which is depicted in Figure 2.

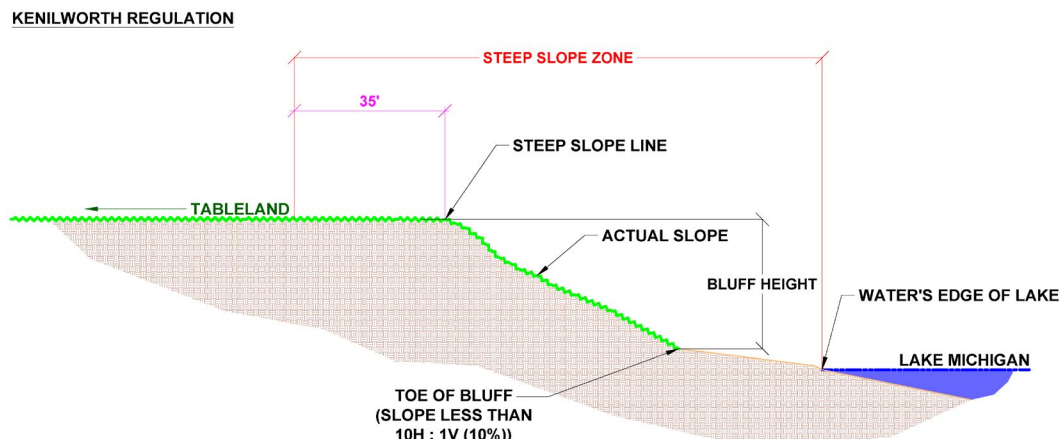


Figure 2: Sketch of the Steep Slope Regulated Area per the Village of Kenilworth Regulations

The main differences between the Village of Glencoe and Village of Kenilworth regulated area are the following:

- In the Village of Glencoe, the depth of the Slope Transition Area and the depth of the Steep Slope Zone varies with the height of the bluff. Additionally, the Steep Slope Zone does not include the Slope Transition Area and each are regulated differently.
- In the Village of Kenilworth, the transition area at the Table Land is fixed at 35 feet and does not change with the bluff height or slope line. The transition area at the Table Land is included in the Steep Slope Zone.

Permitted Development in Steep Slope Zone

The permitted development allowed within the Steep Slope Zone and Slope Transition Area are summarized within Table 1 and Table 2, respectively.

Table 1: Permitted Development within the Steep Slope Zone (subject to approval)

Village	Development/Land Use	Additional Requirements
Kenilworth & Glencoe	Decks	• Unless exceptional engineering is provided, no more than: • 100 sq ft (Kenilworth) • 50 sq ft (Glencoe)
Kenilworth & Glencoe	Retaining Walls	• When necessary for stabilization • Cannot increase or create table land • Backfilling allowed only for stabilization
Kenilworth & Glencoe	Rebuilt/Remodeled Structures	• Only on a suitable existing foundation • Plans prepared by Architect or Engineer • Cannot increase footprint • Cannot increase height (Kenilworth)
Kenilworth & Glencoe	Stairs/Steps	• No more than 5' wide • Landings no more than 50 sq ft
Kenilworth & Glencoe	Mechanical or Electrical Lift, Bridge, and/or Walkway	
Kenilworth & Glencoe	Fences	• Must comply with all other Village codes
Kenilworth	<u>One Accessory Structure</u>	• No larger than 150 sq ft or taller than 11' • Cannot impact slope stability of the property or adjacent properties • Cannot be visible from adjacent table land

Village	Development/Land Use	Additional Requirements
Glencoe	Boat Houses	Director must determine the structure will not impact slope stability
Glencoe	Cantilevering of Structures	- No more than 4' extension over the Zone unless otherwise limited by Code - Cannot block natural sunlight or alter natural stormwater drainage in a way that jeopardizes slope stability

Table 2: Permitted Development within the Slope Transition Area (subject to approval)

Village	Development / Land Use	Additional Requirements
Glencoe	Any development otherwise authorized under codes, ordinances, and regulations of the village, pending the Director's review	

Village of Winnetka Steep Slope Zone Description

A high-level desktop analysis of the Village shoreline was undertaken to inform the Village Council on how the definition of the Steep Slope Zone would impact the Village (see Figure 3). The major conclusions are as follows:

