

# *Lakes At Oakmont*

## **Erosion Survey**

**15 March 2012**

Present: Terry Breyfogle, USDA District Conservationist and LAO resident, Stephen G. Noble.

LAO requested assistance from the USDA to help identify sources of soil erosion around the silt pond, East and West Lakes and surrounding watershed areas.

Mr. Terry Breyfogle kindly visited LAO on 15 March 2012 from 0930 until 1230 hours to assist with this erosion survey. It should be noted that Mr. Breyfogle visited LAO on 25 August 2003 for the same purpose when the LAO community was only about 50% developed. At that time, a report was produced identifying problems and potential solutions many of which originated from bare ground run off during home construction.

Throughout the survey, Mr. Breyfogle noted the extraordinary measures taken by the LAO developer to preclude erosion. Terry said, "These guys did it right and that is unusual."

The survey began at Hills of Oakmont. The subdivision sends runoff water, via a culvert, under Running Horse Road into the LAO silt pond. The Hills developer used a double barrier for the runoff and the drainage was done correctly. It looks like a green area to the East of their culvert used to be a farm pond. There was no evidence of water entering this old pond but the area is damp. The developer was wise to leave the pond's berm in place because it provides the first line of defense against heavy runoff. The second line of defense is a developer constructed berm that diverts runoff water into the culvert. There was no evidence of erosion in this area and it appears the water entering the culvert is relatively silt-free.

Recommendation: No action necessary. Periodically monitor the old farm pond to make sure it is not completely filled in and spilling silt over the sides.

Along Running Horse Road (behind Lots 138, 139 and 140): Runoff from these lots and Running Horse Road terminate into a small, Northerly flowing stream culminating in the Silt Pond. The creek is named Running Horse Creek for the purposes of this survey. Dead timbers and debris litter this area. The West bank is undermined and being cut by heavy rains sending silt downstream.

Recommendations:

1. Request homeowners to please not dump lawn and shrubbery clippings and tree limbs into this stream.
2. Cut Willow branches and plant them in the soft soil on the West side. The Willow roots hold the bank and Willows also 'lay down' during heavy downpours providing additional erosion shielding.
3. The stream has an active over fall (water fall) about 10-feet downstream that will keep eating its way back until it hits the culvert. Remove logs and replace with large rocks. Just dumping rocks in there is not the solution. This has to be done with finesse to preclude creating an unintended eddy which will lead to another set of problems.
4. We need to verify the property line. The headwater area is very close to Running Horse Road and some of this stream might be Platte County property.

Lot 141: This lot is due south of the Silt Pond. Terry mentioned that the developers were wise not to develop this area and that they should get an, "Atta boy" because a good portion of this land is damp and within the flood area. The area provides a nice erosion buffer leading to the Silt Pond. Running Horse Creek traverses Lot 141 and has several, minor areas of concern.

Recommendations:

1. Clean out the junk and open the channel which is clogged in places with trash.
2. Initial evaluation indicates it is probable that some minor work to the stream bank will be necessary.

Silt Pond: The large culverts leading from the Silt Pond into East Lake are clear and quite silt free. The culverts are sound with no visible undermining. The Silt Pond seems in good shape. One question that could not be answered was the reason for the dense Cattail growth on the Northeast side of the Silt Pond.

East Lake: (Surveyed counter clockwise starting at the bridge facing west.)

1. The south culvert has a small erosion area on the right side (south side) that is of minor importance. Recommendation: Monitor for changes.
2. The north culvert has erosion behind the wing wall farther back than the arm can reach. Recommendation: Cut away the loose soil exposing the entire eroded area. Fill with dirt and then sod.
3. The top of each culvert (closest to Oakmont drive) have erosion where the culverts peak. Recommendation: Avoid close cutting and reseed.

