

ARTICLE 6. REQUIREMENTS FOR FLOOD PROTECTION AREAS

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§ 600. Flood Protection Areas

1. **Development** within a **flood protection area** shall comply with the requirements of Article 6 of this **Ordinance**, and shall also meet any applicable requirements of Article 5, Article 7, and Article 9 of this **Ordinance**.
2. All **projects** within a **flood protection area** shall comply with the requirements Article 4 of this **Ordinance**.
3. All **applicants** shall submit the documents specified in Article 3 to verify compliance with the requirements in Article 6 of this **Ordinance**.
4. Compliance with Article 6 of this **Ordinance** shall not preclude the **applicant** from meeting all applicable federal, state, and local requirements including, but not limited to, the local **NFIP** regulations.
5. Any human-induced change in improved or unimproved real estate within the **floodplain** not considered to be **development** under this **Ordinance**, including substantial improvements, shall meet the requirements of the local jurisdiction's **NFIP** or other **stormwater** ordinance. Compliance with §601 and §602 of this **Ordinance** does not excuse the **applicant** from meeting all local requirements for participation in the **NFIP**.

§ 601. Requirements for Floodplain, Floodway, and Flood Protection Elevation Determination

1. For purposes of §601 and §602, the **floodplain** shall be the area determined in §601.3 and §601.4 and any inundation areas resulting from the **100-year flood elevation** determined in §601.5 of this **Ordinance**.
2. **Development** within **floodplains** shall not:
 - A. Result in any new or additional expense to any **person** other than the **applicant** for **flood** protection or for lost environmental stream uses and functions; and
 - B. Violate §501.1 of this **Ordinance**.
3. Determination shall be made of the **BFE**, the boundary of the **floodplain**, and the limits of the **floodway** as shown on the effective **FIS** for **Cook County** and the **regulatory floodplain** shown on the **FIRM**, including any **LOMC** or **LOMA** that has been issued by **FEMA**.

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4. Determination of the **BFE** in a **floodplain** shown on the **FIRM** associated with the effective **FIS** shall be determined for:
 - A. AE Zones by using the 100-year profile;
 - B. AH Zones by using the elevation noted on the applicable **FIRM**;
 - C. AO Zones by using the **highest adjacent grade** plus the depth number shown on the applicable **FIRM**, or two feet above the **highest adjacent grade** if no depth number is provided; and
 - D. For areas shown as A Zones on the effective **FIRM**, a **BFE** shall be determined by a **project-specific floodplain** study acceptable to either the **District** or an **authorized municipality**, utilizing the models listed in §601.6 and the study guidelines provided in the **TGM**. This study shall be approved by **IDNR-OWR** in cases where both:
 - (1) The drainage area is one (1) square mile or greater; and
 - (2) The **development** is associated with a permit that will be issued by **IDNR-OWR**.
5. When a known **flood** hazard is not identified as a **Special Flood Hazard Area** on the **FIRM**, the **District** or an **authorized municipality** may require the **applicant** to perform a **project-specific** study to determine the **project-specific 100-year flood elevation**. If the study determines the presence of **floodplain** or **floodway** areas, it shall be approved by **IDNR-OWR** in cases where both:
 - A. The drainage area is one square mile or greater; and
 - B. The **development** is associated with a permit that will be issued by **IDNR-OWR**.
6. **Project-specific floodplain** studies shall be performed by a **Professional Engineer** using the appropriate models when applicable:
 - A. TR-20, HEC-1, or HEC-HMS hydrologic model;
 - B. HEC-2 or HEC-RAS hydraulic model; or
 - C. A model or technique approved by the **District** and **IDNR-OWR**.
7. The **applicant** shall observe the **regulatory floodway** as designated by **IDNR-OWR**, which is delineated on the effective **FIRM**. If a **floodway** is not designated on the **FIRM** then the following shall apply:

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- A. When the drainage area is greater than one square mile, then the **regulatory floodway** shall be deemed to be the limits of the **regulatory floodplain** and subject to all **floodway** requirements of this **Ordinance**; or
 - B. When the drainage area is less than one (1) square mile, then a **floodway** designation is not required
8. The **regulatory floodway** may be re-designated by the **applicant**. For **floodways** where the drainage area is greater than one square mile, approval of the re-designation shall be required by **FEMA**, through a Conditional Letter of Map Revision (**CLOMR**) and/or Letter of Map Revision (**LOMR**). **IDNR-OWR** concurrence is also required by **FEMA** where a **regulatory floodway** is re-designated.
9. The **applicant** shall determine the **FPE**, which shall be two feet above the highest **100-year flood elevation** as determined by:
- A. The **BFE** associated with the effective **Cook County FIS**, including any **LOMC** that has been issued by **FEMA**; or
 - B. **Project-specific 100-year flood elevation** developed in §601.5 of this **Ordinance**.