1. The Village is located within the transition from the Lake Border moraines bluff coast and the Chicago/Calumet lacustrine plain (see Figure 4), which contributes to a variable bluff height. The bluff height varies significantly from North (~65 to 70 feet) to South (~25 to 30 feet).
 - 1.1 The Village of Glencoe resides within the Lake Border moraine bluff coast (i.e. larger bluff heights).
 - 1.2 The Village of Kenilworth resides within the Chicago/Calumet lacustrine plain (i.e. smaller bluff heights).
2. The bluff slope varies from approximately 1.2H : 1V (83% slope) to 2.7H : 1V (37% slope).
 - 2.1 The bluff slope can be associated to a Factor of Safety (or the stability of the bluff). In other words, some bluff slopes are more stable for development in their existing conditions whereas other slopes are less stable. See the last section of this memo for more commentary on this topic.



Figure 3: Village of Winnetka Shoreline Characterization

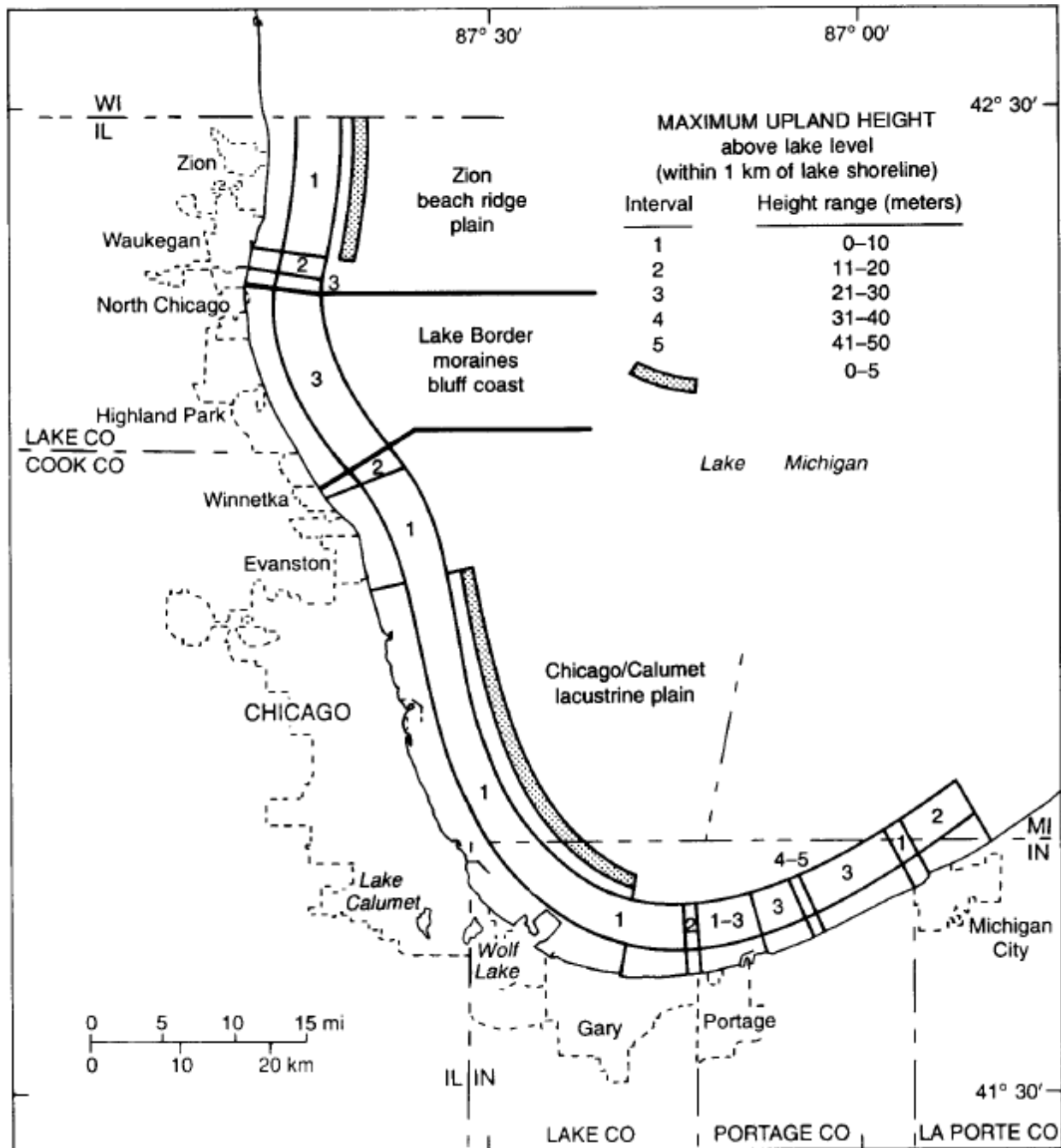


Figure 4: Generalized upland relief along the Illinois-Indiana coast and the extent and designation of the three coastal geomorphic areas (Chrastowski, 1994).

