Green Infrastructure for Texas

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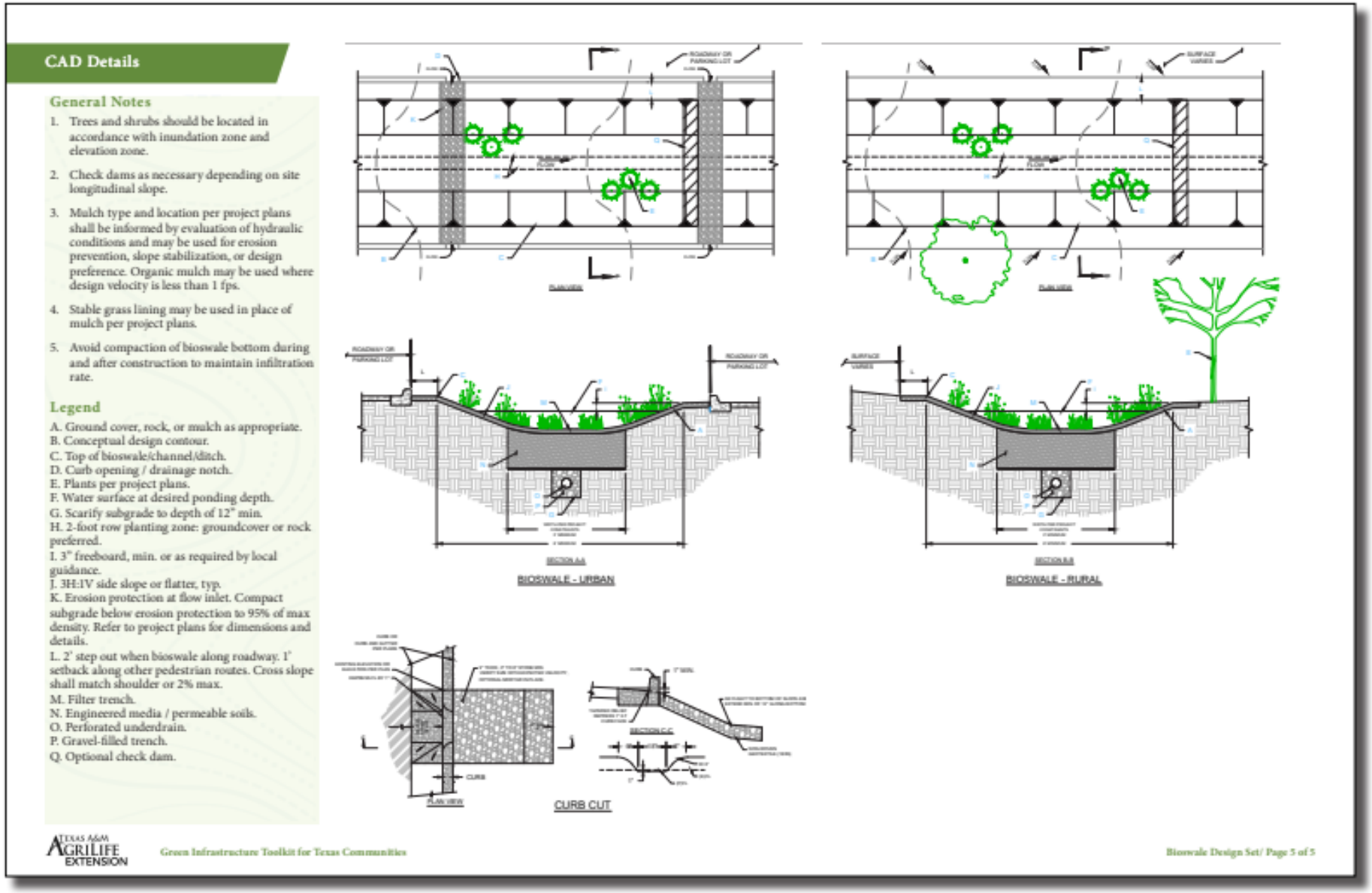
Texas A&M AgriLife Extension

Online Training Course

Engineering Design Sets (TBA)

-Bioswales
-Stormwater Outfalls
-Rain Gardens
-Biorententions
-etc



CAD Details

General Notes

1. Trees and shrubs should be located in accordance with inundation zone and elevation zone.
2. Check dams as necessary depending on site longitudinal slope.
3. Mulch type and location per project plans shall be informed by evaluation of hydraulic conditions and may be used for erosion prevention, slope stabilization, or design preference. Organic mulch may be used where design velocity is less than 1 fps.
4. Stable grass lining may be used in place of mulch per project plans.
5. Avoid compaction of bioswale bottom during and after construction to maintain infiltration rate.