§ 602. Requirements for Development within the Floodplain

- 1. For a new **building** or a foundation expansion of an existing **building** that increases the **building** footprint by the lesser of either twenty percent (20%) or 2,500 square feet, in aggregate, the proposed **lowest floor** shall be elevated to at least the **FPE** in accordance with the requirements specified in §602.9, §602.10, §602.11, and the local **municipality's NFIP** ordinance. A foundation expansion to an existing **non-residential building** that increases the **building** footprint by the lesser of either twenty percent (20%) or 2,500 square feet may be **dry floodproofed** in lieu of elevation to the **FPE**, in accordance with the **municipality's NFIP** ordinance.
- 2. **Floodproofing** of residential **structures** does not exempt the applicant from meeting the elevation provisions of §602.1 or flood protection requirements of the local **municipality's NFIP** ordinance.
- 3. New **building** or foundation expansions to existing **buildings** that increases the **building** footprint by the lesser of either twenty percent (20%) or 2,500 square feet, in aggregate, with the **lowest floor** below the **BFE**, shall comply with the following:
 - A. The **lowest entry elevation**, shall be at or above the **FPE**;
 - B. Provide **compensatory storage** per §602.6 and §602.7 of this **Ordinance**;

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- C. Demonstrate that a **building**, and foundation below the **BFE** are reasonably safe from **flooding** per design standards requirements in Technical Bulletin 10 issued by **FEMA**; and
 - D. Obtain a Letter of Map Revision Based on Fill (**LOMR-F**) if the **building** is in the **regulatory floodplain**. Projects that obtain a LOMR-F shall maintain compliance with §602.3.C.
4. New **accessory structures** in the **floodplain** shall be regulated by the relevant **municipality** under its **NFIP** ordinance.
 5. New parking lots built below the **100-year flood elevation** shall clearly post the potential **flood** hazard.
 6. **Compensatory storage** shall be required for any fill, **structure**, or other material above grade in the **floodplain** that temporarily or permanently displaces **floodplain** storage volume. In addition, **compensatory storage** shall:
 - A. Equal at least 1.1 times the volume of **flood** storage lost below the **BFE**;
 - B. Be operational prior to placement of fill, **structures**, or other materials temporarily or permanently placed in the **floodplain**;
 - C. Be provided in the immediate vicinity of the **flood** storage lost, where practicable;
 - D. Be provided in addition to the **required detention volume**; and
 - E. Drain freely and openly to the **waterway**.
 7. **Compensatory storage** shall be provided incrementally as follows:
 - A. All **floodplain** storage lost between the normal water level and the existing regulatory 10-year **flood** elevation shall be replaced below the proposed regulatory 10-year **flood** elevation and above the normal water level;
 - B. All **floodplain** storage lost between the existing regulatory 10-year **flood** elevation and the regulatory **100-year flood elevation** shall be replaced below the proposed regulatory **100-year flood elevation** and above the regulatory 10-year **flood** elevation; and
 - C. The additional **compensatory storage** required beyond a one to one (1:1) ratio may be placed above or below the proposed regulatory 10-year **flood** elevation.

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8. **Compensatory storage** is not required for the **floodproofing** of existing **buildings** for the **floodplain** volume displaced by the **building**.
9. New **structures** that are elevated, existing **structures** that are **floodproofed**, or foundation expansions shall:
 - A. Be anchored to prevent flotation, collapse, or lateral movement;
 - B. Use **flood** resistant materials below the **FPE**;
 - C. Use construction methods and practices that do not increase the potential for increases in **flood** damage;
 - D. Elevate electrical, heating, ventilation, plumbing, air conditioning equipment, and other service facilities to the **FPE** or higher;
 - E. Provide adequate access and drainage; and
 - F. Provide a backup power source that will activate without human intervention if electricity is required.
10. Any fill required to elevate a **building** must:
 - A. Extend ten feet beyond the foundation before the grade slopes below the **100-year flood elevation** for **buildings**, unless it is demonstrated that the **building** is reasonably safe from **flooding** per design standard requirements in Technical Bulletin 10 issued by **FEMA**;
 - B. Be placed in layers no greater than six inches deep before compaction; and
 - C. Provide **compensatory storage** per §602.6 and §602.7 of this **Ordinance**.
11. When a **structure** is elevated by means other than filling:
 - A. The **lowest floor** of any **building** and all electrical, heating, ventilating, plumbing, and air conditioning equipment of any **structure** shall be located at or above the **FPE**;
 - B. Walls, stilts, piles, and other foundations below the **lowest floor** that are subject to **flooding** shall be designed so that hydrostatic forces on exterior walls are automatically equalized. A drainage system must be installed to remove floodwaters from the area interior to the **structure** foundation by non-mechanical means within a reasonable period of time after the floodwaters recede; and

