

Ludgate Loop

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A guide to the inside...

p. 2:
Environmental Permits

p. 3:
Leadership Change at
Ludgate

Ludgate Pens Resolution

Reading-Muhlenberg
Vo-Tech Students Visit

p. 4:
Ludgate News

Ludgate Exhibits at
I-DAY

Builders Bewildered By Basement Wall Support

The 2006 International Residential Code made major changes to the requirements for basement wall support. These changes resulted in a more extensive anchoring of the top of the foundation wall to the floor joists.

Before the 2006 Code, typically the wood plate on top of the wall was anchored to the foundation wall with anchor bolts at a maximum of 6 feet on center. In the new code, anchor bolts could be required as close as 6 inches on center. In addition, anchorage of the joists to the top plate requires engineered metal fasteners closely spaced.

It is easy to understand why many home builders are perplexed by the new requirements. They wonder why they need so many bolts (from 3 to 12 times as many) and other connectors when they have been building houses for years under the 6 foot center rule.

Ludgate received several calls from builders requesting our expertise for these new anchorage requirements. The new code connection requirements are based on the type of soil that is retained by the foundation wall. For sandy soils the anchorage requirements are not nearly as extensive as when the soil has a high clay content. Soils that are free draining have less potential for building up hydrostatic pressure than clay soils, which can exert tremendous pressure on the foundation walls when saturated. To obtain a building permit the 2006 Code, Section 404 requires builders to provide an inspector with their proposal for connecting the framing to the foundation wall.

Code officials are working on an addendum to the 2006 Code to clarify and simplify the anchoring of the floor system to the basement wall.

This article was written by Ed Nordahl, PE, VP of Engineering at Ludgate Engineering Corp. Ed has 33 years of experience in civil and structural engineering related to land development and subdivisions; industrial, commercial and residential buildings, and bridges. Ed is frequently called upon to investigate structural failures and has provided many expert forensic reports. For questions or comments contact Ed at 610-404-7330 or via email at enordahl@ludgate-eng.com. Ed is shown in the photo above.



Take her word:

"Since our streetscape project was my first attempt at this type of thing, I really appreciate your expertise and help. I am pretty sure you go over and above what is required of an engineering firm. I often wonder how things would be if we would have chosen another engineering firm. I appreciate your work and friendship." -Deena Kershner, Our Town Foundation, Hamburg, PA

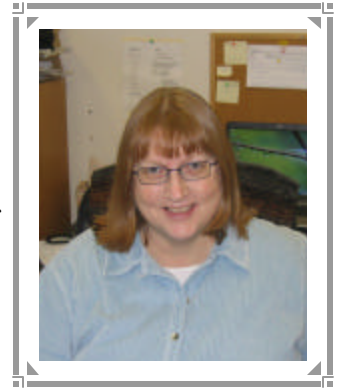
Permitting with Pat: Environmental Permits

In the last issue Permitting with Pat presented an introduction to permitting. In the article below Pat addresses endangered and threatened species requirements.

PNDI

A PNDI (PA Natural Diversity Inventory) will be processed through the PNHP (PA Natural Heritage Program). This search is conducted to identify any endangered or threatened plant, vertebrate or invertebrate species in your project area. If a potential conflict is identified, a clearance must be obtained before we can apply for any environmental permits. We must then proceed as follows:

- Send project information to the appropriate agency - US Fish & Wildlife Service, PA Fish & Boat Commission, PA Dept. of Conservation of Natural Resources or PA Game Commission.
 - The agency/agencies will usually respond in 30-45 days with either
 - The name of the endangered or threatened species & the action they want us to take or
 - A clearance
- If an endangered or threatened species is named by the agency, we will proceed as follows:
 - Conduct a field study of plants, landforms, soil conditions & surrounding area conditions, photos will be taken, and a written report will be prepared documenting the existing habitat. An approved specialist may need to handle this function. This study could take 30 days or more, depending on the weather and scheduling of the specialist.
 - The documentation will be submitted to the agency/agencies.
 - The response time for the agencies is in the 30-45 day range.
- When the PNDI is cleared, submission of environmental permits can begin.
- If the PNDI is not cleared, the agency/agencies will instruct the engineer as to how to proceed with a more detailed study. This action means that the probability of your site containing endangered or threatened species is very high. This study will entail an in-depth study that may possibly need to be conducted during only during certain months of the year by an approved specialist. The results from this study will be submitted to the agency/agencies.
- The final determination by the agency/agencies will direct the next step. Usually there will be one of the following three scenarios:
 1. A clearance
 2. A buffer will be required to protect the endangered or threatened species in question from your earth disturbance
 3. No earth disturbance may occur



BOG TURTLE SCREENING

If your project will require a General Permit, you may need to submit a Bog Turtle Screening with your permit. This action is required in certain PA counties with known bog turtle populations. A request for a Bog Turtle Screening is made to the US Army Corps of Engineers. A clearance must be obtained in writing even if the PNDI did not indicate a potential conflict. One of the following can occur:

- US Army Corps of Engineers will come to the site to conduct the screening
- An approved specialist may be permitted to submit their own study that meets the requirements of the Corps (this can save time waiting for the Corps to do the field study—scheduling times can be long)
- If your PNDI was cleared by the US Fish and Wildlife Service for bog turtles, this clearance will be accepted in lieu of the Corps field review.

Ludgate Engineering will keep you informed of all activity involved with the PNDI and Bog Turtle Screening. Time frames for agency responses are estimated because each agency has fluctuating workloads and all submissions are processed in the order that they were received.

