



Blue Acres Program Post-Buyout Land Management Field Guide



NEW JERSEY
DEPARTMENT OF
ENVIRONMENTAL
PROTECTION



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BLUE ACRES

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Contents

Obligations of Municipalities.....	1
Flood Risk Mitigation for Climate Resilience.....	2
Functions of a Floodplain.....	3
i. Why Soil Compaction, Porosity, and Permeability Matter.....	5
ii. Why Vegetation and Runoff Matter.....	8
iii. The Benefits of Healthy Floodplains.....	9
What is Allowed on Acquired Open Space Land?.....	10
What is Not Allowed on Acquired Open Space Land?.....	12
Addressing Unauthorized Uses of Blue Acres Open Space.....	14
i. How to Identify Encroachments.....	14
ii. Encroachment Examples.....	15
iii. What Municipalities Can Do to Prevent Misuse of Blue Acres Open Space.....	20
Getting Creative with Your Blue Acres Open Space.....	21
A Final Note.....	22
Glossary.....	23

Obligations of Municipalities

Upon receipt of a notice, in writing, that the State of New Jersey Department of Environmental Protection (NJDEP) has acquired property and that the former owner and/or tenants have vacated the property, it is the immediate responsibility of the municipality to properly manage said acquired properties. This includes during the time up to a property being demolished and post-demolition. The full management and maintenance responsibilities are outlined in-depth in Section 5 of the Memorandum of Understanding between NJDEP and the Municipality.

The property must be properly maintained by the municipality for **open space** purposes that are consistent with natural floodplain functions. To comply with the Federal Emergency Management Agency (FEMA) model deed restrictions prescribed by regulation (44 C.F.R. § 80.19), which are imposed on most Blue Acres properties purchased by NJDEP, communities managing land purchased by the Blue Acres Program must follow the terms of the model deed restriction and of the Memorandum of Understanding.

This field guide is intended to help municipalities understand their obligations to manage land under those aforementioned terms.

Flood Risk Mitigation for Climate Resilience

The goal of NJDEP, the Blue Acres Buyout Program, and their funding partners is to ensure that New Jersey successfully adapts to our globe's changing climate. This includes, but is not limited to, taking a proactive approach in protecting our communities from forthcoming intensified weather events. At the rate at which our climate is changing, natural disasters are expected to increase with intensity and frequency, including heightened episodes of flooding that pose a great risk to our communities and infrastructure alike.

The Blue Acres Buyout Program's strategy for increasing New Jersey's resilience against the hazards posed by intensified flooding focuses on restoring and conserving our **floodplains**. When we experience increased flooding, it is imperative that the water either flows properly downstream without being impeded or can seep into the soil. One way we can ensure floodwaters do not pose a hazard is to safely relocate our homes and families out of harm's way and restore that property to a natural floodplain. With this strategy, we can sustainably make New Jersey's natural and built environments resilient in tandem.

Functions of a Floodplain

It is helpful to understand the natural functions of floodplains and open spaces to understand the reasoning for what is and what is not allowed on buyout lands after demolition.

For all intents and purposes, preserved undeveloped floodplains are considered open space land. Open space land provides natural flood protection through the storage of water via their vegetation, the soil, and their low-lying topography. Urban and developed spaces consist of **impervious surfaces**, such as roofs, sidewalks, and roads, that don't allow for water to be stored at the capacity at which open spaces allow. By keeping floodplains clear of manmade structures and debris, people allow floodplains to fully function as natural flood-mitigation areas, while simultaneously reducing flood damage to our communities. Floodplains can absorb water like a sponge, which allows them to reduce the flow of flood waters, acting as natural storage containers for the excess water that will accompany increased precipitation and sea-level rise.

Fact: 1 acre of floodplain land can hold up to nearly 330,000 gallons of water!