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- C. **Compensatory storage** for elevation of **structures** allowed in §602.11 of this **Ordinance** shall not be required.
12. All **CLOMR**, **LOMR**, and **LOMR-F** applications require the approval of the governing **municipality** and shall be submitted to either the **District** or an **authorized municipality** concurrently with the application to **FEMA**.
 13. No filling, grading, dredging, excavating, or other proposed **development** within the **floodplain** that results in an increase to the **FIS** effective **BFE** or a modification to the **regulatory floodway** boundary shall take place until a **CLOMR** is issued by **FEMA** and a **floodway** construction permit is issued by **IDNR-OWR**.
 14. If a **LOMR** is required by **FEMA**, the RFI will not be issued until the approved **LOMR** is issued by **FEMA**.
 15. **Stormwater facilities** within the **floodplain**, such as culverts, bridges, and impoundments that have an associated backwater shall not be removed, replaced, or modified unless all of the following apply:
 - A. All **structures** and their associated **lowest entry elevations** within the backwater of the existing **stormwater facility** are identified;
 - B. Hydraulically equivalent **compensatory storage** is provided to mitigate any potential increases in flow or **flood** elevations upstream or downstream of the **stormwater facility**; and
 - C. A **water resource benefit** is provided.
 16. All proposed sanitary **structures** shall have above ground openings located above the **FPE** or be constructed with bolted watertight **structure** lids.
 17. New and replacement water supply systems and wells shall either have all above ground openings above the **FPE** or be watertight.
 18. New waste disposal systems on the **property holding** shall not be constructed within the **floodplain**.
 19. Construction of **District** required **volume control practices** and **detention facilities** within the **regulatory floodway** is strictly prohibited.
 20. **Detention facilities** located outside of the **floodway** but within the **floodplain** shall:

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- A. Store the required **runoff** under all stream flow and backwater conditions up to the **100-year flood elevation**, assuming a zero release rate below the **100-year flood elevation**; and
 - B. Not allow design release rates to be exceeded under any stream elevation less than the **100-year flood elevation**.
21. New or modified **storm sewer outfalls** shall meet the requirements of §702.3.F of this **Ordinance** and shall comply with Illinois Department of Transportation's (**IDOT**) minimum standards. Relevant **IEPA** and **NPDES** permits shall be required for all new **outfalls to waterways** and Lake Michigan. Copies of all such permit applications for **outfalls** located within the City of Chicago should be provided concurrently to the **District**.
 22. Temporary or permanent storage of items susceptible to **flood** damage is prohibited unless elevated or **floodproofed** to the **FPE**.
 23. **Development** shall preserve effective **floodway conveyance** such that there will be no increases in **flood** elevations, flow rates, or **floodway** velocity, unless these increases are contained in a **public flood easement**, a **water resource benefit** is provided, and a **CLOMR** is issued by **FEMA** prior to any work in the **regulatory floodway**.
 24. For any proposed **development** within the **floodway** the **co-permittee** shall provide either the **District** or an **authorized municipality** with an evaluation of the hydrologic and hydraulic impacts of the **development**:
 - A. Using the **regulatory floodplain** model, if available, or a study as directed by the **District** using the methodology provided in §601.6 of this **Ordinance**;
 - B. For the 2-year, 10-year, and 100-year **storm events** for the 24-hour event, at a minimum; and
 - C. For existing and any future planned **watershed** conditions as directed by either the **District** or an **authorized municipality**.
 25. Within the **floodway**, any proposed **development** shall meet the requirements of Parts 3700 or 3708 of Title 17 of the Illinois Administrative Code and §602 of this **Ordinance**. Appropriate uses or specific construction approved by **IDNR-OWR** shall be considered for permits;
 26. Transition sections are required for the calculation of effective **regulatory floodway conveyance** due to the modification or replacement of existing bridge and culvert **structures** or to compensate for lost conveyance for other appropriate uses approved by **IDNR-OWR**.

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§ 603. Requirements for Wetland Boundary, Quality, and Buffer Width Determination

