

A Picture is Worth a Thousand Words – Communicating Complex Ordinance Requirements

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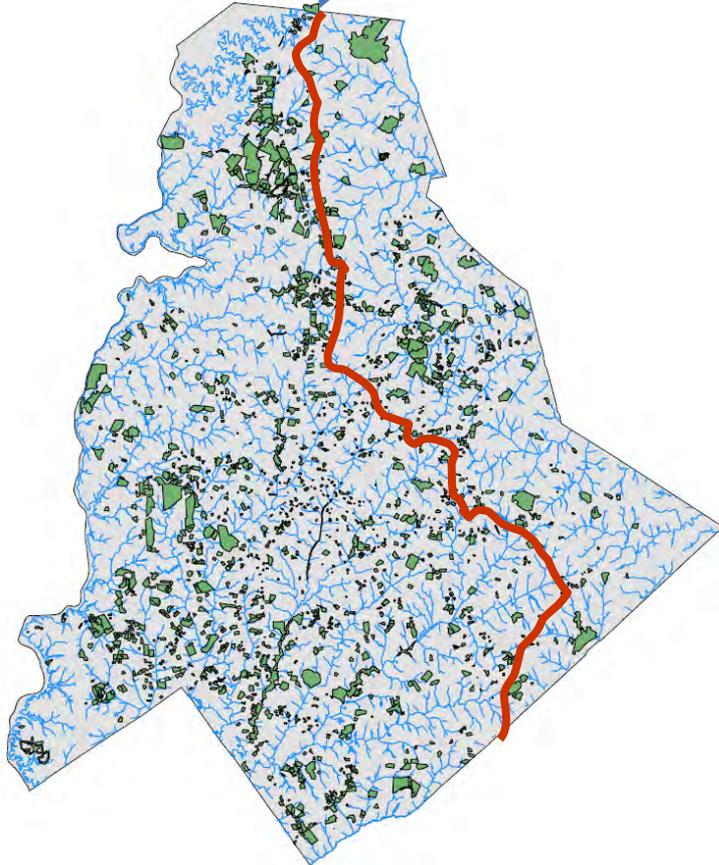
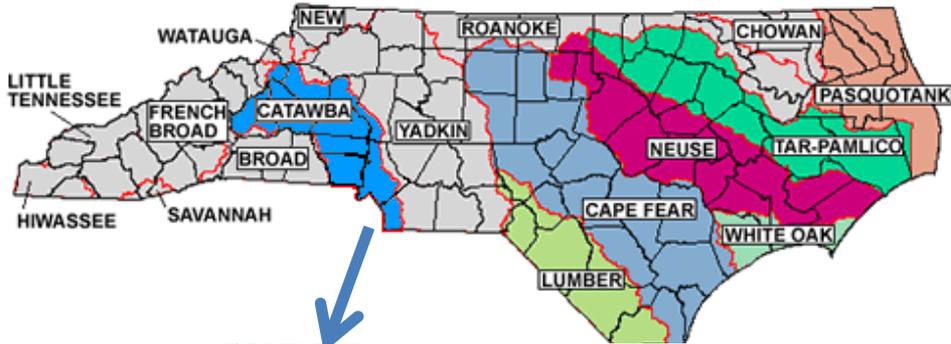
A cartoon illustration of a man in a green and white striped shirt and blue pants, carrying a red bag, struggling to open a white door. He is on a set of concrete steps with metal railings. The door has a small window with a metal grate and a sign that says "PULL". The building is red brick with two windows on either side of the door. A sign in the foreground reads "MIDVALE SCHOOL FOR THE GIFTED". The man is leaning against the door, pushing it away from him, which is the opposite of what a "PULL" sign indicates. The scene is set outdoors with some greenery visible on the left and right sides.

PULL

MIDVALE
SCHOOL FOR
THE GIFTED

Lewis

Mecklenburg County



- Population: 1.1 million (2.5X in 40 yrs)
- Phase I Community-Charlotte (840,000)
- Phase II Community- Six Towns & County (270,000)
- 3,452 square miles
- Over 3,000 miles of streams
- Over 200 miles of lake shoreline
- Water Quality / Floodplain Programs in place since 1970's..... Almost 50 years of evolution

Types Of Water Quality Buffers

- 1. Water Supply Watershed Buffer: 1995 through 1998.**
- 2. Surface Water Improvement & Management (SWIM Buffer): 1999 through 2000**
- 3. Catawba River Buffer Rules: 2001**
- 4. Post-Construction Buffer: 2007 through 2008**
- 5. Goose Creek Buffers – February 2009**

