



March 20, 2013

Gary Brower, Esq.  
Attention DEP Docket No. 01-13-01  
NJDEP  
Office of Legal Affairs  
Mail Code 401-04L; P.O. Box 402  
401 East State Street, 4<sup>th</sup> Floor  
Trenton, New Jersey 08625-0402

Re: **DEP Docket Number 01-13-01**

Dear Mr. Brower,

Delaware Riverkeeper Network (DRN) submits these comments on the proposed amendments to the Flood Hazard Area Control Act rules at NJAC 7:13. Delaware Riverkeeper Network is a nonprofit 10,000 member organization working throughout the Delaware River Watershed dedicated to defending the River, its tributaries and its watershed, committed to restoring the natural balance where it has been lost and ensuring its preservation where it still exists.

### **General Comments**

Generally, DRN supports amending the rules to require the use of updated flood elevation data and the recently released Federal Emergency Management Agency (FEMA) advisory flood maps for New Jersey's coast. We also support the use of New Jersey's flood hazard area design flood elevation to depict FEMA mapping. DRN supports the incorporation of updated FEMA flood mapping for the Delaware River, which has experienced significant flood events in recent years. However, we do not agree that the floodplain protection and flood hazard rules go far enough to provide the protection needed.

**First**, the regulatory floodplain should be defined by the 0.2% annual chance floodplain (also known as the 500-year floodplain) rather than the 100 year floodplain. In the absence of the mapping of the 500 year floodplain by FEMA, the most up to date FEMA maps should be used for the present but an effort to remap the regulatory floodplain as the 500 year floodplain should commence immediately. In the Delaware River Watershed most of the 0.2% annual chance floodplain is already mapped, so this could be implemented very quickly.

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The 500-year floodplain will provide important protection from flooding and reduce flood damages by reflecting more accurately areas that can be expected to flood in the coming years as storm surges, flood flows and frequency continue to increase. For instance, as verified by USGS, flood frequencies have increased in the Delaware River Basin, as evidenced in their analysis of recent major flood events in the basin. The report also shows that the 500-year flood flow was substantially larger than the 100 year flood flow at four stream gauges on the Delaware River during these storms. (Schopp, R.D., and Firda, G.D., "Flood magnitude and frequency of the Delaware River in New Jersey, New York, and Pennsylvania", US Geological Survey Open-File Report 2008-1203).

**Second**, a buffer should be added that delineates an off-limits area adjacent to the regulated floodplain based on riparian soils. Identification of riparian soils should be accomplished by site specific soil testing and the employment of available Soil Survey information. The buffer should encompass the entire area that contains riparian soils and should measure a minimum of 500 feet added to the outside limits of the 100-year floodplain for optimum protection from erosion and stream/shoreline destabilization which can contribute to increased flood damages, increased threat to health and safety, and increased pathways of pollution from activities adjacent to the floodplain. (Fischer & Fischenich, Design Recommendations for Riparian Corridors and Vegetated Buffer Strips, emrrp, April 2000). The buffer must not be disturbed, compacted or built upon except to restore to a naturally vegetated condition.

**Third**, the 500-year floodplain and buffer should be kept in native vegetation and not disturbed to protect water quality, reduce runoff, and prevent land cover and hydrological changes that can result in downstream or adjacent flooding. The Delaware River Basin Commission's Flood Advisory Committee published a report that states why this is important. (DRBC, "Recommendations of the Floodplain Regulations Evaluation Subcommittee (FRES) of the DRBC Flood Advisory Committee (FAC)", 5.19.09) The report is attached as **Appendix A**, and states:

Floodplains vegetated with trees and shrubs can be four times as effective at retarding flood flows as grassy areas. Naturally vegetated floodplains are generally layered with leaf and organic matter that result in organic soils with high porosity and a greater capacity for holding water. More than just being an area that can help address flooding issues in a community, the floodplain, in this natural state, is a riparian ecosystem that needs the overbank flows that the natural watershed's hydrology provides in order to remain healthy and in balance.

The floodplain and buffer should be kept in natural condition to support and protect water quality and flow regime in the adjacent waterway. The Commission's floodplain evaluation subcommittee report to the Commission's Flood Advisory Committee states that:

A naturally functioning floodplain is a hydrologically important and dynamic component of a watershed. In addition to being environmentally sensitive and ecologically diverse, floodplains provide flood storage and conveyance, protection of water quality and recharge of groundwater.

