Final Report on Kimes Rain Garden
Healthy Lakes Grant LPT 56217.1
Little Arbor Vitae Lake

The scope of the Grant was three separate rain gardens on the common ground of Blue Island Resort and Condos. Blue Island resort and Condos consist of eight free standing single family homes and one duplex house. Each owner owns a set limited common area around the house and a $1/10^{th}$ undivided interest in all of the other land area. The site is hilly and consist of 500 feet of lake shore. The projects are located on key areas of the steeper slopes that drain to the lake.

As a resort the land was mostly old lawn area. The lawn had been cut short and vacuumed to gather up pine needles, cones and small twigs. This type of maintenance was hard on the grass and top soil. In the spring and fall during clean up a large blower unit was used to clean up the leaves and pine needles. The grass that was left was in tufts with little top soil remaining.

When the resort was converted to condos and the owners of the individual units had control of the facility they created a program to revitalize the lawn areas and are self assessing each unit to provide funds to do annual projects.

The Kime rain garden was built to correct two issues; one was the roof run off from Kimes house and some of the roof water from the Terlep house, second was the lawn run off adjoining the Kime house and lake ward from the Terlep house. See addendum A for the site plan, run off computations and the before pictures.

The runoff calculations said that an area of 100 square feet would be needed to handle the average storm in this area. The soil is sandy so a factor of .03 for infiltration was selected based on the slope above the rain garden. Due to the terrain a main rain garden

was built west of the Kime house to handle ½ of the roof water and the runoff up hill from the garden and the run off contribution from the Terlep garage. A smaller secondary rain garden was built east of the Kime house to handle just the roof water from that side. See addendum A for calculations. See addendum B for photos of the completed gardens.

Plants were obtained from Agrecol LLC with 96 plants used for the 2 sites. See Adendum C for a full list of the type of plant and number of each used. Deer resistant plants were used as much as possible to still meet the owners request for certain plants. For the first summer we had 100% survival rates and numbers of the flowering plants flowered.

We had one 3 day storm event in June that totaled 7 inches that caused a significant over topping several times over the 3 days. The cedar mulch used performed well in keeping the lower side of the garden from eroding away. The plants stayed rooted and when the water soaked in the garden was mostly intact. The use of of straw mulch with netting kept the run off in sheet form rather than rivlets forming, this lessened the potential damage. Within a day the area was restored. A temporary small rock over flow was added to prevent further damage should another such event occur. It should be able to be removed in year 2 after the plants emerge the 2nd year and the grass area around the rain garden has taken hold. A second major event happened September 26th with 1 inch of rain in 40 minutes. The garden filled and had sheet flow over the down hill side with no damage of any kind. The garden has the capacity to handle normal rain with minimal overtopping. It is important to keep the top of the down hill side of the garden as level as possible so the over flow is spread out across the garden so a rivlet does not get started and become a wash out. A quality mulch around the plants and edges is necessary to hold soil in place until the plants fill in years 2 and 3.

The sizing and the factors used appear to be appropriate for the site. There maybe room to direct some additional runoff to this garden. It would cause over topping more often but the garden seems to be able to handle that, The down hill and side berms could be built up. There is some concern on how often we would want to flood the plants to that extent. The gardens will be left as built for at least another growing season and see what type of storms come in 2018. To be able to see the gardens during the September storm provided a good chance to evaluate the project.

Addendum A

WATER CALCULATIONS

UNIT 5

ROOF WATER FULLY GUTTER COLLECTED

TOTAL ROOF AREA 12x36 = 432 SQ FT
LAWN AREA 30x60 = 1800 SQ FT

TOTAL AREA = 2232 x.03 FACTOR = 67 SF

#1 RAIN GARDEN USE 10x8 = 80 SF.

#2 RAINGARDEN FOR ROOF DRAIN
ROOF AREA 12x36 = 432 SQ FT.
LAWN AREA 20x45 = 300 SQ FT
RAINGARDEN AREA
732 SQ FT x.03 = 22 SQ FT
USE 25 SQ FT

Addendum B

COST FOR KIME RAIN GARDEN

MULCH, STRAW SEED, FENCE	219.99
PLANTS	313.34
TOP SOIL	142.73
PAID LABOR	320.00
	996.06

DONATED LABOR

GARY KIME	17 HOURS
CAREL KIME	7 HOURS
GLENN SPEICH	7 HOURS
NANCY SPEICH	2 HOURS
BEV TYCHSEN	2 HOURS
	35 HOURS

35 HOURS @ $12.00/HOUR = $420

TOTAL PROJECT 1416.06