Legend

A. Ground cover, rock, or mulch as appropriate.
B. Conceptual design contour.
C. Top of bioswale/channel/ditch.
D. Curb opening / drainage notch.
E. Plants per project plans.
F. Water surface at desired ponding depth.
G. Scarify subgrade to depth of 12" min.
H. 2-foot row planting zone: groundcover or rock preferred.
I. 3" freeboard, min. or as required by local guidance.
J. 3H:1V side slope or flatter, typ.
K. Erosion protection at flow inlet. Compact subgrade below erosion protection to 95% of max density. Refer to project plans for dimensions and details.
L. 2' step out when bioswale along roadway. 1' setback along other pedestrian routes. Cross slope shall match shoulder or 2% max.
M. Filter trench.
N. Engineered media / permeable soils.
O. Perforated underdrain.
P. Gravel-filled trench.
Q. Optional check dam.

BIOSWALE - URBAN

BIOSWALE - RURAL

CURB CUT

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Green Infrastructure Toolkit for Texas Communities

Bioswale Design Set/ Page 5 of 5

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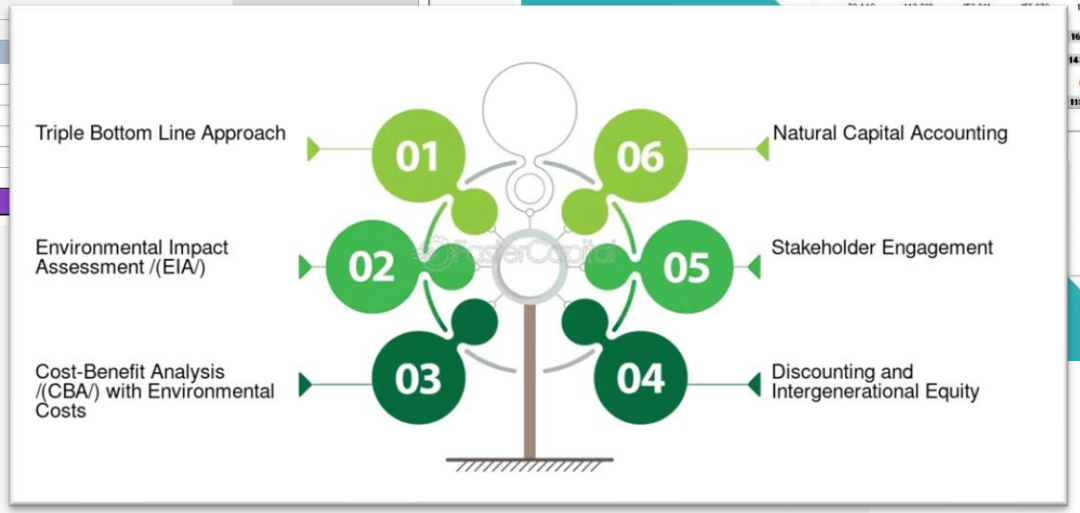
Ecological Benefit Cost Analysis (TBA)

#	Cost Type	Yearly Increase %	Year 1	Year 2	Year 3	Year 4	Year 5	Total
#	Recuring costs							
1.	Maintenance check	1%	150.0	151.5	153.0	154.5	156.1	3,302.9
2.	Belt change	2%	350.0	357.0	364.1	371.4	378.9	8,504.1
3.	Oil change	4%	130.0	135.2	140.6	146.2	152.1	3,871.2
4.	Machine operator	0%	1,500.0	1,500.0	1,500.0	1,500.0	1,500.0	30,000.0

