



# KEBS Quarterly News

Land Planning · Engineering · Surveying  
Soils Testing · Wetlands Planning

VOLUME 12, ISSUE 1

OCTOBER 2007

**Inside this issue:**

- What Happens To All Those Cylinders?* 2
- Charlotte Office Closed* 2
- KEBS Uses Scanner for Two School Districts* 3
- From the Subdivision Department* 4

## RVILLAGE RESORT - Boyne, Michigan

KEBS, Inc. is very excited to be working on a proposed RV resort community, adjacent to Boyne USA, in Boyne Valley Township, Charlevoix County, MI. The proposed development is a self-contained mixture of commercial, residential, and recreational uses on ±245 acres, at the northwest corner of the intersection of M-75 and US-131.

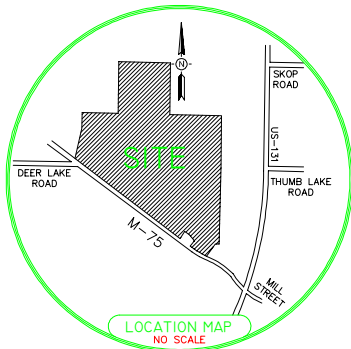
The gated community of approximately 520 (45'x100') units will be developed on paved private roads with full utility hook-ups, natural gas, concrete pad, 10'x12' shed, and irrigated landscaping. Some additional amenities planned for the development include a 17-acre lake, clubhouse with banquet facilities, volleyball and tennis courts, shuffleboard and putt-putt areas, paddle boat and canoe rental, outdoor splash park, and a 9-hole par 3 golf course.

The M-75 frontage of the property will incorporate a commercial complex open to the surrounding community as well as the resort with space available for future expansion.

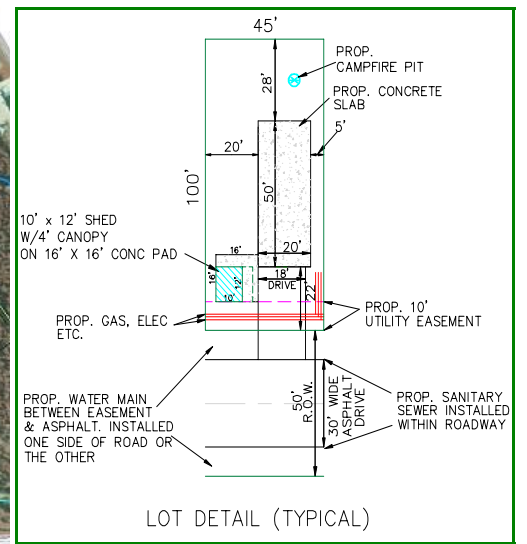
Private sanitary and water services will be incorporated in the development using a community well system and a community sanitary treatment facility that will utilize subsurface irrigation of the treated effluent in the proposed golf course.

Although the project is currently in a conceptual design phase, construction plan design and permitting is scheduled to begin before the end of the year.

KEBS, Inc. looks forward to working on this marquee project in the Boyne area. For more information, visit [www.rvillageresort.com](http://www.rvillageresort.com).



*Submitted by: AJ Patrick, PE, Haslett Office*



## What Happens To All Those Cylinders?

(Boat anchors, dumbbells, door stops and oh yeah, concrete compressive strength.)

As many may be aware, KEBS's construction testing technicians mold at least one set of four concrete test cylinders every time concrete is placed at a project jobsite. These cylinders are used to test whether the concrete meets the design strength required in the Project Specifications. The cylinders are molded in accordance with standard ASTM procedures and left in the field to cure and harden for a period of at least 24 hours. Then the cylinders are transported to our laboratory for prolonged wet-curing and subsequent testing.



Once in the lab, ASTM procedures again prescribe the method in which the cylinders are broken and the compressive strength is obtained. Typically, one cylinder in each set is tested 7 days after placement and two of the cylinders are tested at 28 days, with the fourth cylinder held in reserve. The American Concrete Institute (ACI) defines the average of the two 28-day laboratory test results to be the *representative concrete compressive strength* for the sampled placement. This is the value that is compared to the design strength to see if the concrete is in compliance with Project Specifications. The 7-day laboratory test result is typically used as an early indicator of concrete performance. Under normal conditions, concrete can be expected to achieve approximately 70% of its design strength after 7 days of curing.

