



COUNCIL OF ASSOCIATIONS

STORMWATER SYSTEM




STORMWATER INFRASTRUCTURE

The Unseen Expense that is Crucial to the Ecological
Balance of Our Community

Landfall's Stormwater System at a Glance



Landfall has 586 Catch Basins




Landfall's stormwater infrastructure is good overall. The majority of our stormwater pipes are reinforced concrete pipe (RCP) made with structural steel and carrying the longest life expectancy of up to 100 years. However, even with RCP, over time the joints can separate allowing for the pipe to be compromised. This is where preventative maintenance can help avoid such occurrences.

RCP requires condition assessments every 5-7 years.

We still have some corrugated plastic and corrugated metal pipes on property that require condition assessments on a more routine basis.

Fun Fact:

Coastal Regions Require 75% More Infrastructure than Other Regions due to the Flat and Low Lying Lay of the Land. Additional Piping is Required to Help Move Water Across the Flat Surface. Contractors Installing Infrastructure in Other Areas can Utilize the Hills and Valleys Strategically to Aid in Moving Water.



Landfall COA has certain obligations in the Shared Common Areas to regulate, maintain and ensure proper function of our stormwater systems. Through adequate and thorough inspections, maintenance and repairs we are able to:

- **Safeguard Our Investment**
- **Ensure Compliance with Federal, State and Local Laws and Regulations**
- **Protect the Environment and Our Surrounding Neighbors**
- **Improve the Appearance of Our Property**
- **Save Money**

Stormwater systems are designed to mimic the natural environment and draw wildlife to the area. Certain types of animals, fish and insects depend on these habitats in certain environments for their livelihood.

Additionally, stormwater systems act as a filter to clear harmful substances from rainfall and water run off. Rain gathers sediments, chemicals and litter as it travels to ponds and storm basins. This filtration system helps to prevent pollutants from reaching our Intracoastal Waterway.

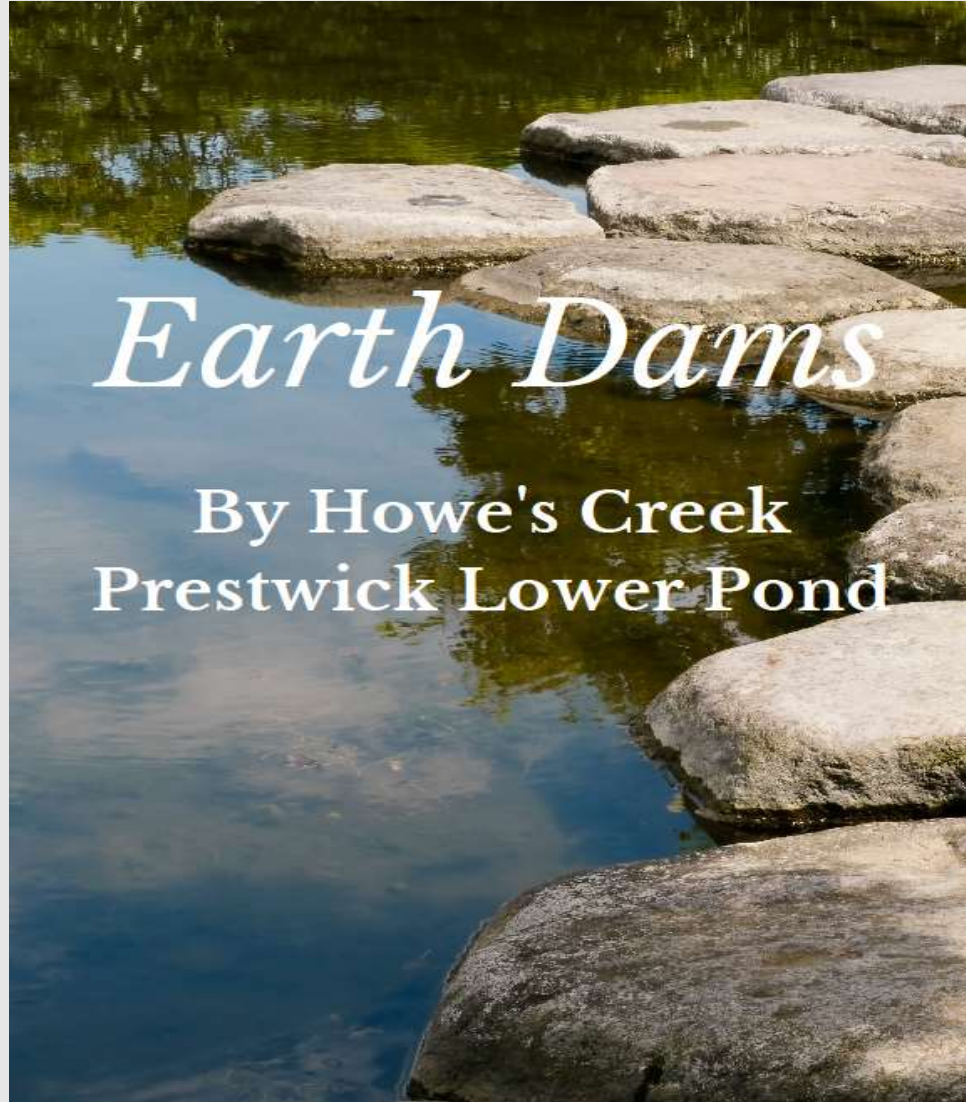


Allocating Adequate Capital Improvement Fund Reserves

Stormwater System Inspections, Repairs and Partial Replacements require an estimated \$500,000+ annual expense as a part of our Capital Improvement Fund Reserves Budget.

