

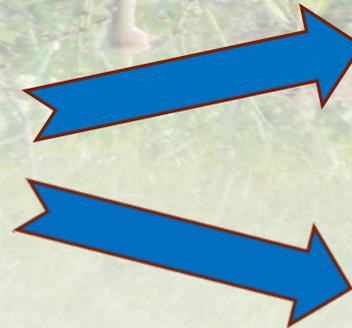
Best Management Practices



Urban Areas

Aquatic Areas

Natural Areas





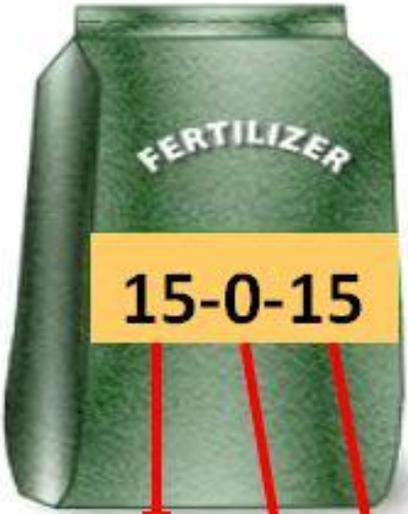
Best Management Practices Urban Areas

➤ Green Industry Best Management Practices

- Fertilizer Label
- Nitrogen Applications
- Phosphorous Applications
- Deflector Shields
- Ring of Responsibility
- Weather and Seasonal Restrictions
- Management of Grass Clippings and Landscape Debris
- Applying Fertilizer for Hire

Management of Fertilizer

What to Look for on the Label



Guaranteed Analysis

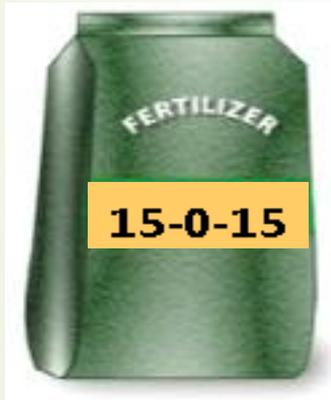
Total Nitrogen (N).....	15.00%
15.00% Urea Nitrogen*	
Soluble Potash (K ₂ O)....	15.00%
Iron (Fe).....	5.00%
Sulfur (S).....	19.00%

*7.5% Nitrogen slowly available from Polymer Sulfur Coated Urea.

Nitrogen-N
Phosphate-P₂O₅
Potash-K₂O

Management of Fertilizer

How to Determine the Slow Release Component



Divide the slowly available Nitrogen by the Total Nitrogen and multiply by 100:

$$7.5\% / 15.00\% \times 100 = 50\% \text{ Slow Release}$$

Management of Fertilizer

How to Determine Pounds of Fertilizer to Deliver 1.0 lb. of N/1000 sq. ft.



All the components of a fertilizer add up to 100%. Ingredients not listed are inert, help bind or coat the product or reduce product dust.

Divide 100% by the Total Nitrogen %:

$$100\%/15.00\% = 6.7$$

6.7 pounds of the 15-0-15 fertilizer are needed to deliver 1.0 lb. of Nitrogen per 1000 sq. ft.

For a 3000 sq. ft. area multiple 6.7 by 3:

$$6.7 \text{ lbs./1000 sq. ft.} \times 3 = 20 \text{ lbs.}$$

20 lbs. of 15-0-15 needed to cover 3000 sq. ft.

Management of Fertilizer

How to Determine Pounds of Fertilizer to Deliver 1.0 lb. of N/1000 sq. ft.