Source: FEMA

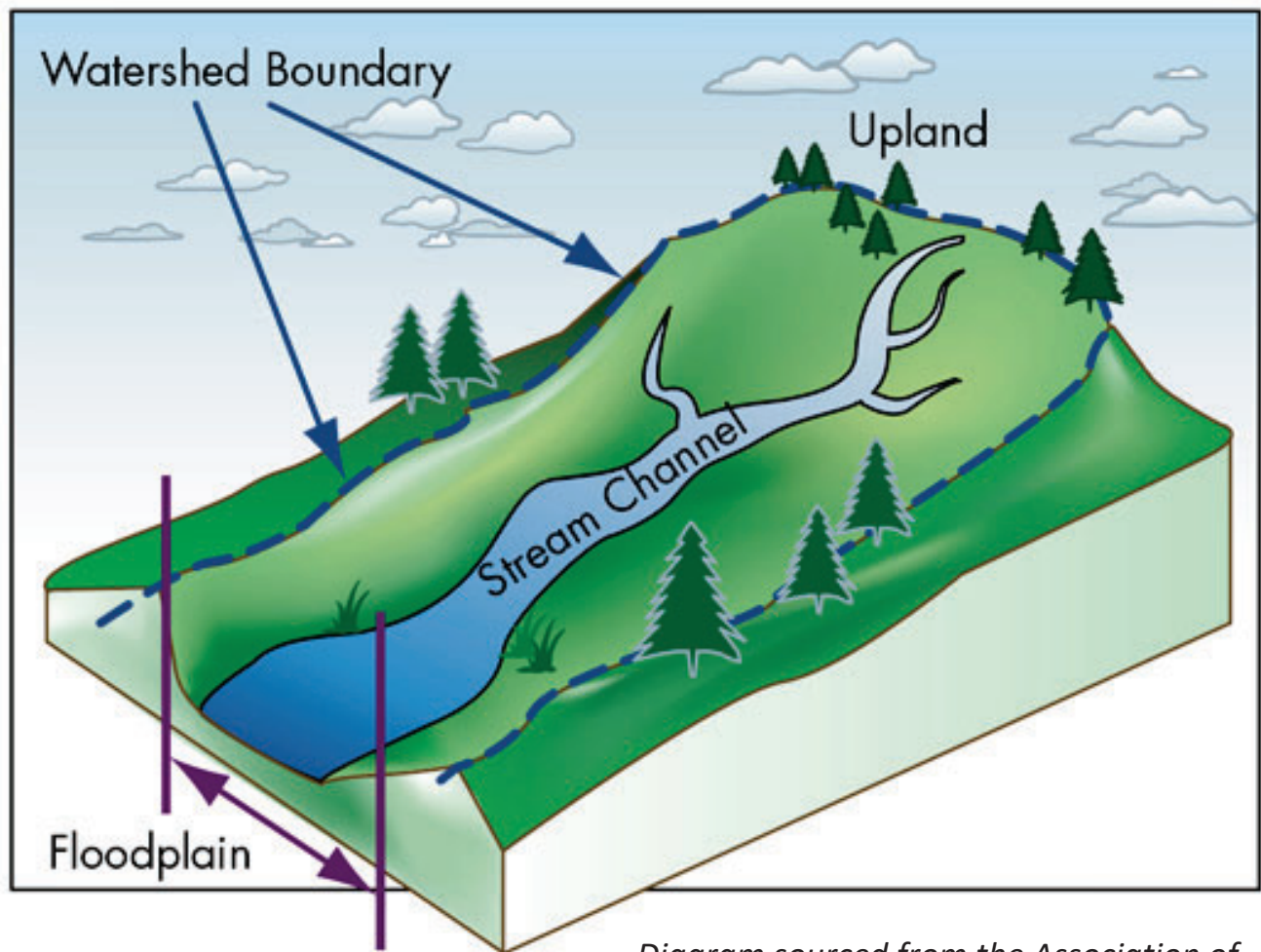


Diagram sourced from the Association of Floodplain Managers Science Center.