In addition to routine maintenance, CIF (reserve) funds are needed to provide swale and pond bank erosion control, pump repair or replacements, holding tanks, pipe repair or replacements, dams, sediment removal, stormwater outfall structures, and other forms of stormwater controls.

Landfall's Stormwater System Includes:





PONDS

1. Pembroke- Vincennes
2. Pembroke- Dijon
3. Cypress
4. Inverness/Odyssey
5. Inverness
6. Turnberry/Gleneagles
7. Lot 38 Prestwick
8. Prestwick Lower
9. Prestwick Upper
10. Starfix
11. Radian
12. Quadrant
13. PBJ/ Forest Island
14. Drayton Point
15. Spanish Wells



PONDS- CONTINUED

16. Spanish Wells End
17. Harborway
18. Deepwood
19. Muirfield
20. Fox Ridge
21. Gull Point
22. Birkdale
23. Colony CLub
24. Woodbridge Entrance/Lakefill
25. Woodbridge w/ Bridge
26. Woodbridge Summer Rest South
27. Woodbridge Summer Rest North
28. Bay Colony Front
29. Bay Colony Back



PONDS- CONTINUED

30. Landfall Lake
 31. Horseshoe Lake
 32. Mews
 33. Staunton Court
- ** PBJ Drainage Basin- Set at state-determined water levels**

10 YEAR PERMIT REQUIRED:

14. Drayton Point
22. Birkdale
28. Bay Colony Front
29. Bay Colony Back
30. Landfall Lake
32. Mews





BULKHEADS- LINEAR FEET

ARBORETUM DRIVE- 447'

CAUSEWAY- 775'

DYE LAKE- 2320'

GULL POINT- 100'

HALFWAY HOUSE- 165'

LEE SHORE PLACE- 100'

OCEAN POINT- 80'

PRESTWICK- 212'

SPANISH WELLS- 318'

SUNRUNNER PLACE- 236'

TWISTED OAK- 100'



BRIDGES

ARBORETUM- CONCRETE

AUTUMN CREST

LANDFALL LAKE (2)

MARSHLAND DRIVE (2)

PEMBROKE JONES DRIVE/ BLOCK 46

Contractors



Stormwater Pipe Solutions, Inc.

Coastal Carolina Concrete

Turner Asphalt

Retention Pond Services



COA Maintenance Manages

- Pond Bank Mowing and Weeding
- Install Stabilization Walls
- Stormwater Ditch Clearing
- Pond Bank Stabilization
- Licensed Pesticide Applications Registered in State of NC

In 2020, COA Maintenance performed the clearing around Landfall Lake saving the Association approx. \$11,000 based on the price that a Contractor would have charged.

Regulatory Entities

- City and County Stormwater and Erosion Management
- North Carolina Department of Environmental Quality (NCDEQ)
- Northeastern New Hanover County Conservancy
- US Army Corps of Engineers



Stormwater System Requirements

- Inspections
- Monthly Stormwater Maintenance – Water Quality – Water Levels, Algae Buildup etc.
- Camera Pipes and Facilities for Leaks or Build-up
- Permits Required for any Retention Pond Built After 1999
- NC Aquatic License for Applications (RPS and COA Staff)
- Clean and Clear Stormwater Ditches

Strategic planning is required to ensure pipe work is correlated with COA's annual overlay projects. These efforts work to help manage our budget, reduce the number of huge construction projects, decrease on concrete and pavement cuts and avoid anymore intrusion and inconvenience to our residents than is required.

Scouring Velocity is the process used to clean our pipes and is normally performed every 5-7 years or in correlation with an overlay project. Surcharged or underwater pipes require more frequent routine maintenance since the force of water is not as prevalent in pipes located underwater. Additionally, they require more expense in the event improvements are needed as they must be capped off and drained for repair or construction.

COA staff and our contractor, Stormwater Pipe Solutions, work together to keep any construction footprint as small as possible, instead performing a lot of underground work and digging trenches to limit disruption to the overall surface area.