Lawn (sq.ft.)	Percent (%) nitrogen (N) in fertilizer						
	6%	10%	12%	15%	16%	23%	27%
1000	16.5	10.0	8.5	6.5	6.0	4.5	4.0
1500	25.0	15.0	13.5	10.0	9.5	6.5	5.5
2000	33.5	20.0	17.0	13.0	12.0	9.0	8.0
2500	41.5	25.0	21.0	16.5	15.5	11.0	9.5
3000	50.0	30.0	25.5	19.5	18.0	13.0	12.0



Management of Fertilizer

Nitrogen Applications

Maximum Rates:

- No Blackout
 - SR: 1.0 lb./1000 sq. ft.
 - QR: 0.5 lb./1000 sq. ft.
- Areas with Blackouts
 - 2.0 lb./1000 sq. ft. after spring green up before June 1
 - 0.5-1.0 lb./sq. ft. after September 30
- No more than 4.0 lb. per year
- Fertilizer ordinances typically require use of at least 50% slow release products
- No applications before planting or on new turf for 1st 30 days



Management of Fertilizer

Phosphorous Applications

Maximum Rates:

► Statewide

- Apply only when a soil test performed by a Florida certified lab shows a deficiency
- Maximum rate 0.25 lb./1000 sq. ft. per application
- Maximum annual rate 0.5 lb./1000 sq. ft.
- Phosphorous rule: 4:1 ratio of N:P

Management of Fertilizer

Deflector Shields on Broadcast and Rotary Spreaders



Management of Fertilizer

Sweep up Spills / Sweep or Blow Drift into Landscape Turf or Beds





Weather & Seasonal Restrictions

Do not apply when:

- Raining
- Within 36 hours of a rain event where 2 or more inches of rain predicted within 24 hours
- During a tropical storm, hurricane or flood watch, warning or event

Why Not?

- Does turf benefit from fertilizer below the root zone?
 - Does turf benefit from fertilizer washed away?
- 

Weather & Seasonal Restrictions

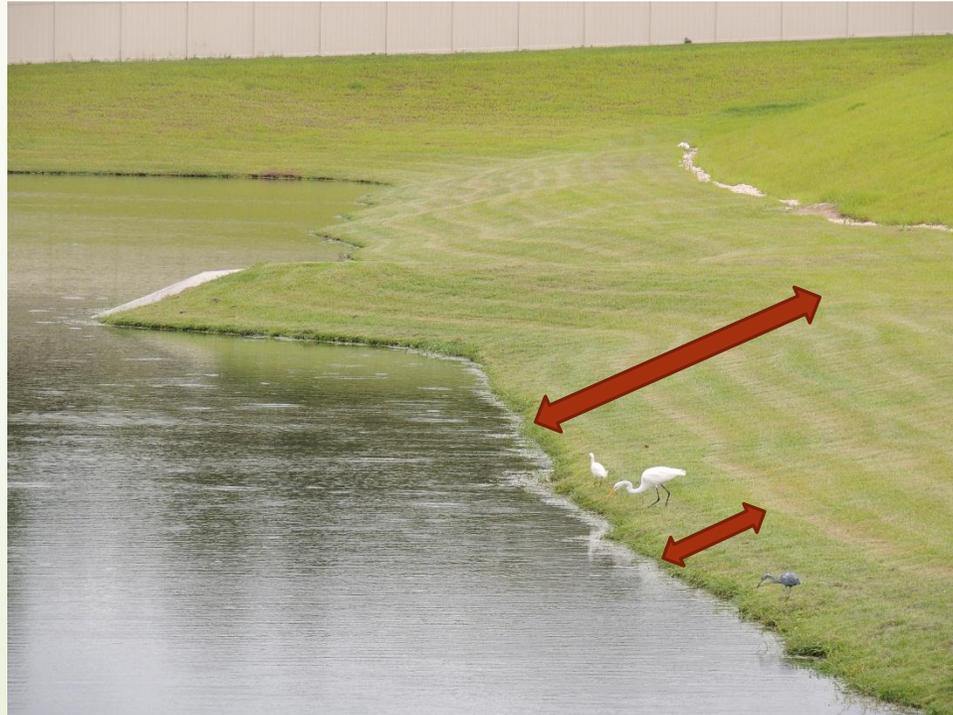


Management of Fertilizer

Ring of Responsibility –

3' with Deflector Shield

10" with no Deflector Shield



Management of Grass Clippings & Other Vegetation



Management of Grass Clippings & Other Vegetation



Management of Grass Clippings & Other Vegetation



Management of Grass Clippings & Other Vegetation





What Do You Need to Do to Apply Fertilizer in Urban Areas?