Buffer Ordinances

- Watershed

- Lake Norman

1. Davidson
2. Cornelius
3. Huntersville

- MI Lake

4. Cornelius
5. Char-Meck
6. Huntersville

- Lake Wylie

7. Char-Meck – Upper
8. Char-Meck - Lower

- SWIM

9. Charlotte
10. Cornelius
11. Davidson
12. Huntersville
13. Matthews
14. Mecklenburg County
15. Mint Hill
16. Pineville

Summary of Post-Construction Buffer Requirements

Jurisdiction	Watershed District	Buffer Width					Buffer Delineation		
		Existing SWIM + 30-ft. no-build zone on <50 acres	50-ft on <50 acres & 100-ft on ≥50 acres for all intermittent & perennial streams	200-ft on perennial & intermittent streams inside the 100-yr floodplain & 100 ft on all other perennial & intermittent streams	100-ft on intermittent & 200-ft. on perennial streams	200-ft on intermittent & perennial streams in FEMA floodplain & 100-ft. on all others	GIS (using POLARIS)	On-Site Delineation (using DWQ methods)	USGS & USDA Maps
City of Charlotte	Central Catawba	X						X	
	Western Catawba	X						X	
	Yadkin-Southeast Catawba		X+ floodplain (undisturbed)					X	
	Six Mile Creek			X (undisturbed)				X	
Cornelius	N/A	X				X			
Davidson	Catawba	X						X	
	Yadkin		X (3 zones)					X	
Huntersville	N/A	X				X			
Matthews	Catawba	X	X+ floodplain (undisturbed)					X	
	Yadkin		X+ floodplain (undisturbed)					X	
Mint Hill	Catawba	X				X			
	Yadkin	X				X			
	Goose Creek			X (undisturbed)					X
Pineville	N/A	X				X			
Mecklenburg Co.	N/A	X				X			

Higher Standard	Description	Benefits	FEMA Minimums
Elevation of Parking Spaces	<ul style="list-style-type: none"> • Applies to parking spaces for new non-single family buildings • Flood depths no more than 6 inches deep in any parking space during Community Flood event. 	<ul style="list-style-type: none"> • Vehicles will be safe from flood damage • Water quality benefits • Emergency response to vehicles reduced 	NONE
<p style="text-align: center;"><u>Flood Maps</u></p> <p>Community Floodplains (Future Conditions)</p> <p>Wider Floodways</p>	<ul style="list-style-type: none"> • Current maps show floodplain areas based on future land use conditions. • New buildings must be built with the lowest floor elevated at least one foot above the Community (Future) Base Flood Elevation. • Wider Floodways are shown which are areas on the maps reserved to allow the free flow of flood waters while limiting development in these areas. 	<ul style="list-style-type: none"> • New Buildings will be constructed so that they will not incur damage from higher flood levels in the future. • Less floodplain area will be filled or built upon 	<ul style="list-style-type: none"> • Map the existing conditions 100-year floodplain. • Lowest floors allowed at existing conditions base flood elevation • More floodplain area can be built upon (wider floodways)
Higher floor elevation requirement (Freeboard)	<ul style="list-style-type: none"> • Floors of new or substantially improved buildings must be elevated at least one (1) foot above the Community (future). (2 feet on Catawba) 	<ul style="list-style-type: none"> • This will provide an extra degree of safety for factors not accounted for in the mapping such as, stream blockages, sedimentation in culverts, and inaccuracies in the mapping models. 	<ul style="list-style-type: none"> • FEMA allows construction at existing conditions flood elevations
Below Flood Level Basements Not Allowed on Filled Lots	<ul style="list-style-type: none"> • Basement floors of new buildings cannot be located below the Community Base Flood Elevation on lots that have been elevated by fill 	<ul style="list-style-type: none"> • Prevents possible damage from groundwater infiltration and meets FEMA recommendation. 	Encourages communities to meet this standard, but not required.

Transparent Layers

Post Const Buffers

-  30-FT Post Const
-  35-FT Post Const
-  50-FT Post Const
-  100-FT Post Const
-  50-FT Undisturbed
-  100-FT Undisturbed
-  200-FT Undisturbed