A regulatory floodplain may, or may not, encompass the natural floodplain, the area needed by a watercourse to maintain its natural biologic, geomorphic and hydrologic functions. Instead,

regulatory floodplains are adopted standards designed to guide floodplain development and lessen the effects of floods on the built environment.

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It is important to acknowledge that floods do not stop at regulatory floodplains, nor does the regulatory floodplain define the limit of potential flood damage or losses.

Background: Existing flood hazard area maps greatly underestimate the limit of floodways along the main stem Delaware River and other waterways within the Delaware River Basin. The flood hazard area, or floodplain, is the area along a waterway that is expected to be or has been inundated by floodwaters. The floodway, which is the inner portion of the flood hazard area nearest the stream or river, is the most dangerous area that carries deeper flows and higher velocities during a flood. New construction of structures is generally prohibited in floodways because it is unsafe and obstructs the passage of floodwaters, although removal of vegetation and construction of parking or other nonstructural activities while having an impact are often allowed. The flood fringe, or areas immediately adjacent to floodways where development is commonly allowed are often subject to flood depths and velocities similar to those of the floodway.

The Flood Hazard Area, as defined by FEMA, is composed of a floodway and a flood fringe. The flood fringe is the portion of the floodplain that lies outside the floodway. Floodwaters generally move more slowly in the flood fringe as compared with the floodway, and the flood fringe serves to temporarily store large volumes of floodwater during a flood. The space that floodwaters occupy on a given site during a flood is referred to as the "flood storage volume" of that site.

When structures or fills are placed in a flood fringe, it occupies a space that would otherwise be filled with floodwaters during a flood, thus reducing the flood storage volume on the site. If a significant volume of floodwater is prevented from occupying a given area, excess floodwater will instead occupy neighboring and downstream properties, thus worsening flood conditions on those sites. Unless properly managed, development within floodplains can exacerbate the intensity and frequency of flooding by increasing stormwater runoff, reducing flood storage, and obstructing the flow of floodwaters. Structures constructed in the flood fringe are subject to flood damage and threaten the health, safety and welfare of both the people who occupy them and emergency responders who respond in times of flood emergency.

Historically, the earliest settlements along the eastern seaboard were established along navigable waters. As a result, many of the Delaware River basin's older communities lie partially or completely within floodplains. As development has continued within the basin over the years, increased impervious cover in the form of roads, buildings and parking lots combined with the destruction of forest and wetlands for development and agriculture has increased peak rates and the volume of runoff flowing to the streams and rivers within the basin.

Development within the floodplain obstructs flood flows and compromises the flood storage and peak attenuation contributions of a natural floodplain. In addition, it knowingly places structures, infrastructure and people in the very locations that are known and expected to be subject to flooding and flood damages. As a result, flooding that naturally occurs along waterways has become progressively more threatening and damaging to people, buildings and infrastructure as a combination of increased runoff, decreased vegetation and storage absorption capacity and additional development in floodplains occurs. It is expected that these negative trends will continue so long as buildings and structures continue to be placed in the floodplains of the streams and rivers of the Delaware River basin.

Recommendation: Protect the flood fringe in a naturally vegetated state and limit development including, but not limited to, structures, infrastructure, impervious surfaces, fill, grading and removal of vegetation.

**Fourth**, while DRN respects historically inhabited areas, particularly established towns and neighborhoods, there should be a concerted effort to return floodplain areas and their buffers to natural conditions where possible. This is especially important for barrier islands that cannot be protected from storms. Barrier islands, if inhabited, should be kept free from inherently dangerous infrastructure such as gas pipelines. The tragedy in New York as a result of uncontrollable gas main fires that destroyed an entire community and led to catastrophic loss and, in some instances, death and injury, should be enough of a lesson that such infrastructure is not safe or sustainable. Instead of reinstalling such facilities, alternative decentralized and locally-based energy sources should be developed such as solar, wave and wind energy if these islands are to be used.

As discussed above in the excerpted text (DRBC 2009), restoring natural floodplains where possible will provide protection to the community as well as allow flood flows to naturally inundate floodplain areas, fulfilling the primary function of a floodplain in a beneficial manner. Floodplains provide natural flood and erosion control, help maintain high water quality, and contribute to sustaining groundwater supplies.

