



The Kohl Condo Proposal: Slab-on-Grade Foundations Raise Questions of Durability

Come to the May 14 Planning Board Hearing

Kohl Construction, operating as Tofino Associates and Northern Avenue Homes, currently proposes to build 23 condo units plus roads in the woods, grassy areas, and wetlands buffer zone between North Street and the new bike trail in Northampton. The North Street Neighborhood Association has previously raised objections regarding the close encroachment to wetlands, the experience of flooding on this property, the loss of trees, and the cookie-cutter design that is a poor fit with the neighborhood. Let's now explore the drawbacks involved in slab-on-grade foundations, a construction technique Kohl proposes to use. Slabs raise concerns about durability and energy efficiency, core values of the Sustainable Northampton Plan.

Slab-on-Grade Foundations

On some areas of this site, seasonal high groundwater rises to within 14-16" of the surface, according to Kohl's own test pit data. Scientific studies suggest the proposed removal of numerous large trees could cause groundwater to rise several inches higher. (A single large tree absorbs as much as 150 gallons of water from the soil per day. Trees also intercept a portion of rainfall before it reaches the ground.)

Because of this high groundwater, Kohl proposes to avoid basements and place the condo units on "slab-on-grade" foundations. Wikipedia notes this technique is less common in cold climates and describes the drawbacks:

"Slab-on-grade foundations are...most often seen in warmer climates, where ground freezing and thawing is less of a concern and where there is no need for heat ducting underneath the floor..."

"The disadvantages are the lack of access from below for utility lines, the potential for large heat losses where ground temperatures fall significantly below the interior temperature, and a very low elevation that may expose the building to flood damage in even moderate rains. Remodeling or extending such a structure may also be more difficult. Over the long term, ground settling (or subsidence) may be a problem, as a slab foundation cannot be readily jacked up to compensate..."

Monster Constructors (Fort Worth, TX) echoes these concerns:

"...slabs come with some baggage. Frequently, plumbing drainage and water supply lines are buried beneath the slab. If something goes wrong or a leak develops, repairs can be costly. Heating or cooling ductwork buried underneath the slab can sometimes fill with water during wet seasons. Should this happen, mold can form and spores might be blasted into the home each time the air conditioner fires up. Thermal conduction issues are always present. Slabs poured in colder climates can conduct cold back into the house unless special precautions are taken. Homes built on slabs often offer little protection during tornadoes or hurricanes, unless a special masonry or concrete safe room is built within the house."

Bruce Maki, editor of HammerZone.com, is so concerned about slab foundations that

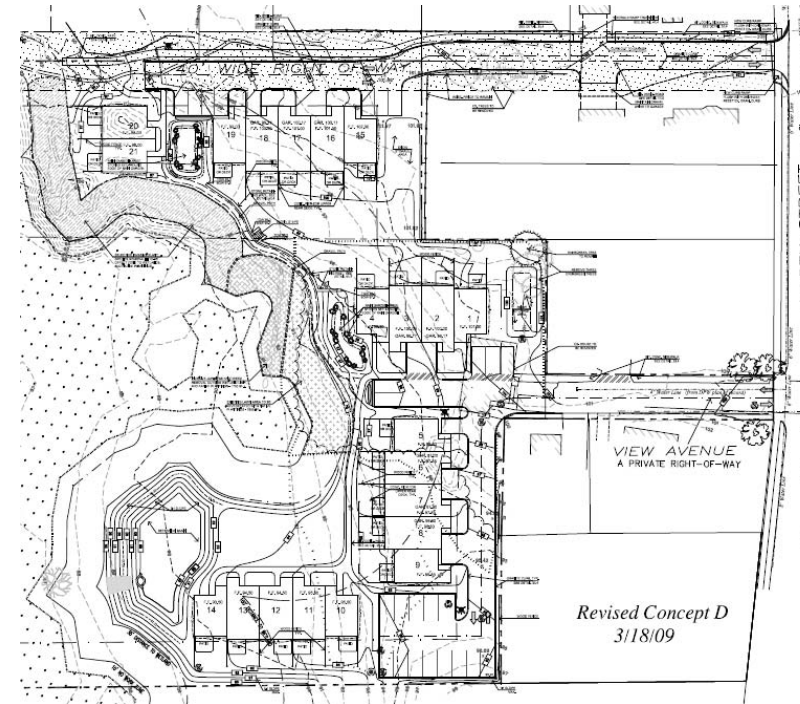
"...[q]uite frankly, you couldn't give me a house built on a slab foundation. With no easy access to any of the 'environmental systems' (electrical, plumbing, HVAC) maintaining these structures is a nuisance at best, and a nightmare at worst..."

"Builders will say that slab foundations are cheaper... I don't buy into that argument. It only saves money up front, and almost certainly adds costs later, costs in maintenance and repair..."

"Another issue that nobody talks about is structural longevity. Long ago I heard a rule-of-thumb for carpentry: keep all wood at least 6 inches above the soil so the splashing water doesn't get on the house and cause decay of the wood. Around here most houses are plenty high off the ground, but many garages and sheds are built low. And I've seen many of these buildings get structural damage, typically rot but also termite infestations, from rain dripping off the roof, onto the ground, and splash-

ing onto the building. The houses around here with basements usually have 18" to 24" of masonry directly above the soil, and no problem with rotting sill plates. ...I have absolutely **no** confidence in the long-term structural integrity of slab-foundation houses. I have to wonder what all these fancy slab houses will be like in 30 or 40 years. I won't be doing repairs on them, that's for sure. Maybe they'll be knocked down to return the land to farming..."

It takes more than a downtown location to qualify a development as Smart Growth. Kohl's proposal falls far short.



Kohl's latest proposal, concept "D", calls for 23 units (two units at the end of Northern Avenue not shown). Over half of these units have a footprint that intrudes within 100 feet of the wetlands around Millyard Brook. The safety margin against flooding and wetlands disturbance may be even less than it sounds, because the wetlands boundary on this site is "particularly difficult to delineate...there were indicators of hydric soil almost anywhere we looked" (8/21/07 report of environmental scientist Alec MacLeod). Hydric soils are those that are saturated, flooded, or ponded long enough during the growing season for the development of anaerobic conditions in the topsoil. The 10 units at the bottom of this diagram gave particular concern to Conservation Commissioner Paul Wetzel. Their relatively low elevation close to the water table motivated him to say, "to me, getting rid of these guys...is a big help" (3/12/09 public hearing, video recording available at www.northassoc.org).

Flooding risk? Tree loss? Energy waste? Poor design? Tell the Planning Board our neighborhood deserves better!

**Planning Board Hearing, May 14, 7:00pm
City Council Chambers, 212 Main Street**