So, what happens when the average 28-day value doesn't meet the required design strength? Well, a sequence of things, with the results of each step evaluated to determine whether there's a need to go further. First, the fourth or "spare" cylinder comes into play. This cylinder is wet-cured an additional 28 days and tested when the cylinder is 56 days old. In most cases, the 56-day break exceeds the required design strength and Section 5.6.4.1 of the ACI Code is satisfied: "...steps shall be taken to assure that [the] load-carrying capacity of the structure is not jeopardized".

However, should the 56-day cylinder fail, the ACI Code requires that a statistical analysis be performed of concrete results throughout the recent history of the project to determine whether:

- a) Every arithmetic average of any three consecutive strength tests equals or exceeds the design strength.  
(and)
- b) No individual strength test falls below the design strength by more than 500 psi.

If the provisions of the code are still not satisfied, the area of concrete at the jobsite that is in question needs to be cored and the core samples tested to determine the actual compressive strength of the concrete. These results are evaluated to determine whether the concrete needs to be replaced at the site.

This is just a brief summary of what happens to all those cylinders. If anyone is interested, more can be found in testing standards ASTM C31, ASTM C39 and ACI 318 or, of course, by phoning the KEBS Soils Office at (517) 721-0106.

*Submitted by: Brad Frary, Soils Office*

## Charlotte Office Closed

In preparation to move into our new office, the KEBS, Inc. Charlotte office has closed. The office staff has moved back in to the Haslett office, with Dave Starr, PE transferring to the Marshall Office. We will continue to work on the current projects and will continue to do work in the Eaton County and surrounding areas.

## KEBS Uses The 3D Laser Scanner For Two School Districts

KEBS has recently performed 3D Laser Scanning for renovations to six elementary schools for Grand Ledge Public Schools. The scans were performed at Holbrook Elementary, Neff Elementary, Greenwood Elementary, Wacousta Elementary, Delta Center Elementary, and Willow Ridge Elementary. These scans were done in conjunction with a conventional topographical survey. With the playground equipment the focus of the scans, the scans provided an accurate location of the posts of the existing equipment. With the scanned data and the topographical data on the same coordinate system, AutoCAD drawings were created. The school's architect will be using the AutoCAD drawings for their proposed renovations.



Another project that utilized the 3D Laser Scanner was the Marshall High School. The school is proposing to remove the second floor entrances on both the Madison Street and North Marshall Street entrances. The existing entrances utilize a long concrete ramp to access the second floor entrances. The school was built in 1971 and the existing ramps are in need of repair, but do not meet the existing Americans with Disabilities Act (ADA) regulations. The school's architect required a detailed survey of the existing ramps to be used to design the new entrance. Using the scanner, each entrance was scanned from three locations. Again, the conventional topographical survey was merged with the scanned data to create an AutoCAD drawing.



Both of these projects were ideal applications for the scanner because of the amount of accuracy and detail that was required.

*Submitted by Scott Koch, PS, Haslett Office*

## **KEBS, Inc.**

2116 Haslett Road  
Haslett, MI 48840

Phone: 517-339-1014

Fax: 517-339-8047

E-mail: [info@kebs.com](mailto:info@kebs.com)



Check us out  
on the Web!  
[www.kebs.com](http://www.kebs.com)

### ***KEBS' Mission***

*Working together to provide professional engineering and surveying services that sets the highest standards, while enhancing the quality of life for our employees, clients, and communities.*

## **From the Subdivision Department**

One of the most time consuming problems that come up in the processing of a parcel of land into a subdivision is the existence of blanket easements over that parcel of land. Most blanket easements were created long ago in an effort to connect cities and rural areas with utilities like natural gas, electric, and telephone services. They can be over the entire property or just a portion of the property. In most cases, the easement consists of a description of the property the easement is crossing and the actual easement. Most blanket easements have statements similar to "poles and lines to be set no more that 300 feet East of the highway on the West side of said lands" which creates a 300-foot wide easement.



Early in the platting process, a Title Commitment is done to help discover these easements. The only easements that the Title Commitment does not include are the newest ones. They do not show up until the final title insurance policy is ordered just prior to the plat being sent in for final processing.

Recently, the Lansing Board of Water and Light has been creating easements that on the surface seem to have a specific size and location, but the wording in their easements may double the size or move it entirely. Other types of easements that we are encountering recently are media and communication easements. There are a lot of new companies with overlapping services coming into neighborhoods and with the need to guarantee access to their individual distribution lines, these companies have been approaching developers with another form of blanket easement. Once again, the wording of these easements is very important.

KEBS, Inc. can assist your attorney in the review of these documents to determine how they may affect your project.

*Submitted by: Jeff Autenrieth, PS, Haslett Office*