

# ***Storm Water Management Committee***

**Lake Royale, North Carolina**



***“If the lake wasn’t here...would you be?”***

**July 21, 2007**

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## **2007 Annual Report**

### ***Storm Water Management Committee***

This is the Annual Report of the Lake Royale Storm Water Management Committee (SWMC) presented to the Lake Royale Board of Directors (BOD).

The SWMC was established in 2005 by the BOD and a number of Lake Royale property owners interested in maintaining the quality of our community's most valuable asset... our lake.

#### ***1.0 OBJECTIVE***

**“Protect the quality and sustainability of Lake Royale and associated waters.”**

Lake Royale comprises the bottom 3<sup>rd</sup> of our entire watershed. As such, it catches everything coming from upstream activities. Our lake is the largest single entity in the watershed and its protection is of great interest to the county and the state, as well as our community.

In addition to protecting our lake, and as responsible stewards of this natural resource, we must also be cognizant of the impact of our activities on downstream waters within our watershed and river basin.

#### ***2.0 APPROACH***

To accomplish our objectives, we have employed a three-tiered approach:

- ***PREVENT DEGRADATION*** of our lake by implementing stabilization measures and best management practices to prevent continued erosion and silt build up in our lake;
- ***CHARACTERIZE LAKE WATER QUALITY AND REVERSE ANY DAMAGE FOUND*** by testing and monitoring the lake to provide a baseline of the water quality, monitor for any changes (better or worse) in the lake water quality over time, and evaluate the effectiveness of implemented stabilization measures; implementing mitigation measures to improve and restore the quality of our lake, as necessary; and
- Through ***EDUCATION AND OUTREACH*** efforts, help property owners learn what they can do to protect and/or improve the quality of their lake.

#### ***3.0 ACCOMPLISHMENTS TO DATE***

##### ***3.1 Prevent Degradation***

- Installed four rain gardens in the community to stop nutrients from entering the lake.

- Strengthened our rules and regulations regarding the installation of silt fences and the construction of driveways to prevent further erosion and sedimentation (refer to Lake Royale Rules and Regulations, Sections 5.2 *Clearing of Lot*, 5.3 *Driveways* and 5.10 *Silt Fence*).
- Partnered with Franklin County (FC) to apply for several Government grants on our behalf to obtain funding to mitigate many of our storm water problems. If awarded, the grant(s) will be used to protect our lake and minimize costs to property owners
  - » In February 2006 the POA Manager and the SWMC worked with FC to apply on our behalf for \$50,000 from the Clear Water Trust Fund. The state has put the Lake Royale project on the short list; final selection will be made in the Fall 2007. In May 2007, the SWMC hosted a site visit by a representative who will be providing recommendations to the decision makers from the Clear Water Trust Fund.
  - » If awarded, FC committed to match funds committed by Lake Royale up to 10% of the total grant. Because of the work done by our SWMC this past year, a good percentage of the 10% has already been reached towards earning the matching funds. A portion of the funds will be used to bring in consultants to develop a SWM Plan for the Cypress Creek Watershed.
  - » In the Fall 2006, a grant was applied for to fund a project for retention ponds at three locations at Lake Royale (McKim & Creed conducted a site visit and developed a proposed plan). Note that some of the projects that the SWMC and POA are doing as stabilization measures will count toward matching funds for the larger projects, if awarded.
  - » Two other grants have been applied for with FC Soil & Water Conservation in amount of \$250,000 for 3 projects; the award decision and distribution of grant money will be made this Fall.
- The FC Soil & Water Conservation and the County Planning Director have encouraged Lake Royale to send a representative from our committee to join the FC SWMC to help in the design, and develop a plan for the Cypress Creek Water Shed. Regardless of whether we are awarded grants in this year, having a representative on the FC SWMC will show that there is a long-term commitment and continuing momentum from this community, which will help put Lake Royale in a favored position for future grants. It will also give Lake Royale a significant voice in the management of the water shed.
- With the help of volunteers, initiated a road and drainage survey of our community to map, identify and prioritize trouble areas, determine what repairs are needed to our road ditches and culverts, and where check dams need to be placed based on best management practices.
- Working with POA Office to determine strategic locations for additional retention ponds.
- Submitted proposal and obtained \$34,000 from the BOD to install measures in strategic locations to enhance our management of stormwater runoff; retention ponds, rain

gardens, and check dams (1/3 of lake each year over next 3 years). Check dams are installed followed by reshaping, filling and seeding of adjacent storm water ditches. Once the grass takes root, it will help to prevent erosion and filter runoff prior to reaching a major outfall or key drainage area of the lake.