During rainfall or snowmelt, water flows from upland areas to low-lying areas. From upland, water channelizes and drains into a common body of water, like a stream. The surrounding low-lying area of the common body of water is the floodplain. The upland area, the channeling of water into a common body of water, and the floodplain are all encompassed within the **watershed**.

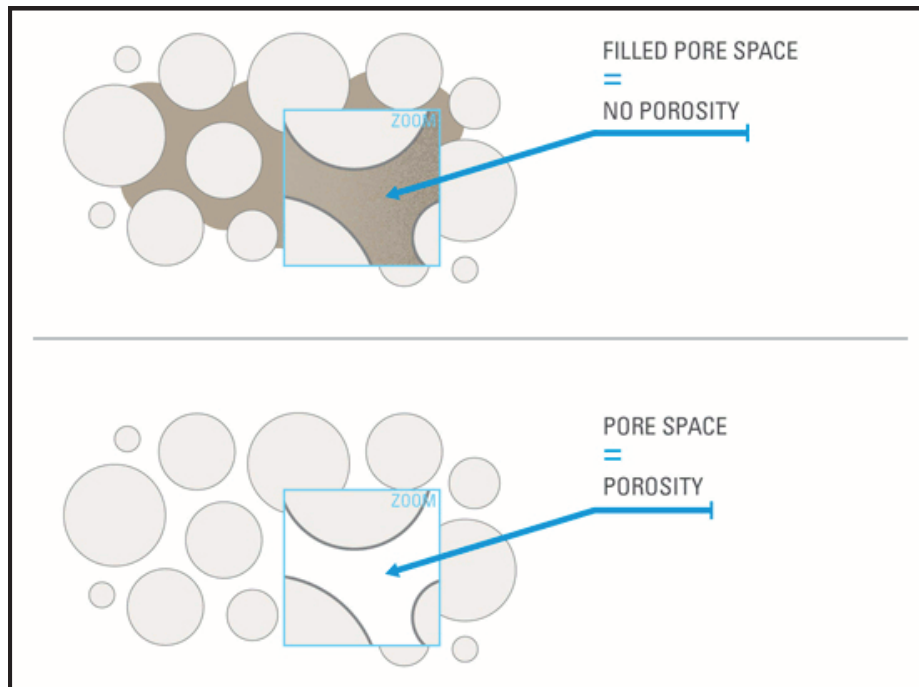
Floodplains consist of two parts: bodies of water such as rivers, streams, or creeks, and the adjacent areas that lay on either side of their banks. When bodies of water reach their maximum amount of water that they can hold, the excess water overflows onto their surrounding lands. This overflow of water often occurs during prolonged or intense periods of precipitation. These periods of prolonged or intense precipitation are expected to become more frequent as our climate continues to change. This is why it is important to restore and conserve our floodplains, so that they can function at their fullest capacity.