Floodplains also provide natural habitat and ecosystem functions that are unique and critical to healthy coastlines, estuaries, and riverine systems. Proper management of floodplains is important to preserve their value and to reduce losses caused by flooding. (Kusler and Larson, "Beyond the Ark, A New Approach to U.S. Floodplain Management". Reprinted from River Voices, River Network, Portland, OR, Winter, 1994, from an article originally printed in Environment, Vol. 35, No. 5, June 1993). It is also pointed out in the FRES report (DRBC 2009):

As articulated by the Congressional Task Force on Natural and Beneficial Functions of the Floodplain, June 2002, floodplains "reduce flooding and limit flood-related damages through their floodwater conveyance and storage functions."

As a result, protecting and restoring floodplain functions "will reduce flood losses" in addition to providing groundwater recharge, filtering sediment and contaminants, transporting nutrients, supporting habitats for a variety of sensitive living resources, and enhancing community quality of life.

In addition, naturally functioning floodplains play a key water quality role in reducing stormwater flows by filtering out nonpoint source pollution, thereby reducing pollutant loading from storm flows and protecting water quality. According to the U.S. Environmental Protection Agency, the number one source of pollution to our nation's waterways is from nonpoint sources, including pollution from floodwaters, washed from the land in stormwater runoff. About 40% of the nation's waterways are polluted as a result. (Chester L. Arnold Jr., and C. James Gibbons, "Impervious Surface Coverage, the Emergence of a Key Environmental Indicator", APA Journal, Spring 1996, p. 245)

President Barak Obama drafted Executive Order 0510/2009V1 on Floodplain Protection in 2009 directing federal agencies to take action to avoid loss of life, reduce flood damages, recognize the adverse effects of occupying and altering floodplains, to implement environmentally beneficial management of floodplains, and employ nonstructural management techniques to reduce flood damages, recognizing the value of natural floodplains. The Executive order is attached as **Appendix B**. The “Policy” statement reads:

Floods have caused a greater loss of life and property and have devastated more families and communities in the United States than all other natural hazards. Despite the expenditure of billions of tax dollars trying to manage floodwaters and guide wise use of floodplains, flood damages continue to increase and every year billions are spent in response to flood disasters. In addition, natural floodplains contain numerous inherent values that are of great importance to the Nation. The federal government must therefore strengthen its commitment to reducing the loss of life and property caused by floods and to protecting and restoring the natural resources and functions of floodplains.

The Order also defined the regulated floodplain as the 500 year floodplain for a “critical action” by the federal government. Critical action is defined as:

*Critical action* means any *covered action* for which even a slight chance of flooding would be too great. This can include, but is not limited to, *covered actions* or *facilities* critical to the health and safety of the public and the environment, such as hospitals and nursing homes, emergency operations centers (particularly police, fire, and rescue), vital data storage centers, power generation and other utilities (including related infrastructure such as principal points of utility systems) and any that produce, use or store toxic pollutants as defined under the Clean Water Act and other Federal statutes.

**Fifth**, storm surge elevations and mapping should be accomplished for the coast and tidal areas as soon as possible and used to map the regulated floodplain when available, requiring structures to meet storm surge elevations. As we learned with Hurricane Sandy, storm surge can be devastating. As stated in the FRES report (DRBC 2009):

Storm surge associated with major hurricanes can far exceed the 100-year flood elevations. For example, at Wilmington, Delaware the 100 year flood level is +10 NAVD 88 yet the storm surge elevation associated with a category 3 hurricane is over 16 feet NAVD 88. Although the return frequency of a major hurricane may be rare, and may not be appropriate for normal floodplain construction standards, for certain critical facilities and emergency operations functions, it may be appropriate to use hurricane surge levels, in location and design considerations.

**Sixth**, an important aspect of President Barak Obama’s 2009 Executive Order 0510/2009V1 on Floodplain Protection is the charge to “Consider the effect that climate change and anticipated future conditions might have on the extent and frequency of flooding”. New Jersey’s proposed rulemaking does not recognize or build in any recognition of sea level rise, storm severity and frequency or any other effects of climate change. The rule should add a section to cope with the changes that will accompany climate change in the near and long term. At the very least, the

flood rule should begin to address these approaching impacts by requiring an additional percent to be added to the flood elevations based on sea level rise that will result from climate change.