1. **Wetlands** provide any or all of the following functions:
 - A. Facilitate hydrologic functions, including infiltration, evaporation, and evapotranspiration;
 - B. Reduce **flood** flow rates, velocities, and volumes;
 - C. Provide **flood** control by storing **stormwater**;
 - D. Prevent **erosion** and promote bank stability of streams, lakes, and ponds;
 - E. Control **sediment** from **upland** areas reducing the impact of urbanization on stream habitat and water quality by filtering and assimilating nutrients discharged from surrounding **uplands**;
 - F. Serve as important areas for de-nitrification, which reduces growth of algal blooms and subsequent depressed levels of dissolved oxygen in-stream; and
 - G. Provide an effective mechanism for treatment of contaminated surface **runoff**.
2. Any **applicant** proposing **development** shall investigate the **property holding** for the presence of **wetlands**. The **applicant** shall use the following sources and methods to determine if **wetland** areas may exist:
 - A. Onsite **wetland** investigation;
 - B. National Wetland Inventory (**NWI**) Maps from the United States Fish and Wildlife Service (USFWS);
 - C. National Resource Conservation Service (**NRCS**) **wetland** inventory maps; and
 - D. **Wetlands** identified in current and historical aerial photographs, United States Geological Survey (USGS) hydrological atlas, soil survey of **Cook County**, and USGS topographic maps.
3. The **applicant** shall identify the boundaries, extent, function, and quality of all **wetland** areas on the **property holding**. The presence and extent of **wetland** areas shall be determined as the result of an onsite **wetland** delineation according to the following:
 - A. All onsite **wetland** delineations are required to use procedures in accordance with the current **Corps Wetland Delineation Manual**; or

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- B. **Farmed wetlands** located in agricultural areas which are in production and which are not determined to be **wetlands** through the federal **wetland** methodology shall be delineated through the current National Food Security Act Manual methodology;
- C. Agricultural areas that have been abandoned for five (5) consecutive years shall be delineated in accordance with the **Corps Wetland Delineation Manual**.

4. ~~The applicant shall request a **Corps Jurisdictional Determination** of~~When there are any identified **wetland** areas within the **project** area or within 100-feet of the **project**.~~If the applicant meets the conditions of §302.2.D(2)(c),~~ the following apply:

A. ~~If the **Corps** requires a Section 404 permit application, a Section 404 permit application shall be submitted in lieu of a **Corps Jurisdictional Determination** per §302.2.D(2)(b) and the **Corps jurisdictional wetland** requirements of this ordinance apply.~~When there is an impact to a **wetland**, the **applicant** shall submit:

- (1) A Section 404 permit or a document from the **Corps** indicating that the impact is allowed, and the **wetland** will be regulated as a **Corps jurisdictional wetland** under this Ordinance; or
- (2) A document from the **Corps** indicating that a Section 404 permit is not required or the wetland is not a **jurisdictional wetland**, and the **wetland** will be regulated as an **isolated wetland** under this Ordinance.

~~B. If the **wetland** is presumed to be a **Corps jurisdictional wetland** by the **applicant**, but the **Corps** does not require a Section 404 permit application, the **wetland** will be regulated as an **isolated wetland** under this ordinance and the **isolated wetland** requirements of this ordinance apply. If a **Corps Jurisdictional Determination** is submitted to the **District** prior to permit issuance, the **Corps Jurisdictional Determination** will supersede this provision.~~

~~C.B. If the **wetland** is presumed to be an **isolated wetland** by both the **applicant** and the **District**, andWhen there are is no proposed impacts to the **wetland**, the applicant shall submit a document from the **Corps** that the **wetland** is a **jurisdictional wetland**; otherwise, the **wetland** will be regulated as an **isolated wetland** under this ordinance and the **isolated wetland** requirements of this ordinance apply.~~

~~D. If the applicant and the **District** cannot concur on whether the **wetland** is an **isolated wetland**:~~

- (1) ~~The **applicant** may request that the **wetland** be regulated as an **isolated wetland** under this ordinance and meet the **isolated wetland**~~

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~~requirements of this ordinance. The applicant assumes responsibility for obtaining any and all necessary approvals from the Corps; or~~

~~(2) The applicant may await issuance of a Corps Jurisdictional Determination letter.~~

~~E. District concurrence with the applicant does not supersede a Corps Jurisdictional Determination, and a Corps Jurisdictional Determination supersedes any statement of opinion submitted by the applicant or concurrence from the District. The provisions of this section do not relieve the applicant from obtaining any and all necessary approvals from the Corps.~~

5. The approximate location, extent, and quality of offsite **wetlands** within 100 feet of the **project** shall be identified. Offsite **wetlands** shall be delineated using the **Corps Wetland Delineation Manual**, or if delineation is unavailable or cannot be performed, the approximate limits of **wetlands** shall be identified using one or more of the following resources:
 - A. **NWI** Maps from the United States Fish and Wildlife Service (USFWS);
 - B. **NRCS wetland** inventory maps; and
 - C. **Wetlands** identified in current and historical aerial photographs, USGS hydrological atlas, soil survey of **Cook County**, and USGS topographic maps.
6. Any offsite **wetland** that cannot be accessed in the field by a **wetland specialist** shall be considered a **high quality isolated wetland** and shall be subject to the **wetland buffers** of §603.10.C of this **Ordinance**.
7. The following **isolated wetland** areas are exempt from the **wetland** requirements of this **Ordinance**:
 - A. **Wetlands** in roadside ditches created by excavation in **upland** areas;
 - B. **Wetlands** created by excavation or by other unfinished **development** activities in **upland** areas;
 - C. **Wetlands** created by artificial hydrology including, but not limited to, irrigation or **detention facility** outlets which would revert to **upland** areas if irrigation was to cease;
 - D. **Wetlands** created by the construction of **stormwater facilities** in **upland** areas, provided that the facility was not created for the purpose of **wetland mitigation**; and
 - E. **Wetlands** created by the construction of ponds in **upland** areas;