Landfall's Pond Systems

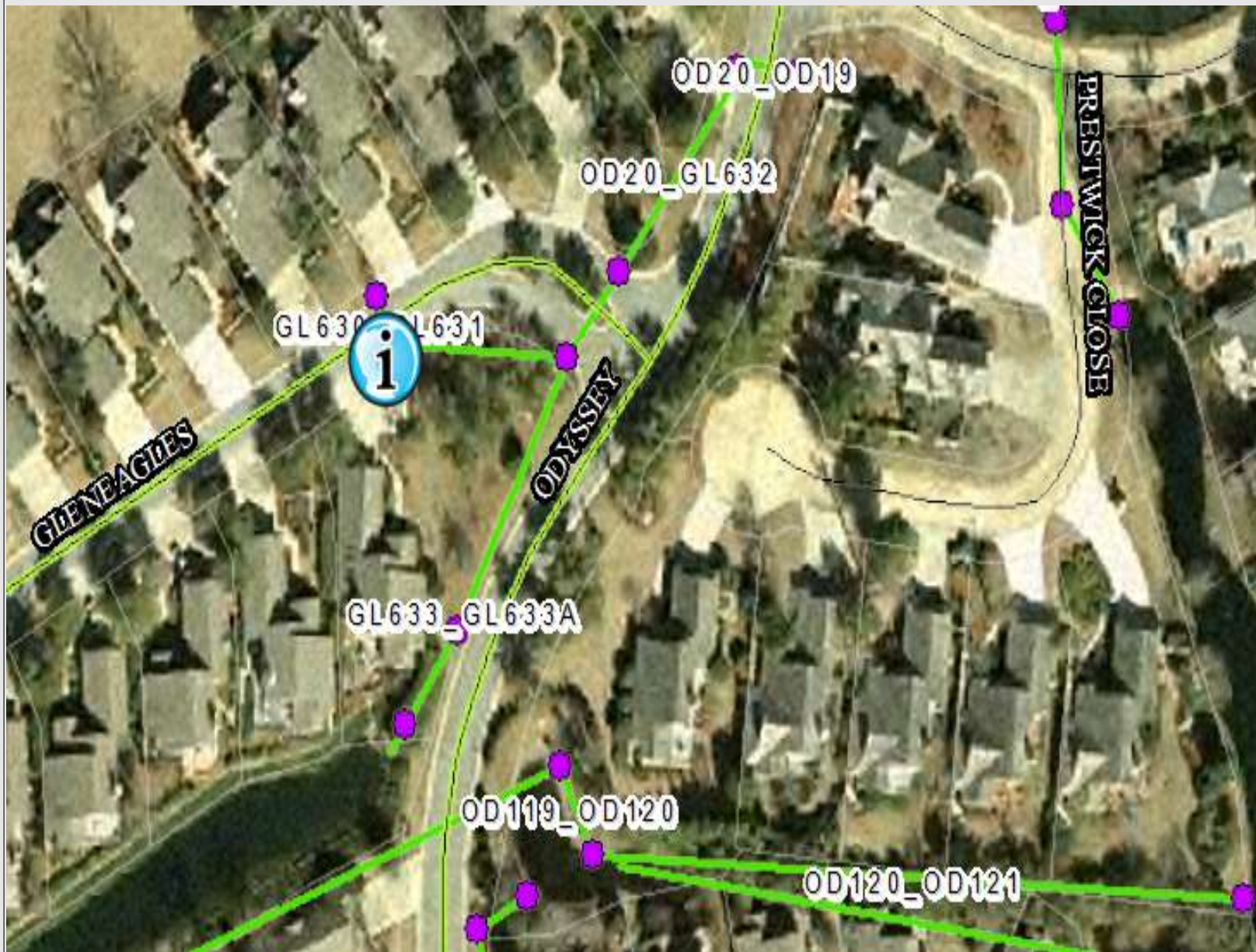
Monitoring and maintenance of Landfall's ponds involves routine maintenance and care for drainage, sedimentation, erosion, safety equipment condition, size including volume and area, water quality, wildlife and aquatic life.

Proper care and inspection helps to ensure a more attractive and protected pond with a longer lifespan.

What can Residents do to Help?

Simple modifications to some of our routine practices can help eliminate the level of toxins entering our ponds. Ways that you can help:

- Collect and properly dispose of oils, greases and coolants from vehicles or equipment maintenance or repair.
- Do not blow weeds or grass clippings into the road, gutter or catch basins.
- Mow grass away from the ponds.
- Use eco-friendly fertilizers and pesticides for your lawn and landscape.
- Promptly and properly clean up and dispose of pet waste.
- Wash your vehicles and/or lawn equipment at a commercial carwash instead of in your driveway or on the street.



Gleneagles Lane Snapshot

GL631_GL630

Stormwater Pipe Camera
Video

Pipe Material: Concrete Pipe-
Non Reinforced

Pipe Condition: Good

Year of Camera Inspection:
3/22/2019

Feel free to view the video for
this site:

[Video Link](#)

We hope you found this Landfall stormwater presentation beneficial and informative. The more you know, the more you can spread the word about where your assessment dollars are being spent and what services the COA works diligently to provide and manage for our community.