## Section Comments

### 7:13-1.2 Definitions

DRN opposes the proposed definition of “floodproofing” that includes “**wet floodproofing**”. Allowing floodwaters to enter a building does not provide the protection that dry floodproofing does. The “wet” building does not control the force of floodwaters that can destabilize it and floating debris can damage open structures when being carried through the building. The goal should be to prevent any floodwater from entering, rushing through and potentially destabilizing a structure. Also, flow-through of floodwaters will be able to carry pollution and debris to the waterway from the structure.

DRN opposes the proposed definition of “**lowest floor**” that will allow bottom floor space to be used as a garage, storage space, and parking area. Motor vehicles and typical homeowner items such as small engines, lawnmowers, fuel, and lawn care and household chemicals are all potential pollution sources that can have significant water quality impacts in a flood. These should not be allowed on the lowest floor of a structure.

For the same reasons, DRN opposes the proposed definition of “**multi-residence building**”, which under the new definition will allow the lowest floor to be used as a garage, for storage, parking, etc.

### 7:13-7.2 Permits by Rule

DRN does not support the proposed permits by rule and advocates for stricter controls over these activities. In the adopted revisions to the flood rule in 2007 the permit by rule allowances were expanded and now these are being further expanded. DRN opposed the specific permit by rule changes in 2007 that allowed for expansion of structural footprints and we are opposed in this instance to further weakening of restrictions on structural expansion in floodplains and riparian areas.

7.2(a)3.i. Structures should not be automatically allowed to expand by 300 square feet. Structures in floodplains and riparian areas should be discouraged and when allowed, they should be prohibited to expand at all.

7.2(a)3.v. Structures should be discouraged from being rebuilt in floodplains and riparian areas. A riparian buffer should be maintained where it does exist, not allowed to be used for relocation of any structure, no matter whether the area is poorly vegetated at the time. Allowing the footprint of structures to increase removes the availability for restoration of the natural floodplain and riparian area.

## 7:13-8.8 General Permit 6

DRN does not support the use of General Permits for reconstruction; these projects need to be carefully evaluated on a case by case basis and not allowed to meet the broad requirements of a General Permit. Many of the activities allowed under a General Permit need more oversight than this type of permit provides, such as stream cleaning. This is not acceptable for the reconstruction of flood damaged structures in the floodplain and in riparian areas – the substantial damages and risks posed by such structures require rigorous oversight.

8.8(b)1. DRN opposes the expansion from one year to a 5 year period of time for the reconstruction of a structure under a General Permit. This is simply too long and leaves structures unattended and vulnerable to more storm damage as well as vandalism and poses significant adverse community impacts. The term should remain one year.

## 7-13:11 Individual Permit Requirements

Throughout this entire proposed rule, the primary focus and bias built into the rule is to push reconstruction and elevation, not removal of structures from the floodplain. DRN agrees that such activity should require an individual permit (as is stated in this section at 11.5(e) for building in the floodway) but we also point out here that elevation is a structural approach that does not restore floodplain function and still allows people and structures to remain in harm's way. Elevation is a form of floodproofing but it does not solve the central problem posed by building in the path of floods – the only way to avoid flood damage is to remove structures from the floodplain.

At section 11.5(g) it is outlined that individual permits are required for specific reconstruction activities. DRN supports the employment of updated FEMA mapping and updated flood elevation data as opposed to outdated FEMA maps and irrelevant flood elevation data. We reiterate the deficiencies in the proposed rule as described in this comment and state that the rule does not go far enough regardless of the requirement for individual permits.

## **Conclusion**

DRN concludes that the proposed rule correctly requires that the most up to date FEMA maps and flood elevation data be used to govern floodplain regulation but that the rule needs further revision to provide communities needed protection from flood damages, catastrophic loss, and environmental degradation that results from flood and storm flows and storm surges. We respectfully request that our comments regarding further protections and management be considered in the final rule.

Sincerely,

Maya van Rossum  
The Delaware Riverkeeper

Tracy Carluccio  
Deputy Director

Attachments: **Appendix A** Recommendations of the Floodplain Regulations Evaluation Subcommittee (FRES) of the DRBC Flood Advisory Committee (FAC)", 5.19.09  
**Appendix B** Executive Order 0510/2009V1 on Floodplain Protection, 2009