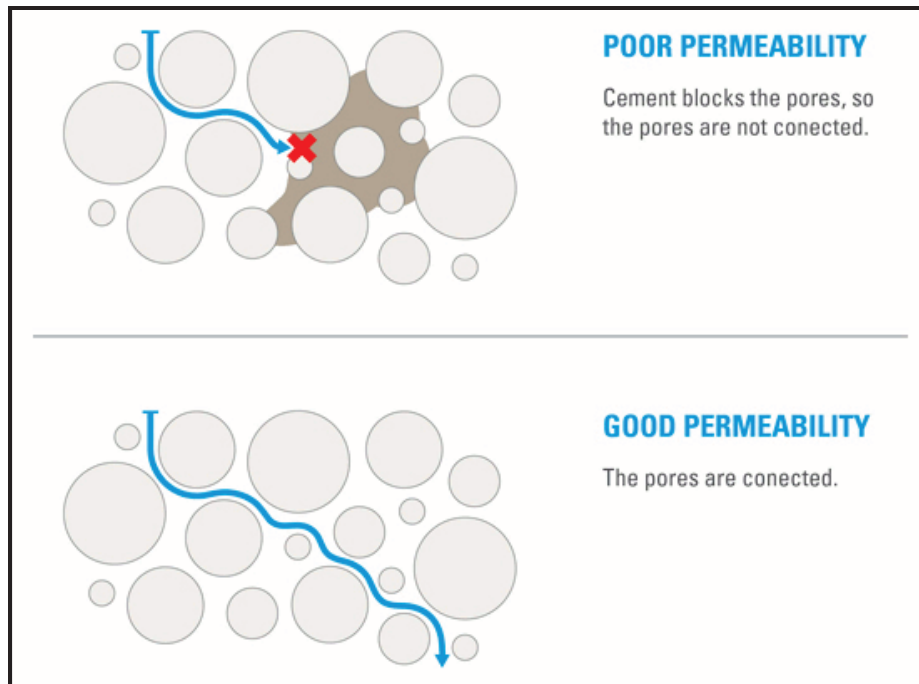
Why Soil Compaction, Porosity, and Permeability Matter

As mentioned before, floodplains naturally have a greater capacity of storing floodwaters than impervious surfaces that are found in our built environment. This is because floodplains and impervious surfaces contrast greatly in their **porosity** and **permeability**. Porosity is the amount of space that exists between grains of soil or sediment, whereas permeability is how connected those pore spaces are, and therefore how well water can flow through those materials.

Porosity



Permeability



Diagrams sourced from the Victoria Department of Energy, Environment and Climate Action.

Soil and sediment have a higher porosity than impervious surfaces, which means more space exists between its grains for rainfall and floodwaters to be stored. Soil and sediment are also highly permeable, which means the pore spaces are well-connected to one another-- the more connected the pore spaces are, the easier it is for water to move. Healthy soils are able to slow the velocity of floodwaters because of their absorbency due to these two qualities.

Impervious surfaces are often made of materials such as concrete, asphalt, clay, or metal. These materials have little to no pore space or connections between those spaces, meaning little to no porosity or permeability. Water is not able to flow into or through these materials, so it becomes **runoff**. When we experience flooding from intensified precipitation or from sea level rise without properly functioning floodplains, the water has nowhere to go besides through our towns and cities, causing damage to everything in its path and creating hazards that pose a threat to humans.



Pervious Surface
(vegetated, uncompacted soil)



Impervious Surface
(cement)

Soil that has been compacted due to heavy weight being placed upon it for an extended amount of time loses its porosity and permeability because those open spaces between grains shrink substantially. **Parking vehicles or storing heavy materials and equipment on floodplains are common causes of soil compaction, which is why they are prohibited on Blue Acres open space land.** Compacted soil will act the same as impervious surfaces during episodes of flooding, which will increase runoff. This is why taking care of properties that are post-buyout and post-demolition by making sure they maintain their integrity as healthy floodplains is crucial to flood risk mitigation.

Why Vegetation and Runoff Matter

Preserving floodplain functions also includes restoring and conserving vegetation. Vegetation plays a crucial role in mitigating flood risks by slowing flow speed due to friction, allowing the water more time to soak into the soil. Additionally, vegetation can improve permeability by creating small downward channels through soil. This means that more floodwater is removed as runoff, which in turn leads to less destruction of our homes and infrastructure.

Above all, preserving our floodplains and keeping them as open space means reducing economic losses and ensuring the safety of humans. In our changing climate, flooding events aren't a matter of if they will happen, but when they will happen, so it's important to be as proactive as possible in the preservation of our floodplains for the health and safety of both our communities and the environment, especially for the long-term.

