STORM WATER RUN-OFF

In 2010, the Association experienced severe rain storms, including a four (4) day period in which the rain fall was 3.89 inches, over sixteen (16) times the average of 0.24 inches for the same period. As a result of problems occurring because of the volume of storm water run-off from the 2010 rain storms, the Board of Directors has undertaken efforts to address and improve the effectiveness of the drainage infrastructure within the community. It is virtually impossible to prepare for every eventuality in a way that would be acceptable to everyone; it is the goal of the Board to cooperate with the affected homeowners to find measures that will mitigate as much negative impact as possible.

The Association continues to conduct regular routine maintenance by removing debris and sediment from the drain inlets and catch basins, running flow tests, and installing sandbags at strategic locations as preventative measures. Following the storms, the Association has undertaken the removal of excess sediment, modified soil directly around the drain inlets and installed straw wattles around the drain inlets at the base of slopes to improve drainage flow and minimize blockage from erosion. The Association has contracted for the hydro-jetting of drain lines on an as needed basis. Finally, the Association retained the services of a geotechnical engineering firm, to review the existing infrastructure and to make recommendations to improve maintenance efforts, modify potions of the infrastructure, and advise the best practices for homeowners in order to protect their properties.

The geotechnical study was predicated on the known and reported incidents occurring during December of 2010 (and to a lesser part during Jan2010) as well as those on record from prior years with excessive rains. The engineers found they fell into two broad areas. One having to do with storm water draining onto and across homeowner lots; the other associated with v-ditches draining the common-area slopes.

Background

California follows the civil rule of law called the "natural flow doctrine" in relation to storm water flow. This doctrine, which is echoed by the Laguna Audubon II CC&Rs (Art. II, Section 13 and Art. XV, Section 7), holds that surface flows of water are allowed to flow in a natural manner to their eventual receiving waters. In simple English, this means that the owner of the upper property is entitled to discharge surface water [naturally occurring *storm water*] from his property, however the owner can be held liable for damages resulting from causing the water to flow in *an unnatural manner*. The courts have added to this doctrine what is called the *modern reasonableness test*, which allows a landowner to slightly modify the flow the flow through the development process if undertaken in a reasonable manner. The same test holds that the downstream owner must take reasonable defensive steps to be free of the unnatural flow.

When **LA II** was developed, the design was such that in nearly all cases the surface flow of storm water was down hill, either directly to the streets (and subsequently to municipal storm drains), or onto member homeowners' property, either under of through fences, where it would follow the swales incorporated into the landscape by the developer. These swales would in turn lead to the same storm drains. In some instances where the common area slope was longer than normal (it would appear to be in excess of somewhere in the range of 20' elevation), "v-ditches" were installed as a reasonable method of diverting a portion of the surface flow away from the homeowners' property and into a common drain.

Based on the presumptions of the law and the Association's governing documents, legal counsel has determined the Association is responsible for the maintenance of drainage lines to which it has been granted an easement. In most cases this is limited to areas where a common area v-ditch drains under a property and discharges into a drain outlet or a storm drain. In the case where the Association has caused water to be diverted from its natural course (via a drainage channel) it must take reasonable steps to ensure that the water is properly disposed of. Also it must take reasonable action to ensure that the association's property does not have an undue, negative impact on its neighbors. Again the key factors are "reasonable" and "expected".

Geotechnical Study Conclusions

The evaluations the study indicated there are three conditions that exist which are impacted by heavy run-off.