4. There are several 3-inch round sink holes (a few feet from the culvert area). Recommendation: Slightly over fill the holes and seed with fescue.
5. About 100-feet of the north bank is bare and needs seeding. This area was probably damaged by the dredging crew. Recommendation: Compact the loose soil, fill holes and seed with fescue.
6. Does not seem like an erosion issue but the aerator pump is located in the flood area and during very heavy rains could become submerged and create an eddy. Recommendation: Relocate the pump to higher ground, near wooded area.
7. Old piece of iron. There is a round piece of iron about 20-feet west of the air pump that should be removed. It is evident that during high water flow, the iron has created an eddy. Recommendation: Remove the iron, fill the hole and eddy with dirt and seed the area.
8. Lot 5. The northeast corner of East Lake has a severe erosion issue from the ditch behind 12910 Oakmont drive (Lot 5). This problem was identified in the 2003 survey. The shallow cattail area in East Lake continues to expand and is directly the result of this unchecked erosion. It appears that street drainage from lots, 5, 6,7,8,9, 27, 28, 29 and 30 empty into a street drain that is fed into lot 5 via a culvert. Inexplicably, the storm drain culvert terminates in the back yard of Lot 5. The culvert termination is only about one-half of the distance to East Lake. Exacerbating the problem is what appears to be a home gutter drain (4-inch pipe present) also emptying in the area where the culvert terminates. A silt producing ditch has developed in the distance between the culvert and East Lake. Since 2003 the ditch created by water runoff has greatly widened and deepened. Deep bank cuts are present. Recommendation: Contact the home owner of Lot 5 and solicit their cooperation in resolving this problem. Connect a sufficiently sized drain pipe to the culvert. Run the pipe under the asphalt trail. Continue the pipe well past the trail toward East Lake. Cover the pipe with fill dirt and seed the area. Consider dredging the northeast corner of East Lake to partially restore its original depth.
9. Bench and trashcan. The bench and trash can are located in the lowest point of East Lake's spillway. This is the worst possible location. Normally, this is not a problem but a sudden hard downfall as was experienced in 1998 and again in 2002, could send huge amounts of water over the spillway. The bench and trashcan are anchored down and could easily trap passing debris such as logs. It is not inconceivable that an eddy or undermining of the trail could result. Recommendation: Find out if anyone really uses the bench and trashcan if so; consider relocating them to higher ground such as a

shaded spot near the burn pit or the over watch area located on the south trail of East Lake.

10. Burn pit is actually an abandoned farm pond. The berm surrounding the burn pit provides some degree of erosion protection. Recommendation: The berm has a break-out on its southwest side which is not a problem but should have periodic monitoring to make sure erosion is not developing in that area.
11. East Lake Dam. The dam appears in great shape. Unfortunately, Johnson grass has taken over on the back slope. Burrowing animals enjoy the coverage provided by Johnson grass. One tree is growing on the back slope. Recommendation: Unfortunately, the tree is too big to remove. If the tree dies the roots could be a problem. Keep our eye on it and if dies call in an expert for help. Monitor the dam for signs of burrowing animals.
12. East Lake Bridge. This is a severe problem. The concrete slab located in the green area south of East Lake (behind Lot 242) creates a high speed avenue for flowing water. The slab only extends about one-half of the needed distance. Previous attempts to slow and canalize the water were unsuccessful resulting in a large ditch. Inspection of the area revealed another source of water to the west also flows into this large ditch. The bridge is positioned in the spillway and could easily constrict water flow. Recommendation: This is well beyond a self-help project. The problem needs immediate intervention by a professional capable of reshaping the landscape with some sort of stair-step structure or other velocity reducing system.

#### Backwater area between East and West Lakes

Less prominent areas were numbered with blue paint to avoid confusion.

1. Trail (1). This appears to be a four-wheeler or garden tractor trail. Very minor issue. Recommendation: Could use some wood chips or grass seed to keep this from becoming an erosion area.
2. Culvert (2). The culvert runs under the walking trail and receives water from two sources in the northwest and northeast that merge on the north side of the trail. The culvert on the south side of the trail is clear and free-flowing. The culvert's entrance on the north side of the trail is plugged with mud and hidden from view. Only a trickle of water flows through the pipe. Mud is also on the trail in a wide array indicating multiple sources of water flow into this area. Recommendation: Short term - Clean out the culverts inlet. Long term – Install a culvert that is low enough to bring in all of the water in this area. The location of the current culvert is not necessarily the best location for a new installation.

