

# **Report for 2004 on Babula Children's Garden**

## **Construction Projects**

In January 2004, we approached the University of Alaska Fairbanks Engineering Program and asked if their students would design three construction projects as part of their senior design program. The engineering students accepted our ideas for the tree house, composting outhouse, and interactive stream. They worked for the entire spring semester on these projects. Grant Matheke and Jan Hanscom met with the students during the semester to refine the conceptual plans, and they presented the plans in May. The projects require approval from UAF Facilities Services Design and Construction (D&C) to ensure they meet campus construction standards, and plans must be sealed to ensure they meet State of Alaska construction standards. D&C personnel told us the plans were not complete and would have to be reviewed by an independent architectural/engineering firm before they could be approved. D&C arranged a meeting with USKH, and this company prepared a bid document for construction of the tree house and outhouse. The estimate for re-designing the student projects as well as estimates for construction of the projects far exceeded our budget. The design work exceeded \$40,000, and the estimated construction cost was more than \$250,000.

We arranged a second meeting with USKH where they indicated their estimates were quite reasonable. We could cut costs by eliminating the bridges and changing the structure designed by the student engineers. With great reluctance, we agreed to remove most of the student's creative elements and requested USKH re-submit a bid for a total cost of \$150,000. The second estimate far exceeded our budget. Even with eliminating the bridge designs, the second estimate exceeded \$200,000. Due to the excessive cost estimates and USKH's refusal to meet our needs, the tree house and outhouse were put on hold so we could have more time to re-think the entire project.

In October we met with the engineering faculty in an attempt to salvage the student projects. Professor Leroy Hulsey agreed to work with us to develop a student internship in which the plans would be finalized and sealed. He also recommended we consider hiring engineering students as summer interns to construct the projects and make the entire structures experimental. We will attempt to include experimental materials (specifically composite wood products such as Trex decking and a new wood treatment called Indurite made from soybeans, in a long-term study of durability in our subarctic environment. Dr Hulsey agreed to do all of this as long as we include students in all phases of design and construction and as long as D&C agreed to work with us. On 8 Nov. 2004, we received an okay from Mr. Steve Titus, director of D&C, to proceed. Dr.

Hulsey arranged for a student engineer to formalize the plans, and this process will begin in January.

Construction of the interactive stream is proceeding using the plans provided by the engineering students. The liner has been fabricated and several loads of rock have been delivered to the site. The rest of the hardware will be ordered during the winter months and will be on site to start construction in 2005. This project requires no additional engineering input.

### **Surveying and Geotechnical Work**

UAF design and construction insisted we have a survey of the hillside completed to identify slope, aspect, existing structures, etc. They also required we complete core drillings to evaluate soils, potential for permafrost, etc. Before the surveyor was hired, we located a completed survey done in 1986. D&C was unaware of this survey even though it was completed by UAF. The surveyor scrutinized the 1986 maps and agreed we did not need his services. Our chance finding of the map saved us \$5000! The geotechnical survey drilling was completed on 29 October 2004, and both D&C and the botanical garden have copies of the results. They indicate no problems with construction of any of the planned structures.

### **The Great Hedge Maze**

In January and February, GBG staff and volunteers visited five elementary schools and 23 classrooms in the Fairbanks North Star Borough to present a math lesson on mazes. The students learned about mazes, their history and how they were built. They seeded the shrubs for our maze and cared for the seedlings for the rest of the spring semester. The seedlings were returned to the Garden on May 17, and they were maintained in containers over the summer. We intended to invite the teachers who participated to plant the seedlings this fall, but because of the drought this summer, most planting was postponed until spring. The old hayfield was tilled in the maze area, and we installed fences around the main petal segments of the wild rose design. Boy Scouts of Troop 10 then planted nearly 400 Caragana seedlings. Planting went faster than we thought, but we certainly could use an army of strong young people to pound in the fence posts! We installed soaker hoses along the fences, and these will be used to irrigate the maze until the shrubs are established.

### **Electricity**

In late July, Grant dug a trench and buried an electric line from the garden entrance to the children's garden. Once the line was in, everyone worked at filling and packing the trench for

short periods at a time. Dense smoke made it unhealthy to do such heavy work for extended periods. Transformers were installed in September. Next summer the main connection to the power line will be completed, and the transformers will be hooked up. We will have to hire electricians to take the power from the main source to our transformer and to hook up the cables to our transformers. We will then run wire to the various sites that require power in the children's garden area and get them hooked up to power as we build those projects.