Water Quality Buff

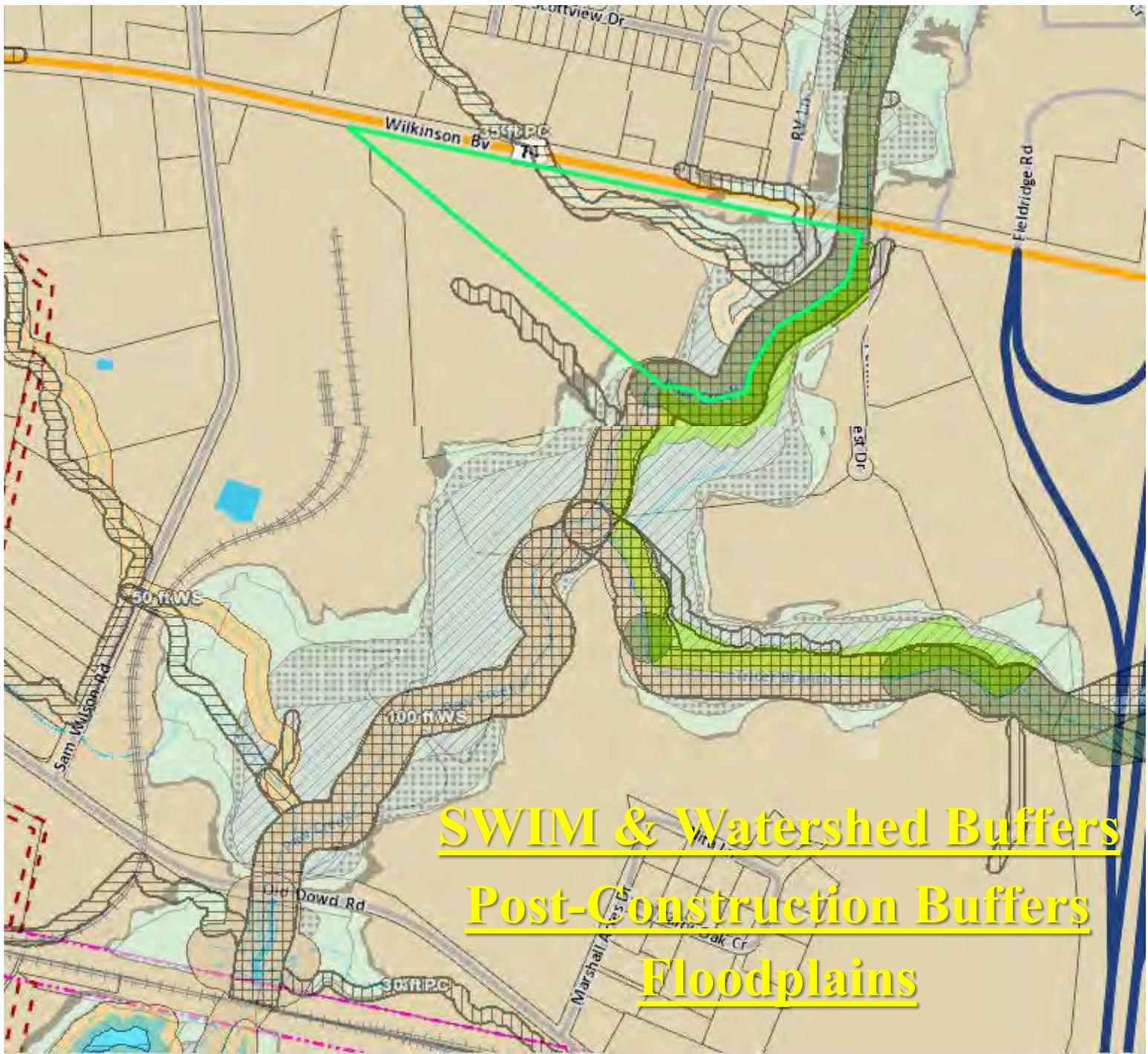
-  35-FT SWIM
-  50-FT SWIM
-  100-FT SWIM
-  40-FT Watershed
-  50-FT Watershed
-  100-FT Watershed
-  30 ft PIPED-No Buff
-  35 ft PIPED-No Buff
-  100 ft PIPED-No Buff