## West Lake

1. Fishing area south end (3). Bare areas that are used by fishermen might have some woodchips scattered around to help prevent erosion.
2. Old privately owned dock. This dock was installed in the green area by a homeowner back in 1997. It is in disrepair with missing boards, is potentially dangerous and a liability to the homes association. The foot traffic leading down to the dock has created a ditch and erosion.  
Recommendation: Request the homeowner to remove the dock and seed the path with 5-lbs of creeping red fescue. Or ask the homeowner to gain DRC approval and fund the reconstruction of the dock to current building codes.  
Note: approval by the DRC for this dock will open the flood gates for lakeside development.
3. Walking path (4). This pretty path known as 'Wilhelm Way' could use some seeding or wood chips to prevent future erosion. Recommendation: Request the homeowner assist.
4. Wash-out area (5). Located behind Lot 15, this area flows down the hill and slimes the walking trail with mud. Recommendation: We might need to look at installing a small culvert in this area to get the runoff under the trail.
5. Walking path (6) leading to Lot 15. This path does not seem to be a contributing factor to the above item. But the relatively bare ground could turn this nice trail into an erosion problem. Recommendation: Ask the homeowner to assist with placing grass seed or wood chips over the area.
6. Wash-out area (7) between Lot 15 and 16. Water rushes down the hill, across the trail and heads southeast toward the old private dock. The water needs to either be routed to the new culvert discussed in item 4 or have its own small culvert installed under the trail.
7. Wash-out area (8) behind Lot 16. Water drains down the hill and crosses over the trail. Recommendation: This is a very minor issue and perhaps some wood chips placed in this area will resolve the problem.
8. Fishing trail (9). Foot traffic has created a partially bare path leading from the trail down to the lake. Recommendation: Seed or wood chips.
9. Mud slime on the trail (10). This area is historically problematic. The water has undermined the walking trail in this area several times resulting in expensive repairs to replace the broken asphalt. The water flows down the hill behind Lot 16 and moves westerly before crossing the path. The water runs quite a distance along the north side of the trail prior to crossing. There is also a black corrugated PVC pipe that exits on the south slope and empties directly into the lake. Recommendation: It doesn't seem like the runoff

could create such a large slime area on the trail but it does. The source of the PVC is unknown. This might take some investigation on a homeowner's lot to find the source of the water and the PVC. Clearly, the water needs to be diverted to an existing culvert or a new culvert should be installed.

10. Bridge. The bridge was installed with its footing posts in the high water line. This constricts water flow creating eddies and increases velocity. Evidence of erosion created by the bridge is evident on both ends. Debris under the bridge is proof that the structure is too low by nearly two feet. The creek is down to bedrock and does not appear to need further attention assuming the erosion created by the bridge is eliminated. Recommendation: Remove the bridge and replace it with a culvert running under the path. Or, construct a new, arched bridge that provides more clearance and with a wide enough span to preclude any interference from flowing water. The new bridge would need to span about ten more feet in either direction in order to be above the high water flow.
11. Fishing trail (11). This is a steep path leading from the trail to the lake. Recommendation: Due to the steepness, it is unlikely wood chips will last. Grass might take root if no one walks on it.
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13. Dam. The dam is in excellent shape except for Johnson grass and some trees. Recommendation: Monitor the area for burrowing animals. Remove the small trees and treat the trunks to stop them from re-growing.
14. Shoreline near the dock. The shoreline continues to become irregular in shape indicating something is eroding the soil. Wave action is a contributor but another force is at work; geese. Geese eat the grass on the fore slope down to the nub causing erosion. Their entering and exiting the lake also contributes to erosion. Observing the geese during this survey confirmed this is occurring. Recommendation: Contact Mr. Paul Lowry, USDA at the Platte City location (816) 431-2101 for discussing the geese issue.

#### Final notes:

1. Both lakes and the Silt Pond could use some seeding in various areas.
2. Both lakes have trees growing on their dams. East Lake has a Sycamore tree growing on the southwest side of the dam. These trees become enormous and will cause trouble in the future unless removed.
3. West Lake has a bush growing on the dam near the water line that needs removal.

4. Mr. Breyfogle mentioned that the cleaning of some of the streams might be of interest to the local Boy Scout Troop. That is an excellent suggestion.

Terry Breyfogle's assistance was extremely helpful and we greatly appreciate the time he devoted to helping our community.

Stephen G. Noble  
12830 Oakmont Drive

(816) 858-3051