North Carolina Wildlife Resources Commission

Charles R. Fullwood, Executive Director

20012058B/339

MEMORANDUM

TO: John Dorney, Wetland Scientist
Wetlands/401 Water Quality Certification Unit
Division of Water Quality

FROM: Danielle R. Pender, Piedmont Region Coordinator
Habitat Conservation Program

DATE: 23 February 2001

SUBJECT: Pre-construction Notification Application for Harrington Pines Subdivision, Durham County, North Carolina. DWQ ID: 001549

Biologists with the North Carolina Wildlife Resources Commission have reviewed the subject pre-construction notification. Our comments are provided in accordance with provisions of the Clean Water Act of 1977 (as amended), the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661-667d), and North Carolina General Statutes (G.S. 113-131 et seq.).

Applicant proposes to impact 170 linear feet of streams and 0.1075 acres of wetlands for road crossings and lot fill in a 28.14-acre residential development, Harrington Pines Subdivision. The applicant received a 401 (#94483) / 404 (#1999402939) permit for previous impacts on an adjacent property, Harrington Grove. Mitigation is proposed as payment into the N.C. Wetland Restoration Program. The stream that runs through the project is Sycamore Creek, which is a tributary of Crabtree Creek in the Neuse River drainage basin. There are records for the existence of the state threatened, triangle floater (*Alasmidonta undulata*) and squawfoot (*Strophitus undulatus*) and the federal species of concern and state significantly rare, pinewoods shiner (*Lythrurus matutinus*) in Crabtree Creek; therefore, protecting water quality is essential.

We recommend that the following conditions be incorporated into the permit to reduce impacts to fish and wildlife resources.

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1. Lot numbers 76-83 are located within the Neuse River buffer zone and some of the lots are additionally proposed to impact wetlands. We request that these lots either not be developed, be reduced in size, or that an alternate lot configuration be designed.

2. Approximately 4 acres of wetlands are located on the property. Require all remaining wetlands and streams on the site to be protected from additional impacts by placing them in a permanent conservation easement to prohibit filling, draining, flooding, and excavation. Additionally, lot owners should be advised of the Neuse River Buffer Rules.

3. In order to minimize stream impacts, while retaining some measure of wildlife habitat, we recommend a 100-foot undisturbed, native, forested buffer along perennial streams, and a 50-foot buffer along intermittent streams and wetlands. Maintaining undisturbed, forested buffers along these areas will minimize impacts to fish and wildlife resources, water quality, aquatic habitat both within and downstream of the project area, and help prevent the extirpation of endangered and threatened species. In addition, wide riparian buffers are helpful in maintaining stability of stream banks and for treatment of pollutants associated with urban stormwater. Whereas, a grassed buffer, particularly fescue, is a vegetated buffer but will not provide the necessary and highly valuable functions as discussed for forested buffers.

4. Use bridges for all permanent roadway crossings of streams and associated wetlands to eliminate the need to fill and culvert. If culverts must be used, the culvert should be designed to allow for fish passage. Generally, this means that the culvert or pipe invert is buried at least one foot below the natural streambed. If multiple cells are required, the second and/or third cells should be placed so that their bottoms are at stream bankfull stage (similar to Lyonsfield design). This will allow sufficient water depth in the culvert or pipe during normal flows to accommodate fish movements. If culverts are long, baffle systems are required to trap gravel and provide resting areas for fish and other aquatic organisms. If multiple pipes or cells are used, at least one pipe or box should be designed to remain dry during normal flows to allow for wildlife passage. In addition, culverts or pipes should be situated so that no channel realignment or widening is required. Widening of the stream channel at the inlet or outlet of structures usually causes a decrease in water velocity causing sediment deposition that will require future maintenance. Finally, riprap should not be placed on the streambed.

5. Locate sewers and other utilities as far away from creeks as functionally possible and minimize stream crossings. It is preferable that sewers be located outside the riparian buffers.

6. The construction of roadways in new neighborhoods can produce short-term direct impacts as well as long-term cumulative effects. Increased stormwater runoff can accelerate erosion of stream banks and scouring of the stream channel. Additionally, the

pollutants (e.g., sediment, heavy metals, herbicides, pesticides, and fertilizers) washed from roads and urban landscapes can adversely affect and extirpate species downstream of developed areas. Grassed swales in place of curb and gutter and on-site stormwater management (i.e. bioretention areas) can be installed to produce no net change in the hydrology of the watershed and are recommended. These designs often cost less to install and significantly reduce environmental impacts from residential development. Many of these recommendations have been applied in Maryland in efforts to protect the Chesapeake Bay from water quality degradation.

Thank you for the opportunity to review this pre-construction notice. If you require further assistance please contact our office at (919) 528-9886.

cc: Todd Tugwell, USACOE, Raleigh

E-mail: Stephen Hall, Zoologist, Natural Heritage Program