1. Become GI-BMP Certified
 - a. Attend a GI-BMP training class
 - b. Score a minimum of 70% on the test
2. Get the FDACS Limited Urban Fertilizer Certificate
3. Display any county required vehicle decal
4. Implement GI-BMPs in your business
5. Educate your clients about GI-BMPs & how these practices reduce water quality issue

Best Management Practices Urban Areas

➤ Nine Principles of Florida Friendly Landscaping™

1. Right Plant Right Place
2. Water Efficiently
3. Fertilize Appropriately
4. Mulch
5. Attract Wildlife
6. Manage Yard Pests Responsibly
7. Recycle Yard Waste
8. Reduce Stormwater Run-off
9. Protect the Waterfront



Best Management Practices Urban Areas

➤ What is NOT Florida Friendly Landscaping™





Nine Principles of Florida Friendly Landscaping™

Right Plant Right Place

Plants suited to a site's specific conditions will promote efficient and appropriate use of water, fertilizer and pesticides

During plant selection consider:

- Soil type & pH
- Sun, Shade, Wind Direction, Coastal Conditions
- Degree of Drought Tolerance
- Mature Size

Nine Principles of Florida Friendly Landscaping™

Right Plant Right Place

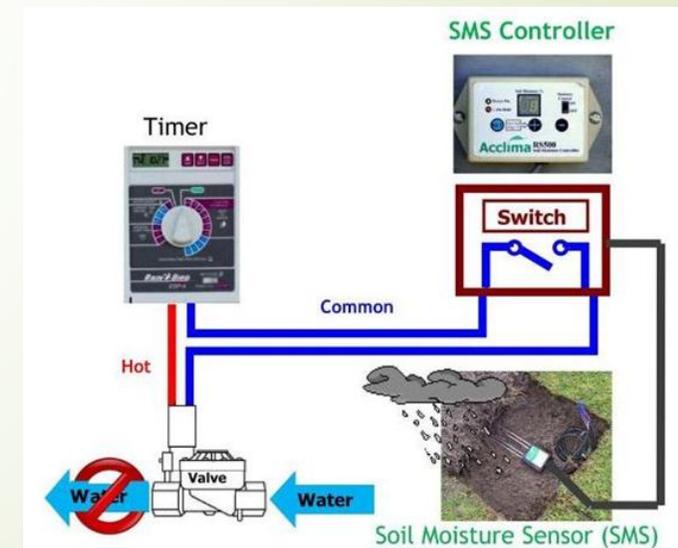


Nine Principles of Florida Friendly Landscaping™

Water Efficiently



- Water only as needed
- Perform Irrigation Audits
- Know Controller Features
- Use Rain By-Pass Sensors
- Use Smart Irrigation Technology



Nine Principles of Florida Friendly Landscaping™

Fertilize Appropriately

Measuring & Calibrating
Follow UF/IFAS Recommendations



Nine Principles of Florida Friendly Landscaping™

Mulch



Moderates soil temperatures
Controls weeds
Reduces water loss
Prevents erosion
Improves soil fertility

- **3" settled depth of preferably organic material**
- **No cypress mulch please**

Nine Principles of Florida Friendly Landscaping™

Attract Wildlife



**Provide food,
water and
shelter to
protect
diverse wildlife**

Nine Principles of Florida Friendly Landscaping™

Manage Yard Pests Responsibly

Use Integrated Pest management

Identify beneficial insects

Spot treat affected areas

Use the least toxic pesticide when possible



PESTICIDES DON'T STAY PUT!