The Benefits of Healthy Floodplains

There are many benefits of having and maintaining healthy floodplains, including:

Slowing of the Flood's Overall Flow Rate – Naturally vegetated floodplains both reduce the rate at which run-off flows into stream channels and the rate at which overflow from channels onto land occurs. Reducing the velocity of stream waters and reducing **downstream flooding** limits flood-related damage.

Groundwater Storage and Recharge – Floodplains soak up floodwaters due to their absorbent qualities, which means they also replenish our **groundwater** reservoirs. These underground reservoirs supply water for our households, irrigation for agriculture, and recharge our lakes, streams, and rivers.

Sediment and Contaminant Filtration – Floodplains naturally filter out sediment and contaminants which maintains surface water quality.

Fostering Ecological Vibrance – Floodplains are dynamic due to their changing water levels. This promotes biodiversity as they host a variety of habitats and ideal conditions for a wide range of plant and animal species.

Recreation – Floodplains are often enjoyed by the public as nature reserves or for passive recreation that feature natural walking trails and bike paths.

What is Allowed on Blue Acres Open Space Land?

The first consideration for open space land-use is whether a project is possible, appropriate to its surroundings, and is sustainable in the existing environment. The Blue Acres Buyout Program must review any situation that differs from the uses cited in the FEMA regulations with the State of New Jersey and our State and Federal mitigation funding partners, particularly any usage that is contradictory to the open space intent or that deviates from prevailing floodplain management principles (see Part 12, subsection B.1 of the *2023 Hazard Mitigation Assistance Program and Policy Guide*). Open space land uses that are considered should not obstruct flood flows, alter drainage, or trap debris. **For any formal proposal of uses, please complete the Request for Use of NJDEP Property form to ask permission from the Office of Transactions and Public Land Administration. However, before planning or proposing a new use, please contact the Blue Acres Buyout Program at (609) 940-4140 for further guidance.**

Uses Allowed, Generally:

- Plantings and landscaping that only consists of native, non-invasive species that have flood-tolerant characteristics to maximize functionality
- Nature Reserves and parks for outdoor recreational activities
- Wetlands management
- Vegetative site stabilization and agricultural cultivation

- Installation of signs when designed not to trap debris
- Unpaved surfaces associated with passive recreation such as trails and paths for pedestrian, bike, and/or equestrian use
- Camping* (with prior approval if allowed by municipal ordinance) except where adequate warning time is not available to allow for evacuation
- Public restrooms are the only walled and roofed buildings allowed and should not be constructed in the floodway*
- Public picnic shelters, pavilions, and gazebos, with associated foundations, provided structures are not walled*
- Small boat ramps, docks, and piers to serve as public recreational use
- Minimum number of unpaved access roads, driveways, and camping pads to facilitate acceptable uses of the acquired properties. **You must fill out the Requests for Use of NJDEP Property form for permission.** Existing paved roads can be used for such purposes**
- Drainage facilities intended to serve onsite needs

*May only be possible with prior approval from the New Jersey Division of Parks & Forestry and with the proper local/State/Federal permits that may be required.

**Reuse of existing paved surfaces for recreational uses on the acquired property consistent with allowable uses is generally acceptable; however paved surfaces beyond those directly required for such uses should be removed.

What is Not Allowed on Blue Acres Open Space Land?

Any use should not result in a future FEMA Public Assistance Category G claim following a flood or storm event. Structures such as the ones below would not be eligible for future repair with public recovery funds.

- Walled buildings (besides public restrooms as described previously)
- Reuse of pre-existing structures, unless all walls are removed
- Paved roads, highways, bridges, and paved parking. Paved parking includes asphalt, concrete, oil-treated soil, or other material that inhibits floodplain functions
- Parked vehicles, including cars, RVs, and boats
- Flood damage reduction or control structures such as levees, dikes, berms, or floodwalls
- Any action that poses health, safety, or environmental risk in the floodplain
- Above- or below-ground pumping stations, storage tanks, or switching stations
- Installation of septic systems or reuse of pre-existing septic systems, except to service a public restroom
- Structures and surfaces associated with active recreation such as tennis courts, basketball courts, and baseball fields
- Placement of fill materials or other uses that obstruct the natural and beneficial use of the floodplain (except where necessary to avoid impacting onsite archeological resources)