Application of Adjacent Communities Steep Slope Regulations in the Village of Winnetka

The application of the Villages of Glencoe and Kenilworth regulated areas was applied to the range of bluff heights (see Figure 5 and Figure 6) and different slopes (see Figure 5 and Figure 7), which can be expected in the Village of Winnetka to demonstrate to the Village Council how the adoption of similar requirements would affect development near the bluff.

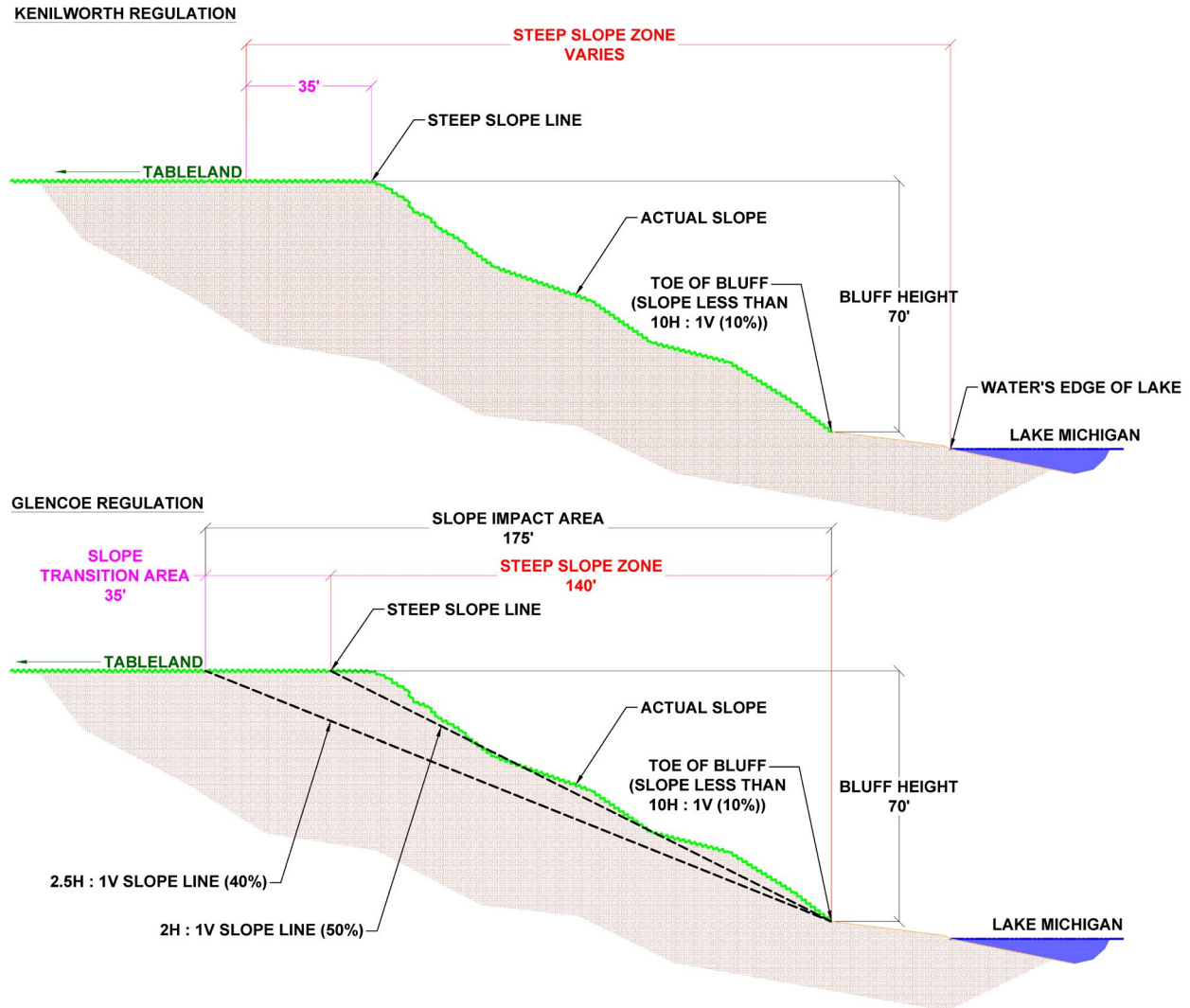
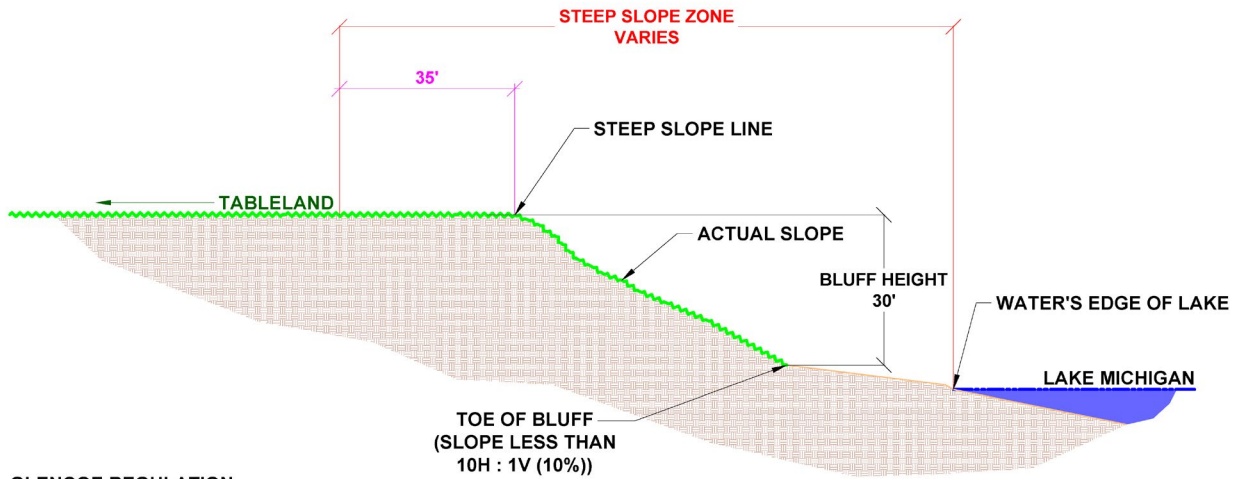