### **Willow Tunnel**

The willow tunnel was planted at the end of May as part of the Girl Scout Bronze Award for Emily Stockwell. Her brother, Kyle, and Troop 10 built the willow tunnel in 2003. This area was weeded and irrigated in July and will require training of willow seedlings in 2005. A couple seedlings will need to be replaced in early 2005 but otherwise it is growing very well. Most seedlings are already two feet high.

### **Pioneer Garden**

The grounds around the pioneer cabin (installed in 2003) were leveled in late July and work around the foundation was completed. A volunteer delivered three pickup truck loads of rock to be used on the retaining walls around the cabin and to create the gardens. An anonymous donor outfitted our little log cabin with toy chairs and table when we weren't looking!

### **Entrance Gateway**

In August after the electric line was filled in, farm personnel cleared and leveled the gateway area with the front-end loader. Jan leveled it more precisely with hand tools and prepared for putting in the foundation. George Wilson and other volunteers helped cut the re-bar and sono tubes to length, and Grant and student assistant, Zack Baer drilled the holes for the foundation. George created re-bar cages for strength and helped pour the piers. Chad Dietz delivered the gateway in September. UAF physical plant personnel assisted in offloading the pieces of the entry from Chad's trailer and returned to lift it onto the concrete supports. In 2005, the rockwork around the piers, building the planters, and installing the surfacing under the arches will be completed.

### **Summary**

We completed a significant amount of work in 2004, much of it essential groundwork that will support the construction projects next summer. Although we hoped to begin construction, our ignorance of D&C rules and regulations plus an outrageous bid for completion of the plans,

delayed major construction until 2005. We simply could not accept bids that far exceeded our estimates for construction. In 2005, our goals are:

1. Complete the design plans and begin construction of the outhouse and treehouse
2. Continue fencing in the maze and planting the Caragana seedlings
3. Complete the raised beds around the Pioneer cabin
4. Establish trails from the pond area to the children's garden
5. Begin training the willows on the willow tunnel
6. Complete the rock work on the gateway
7. Submit proposals to the engineering students for additional projects

#### 2004 Workers and Volunteers (\*) on the Babula Children's Garden

Willow Tunnel	Emily Stockdale and friends* Chinook School 6th grade* 60 Rotary Exchange students 2004* 2004 Senior Engineering	Bronze award	Girl Scouts
Engineering	Design Class* USKH Jenny Campbell June Pelehowski	Dr. David Barnes, professor	
Maze	Lesson:	Kathy Baum* Barbara Rondine* Susan Lightbody* Rose Meier Pat Holloway Grant Matheke	
	Started and grew seedlings:	Denali Elementary*  Arctic Light Elementary*  Barnette Elementary*	Kathleen Meckel's 5th grade Janet Speed's 6th grade Alice Hoffman's 6th grade Laurie Hebert's 3rd grade Dana Brown's 3rd grade Mr. Cope's 3rd grade Lorre Oxman's 4th grade Timona Grogan's 5th grade Cheryl Savenko's 5th grade Katie Shire's 3rd grade Dave Wolf's 6th grade Doug Herron's 6th grade Marcy Kuntz's multi grade Linda Schandlemeier's 6th grade Shirley Jones's 3rd grade Mrs. Lee's 3rd grade Mrs. Kan's 4th grade Gail Carlo's 5th grade

		Joy Elementary*	Mary Clare Andrews's 6th grade Jaqueline D'Auria's 6th grade Sandra O'Connor's 5th grade Janice Trumball's multi grade
		Pearl Creek Elementary*	Trish Stark's 4th grade Barbie Jackson's 4th grade Brent Rodenberger's 5th grade Nancy Stark's resource class Class 2004
	Building maze	UAF Plant Propagation* Pat Holloway BSA Troop 10*	Bob VanVeldhuizen Jake Van Veldhuizen Matt Van Veldhuizen Rich Gorsline Loni Gorsline Robert Gorsline Paul Layer Mark Layer Josh Frisby John Lee David Durst
Pioneer cabin	Dick Hanscom* Jr. Master Gardener 4-H club* Unknown	Getting rocks Design Chairs and flower vase	
Electricity	Zack Baer Loren Esmailka Alexis Reifenstuhl Grant Matheke Matt Van Veldhuizen*		
Weather Garden Gateway	Ted Fathauer* Chad Dietz Larry Burke UAF Physical Plant personnel Grant Matheke Zach Baer George Wilson* Sandy Mattie*	Design work Created gateway Leveled gateway area Placed gateway Augured holes Augured holes Built rebar, cut sono tubes, helped with concrete pour Design	
In-Ground Maze			