Type One Condition

This was observed in particular in relation to homes along King Eider and Chickadee which are on the bottom of the uphill slope (east side of the streets). These homes were built by Kathryn Thompson in the late 1980s. Originally there were no fences in the rear yards, but due to homebuyer demands, the builder returned and installed low (<2' high) block walls, with and without wrought iron fences atop them. In order to permit the run-off water occurring on the slopes during rain storms, the builder penetrated the walls at or slightly below the surface with 3" PVC. A drain inlet was attached on the exterior; and a stub was left on the interior to allow the homeowner to connect to his own drainage system. It was discovered during ensuing heavy rainstorms that several of the homeowners failed to connect the drains to their systems. In other instances the drains that led to the street, particularly in situations where two homeowners opted to share a run, the capacity to handle excessive run-off was inadequate. Consider that the water that would normally flow through a 50-55' opening (the width of the rear yard is concentrated into two 3" openings.

The existence of the block walls also causes a diversion of run-off down the slope toward the lowest yards. An attempt was made at some point to partially mitigate that effect by placing concrete "curbs" between each property, perpendicular to the fence, to hopefully divert some of the into the yards as it flowed by. It is important that homeowners affected by these curbs a) have sufficient clearance at the uphill end to allow water to flow downhill before building up behind the fence, and b) don't attempt to totally restrict the flow into the area behind their property, so that it negatively impacts their up-slope neighbor

It was also found that the ability of the homeowners' drainage system to effectively handle increased run-off in the "high-volume" years was hampered by such things as broken lines, clogged inlets, and pipes obstructed by roots, silt, and debris including dead rodents. During the December 2010 rains, the Association responded to the emergency by hiring a contractor to clean many of the problem drains using high pressure water and rotary bits.

During the following spring, the Association undertook the removal of the built–up silt which had accumulated behind the fences and partially covering the drain inlets. Following the removal of the silt, straw wattles were placed around the drains to hold back additional debris and silt.

The geotechnical consultant has recommended an alternate drain inlet which includes a domed grate over the inlet, a sediment trap and an off-set connection to the homeowner's line. It is felt this might permit a freer flow without impediment of silt and other debris. It is the intent of LA II to install several of these inlets prior to the rainy season to test their effectiveness. In addition, the Association will continue to work with impacted homeowners to find other ways to mitigate their problems.

The Association will also undertake other preventative maintenance steps as detailed below, but it is also incumbent on the affected homeowners to take proactive measures in line with those listed at the end of this document to alleviate the effects of abnormal storm conditions.

Type Two Condition

Similar to the Type One except that a shallow v-ditch was installed adjacent or connected to the rear fence. It was the apparent intent that these shallow ditches would divert the water into the drains which were similar to those noted in the Type One scenario. It was noted, in relation to these v-ditches, that there are one or two locations where the ditch is too shallow to effectively catch the run-off and direct it down-stream toward the drain. These will be fixed by either sinking the drain into the ditch, or building up the down-hill side of the ditch, whichever is more appropriate.

Type Three Condition

This condition is found in conjunction with the run-off water that is carried by v-ditches which have been constructed parallel along certain of the higher slopes, to divert the run-off to the streets and ultimately the storm drains. Typically, the v-ditches lead to inlets in collection basins and thence through an underground pipe to the curb. In addition to problems that might be caused by leaves or other materials impeding the flow of the water into the drain inlet, it is speculated the when the run-off reaches a certain volume during these excessive storms, the water overwhelms, and subsequently overflows the inlet. The consultant's response to this condition was to construct a splash wall, 24" above grade, surrounding the inlet on three sides. This would create a "holding basin" which would allow a greater volume of water to be captured for the inlet, and it would lessen the problem of downed vegetation blocking the inlet grate.

The Association constructed these walls around the inlets known to be problematic.

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Preventative Maintenance – A Dual Effort

As the study pointed out, both the homeowners and the homeowners' association share responsibilities to lessen the impact of these periodic deluges.