- Fences that can catch debris and obstruct floodwaters, and all other obstructions in the floodway
- Storage of inventory supporting a commercial operation or governmental facility, including wheeled vehicles or movable equipment
- Cemeteries, landfills, or storage of any hazardous or toxic materials
- Any uses determined by the State/Grantee, FEMA, or FEMA Regional Administrator as inconsistent with the regulations, this field guide, or deed restrictions

NOTE: *If the project being proposed for State-acquired floodplain land is (1) not explicitly permissible; or (2) not consistent with FEMA deed restrictions, Federal grant agreement, or direct funding stipulations, or this field guide, Blue Acres officials will need to coordinate with the local floodplain administrator and the appropriate FEMA Regional Office to evaluate the proposed use.*

Addressing Unauthorized Uses of Blue Acres Open Space

An **encroachment** refers to any structure (either permanent or semi-permanent) that is built or placed on a property without prior authorization, and any other unauthorized uses that occur. When Blue Acres approves a buyout and NJDEP acquires the land, that land becomes State-owned open space. As the Municipality, under the Memorandum of Understanding, it becomes your immediate responsibility to properly manage the acquired property, which includes preventing encroachments by adjacent property owners.

How to Identify Encroachments

Encroachments are diverse in nature and their severity of violation can range from minor to severe. Violation severity is determined based on how costly or labor-intensive it would be to return the property to its functional floodplain condition, and how much of the property's soil has been impacted by the encroachment. For example, a broken home appliance dumped on open space property would cause less damage to the soil and would require less effort to remove than a paved asphalt parking lot. Floodplains, by acting as buffers, provide valuable floodwater storage and contribute to flood risk reduction strategies. If the soil is paved over or vehicle traffic compacts the soil, floodplains cannot maximally contribute their natural flood-mitigating capabilities. Similarly, debris in the floodway poses a hazard, as it can be picked up and carried by floodwaters, leading to further destruction of the homes and infrastructure that make up our communities.

Encroachment Examples

Properties of interest are outlined in blue.

Minor: an encroachment that is deemed minor shows minimal or infrequent activity that is impacting the soil and requires minimal effort to restore or reverse the damage done to the floodplain.



In the above image on the left-hand side, a hammock and a fire pit (circled in red) have been placed in the floodway, but they can easily be removed from the property, and the undisturbed vegetation is a sign of infrequent activity.

Moderate: an encroachment that is deemed moderate shows evidence of periodic activity that moderately affects soil compaction, shows non-extensive damage to vegetation, and takes a moderate amount of effort to restore the floodplain.



On this property, there are tire tracks showing regular vehicle activity, damaging up to 50% of the vegetation. The soil is significantly compacted due to the frequent vehicle activity, which clearly reduces the function of the floodplain.

Significant: an encroachment deemed significant shows evidence of regular or sustained activity, moderate to significant soil compaction, extensive damage to vegetation, and a clear reduction in floodplain functionality.



In this image, there are RVs parked on the property and tire marks can be seen in the soil showing more frequent activity. Vehicles parked, stored, or repeatedly driven on the floodplain damages the vegetation and compacts the soil. Soil compaction decreases the soil's porosity, which decreases water filtration and increases runoff.

Major: an encroachment deemed major exhibits signs that the land has been significantly altered, including widespread damage to vegetation, major soil compaction, and even the obstruction of the floodplain. They may impact floodplain functionality long-term.



This image (left) shows frequent vehicle activity which damages vegetation and compacts the soil. The storage of vehicles, including an RV, and other debris, including structures like a trampoline, obstructs the floodplain. These obstructions can not only impede the natural flow of water but can become hazards as they can be picked up and carried by flood waters, potentially damaging other structures, including other homes.