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F. **Wetlands** that were previously authorized by the **Corps** or **District** to be filled and were mitigated for in full, but remain wholly or partially unfilled onsite. ~~The **Jurisdictional Determination** requirements of §302.2.D(2) apply. If the previously issued **Jurisdictional Determination** has expired or is otherwise no longer valid, a new **Jurisdictional Determination** shall be obtained from the **Corps**.~~

8. Either the **District** or an **authorized municipality** shall verify all onsite **isolated wetland** determinations and delineations.

9. The **applicant** shall provide an assessment of any identified **isolated wetland** and classify it as either a **high quality isolated wetland** or a **standard isolated wetland** using the criteria described below. Either the **District** or an **authorized municipality** will make the final determination of **wetland** status. A **high quality isolated wetland** satisfies any one of the criteria listed below. An **isolated wetland** that does not meet any of the following criteria can be classified as a **standard isolated wetland**. The criteria to receive a **high quality isolated wetland** status are as follows:

A. It has a **Swink and Wilhelm Floristic Quality Index (FQI)** value greater than or equal to 20 during a single season assessment or a native mean C-value of 3.5 or higher as calculated by the Swink and Wilhelm methodology; or

B. It is known to possess a federal- or state-listed threatened or endangered species based upon consultation with the Illinois Department of Natural Resources (IDNR) and the United States Fish and Wildlife Service (USFWS).

10. **Wetland buffers** for **isolated wetlands** shall be determined according to the classification of the **wetland** as determined in §603.9 of this **Ordinance**. Minimum **isolated wetland buffer** widths shall be as follows and as summarized in Table 3 of this **Ordinance**:

A. Thirty feet from the boundary of **standard isolated wetlands** greater than or equal to one-tenth of an acre (0.10 acre) and less than one-half of an acre (0.5 acre) in area;

B. Fifty feet from the boundary of **standard isolated wetlands** greater than or equal to one-half of an acre (0.5 acre) in area; or

C. One-hundred feet from the boundary of **high quality isolated wetlands**.

Table 3. Wetland Buffer Determination for Isolated Wetlands				
Wetland Quality	Acreage	§603.10.A	§603.10.B	§603.10.C

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Standard Isolated Wetland	≥ 0.10 acre and < 0.50 acre	30 ft		
	≥ 0.50 acre		50 ft	
High Quality Isolated Wetland	No minimum			100 ft

11. The **Wetland Buffer** width for **isolated wetlands** may be varied to a minimum of the greater of one-half the required buffer width or thirty (30) feet, upon approval of either the **District** or an **authorized municipality**.

§ 604. Requirements for Development Affecting the Function of Wetlands and Wetland Buffers

1. Requirements for **development** affecting the function of **wetlands** are summarized in Table 4 of this **Ordinance**.
2. **Development** that impacts onsite **Corps jurisdictional wetlands** shall be prohibited unless a permit for all regulated activities is obtained from the appropriate federal and state authorities.
3. **Development** that impacts onsite **high quality isolated wetlands** shall be prohibited unless documentation is submitted that demonstrates:
 - A. That the presence of **high quality isolated wetlands** precludes all economic use of the site and that no practicable alternative to **wetland** modification exists; or
 - B. That avoidance of **high quality isolated wetlands** would create a hazardous road condition and that no practicable alternative to **isolated wetland** modification exists.

Based upon a review of the submitted documentation and any other available resources, either the **District** or an **authorized municipality** will make the final determination as to whether the proposed **high quality isolated wetland** modification represents the least amount of **wetland impact** required to allow economic use of the property or to mitigate the road hazard, and a determination as to whether a permit should be granted.

Table 4. Wetland Impact Matrix					
Wetland Type	Wetland Area	§604.2	§604.3	§604.4	§604.5

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Corps Jurisdictional Wetland	Any	X			
Standard Isolated Wetland	<0.10 acre				X
	≥0.10 acre			X	
High Quality Isolated Wetland	Any		X		