FEMA Floodway

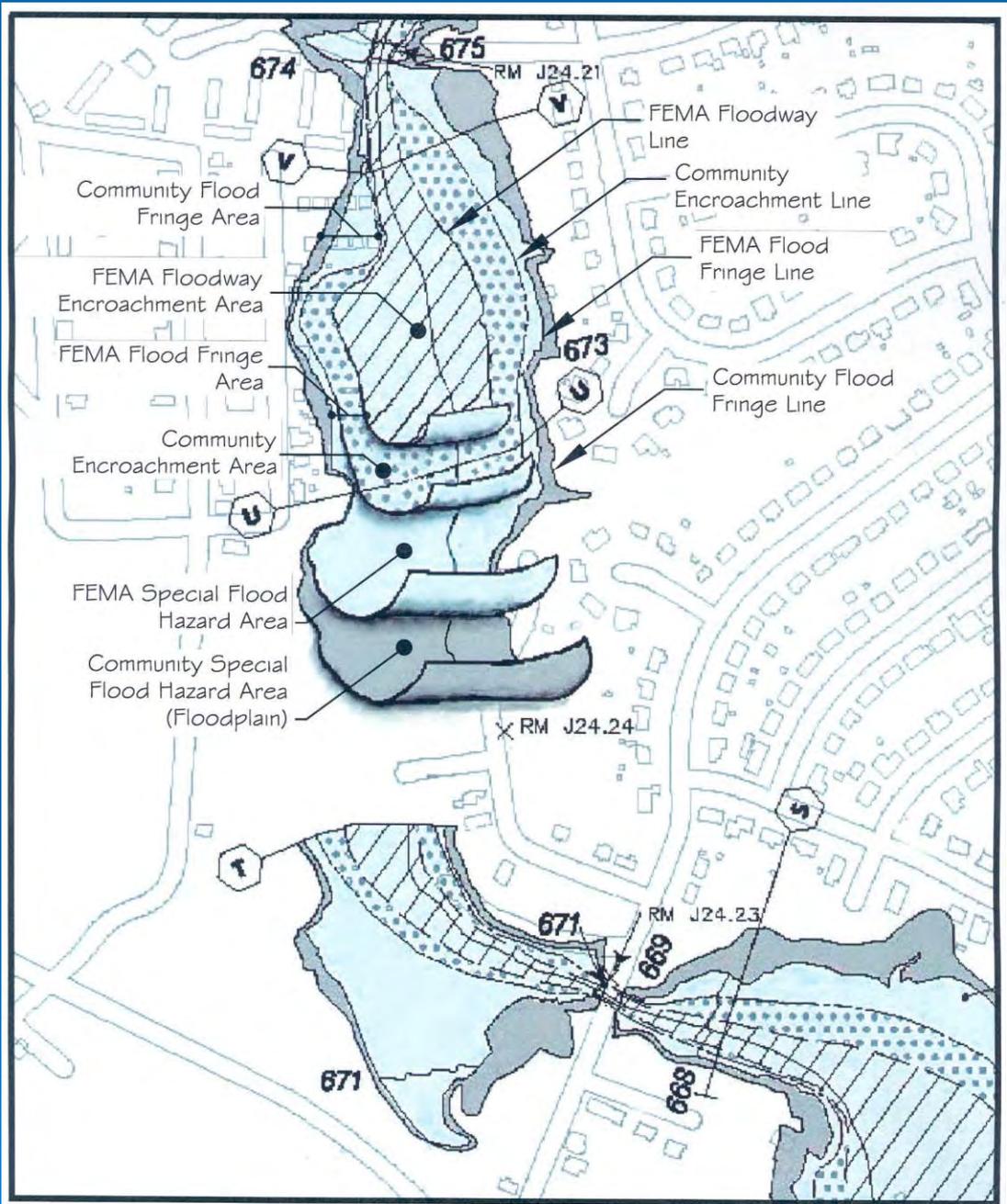
-  FEMA Floodway
-  Community Floodway

FEMA Floodplain

-  FEMA Floodplain
-  Community Floodplain



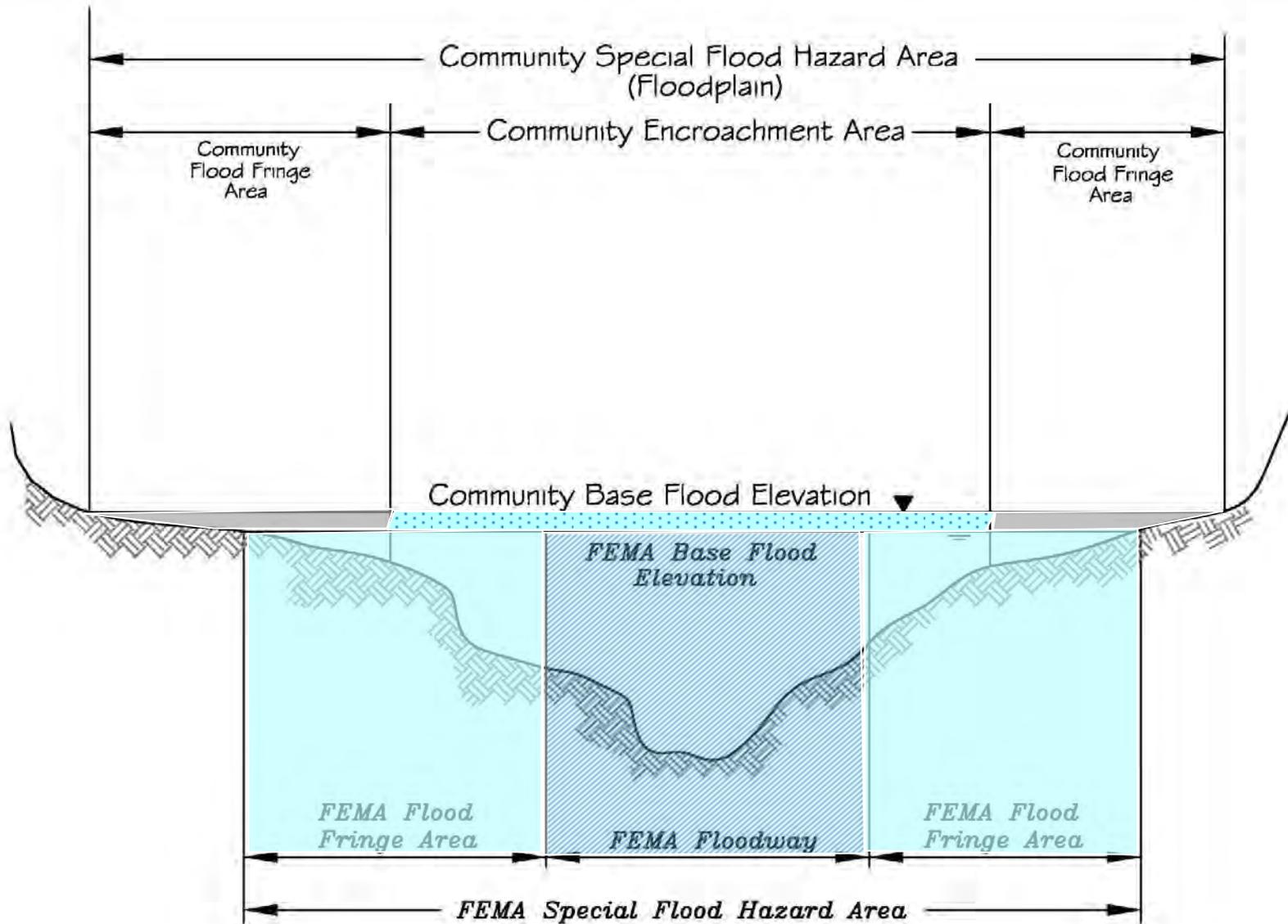
SWIM & Watershed Buffers
Post-Construction Buffers
Floodplains