Pick Your Poison...Wisely!
Use pesticides responsibly.

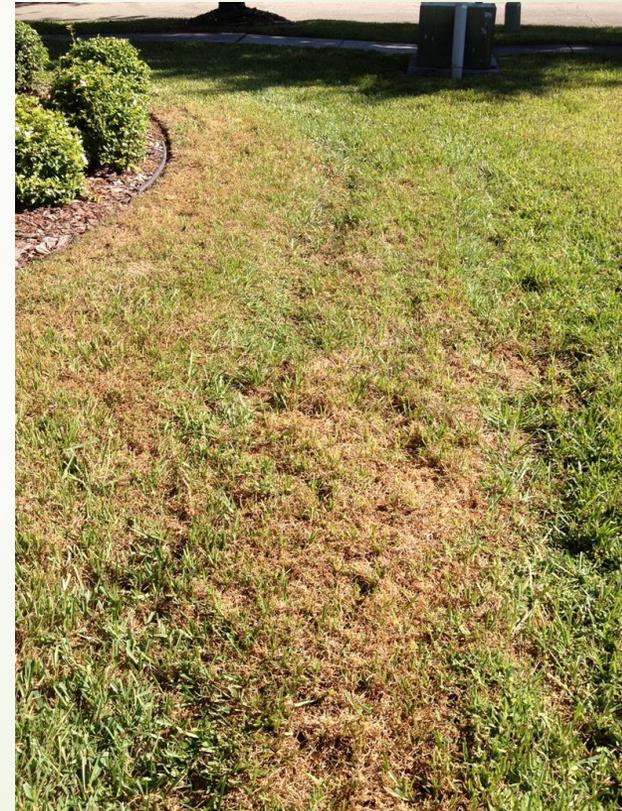
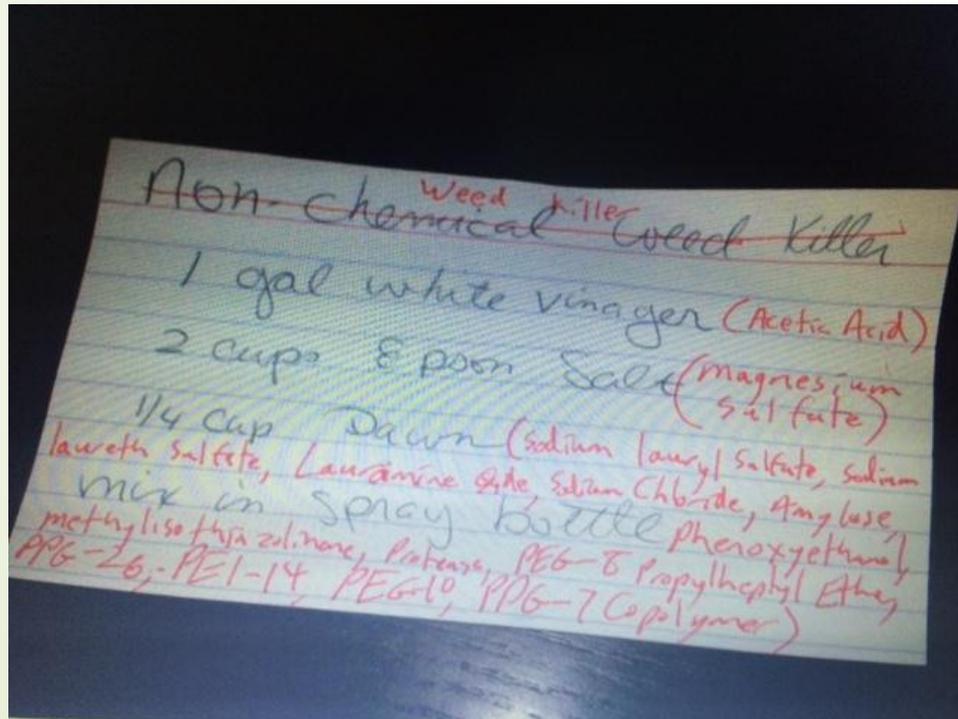
Choose NON-CHEMICAL methods & LEAST TOXIC products. Why? Runoff from around your home and garden carries water containing pesticides that pollute our streams, rivers, lakes & oceans.