4. **Development** that impacts onsite **standard isolated wetlands** that are equal to or greater than one-tenth of an acre (0.10 acre) in aggregate shall be prohibited unless documentation is submitted which demonstrates that no practicable alternative to **wetland** modification exists. Based upon a review of the submitted documentation and other available resources, either the **District** or an **authorized municipality** will make a determination as to whether the proposed **wetland** modifications will be permitted.
5. **Development** that impacts onsite **standard isolated wetlands** with a total acreage less than one-tenth of an acre (0.10 acre) in aggregate, including **contiguous isolated Waters** less than one-tenth of an acre (0.10 acre), does not require documentation showing that no practicable alternatives to **wetland** modification exist.
6. **Development** will be permitted only when the indirect environmental impacts to onsite and offsite **wetlands** can be sufficiently evaluated, minimized, and mitigated as specified in §604 and §605 of this **Ordinance**. The designed hydrology should be maintained as close to 100 percent of the existing hydrology as possible. An **indirect wetland impact** shall be assumed if the **development** activity causes the **wetland** hydrology to fall below 80 percent, or to exceed 150 percent, of the existing condition **storm event runoff** volume to the **wetland** for the 2-year, 24-hour **storm event**.
7. **Detention facilities** are permissible in **standard isolated wetlands**. **Detention facilities** are not permissible in **high quality isolated wetlands**. **Detention facilities** are not permissible in **Corps Jurisdictional Wetlands** when prohibited by the **Corps**. When detention is provided in a **standard isolated wetland**:
 - A. The **wetland** hydrology should be maintained as close to 100 percent of the existing hydrology as possible;
 - B. The **wetland** hydrology shall not fall below 80 percent, nor exceed 150 percent, of the existing condition **storm event runoff** volume to the **wetland** up through the 2-year, 24-hour **storm event**; and

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- C. The **isolated wetlands** shall not be inundated with more than twelve inches of water above the **isolated wetland's** normal water elevation for longer than twenty four hours during **storm events** up to and including the 100-year, 24-hour **storm event**.
- 8. **Stormwater** outlets discharging into an **isolated wetland** will only be allowed provided that appropriate **volume control practices** and **erosion control practices** are proposed and the outlets discharge through proper energy dissipation and scour protection, such as a level spreader or vegetated swale.
- 9. Mitigation for **developments** that impact an **isolated wetland** shall provide for the replacement of the lost **wetland** environment in accordance with Table 5 of this **Ordinance**:
 - A. Impacts to **standard isolated wetlands** less than one-tenth of an acre (0.10 acre) in aggregate do not require mitigation;
 - B. Impacts to **standard isolated wetlands** more than or equal to one-tenth of an acre (0.10 acre) in aggregate shall be mitigated at a minimum ratio of one-and-one-half acre of creation for each acre impacted (1.5:1);
 - C. **High quality isolated wetlands** impacts shall be mitigated at a minimum ratio of three acres of creation for each acre impacted (3:1);
 - D. **Isolated wetland impacts** initiated after the effective date of this **Ordinance** and prior to issuance of a **Watershed Management Permit**, or other unauthorized impact shall be mitigated at a minimum ratio of three acres of creation for each acre impacted (3:1); and
 - E. The **District**, federal, state, and local authorities may require a greater compensation ratio where unique **wetland** functions are threatened.

Table 5. Isolated Wetland Mitigation Requirement Ratios					
Wetland Quality	Area	§604.9.A	§604.9.B	§604.9.C	§604.9.D
Standard Isolated Wetland	<0.10 acre	None			
	≥0.10 acre		1.5:1		
High Quality Isolated Wetland	Any			3:1	

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Impacts Prior to Issuance of Permit				3:1
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10. When **development** impacts an **isolated wetland**, mitigation of said impacts shall be accomplished through one or more of the following options:
 - A. Payment into a **Corps** approved **wetland mitigation bank** in accordance with §605.1;
 - B. Onsite **wetland mitigation** that meets one of the following:
 - (1) Enhancement of an existing onsite isolated wetland from a standard isolated wetland to a high quality isolated wetland, subject to §604 of this Ordinance;
 - (2) Expansion of an existing onsite **isolated wetland**;
 - (3) Creation of a new **wetland** that meets the requirements of §604.13.
 - C. Offsite **wetland mitigation** within the same **Watershed Planning Area** as the impact.
11. **Wetland mitigation** for impacts to **Corps jurisdictional wetlands** shall not be credited toward **wetland mitigation** for impacts to **isolated wetlands**.
12. Mitigated **isolated wetlands** shall be designed to duplicate or improve the hydrologic and biologic features of the original **isolated wetland**.
13. Creation of **wetlands** for the mitigation of **development** impacts, within or affecting a **wetland**, may take place only within areas that are not currently **wetlands** and where there is reasonable expectation that **wetland mitigation** will succeed.
14. Either the **District** or an **authorized municipality** may allow an existing **isolated wetland** that is **contiguous** to a proposed **isolated wetland mitigation** area to be enhanced in quality from a **standard isolated wetland** to a **high quality isolated wetland** in exchange for a partial reduction in the mitigation area required. In no case shall there be a loss of **wetland** function. Either the **District** or an **authorized municipality** may reduce the total **wetland mitigation** area required by 0.75 acre for every one acre of such **wetland** enhancement; however, the area of creation of new **wetlands** to compensate for unavoidable **wetland** loss shall not be allowed to fall below a ratio of one acre of creation for each acre impacted (1:1).