Figure 5: Kenilworth and Glencoe Bluff Regulations as Applied to a 70-foot Bluff Height and 2H: 1V Slope (50%).

Commentary: For the scenario sketched in Figure 5, the Steep Slope Zone regulations in Kenilworth are applied farther upland on the Table Land than Steep Slope Zone regulation in Glencoe. The Slope Impact Zone (Steep Slope Zone + Slope Transition Area) regulations in Glencoe are applied farther upland on the Table Land than Steep Slope Zone regulations in Kenilworth.

KENILWORTH REGULATION



GLENCOE REGULATION

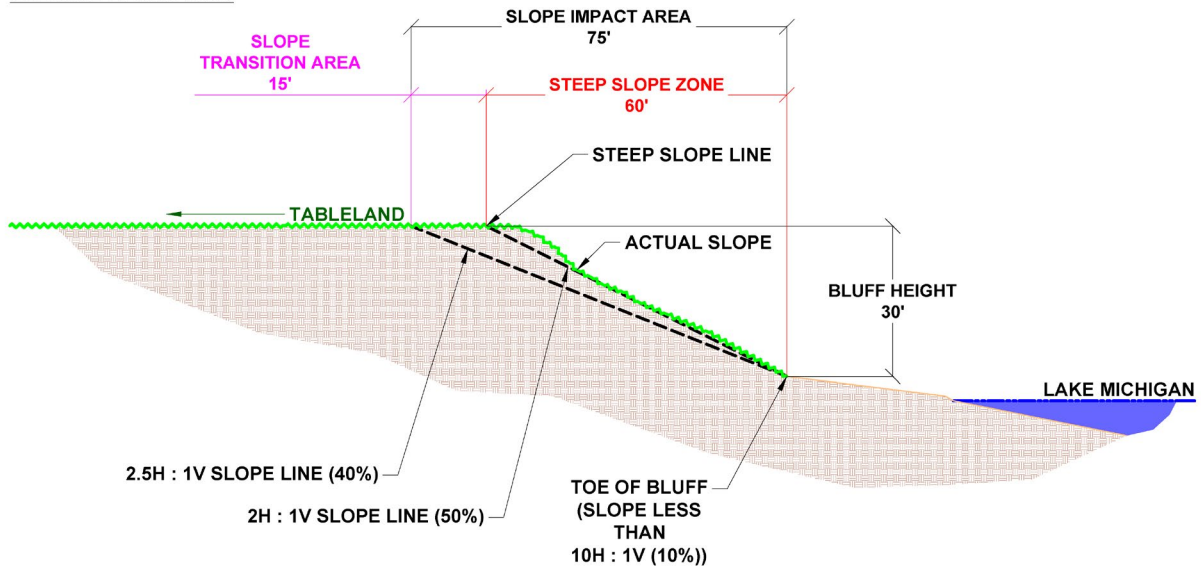


Figure 6: Kenilworth and Glencoe Bluff Regulations as Applied to a 30-foot Bluff Height and 2H: 1V Slope (50%).

Commentary: For the scenario sketched in Figure 6, the Steep Slope Zone regulations in Kenilworth are applied farther upland than the Steep Slope Zone and Slope Impact Zone regulations in Glencoe.