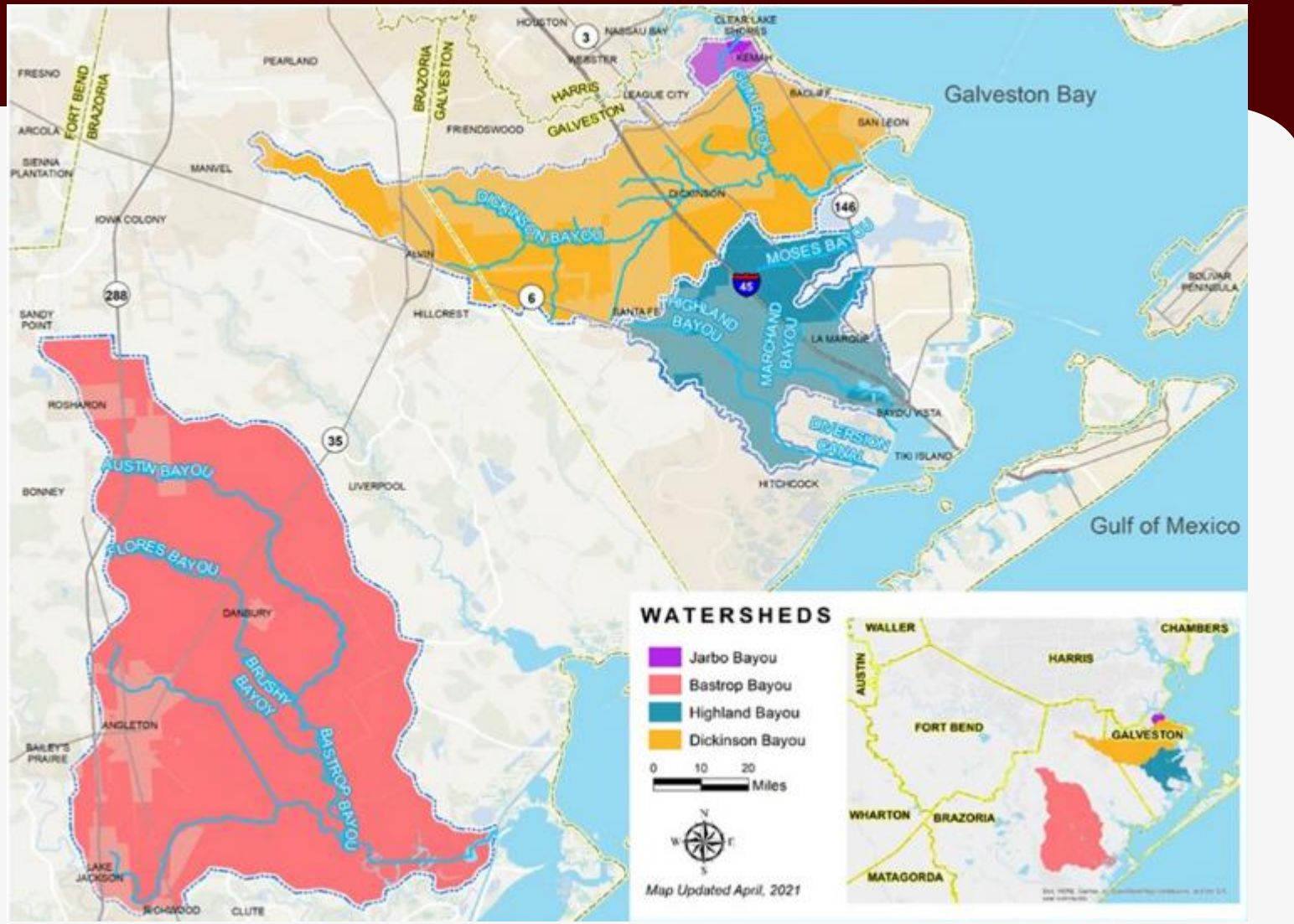
#	Non-recuring costs	Year 0	Year 1	Year 2	Year 3
5.	New packing cell	110,000.0			
6.	Reorganization of factory area	10,000.0			
7.	ABC				
	Total Cost	120,000.1	2,130.0	2,143.7	2,157.8




Marchand Bayou, Carbide Park, La Marque


Virginia Point Peninsula Preserve, Reitan Point


Dickinson Bayou



Galveston Bay Coalition of Watersheds

Wetland Programs & High School Internships in Green Infrastructure

- Technical Assistance in Wetland Construction
- Floating Wetland Assistance
- On the ground planting Projects

- Wetland Training for Master Naturalist
- Town Hall and Brown Bag Presentations
- Other Educational Opportunities

- Green Infrastructure High School Internship Program (local Houston/Galveston area only)
- Students work on GI projects and give a presentation at the completion of the program.