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15. An **isolated wetland mitigation** plan shall be developed by the **applicant**. This plan shall include design, construction, monitoring, and **maintenance** of the mitigation measures and shall meet the requirements of Article 9 of this **Ordinance**. Cumulative impacts with a total acreage less than one-tenth of an acre (0.10 acre) to all onsite **standard isolated wetlands** do not require a mitigation plan.
16. **Development** in or affecting an **isolated wetland** shall be initiated only after the mitigation plan has been approved by either the **District** or an **authorized municipality**.
17. The design, analysis, and construction of all **wetland mitigation** shall comply with all applicable federal, state, and local regulations.
18. Either the **District** or an **authorized municipality** will require that the **applicant** provide annual monitoring reports on the status of the constructed mitigation measures for five years, or until such time that the performance criteria have been met. Either the **District** or an **authorized municipality** may also require the **co-permittee** to undertake remedial action to bring the area into compliance with the mitigation plan.
19. **Development** within an **isolated wetland buffer** shall not, without mitigation:
 - A. Adversely change the quantity, quality, or temporal and areal distribution of flows entering any adjacent **wetlands** or waters;
 - B. Adversely affect any **groundwater** infiltration functions; or
 - C. Destroy or damage vegetation that stabilizes **wetland** fringe areas or provides overland flow filtration to **wetlands**. The removal of invasive vegetation is not considered to be destruction or damage of vegetation.
20. Impacts to **wetland buffer** areas shall be mitigated through the replacement or enhancement of impacted functions.

§ 605. Wetland Banking

1. **Isolated wetland mitigation** provided through a **wetland mitigation bank** shall abide by the following hierarchy unless the method is not available, or unless the next method is justified through avoidance and minimization sequencing:
 - A. Payment into a **Corps** approved **wetland mitigation bank** in the same **watershed planning area**; or

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- B. Payment into a **Corps** approved **wetland mitigation bank** that is closest to the **development** within the same **Corps Watershed** Service Area as the impact as shown in Appendix D of this **Ordinance**.
- 2. The payment amount made into a **wetland mitigation bank** will be determined by multiplying the acres of required mitigation by the appropriate banking cost.
- 3. **Wetland mitigation bank** credits applied toward impacts to **Corps jurisdictional wetlands** may not be applied simultaneously to mitigate impacts to **isolated wetlands**.
- 4. **Wetland mitigation banks** shall be approved by the **Corps**.

§ 606. Riparian Environments Requirements

- 1. **Riparian environments** provide any or all of the following functions:
 - A. Reduce **flood** flow rates, velocities, and volumes;
 - B. Prevent **erosion** and promote bank stability of streams, lakes, ponds, or **wetland** shorelines;
 - C. Control **sediment** from **upland** areas, reducing the impact of urbanization on stream habitat and water quality by filtering and assimilating nutrients discharged from surrounding **uplands**;
 - D. Insulate and moderate daily and seasonal stream temperature fluctuations by maintaining cooler in-stream temperatures for areas with overhanging vegetation;
 - E. Serve as important areas for de-nitrification which reduces growth of algal blooms and subsequent depressed levels of dissolved oxygen in-stream; and
 - F. Provide an effective mechanism for treatment of contaminated surface **runoff**.
- 2. Any **development** involving **riparian environments** shall identify the boundaries of those **riparian environments** within the buffer area by using the following documents or procedures at the time of the **development** and which are summarized in Table 6 of this **Ordinance**:
 - A. For any **Jurisdictional Waters of the U.S.** that does not qualify as a **wetland**, the **riparian environment** shall be 50 feet from the **OHWM**.

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- B. For any **Isolated Waters** that does not qualify as a **wetland**, the **riparian environment** shall be 30 feet from the **OHWM**.
- C. For any **Jurisdictional Waters of the U.S.** or for any **Isolated Waters** that do not qualify as a **wetland**, and which have a **BSC** of "A" or "B", the **riparian environment** shall be 100 feet from the **OHWM**.
- D. For any **Jurisdictional Waters of the U.S.** or **Isolated Waters** that do not qualify as a **wetland** identified as a **BSS**, the **riparian environment** shall be 100 feet from the **OHWM**.