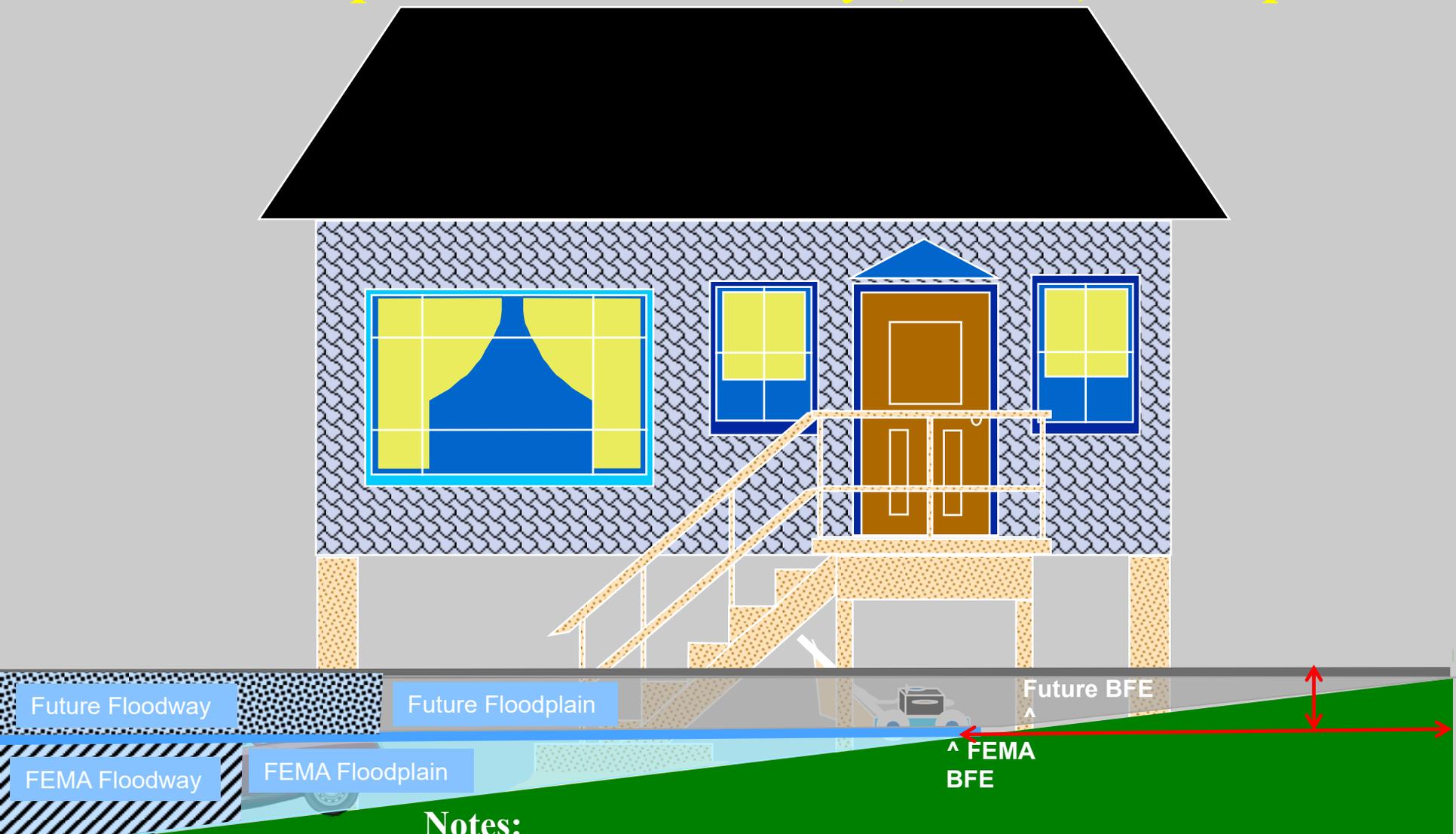
The Risk is Real... **Be PREPARED!**



Attachment A



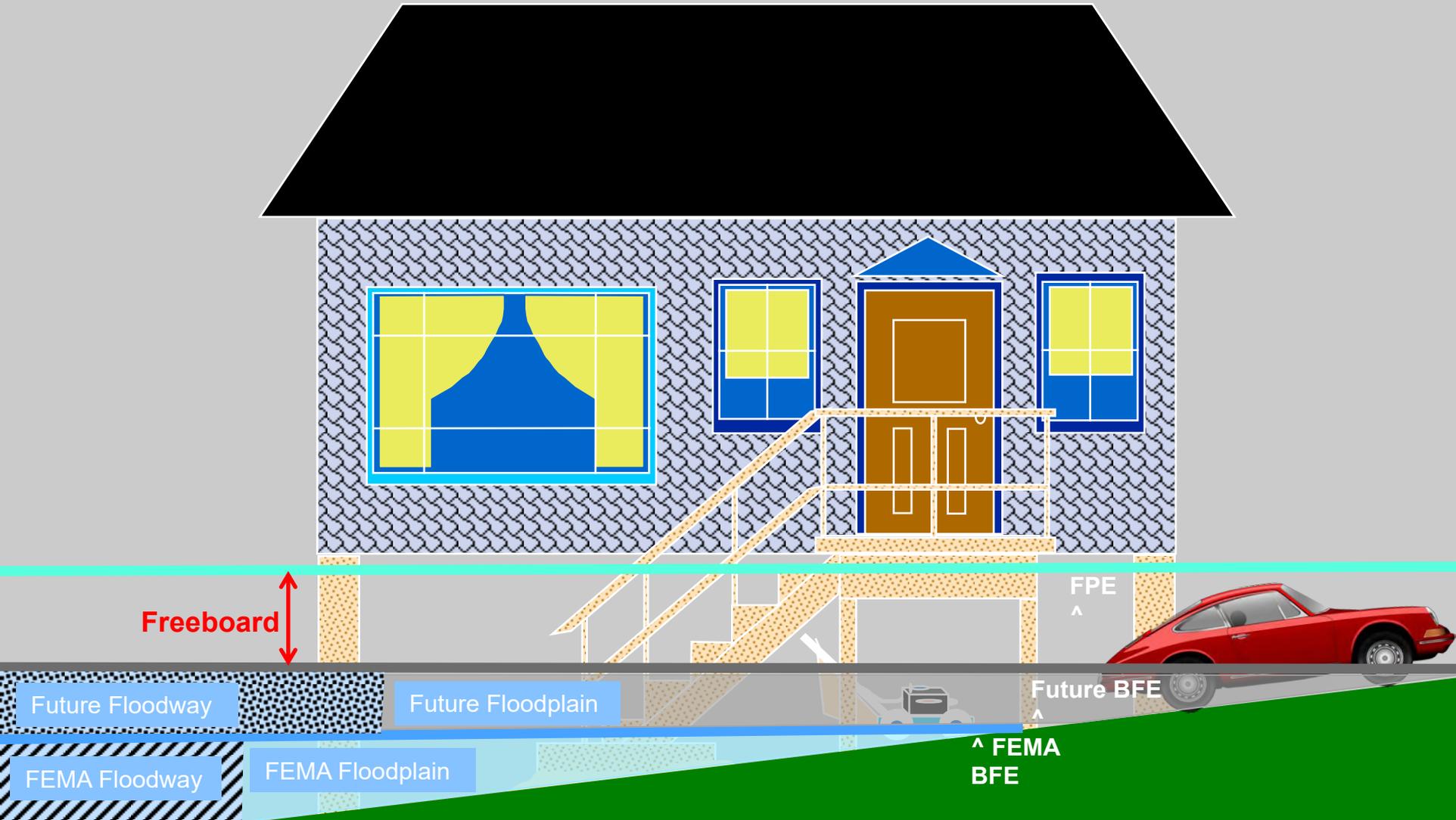
FEMA Floodplain vs. Community (Future) Floodplain



Notes:

- 1) Future Floodplain based upon full build-out of land
- 2) Future Floodplain Lines extend further than FEMA
- 3) Future Base Flood Elevation (BFE) is higher than FEMA