Clean Coast Texas Collaborative Green Infrastructure Workshop

Plan to attend this half-day workshop and find out more about nature-based practices to clean and conserve stormwater for people and wildlife at any scale: **business or home, urban/suburban** or **industrial, local or regional.**

Local elected officials, municipal representatives, county staff, landowners, and facilities managers will benefit from attending. Speakers will focus on the why and the how of green infrastructure practices.

Save the Date

Aug | 26 | 2025

Mont Belvieu, TX

Registration to follow. Contact Scott Jones at scott.jones@ag.tamu.edu or 832-856-3451 for more information.

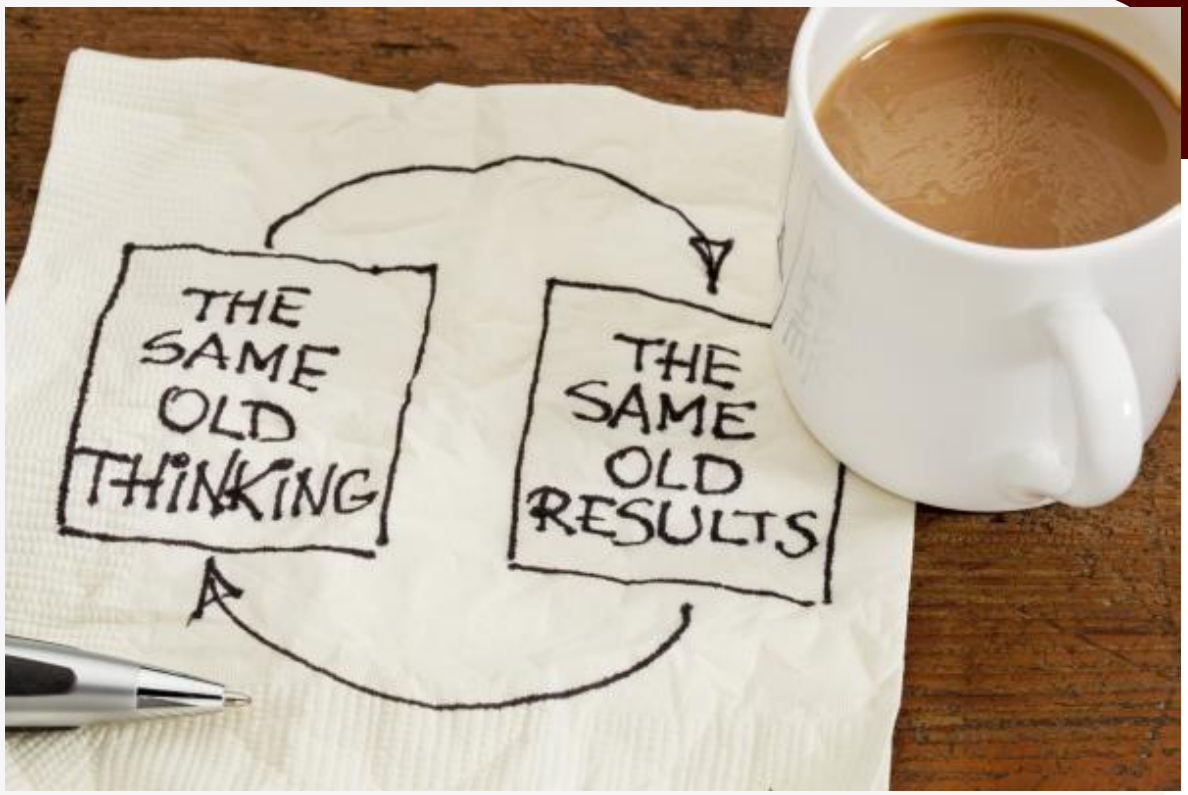
TOPICS:

- Guidance for sustainable stormwater drainage on the Texas Coast.
- Collecting and cleansing stormwater at home and in your local neighborhood.
- Using wetlands within the drainage system to enhance water quality and wildlife habitat.
- Protecting and restoring large-scale wetlands and natural areas for flood control and water quality benefits.

Texas A&M AgriLife Extension | Disaster Assessment and Recovery | Sea Grant Texas | TXGLO | HARTE Research Institute | halff | Mont Belvieu Texas

Green infrastructure is not complicated.

Green infrastructure is not easy.



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DISASTER ASSESSMENT AND RECOVERY