Table 6. Riparian Environment Determination Buffer				
Biological Stream Characterization	Waters Classification	§606.2.A	§606.2.B	§606.2.C or §606.2.D
All Other Streams	Jurisdictional Water of the U.S.	<i>50 feet from the OHWM</i>		
	Isolated Waters		<i>30 feet from the OHWM</i>	
BSC of "A" or "B" or BSS Streams	Jurisdictional Water of the U.S.			<i>100 feet from the OHWM</i>
	Isolated Waters			<i>100 feet from the OHWM</i>

- 3. The following are not considered to be **riparian environments** and shall be exempt from the **riparian environment** requirements of this **Ordinance**:
 - A. Roadside ditches created by excavation for the purposes of **stormwater** conveyance;
 - B. Channels or bodies of water created by unfinished **development** activities; or
 - C. Channels or bodies of water created by the construction of **stormwater facilities** for the purposes of **stormwater** management.

§ 607. Requirements for Development Affecting the Function of Riparian Environments

- 1. **Development** that impacts **Jurisdictional Waters of the U.S.** or **Corps Jurisdictional Wetlands** shall be prohibited unless a permit for the regulated activities is obtained from the appropriate federal and state authorities.

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2. To the extent practicable, the existing functions of a **riparian environment** as defined by §606.1 of this **Ordinance** shall be protected.
3. Adverse impacts to **riparian environment** functions shall be defined as:
 - A. Modification or relocation of streams and channels;
 - B. Significant changes to quantity, quality, or distribution of flows draining to any adjacent **wetlands** or waters; or
 - C. Damage to vegetation that overhangs, stabilizes, and provides overland flow filtration, or shades stream channels, **wetlands**, or impoundments that normally contain water. The removal of invasive vegetation is not considered to be destruction or damage of vegetation. The removal of vegetation and downed trees impeding drainage is not considered to be damage to vegetation when included as part of a **District** recognized program or **project** for stream **maintenance**, or stabilization, restoration, or enhancement.
4. Adverse impacts to the existing functions of a **riparian environment** shall be mitigated and a mitigation plan shall be prepared.
5. The following requirements pertain to channel relocation and stabilization practices:
 - A. When practicable, impacts to natural streams and channels should be avoided;
 - B. If a channel is completely or partially relocated, the newly created portion shall be constructed in a manner which will allow naturalizing to occur including, but not limited to, meandering, pools, or riffles;
 - C. New or relocated channels shall be built under dry conditions through the diversion of the normal flow within the channel. All items of construction (including establishment of vegetation) shall be completed prior to diversion of water into the new channel;
 - D. If a channel is modified, an approved and effective **erosion** and **sediment control practice** to minimize and control suspended **sediment** and degradation of downstream water quality must be installed before excavation begins. The installed means must be maintained throughout the construction period and conform to the requirements of Article 4 of this **Ordinance**;
 - E. The length of any new or relocated channel shall be greater than or equal to the length of the disturbed channel;

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- F. Any channel modifications shall meet all other requirements in the **Ordinance**, including the **floodplain** and **floodway** requirements described in §601 and §602 of this **Ordinance**;
 - G. The **co-permittee** shall provide a plan and profile of the existing and proposed channel and supporting calculations for the channel width, depth, sinuosity, and riffle locations. Impacts on **flood** flows and **flood** elevations shall be evaluated using appropriate hydrologic and hydraulic methods;
 - H. Streams and channels shall be expected to withstand all events up to the **base flood** without increased **erosion**. Hard armoring of banks with concrete, bulkheads, riprap, and other man-made materials shall be avoided where practicable. Hard armoring shall be used only where **erosion** cannot be prevented by use of bioengineering techniques or gradual slopes. Such armoring shall not have any adverse impact on other properties, nor shall it have an adverse impact upon the existing land use; and
 - I. All **project** areas must be replanted for stability with native vegetation where appropriate. The **TGM** provides examples of native vegetation that is appropriate in **riparian environments**.
6. Re-vegetation within **riparian environments** shall take place as soon as possible. In accordance with §402.1 of this **Ordinance**, stabilization practices shall be initiated as soon as practicable where construction activities have temporarily or permanently ceased.
 7. **Stormwater** outlets discharging into a channel will only be allowed provided that appropriate **volume control practices** are implemented and that they discharge through proper energy dissipation, such as a level spreader or vegetated swale.
 8. A riparian mitigation plan in accordance with §302.2.E(2) and §303.2.N of this **Ordinance** shall be developed. Mitigation of **riparian environment** impacts shall include design, construction, and continued monitoring and **maintenance** of the mitigation measures and shall meet the requirements of Article 9 of this **Ordinance**.
 9. The design, analysis, and construction of all **riparian environment** mitigation measures shall comply with all applicable federal, state, and local regulations.
 10. **Development** in or affecting a **riparian environment** shall be initiated only after a mitigation plan has been approved by either the **District** or an **authorized municipality**.

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11. Either the **District** or an **authorized municipality** will require that the **co-permittee** provide annual reports monitoring the status of the constructed mitigation measures for five years, or until such time that the performance criteria has been met. Either the **District** or an **authorized municipality** may also require the **co-permittee** undertake remedial action to bring the area into compliance with the mitigation plan.

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