

E&M Engineers and Surveyors, PC

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Overcoming Site Constraints

by Glenn D. Cooley, PE

Example 1 - Mountainview:

This subdivision was designed for EVL Mountainview, LLC in the Town of Ellicottville, just outside the Village of Ellicottville, NY. It abuts the Northwood Subdivision to the northwest and the Pine Tree Village Subdivision to the southwest. It consists of 25 townhouse units, in 5 buildings on approximately 4 acres of land. The subdivision was designed consistent with the Town's Medium Density Zoning and is compatible with surrounding land use.

The property had substantial construction constraints from the start. The steep site has some slopes in excess of 25 percent. These higher areas were left as green space while the rest was developed in stepped terraces. The development is served by public water and sewer and incorporates both open and closed storm drainage systems and a detention pond. Getting stormwater properly conveyed took critical planning. The open ditches are armored with medium stone fill to prevent erosion.



Since the finished site was terraced, there are two separate entrances and parking lots accommodating the grade change. The terraced slopes were retained by using large stone block walls in a stepped fashion instead of more austere sheet piling or concrete walls. This allowed for additional landscaping. The photographs show what can be done on difficult sites to design and construct viable developments.



Example 2 - Chestnut Ridge Village Phases 6,7 & 8:

This development consists of an expansion of the existing Chestnut Ridge Village Subdivision in the Town of Orchard Park. The site is located south of Armor-Duells Road extension, east of State Route 219 and west of Woodwind Acres Subdivision. There are 105 residential lots in this section of the subdivision. The total site area is approximately 63 acres with 105 lots. The project area was primarily undeveloped land vegetated with brush and trees. The site is bordered on the north and west by highways and on the east by an existing subdivision. South of the project limits are wetlands owned by the Town of Orchard Park.

Maximizing the number of lots was complicated by stormwater requirements. Stormwater runoff was designed to be handled by the construction of diversion swales, storm sewers and two detention basins. Detention is the practice of temporarily storing storm water runoff with the intent to reduce the rate of runoff entering a municipality's storm sewer system, creek or stream. The detention facility is designed based on the premise that the calculated runoff from a post development 10 and 25-year storm be detained while releasing no more than the equivalent 10-year pre-development peak flow rate. The 100 year storm will also be contained. These ponds also maintain good water quality through treatment and sedimentation in accordance with NYSDEC guidelines.



The westerly basin is a “wet” pond in that there is always a pool of water. Rain storms raise the water level in the basin which controls the outflow to pre-development conditions. To maximize the number of lots, some properties extend into the area of the pond. Also, in keeping with similar amenities in other parts of the development, a hiking trail skirts the western side of the pond. In this manner an environmental site constraint was minimized and even created an enhancement.

Increased Education for P.E.'S

by: Roy R. Pedersen, P.E.

In our winter 2007 issue, I wrote about required Continuing Education (CE) for professional engineers and how it affects and protects the general public. Shortly after that, I learned through an article by Danielle Boykin in Professional Engineer magazine that additional college credits may be required in the near future for engineers to become licensed to practice.

The National Council of Examiners for Engineering and Surveying (NCEES) amended the Model Law in 2006 to require a bachelor's degree plus 30 additional credits for professional licensure, beginning in 2015.

This is the recommendation of the NCEES and must be adopted by individual states to become law. The requirement for CE is now law in all but 12 states. It seems likely that more stringent education requirements for licensure will become law whether it matches the model law or varies in some manner, either in the number of credits, or the time it is enacted. Once one state takes the lead, others will follow in order that engineers qualified in one state may also be qualified in other states.

Engineering licensure, incidently is celebrating its 100th birthday this year*. (See “Century” by Doug McGuirt PE Magazine June 07.) The first state issuing licenses for engineers registration law was Wyoming, in 1907. As other states passed engineering registration law, they did not automatically accept out-of-state licenses. This eventually (1920) led to the creation of the NCEES whose stated purpose was to examine state laws concerning registration of engineers and provide recommendations for uniformity of practices and reciprocal interstate relations within the profession.

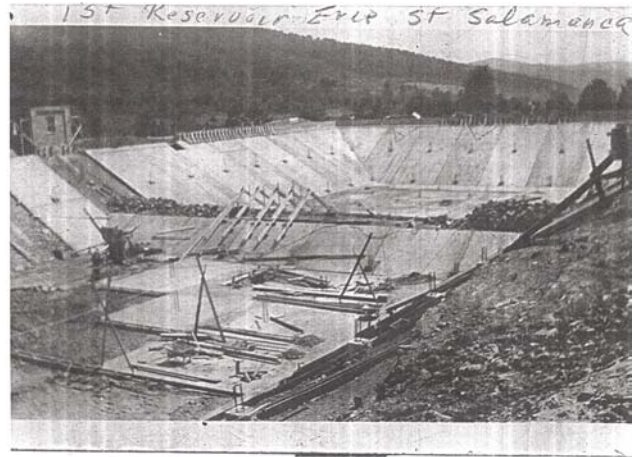
In 1932 the NCEES created and adopted its Model Law. The Model Law has been amended several times. In 1998, it was amended to provide for the use of electronic seals and signatures. (An electronic authentication process is required.)