Visit ThinkBlueSD.org & ProjectCleanWater.org on the web to learn more about San Diego regional water quality. For PEST information, visit the University of California website: www.IPM.ucdavis.edu or call the UCCE Master Gardeners: (858) 694-2860 Mon-Fri 9 am to 3 pm.

HEALTHY GARDEN
HEALTHY HOME

Nine Principles of Florida Friendly Landscaping™

Manage Yard Pests Responsibly



Nine Principles of Florida Friendly Landscaping™

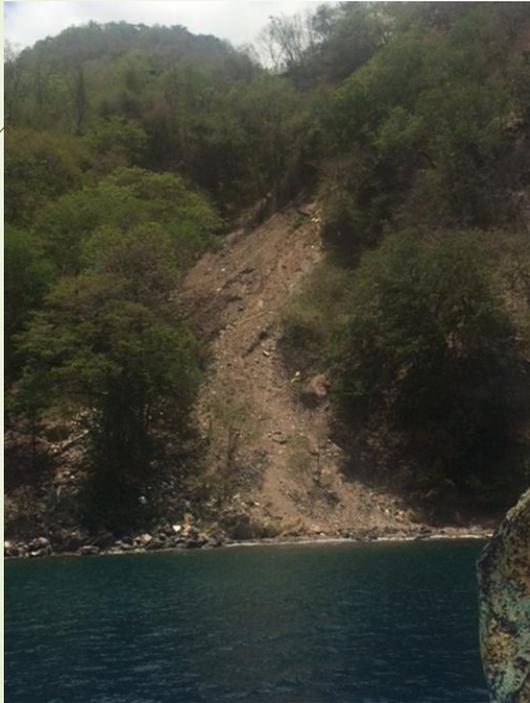
Recycle Yard Waste



Grass clippings, leaves and yard trimmings left on-site can provide nutrients to the soil and reduce waste disposal

Nine Principles of Florida Friendly Landscaping™

Reduce Stormwater Runoff



**Redirect downspouts
toward landscapes or
porous pavement**

**Create rain gardens or
swales and berms to
slow stormwater runoff**

**Use turfgrass or other
groundcovers on slopes
to reduce erosion**

Nine Principles of Florida Friendly Landscaping™

Protect the Waterfront



Establish a border of low maintenance plants between turfgrass and shoreline
Keep a 10' maintenance free zone: no mowing, fertilizers or pesticides

Photos: Gail Hansen De Chapman

The Connection of Urban Best Management Practices to Natural and Aquatic Areas



The Connection of Urban Best Management Practices to Natural and Aquatic Areas

➤ Wetlands fed by surface water from agricultural & urbanized watersheds tend to have:

- Excess water
- Nutrients
- Sediments
- Salts
- Heavy metals
- Other contaminants & debris
- Many invasive species

Runoff

Nutrient Flushes

Obstructed Outflows

Altered Salinity

Structures
Dams Levees
Berms
Culverts

Flood Water Accumulation

The Connection of Urban Best Management Practices to Natural and Aquatic Areas

- Wetlands not primarily fed by surface water (slope wetlands, vernal pools, bogs, pools) have small watersheds, depend on rain or groundwater as water supply and tend to be:
 - Species rich
 - Relatively free of invasive plants
- Altered wetland characteristics:
 - Oyster and bird foraging habitat eliminated
 - Shifts diverse areas to monotypes (Invasive species)
 - Stabilize river banks - Reduces ability of rivers to meander & flood
 - Increases fire frequency and intensity
 - Built up wetlands plains