- Directed the Maintenance Department to install a few check dams on Buckaroo Drive to prevent further erosion and sedimentation in that area. With the help of volunteers, the SWMC has installed 19 additional check dams in trouble areas leading to the lake to be used as a pilot to determine the most effective design for a particular area, determine more accurate labor and cost requirements, and provide a model to provide specifications for the remaining check dams to be installed over the next year.

### **3.2 Characterize Lake Water Quality and Reverse any Damage Found**

- Created a partnership with Franklin County to utilize their knowledge, resources and expertise to help us protect our lake and watershed and reverse any damage found from the impact of local or upstream activities.
- Compiling historic data obtained from various sources regarding previous testing performed on the water at Lake Royale; this will be used to supplement baseline data generated on our lake water quality.
- Establishing a Work Group that will partner with Franklin County, NCDENR, Meredith College, the Agronomy Laboratory and other water monitoring experts to develop meaningful and accurate tests to characterize and monitor lake water quality.

### **3.3 Education and Outreach**

- Hosted an educational seminar last Fall to educate our property owners about how they could protect the lake (presentations were given by representatives from NCDENR's Water Quality Division and Franklin County).
- Submitted several articles focused increasing awareness and knowledge of storm water management, including suggestions for best management practices that could be implemented by the property owner dealing with management of storm water runoff, sedimentation and shore erosion.
- Developed an insert to go in the annual dues packet that describes the purpose of the SWMC, its plans, accomplishments and what each property owner can do to help protect our lake and prevent degradation of water quality.
- Hosting an Educational Seminar and Fair on Sept. 8, 2007 at the Clubhouse to help our property owners understand what each of us can do to help preserve our lake and prevent its degradation. We have invited experts from the state, county and business that are well-versed in best management practices for storm water runoff to provide property owners with information and guidance.

## 4.0 GOALS

### 4.1 *Short-Term Goal = STABILIZATION*

- Prevent further degradation of our watershed by implementing stabilization measures.
- Continue to work with our maintenance department to restructure deteriorated road ditches, install needed check dams, clean culvert pipes running under the roads and install more rain gardens.
- Continue to work with Franklin County and their engineers on the larger watershed protection projects and applications for grants to offset and minimize the costs to property owners to protect our lake.
- Complete the survey of our community to map, identify and prioritize our storm water management needs.

### 4.2 *Long-Term Goal = MITIGATION*

- Institute a pilot project to be accomplished by volunteers to reverse cove degradation with minimal outlay from the POA .
- Institute a proper maintenance program to maximize the effectiveness of our storm water management infrastructure (i.e., check dams, road ditches, culverts, rain gardens and retention ponds).
- Develop and implement mitigation measures to restore and improve the quality of our lake.

## 5.0 DISCUSSION OF TERMS USED

As storm water runs through our community, it takes with it sediment (clay and dirt), leaves and debris, nutrients (from lawn and garden fertilizers), pesticides, chemicals and oil released from our vehicles and equipment. To prevent these contaminants from entering our lake, we must manage our storm water properly by implementing best management practices. For example:

- ***Check Dams*** slow the flow rate of storm water run off which helps prevent erosion. They also help filter the silt (red clay) from the storm water and prevent it from running into our lake. A check dam consists of a geo-textile liner, a layer of small stones, covered with a mound of rip-rap (larger stones).
- ***Rain Gardens*** allow the water to be retained for a short time, slowing the flow rate and allowing excess nutrients and sediment to settle and the water is filtered through the plant roots and soil.
- ***Retention Ponds*** are similar to rain gardens, but much larger. They allow the silt to settle while allowing the clarified water to overflow into our lake.

We all take pride in this beautiful community and we need to do all that we can to preserve it. The Storm Water Management Committee, the POA and Franklin County are working together toward this goal. However, this effort can only be fully successful with the continued support of the BOD and our property owners. Please join us in protecting Lake Royale.

For more information, or if you would like to get more involved with the Storm Water Management Committee, please contact Patti Arms at 478-1999, Chris Eschbach at 478-5593, or Richard Wainwright at 478-4604. Thank you in advance for your help and support in preserving and protecting our valuable lake.

*Sincerely,*

***The Storm Water Management Committee***

Officers:

Patti Arms (Chairman)

Chris Eschbach (Vice Chairman)

Richard Wainwright (Representative – Board of Directors)

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cc: POA Manager

SWMC Members