- I. **Homeowners' Association** For its part, Laguna Audubon II is committed to Working closely with its landscape maintenance contractor to ensure that ...
 - a. During the cyclical rotations, a point is made to clean all v-ditches and drains of accumulated debris.
 - b. Prior to October 1, conduct an extensive survey of all potential problem areas to make sure they are clear and functional
 - c. Whenever a forecast expecting more than 1" of rain in a 24 hour period in the South Orange County area is made, the contractor shall immediately perform step "b" again.
 - d. The Association shall conduct an inspection following each rainy season to determine if there is sufficient build-up of silt around drains or behind fences to impede the drainage, and if so, have it removed.
 - e. The contractor will continue to maintain the straw wattles around the intake drains where their use will mitigate the intake of silt.
 - f. In the early fall, the Association shall hire a specialized plumbing contractor to inspect and to hydro-jet all drains leading from the v-ditch inlets to the street if there is any accumulation of blockage.
 - g. At the same time the Association management shall coordinate with the plumbing contractor to arrange to provide its services to homeowners that may wish to have their drains cleared. Management will notify the homeowners of the available option and negotiate the best rate for them.
 - h. Association management will coordinate with the plumbing contractor and the landscape maintenance contractor to be on stand-by, as much as possible, for emergency response during predicted excessive rains.
 - i.
- II. **Homeowners** It is the responsibility of individual homeowners to also engage in regular drainage maintenance as well as ensuring that their current drainage systems are adequate to manage runoff in amount s that exceed the normal.
 - a. Landscape and hardscape area should be properly sloped toward area surface drains directed to the street or other collection systems. It is especially important to inspect side-yard gates and fences, particularly those backed by hardscape, to be sure there is clearance to allow surface water to follow under or through on its intended course toward the curb or into a nearby drain. Otherwise water may back-up onto the patio and into the house.
 - b. In the fall, prior to rainy season, check all drain lines to make sure they are not obstructed by roots, sediment or debris. Obstructions should be removed by jetting or mechanical means. If employing a service to jet the lines take care that it has the proper equipment and expertise, as thin walled plastic pipe can be easily damaged. Care should be taken in locating and clearing the drain openings, as over the years, they tend to be covered over by soil and sod.
 - c. Keep plant debris, mud, dirt and small toys away from all drain openings.
 - d. Do not plant trees or shrubbery on top of or near drain line pathways. Tree roots can eventually crush, block or penetrate lines.
 - e. Periodically run a flow test on your drain lines by inserting a garden hose in inlets furthest from the street (on both sides of the lot) and check water flow as it reaches the curb core outlet.

- f. During the rainy periods, make sure that leaves, plant debris, and paper or plastic products do not cover drain outlets.
- g. If you have had past experience with standing water, maintain an adequate supply of sandbags to channel water flow away from doorways while awaiting cessation of rain or emergency response. (Check with the local fire station or builder's supply as a source of sandbags)
- h. If you feel it necessary, particularly if you have a swimming pool, consider having a sump pump on hand. A recommended model is **Little Giant Series 5** (available for approx. \$ 125 at *Johnstone Supply* in Laguna Niguel or major building supply houses).
- i. INSURANCE Homeowners should consider insuring their home against storm water damage if their situation warrants it. The standard homeowner's policy does not cover storm water damages because of a "Flood Perils" exclusion. A "Flood" is defined as an increased build-up of ground water caused by rain, snow or rising waters. You can insure your home for storm water damage in two ways:
 - Purchase a *Flood Insurance Policy*. Laguna Audubon is rated as a moderate to lowrisk area so the cost of a flood policy should be in the area of \$300-800 per year. Insurance companies generally require the policy be in effect at least 30 days before the "flood" occurs.
 - 2) Add "Back-up of Sewers & Drains" coverage to your exiting Homeowners insurance. This provides coverage when your drains or sewers back-up and subsequently cause damage to the property. Discuss this with your insurance agent, as coverage varies by company. When available, the added cost of this coverage is usually less than \$100 per year

Keep in mind that "sudden and accidental" water damage caused by a burst pipe, washing machine overflow, blocked toilet or roof leak due to a storm, etc. *is not considered flooding* and generally will be covered under your homeowner's insurance policy.