Then in 2006, the Model Law was amended to require the 30 additional college credits before licensure. To view the Model Law, go to www.ncees.org and click on “About NCEES”.

City of Salamanca Newton Run Reservoir

by: Garrett M. Hacker, Project Engineer

This year the City of Salamanca Board of Public Utilities is replacing its existing 4-million gallon water storage reservoir with two (2), 2-million gallon glass fused bolted steel tanks. The City's Newton Run Reservoir was constructed during 1924 and 1925 under the direction of the then Salamanca Water and Light Commission. The existing reservoir was a monumental project for its time (refer to photo). Construction consisted of a double compartment, reinforced concrete tank built into the hillside measuring 150 feet wide by 300 feet long and having a water depth of approximately 20-feet.



E&M Engineers and Surveyors P.C. was hired by the City of Salamanca to design a new water reservoir having the same capacity and hydraulic characteristics as the existing tank to providing fire protection for the city. E&M prepared a topographic survey, design plans, construction specifications and contract documents for two tank options; a wire wound prestressed concrete tank and a glass fused bolted steel tank. E&M's design services also involved design of a new valve vault and water main to connect the new reservoir to the existing City distribution system, a Tideflex mixing system to reduce stagnation in the tanks and radio telemetry to control the well pumps.



Similar to the 1924 project (above right), the new tank construction required extensive site work due to the mountainous terrain. Approximately 85,000 cubic yards of material had to be excavated from the hillside to enable a level site for the tanks (refer to photo above). The material excavated was stockpiled and will be utilized as fill during demolition of the existing reservoir.

E&M separated the project into a site contact and a tank contract. The site contract was awarded to Blue Heron Construction of Jordon, New York for \$961,521.30. The glass fused, bolted steel tank contract was awarded to Statewide Aquastore Inc. of East Syracuse for \$1,902,621.00. E&M Engineers is provided full time construction inspection for the duration of the project.

What Does a Surveyor Need for a Boundary Survey

By: James A. Nearhood, P.L.S.

Authority: The professional land surveyor provides a service for someone's use. The land surveyor needs to know who that person is for ethical and financial reasons. That person is usually the owner or developer. The land surveyor must know that the owner is aware of the need for a survey and the cost, if the owner is financially responsible. It is very disconcerting to start a survey in the field and have the owner come out of the house and ask what we are doing and why.

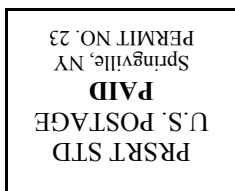
Site Information: The street address or road name, Village or Town, Subdivision Name and Tax Map Number are necessary for the obvious reason of needing to know what to look for in his in-house records for maps and other data. The more information a surveyor is furnished, the quicker he or she can pinpoint the job site and get a clear idea of the work site conditions.

Deed/Title Description: It is essential that the land surveyor receives the current deed description with liber and page. The description is needed to compare with previous mapping, aid in job site location and, to define the boundary lines that need to be surveyed. It is also used to assist the mapping process thereby producing a map with proper deed reference notes (calls) suitable for title review. The current deed is one of the land surveyor's most valuable pieces of reference information.

Another piece of reference information of major use to a land surveyors is the Abstract of Title or Title Search. This document contains the history of a parcel of land that is not found in a current deed. This means that previous descriptions of the parcel can be found, boundary line agreements come to light, referenced adjacent parcel descriptions are listed and descriptions of the parent parcel and even that parcel's parent parcel may be included.

Also specific use easements and/or rights of way, highway appropriation map numbers and wills may be a part of this parcel's history. When available, the title insurers report can be valuable in that it may give a different description of the parcel. This description would be better suited in showing title which may be used in future deeds.

Previous Mapping: Often this important piece of evidence is either lost or ignored by current owners and some attorneys. Sometimes they want to get the current surveyors opinion without his/her mind being influenced by an old or maligned surveyors's map. As a point of fact, the opposite is true. Previous maps are a tool used to evaluate occupation found. They are a picture of the conditions and evidence found and/or set at a specific time in the past. This is very important when a great amount of conflicting iron stakes or occupation are found. As you can see, the more information a surveyor has the better his product and opinion will be.



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