The Connection of Urban Best Management Practices to Natural and Aquatic Areas

➤ **Biodiversity:**

- Reduces both plant & animal diversity
- Fewer species & lower quality species

➤ **Productivity, Nutrient Cycling & Microorganisms:**

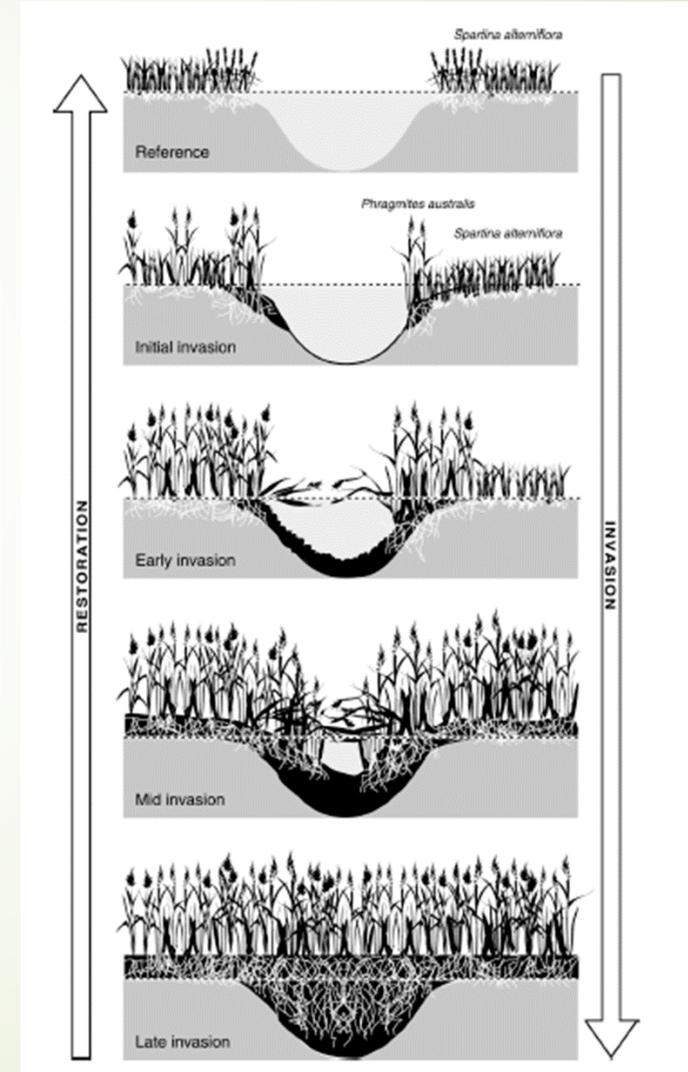
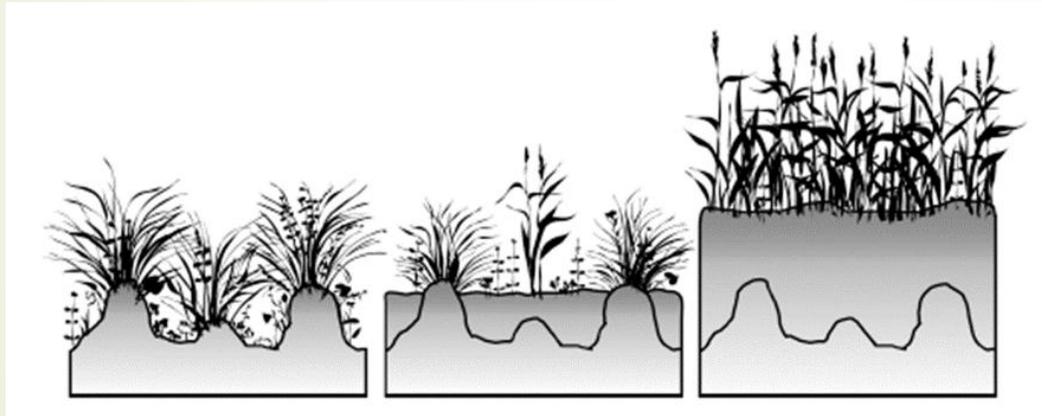
- Lower plant decomposition rates
- Lower microbial activity