Time Marches On At Ludgate Engineering

My name is Bob Ludgate Sr. I have worked in the consulting engineering field for nearly 50 years, since starting as a surveying “rodman” in 1959. I began what is now Ludgate Engineering Corporation in 1976. In the years before I did engineering design of highways, bridges and power plants. I inspected and administered construction of highways, bridges and one high-rise building. I continued to work part-time as a surveyor. I earned my Professional Surveyor and Professional Engineer licenses, by experience and examination, in New York State before settling in Pennsylvania in 1973.

I am very proud of Ludgate Engineering and the many projects we have worked on. I am proud of our excellent staff members, both past and present. I would like to continue as President and technical leader forever but, as they say, time does march on. It is time to pass the mantle to the younger, fresher talent. I am very pleased that Thom Ludgate has stepped up to take full responsibility for both the business issues and technical leadership our company requires.

Now that Thom has taken on the responsibility of “chief”, not only am I pleased that the future of Ludgate Engineering is secure, but I can now return to my roots as an everyday working engineer. I am enjoying doing site plans, engineering analysis and client consultations. I expect to continue as a working engineer for several more years, for as long as my knowledge and ability effectively serves our clients. I look forward to hearing from the next client whom I can help with a project or a problem.

Ludgate pens a Resolution to Propose Legislation to Amend the Impact Fee Act(209 of 1990)

In a letter addressed to the Honorable Jim Cox and Honorable Mike Folmer and copied to the regions Senators and Legislators, Bob Ludgate Sr. urged a revision to the original Act 209 to specifically allow consideration of structural impacts of increased traffic due to development. The revision would also provide that a valid traffic impact study, prepared for a developer (as may be required by the subdivision ordinance) can be adopted by a Township as an addendum to the study. This will allow impact fees to be collected from those developments which caused the impacts.

In rural municipalities the major expense of development is somewhat different. Roads in rural areas often are “oil and chip, skin coats” laid over formerly gravel or dirt surfaces. These thin road sections are adequate to get the moderate farm equipment “out of the mud.” With increased traffic, especially truck traffic, severe damage to the road structure often occurs. Equally difficult in rural areas is the requirement in the Act that says the Study Committee must predict where and when future development will occur in order to estimate, in advance, where the impacts will be felt and the related costs incurred. In the case of Upper Tulpehocken Township this is not only difficult, but virtually impossible. Although land is zoned industrial or commercial, it MIGHT be a shopping center. Even more difficult is the agricultural preservation zone, which must allow for ag-related businesses which can generate truck traffic and can be sited anywhere in the Township. It appears the only fair way to address this issue is to require a traffic impact study from any such development to allow the Township to adopt that study as a revision to their Act 209 study.

Ken Grimes, 1st Vice President of the Pennsylvania State Association of Township Supervisors, will submit the resolution to propose legislation to amend the Impact Fee to the Berks County chapter for sponsorship.

Reading–Muhlenberg Vo-Tech Students visit Ludgate

Ludgate Engineering participated in the 9th Annual Home Builders Association of Berks County Career Day. Students studying Architectural Engineering and Design spent the day at Ludgate learning about Civil Engineering and Computer Aided Drafting and Design (CADD). Engineers and CADD operators took turns explaining daily activities to the students. The students were thrilled to get some hands-on experience and explore the drafting programs used by Ludgate.

Pictured are Vo-Tech students Brad Bean and Ugo Mingucha with Ludgate CADD Technician Ron Buchter.



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Ludgate News

On January 1, 2007, the American Society of Civil Engineers honored **Robert Ludgate Sr., PE, PLS** for achievement of the status of Life Member. The plaque reads "with appreciation for a lifetime of dedication and service to the profession of civil engineering".

Ludgate is pleased to welcome receptionist **Connie Hoffman** to our staff. Connie's warm personality is sure to enhance communications with Ludgate.

Ludgate is also pleased to welcome **Sandy Goho**. Sandy's background in the fast-paced world of real estate appraisals lends itself well to the land development division at Ludgate.

Ludgate Engineering has been appointed Township Engineer by **Tulpehocken Township** in Berks County. We are very excited for the opportunity to serve this municipality.

Groundbreaking on the **Our Town Foundation (Hamburg, PA) Streetscape Project** occurred on April 25th.

Adam Bender, Jackie Hollenbach and Kirsten Deysher attended the **PSATS' Convention (PA State Association of Township Supervisors)**.

Ludgate Exhibits at "I" DAY

Ludgate Engineering was a featured exhibitor at "**I (Insurance) Day**". The event was held at the Inn at Reading and drew over 100 representatives from Berks County insurance agencies. **Ed Nordahl, PE**, VP of Engineering Services and **Kirsten Deysher**, Marketing Coordinator worked the Ludgate booth which featured information on our investigative engineering services. From sagging roofs, swimming pool collapses to fires, floods, earthquake damage, and sinkholes, Ludgate engineers are called on by several leading insurance agencies.

In preparation for the "I" Day event we asked our clients why they chose Ludgate Engineering. Here is what they had to say :

"CLEAR statements, SOLID determination and EXCELLENT research are the reasons we continue to use the services of LUDGATE ENGINEER Ed Nordahl, PE. - Matt Baradyn, Erie Insurance

"For us RESPONSIVENESS, CONCISE REPORTING and RAPID TURNAROUND are essential. LUDGATE ENGINEERING has remained a constant on our ever changing list of engineering firms. LUDGATE shows a willingness to work with a client to meet the CLIENT'S GOALS, which not all firms possess."

- Ben Mudrey, United Technical Consultants