Severe: an encroachment deemed severe often consists of large-scale, unauthorized development actions. They extensively or completely disrupt floodplain functionality, and it is difficult, costly, or impossible to restore the floodplain to its proper conditions.



This image shows that the floodplain has been covered with macadam or asphalt aggregate, and has been turned into a parking lot. Covering the floodplain with material like this blocks the floodplain, rendering it impermeable and non-porous. It is completely non-functioning. This means that whatever water flows over this property will not be absorbed, letting it flood at full speed and force, which poses a severe risk of flood damage. Not only is the floodplain not functioning, but the various trucks and cars parked on it can become hazardous debris in periods of flooding and obstruct the floodplain.

What Municipalities Can Do to Prevent Misuse of Blue Acres Open Space

The easiest way to properly manage properties that are post-buyout is by preventing encroachments from happening in the first place. Conducting routine inspections or putting up temporary habitat improvement structures, such as fence posts with a line of string that can't trap debris, to deter activity can help ensure that floodplains remain in compliance with FEMA and State regulations for open spaces and that the integrity of the floodplains are maintained. Signage for municipalities, provided by Blue Acres, should be placed on post-buyout lands to help inform people that parking is prohibited. **As always, before any land-use planning, contact the Blue Acres Buyout Program for guidance at (609) 940-4140, and/or fill out the Requests for Use of NJDEP Property form administered by the Office of Transactions and Public Land Administration.**



To the left is an example of a Blue Acres property that is post-buyout and post-demolition with temporary fencing to help deter parking. However, asphalt remnants must be fully removed, the soil decompacted and revegetated.

Getting Creative with the Use of Blue Acres Open Space

Many municipalities have taken their post-buyout land and have chosen to revitalize their communities by undertaking various projects that are within our regulations. Projects have included planting native, non-invasive trees and plant species, constructing natural walking paths, habitat restoration and conservation efforts, and art installations!

Temporary raised garden beds like these (right) allow for floodwaters to flow through without being obstructed, have open space to not trap debris, and increase accessibility for community members!



This art installation (left) is a fun and interesting way to showcase environmental themes while not obstructing the floodway, not trapping debris, and being compatible with the property's deed restrictions.

A Final Note

Remember, the main goal of the NJDEP and Blue Acres Buyout Program is to protect our communities from substantial flood damage as we face a changing climate. This program is just one of the ways in which we are working towards ensuring that New Jersey is resilient against the effects of climate change, primarily weather events that are increasing with frequency and magnitude, like flooding.

Glossary

Downstream Flooding: flooding that occurs when water rises above the normal level of the stream or river closer to the system's mouth

Encroachment: any structure (either permanent or semi-permanent) that is built or placed on a property without prior authorization

Floodplain: a relatively flat-lying landform created by the deposition of eroded sediment from a river or stream; flooding occurs in known floodplains when prolonged or intense rainfall causes a river or stream to overflow and flood the surrounding area (Source: USGS)

Floodway: the channel of a river or other body of water's course and the adjacent land areas (Source: FEMA)

Groundwater: freshwater located in the pore space of saturated soil and rocks beneath Earth's surface

Impervious Surface: a surface, typically found in urban spaces, that possesses limited or is absent of water-absorbing capabilities, such as a paved surface or buildings

Glossary

Open Space: land that is not intensively developed for residential, commercial, industrial, or institutional use (Source: New York State Department of Environmental Conservation)

Permeability: the ability of water to flow through Earth materials, such as soil and sediment

Porosity: the amount of open space that exists between soil or sediment

Runoff: excess water that flows across the land and into waterways; occurs when there is more water than land can absorb (Source: National Geographic)

Watershed: a land area that channels rainfall and snowmelt to creeks, streams, and rivers, and eventually to outflow points such as reservoirs, bays, and the ocean. (Source: NOAA)