➤ **Food Webs:**

- Alters quantity & quality of food
- Changes food availability
- Changes vulnerability to predators



The Connection of Urban Best Management Practices to Natural and Aquatic Areas



A photograph of a stormwater retention pond. The pond is filled with water and lily pads. In the foreground, there are various green plants and grasses. In the background, there are houses and trees under a clear sky. The title "Stormwater Retention Ponds" is overlaid in white text on the top part of the image.

Stormwater Retention Ponds

- **Store excess runoff from storms**
- Permanent pool allows particulate forms of pollutants to settle to the bottom
 - Through various processes pollutants are buried in the sediments
 - Removes soluble nutrients from by physical, chemical and biological reactions in the water column



Stormwater Retention Ponds

- About 65 percent of the pond area is required to be kept as an open water permanent pool when stormwater ponds are constructed
- About 35 percent of the pond bottom is required to be shallow enough to support wetland plant vegetation in the littoral zone
 - Provides the substrate for the attachment of microorganisms that break down and dissolve organic material and behave somewhat like the trickling filters used by sewage treatment plants
 - Plants also take up pollutants directly but some of these nutrients are released back into the water when the plant dies, with the harvesting of plants, there is a net reduction in pollutants from plant uptake

Stormwater Retention Pond New Construction



Gently sloped bank
Culvert intact – no erosion



Stormwater Retention Pond 7-10 Years Post Construction



Poor Management BMPs
Sloped bank with ledge
Culvert has moderate erosion
Maintenance challenging – glyphosate used

Stormwater Retention Ponds Greater Than 10 Years Post Construction

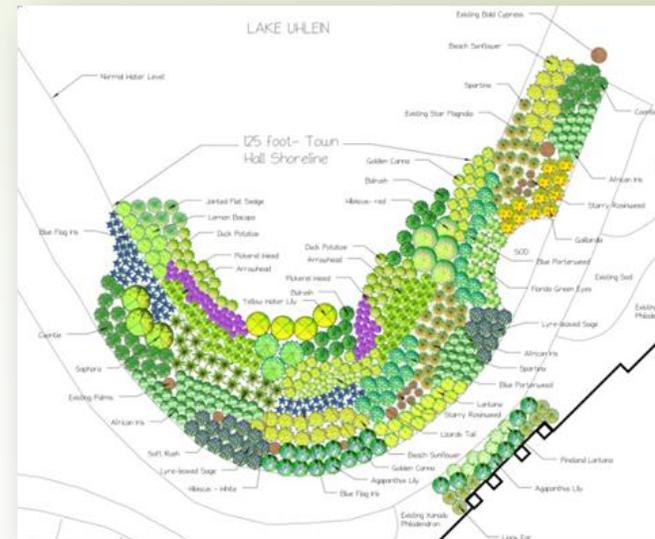


Poor Management BMPs
Bank with ledge
Culvert has severe erosion
Maintenance very challenging, even dangerous

Stormwater Retention Ponds Greater Than 10 Years Post Construction



Severe erosion/unstable – wind/waves undercut bank led to bank collapse
Maintenance very challenging, even dangerous
Function of pond degraded
Very expensive to repair/restore (\$250,000 – over \$1,000,000,000)



- **Establish a border of low maintenance plants between turfgrass and shoreline**
- **Keep a 10' maintenance free zone: no mowing, fertilizers or pesticides**

Photos: Gail Hansen De Chapman





Best Management Practices

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