Higher Floor Elevations – Freeboard Requirement

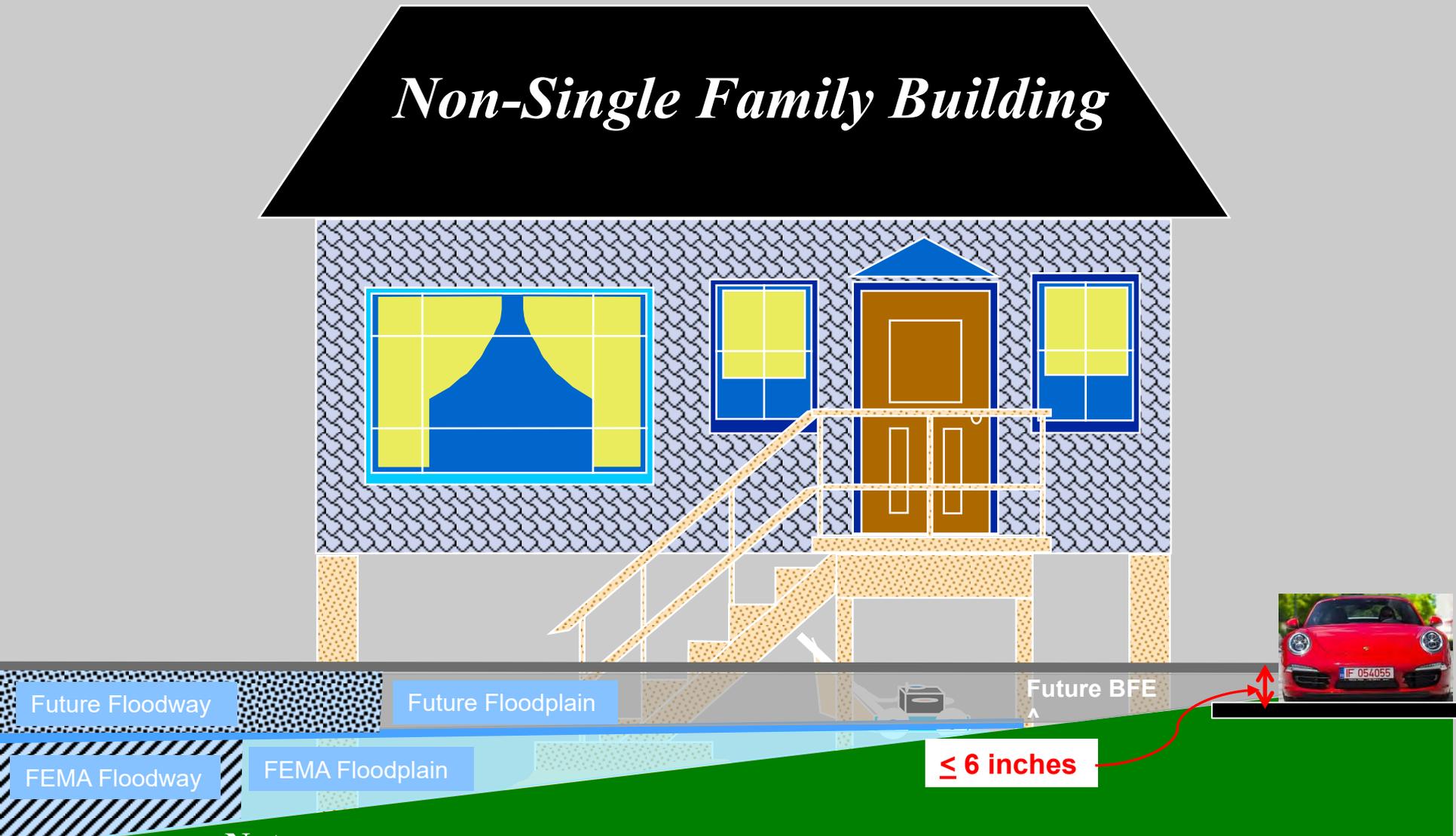


Notes:

- 1) NFIP requires Finished Floor above FEMA BFE
- 2) Local Ord. requires Finished Floor above Flood Protection Elevation (FPE)
(1 foot above Future BFE; 2 feet above along the Catawba River)

Elevation of Parking Lots

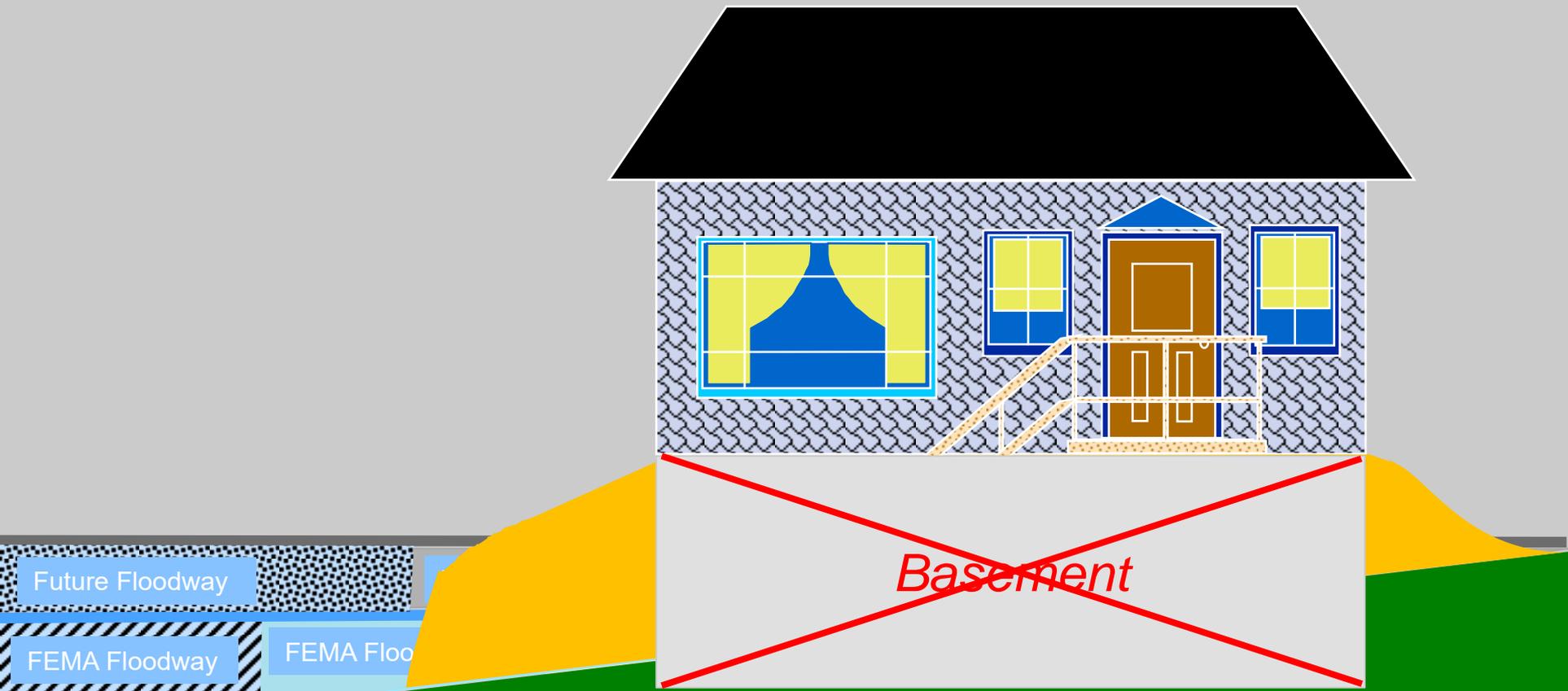
Non-Single Family Building



Notes:

- 1) Parking Lot elevation must be no more than 6 inches below the Future BFE

Below Flood Level Basements Not Allowed

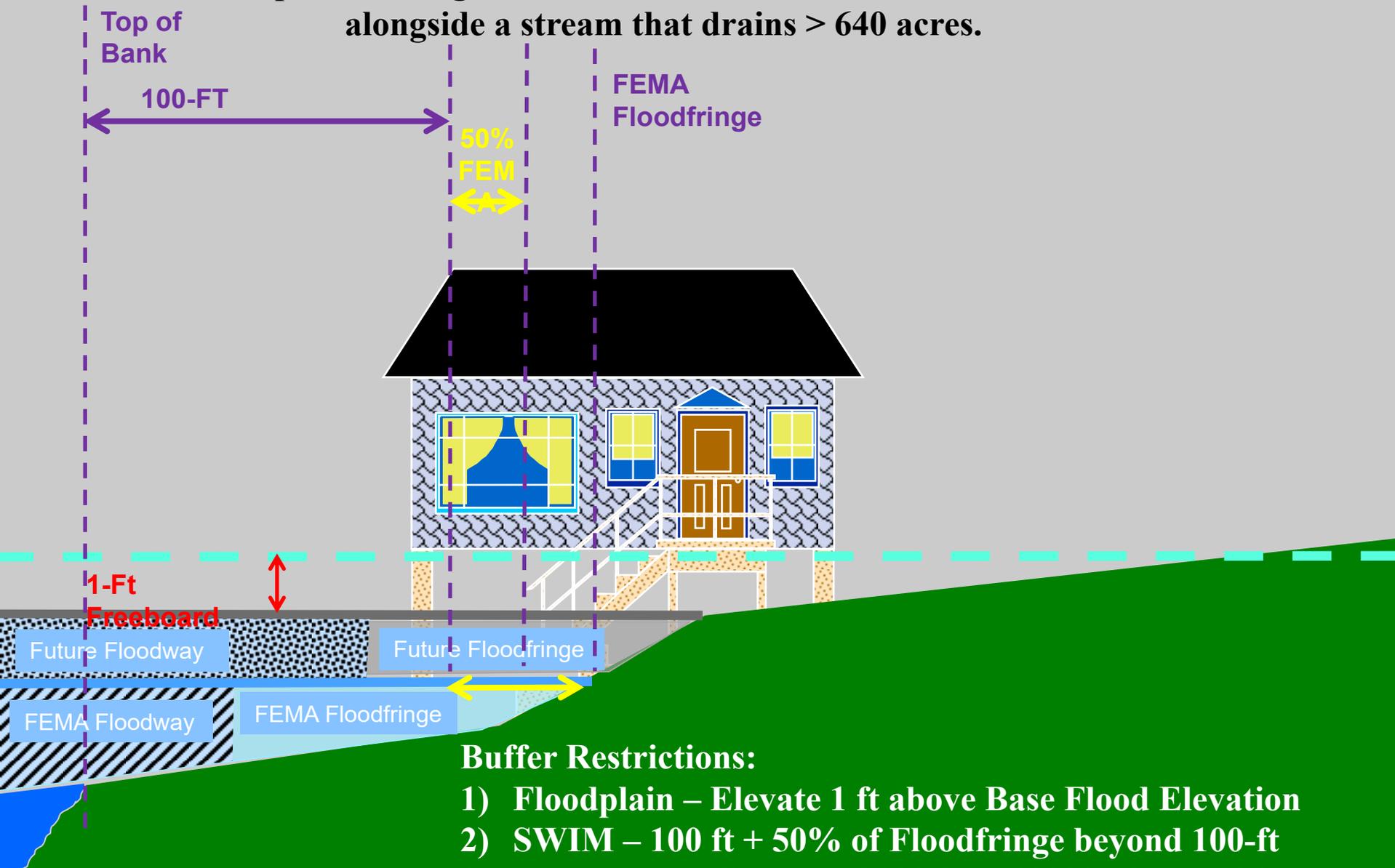


Notes:

- 1) Addition of fill removes the building pad from Floodplain

Building Restrictions due to Floodplain & Buffers

Example: Building a home within the Critical WS area of Charlotte alongside a stream that drains > 640 acres.



Buffer Restrictions:

- 1) Floodplain – Elevate 1 ft above Base Flood Elevation
- 2) SWIM – 100 ft + 50% of Floodfringe beyond 100-ft
- 3) Watershed – Greater of 100 ft or 100% of Floodfringe