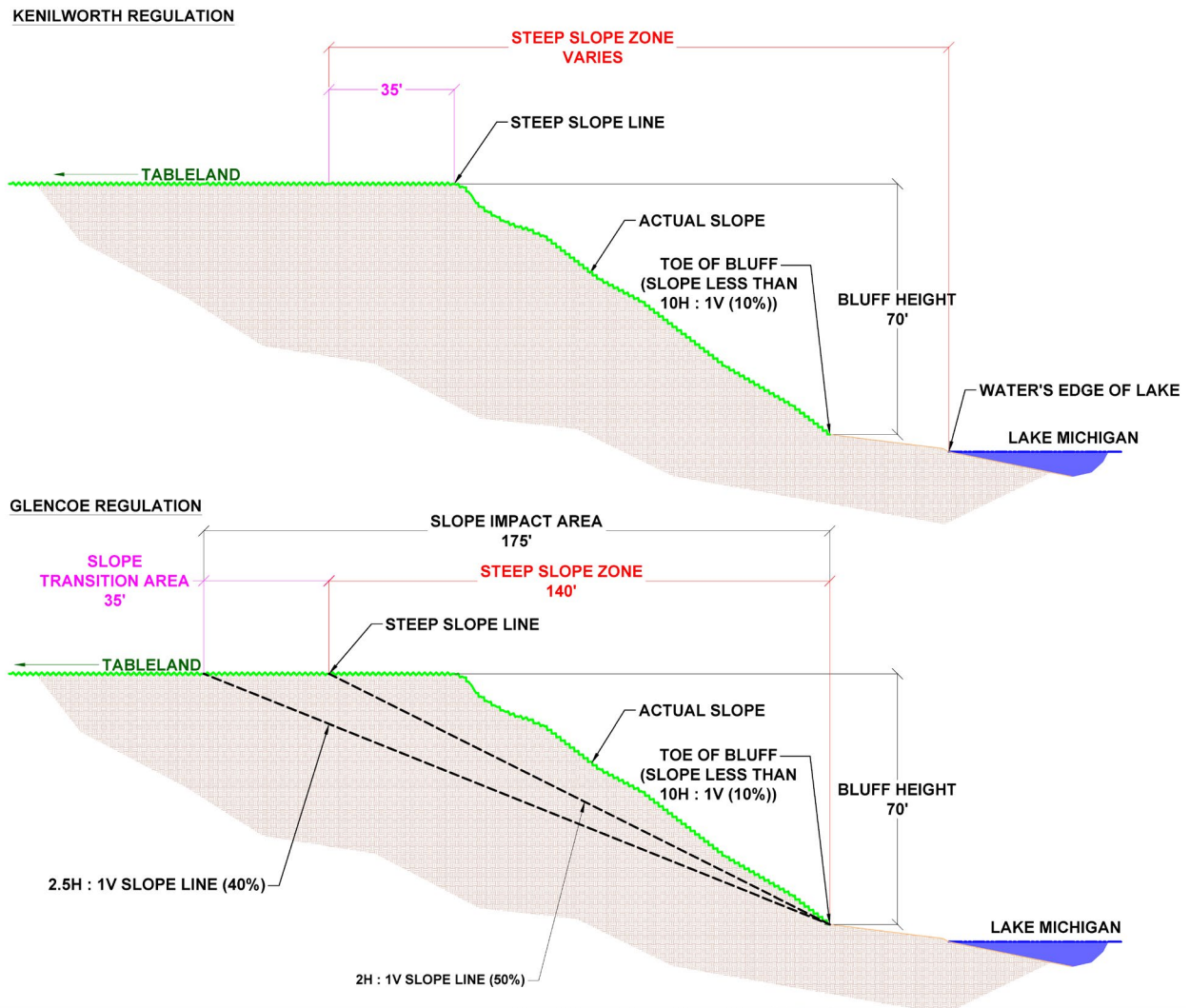


Figure 7: Kenilworth and Glencoe Bluff Regulations as Applied to a 70-foot Bluff Height and 1.5H : 1V Slope (67%).

Commentary: For the scenario sketched in Figure 7, the Steep Slope Zone regulations in Kenilworth and Glencoe are applied across an equivalent area. The Slope Transition Area regulations in Glencoe are applied farther upland on the Table Land than the Steep Slope Zone regulations in Kenilworth.

In summary, the definition of the Steep Slope Zone will have a significant impact on the area regulated. Kenilworth's definition of the Steep Slope Zone could be considered not the most applicable for Winnetka given the range of bluff heights and slopes within the Winnetka shoreline limits as compared to Kenilworth. On the other hand, the Village could decide to extend the regulated area beyond the area as defined by Glencoe's definition.

Bluff Stability / Factor of Safety

The bluff slope and the term “Factor of Safety” has been discussed throughout this document. Factor of Safety is the ratio of the forces promoting failure to the forces resisting failure. A Factor of Safety less than 1 means the bluff is susceptible to failure under the design conditions.

Why does the Village of Glencoe regulate the Steep Slope Zone within the 2H : 1V slope line and regulate the Slope Transition Area with a 2.5H : 1V slope line?

On a typical Great Lake glacial till bluff, a 2H : 1V slope (50%) should provide a minimum factor of safety required for passive land use and potentially enough for light land use while a 2.5H : 1V slope (40%) should provide a minimum factor of safety recommended for active land use (see Table 3).

Table 3: Design Minimum Factors of Safety for Coastal Slopes in the Great Lakes (From Ontario Ministry of Natural Resources, 2001)

Land Use	Design Minimum Factor of Safety	Approximate Equivalent Slope for Typical Regional Bluff*
Passive. Fields, woods, forest, etc. No buildings near slopes.	1.1	 2H : 1V (50% slope) 2.5H : 1V (40% slope)
Light. Recreational parks, golf courses, barns, garages, swimming pools, sheds, buried small utilities, gazebos, satellite dishes, doghouses, etc. No habitable structures near slope.	1.2–1.3	
Active. Habitable or occupied structures near slope; residential, commercial, industrial buildings, retaining walls, etc.	1.3–1.5	
Public Use. Structures and services for public use; hospitals, schools, etc.	1.4–1.5	

*Values provided are for information only. The actual Factor of Safety on a bluff slope depends on a variety of site-specific factors, including subsurface conditions, surface water management, groundwater management, vegetation, bluff toe protection, etc. and will vary considerably. Consult with a licensed geotechnical engineer.

References

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Village of Glencoe Ordinance No. 2013-13-3343.

Village of Kenilworth Ordinance No. 1163.