HOUSE BILL 1165 – STREAM AND WATERSHED - STREAM RESTORATION CONTRACTORS LICENSING AND CHESAPEAKE AND ATLANTIC COASTAL BAYS RESTORATION AND FUNDING (WHOLE WATERSHED ACT)

COMMITTEE – Environment and Transportation

Testimony on H.B. 1165

Position – Oppose

Hearing Date – March 1, 2024 (submitted on February 28, 2024)

Dear Members of the Environment and Transportation Committee

I am Robert Dover, a resident at 6354 Tamar Drive, in Columbia, Howard County, Maryland. I am writing to request that you vote against House Bill 1165, as written. I oppose the following components of the bill:

1) The establishment of a Stream Restoration Contractors Licensing Board (Section 18, Subtitle 1, 2, 3, and 4). If the Board is to be established, I oppose the imbalance between the stream restoration contractors and residents on the Board.
2) Several specific provisions of Subtitle 8-2B-02 related to public comment period, and to the specific items to be addressed in an assessment. I agree that both the scope of the public comment period, and the specific information that must be provided to support applications for permits and post-construction monitoring, should be specified in legislation. However, I find that the specific items proposed in the legislation are not sufficient to address the issues of concern to residents, adjacent property owners, and the community.

I would support the bill, if it were amended to address the following comments.

Personal Qualifications:

I am a professional geologist specializing in surface water hydrology, environmental geochemistry, and environmental impact analysis and mitigation. A summary of my qualifications relevant to the practice, benefits, and impacts of “stream restoration” is as follows:

Education
B.S., Geology, Beloit College, Spring 1983
M.S., Geology, University of North Carolina – Chapel Hill, Spring 1985
Additional PhD-level graduate study in Sedimentology, University of North Carolina – Chapel Hill, Autumn 1985
Specialized coursework in stream deposit morphology, Exxon Production Research Co., 1988-1989
Additional PhD-level graduate study in Hydrology and Environmental Engineering, Cornell University, Autumn 1990 to Spring 1991

Professional Certifications
Professional Geologist #PG004768, Pennsylvania (2007 to present, included sitting for American Society of Boards of Geologists exam)
Professional Geologist #1488, Arkansas (1989 to 2023)
Project Management Professional #326182 (2006 to 2019)

Experience on Similar Environmental Planning and Surface Water Hydrology Projects

- Managed the Environmental Department of Dynamac Corporation, including a staff of 15 ecologists, geologists, and civil and environmental engineers (1993 to 2000)
- More than 16 years of experience as Senior NEPA Project Manager at AECOM, managing multi-disciplinary staff (including stormwater and environmental engineering professionals) in developing Environmental Impact Statements (EISs) for natural resource and recreation management, forestry, solar power, nuclear power, pipeline, transmission, transportation, and other construction and development projects.
- Served as Subject Matter Expert in surface water hydrology and stormwater management for more than 20 EISs and Environmental Assessments (EAs) for large-scale construction and development projects.
- Played leading role in development of stormwater management standards for large-scale solar power plants in California for the Bureau of Land Management (2007 to 2009).
- Experienced in analysis of stream sediment morphology, including leading canoe field trips to study fluvial deposits.
- Experienced on four separate projects that involved analysis of the hydrologic effects of tree removal on groundwater and surface water flow.
- More than 20 years of experience working with federal agency NEPA staff and attorneys to comply with administrative requirements of NEPA, including development and analysis of project alternatives, incorporation of mitigation measures into project approval documentation, and meeting public engagement requirements.
- Served as onsite Stormwater and Environmental Controls Compliance Inspector for multiple construction projects (1997 to 2012).

Background

First, let us be clear.

- The negative, adverse impacts of “stream restoration” projects are definite and certain, while the positive benefits are speculative and uncertain.
- The more destructive a project is, the more money that the “stream restoration” contractor makes.

Those two statements, combined, should make any influence exerted on this legislative process by the “stream restoration” industry questionable.

Whether or not they are ultimately successful in achieving any long-term restoration goals, so called “stream restoration” projects are enormously destructive. They generally rely on massive deforestation in order to re-connect floodplains, and to replace upland forests with riparian communities. This eliminates the critical evapotranspiration and other hydrologic functions of mature forests, displaces or kills existing wildlife, increases the potential for downstream flooding on adjacent properties, and impacts viewscapes from residences, reducing their property values. The disturbance of the soil exposes deeper soils to oxygen and pH changes, which can mobilize otherwise insoluble minerals, such as iron. The projects also bring in foreign materials such as rocks, soil, gravel, and organic material from other locations, upsetting the established geochemical equilibrium, and again resulting in mobilizing otherwise stable materials.

When a project is approved, the deforestation, displacement of existing wildlife, increase in flooding potential, and visual impacts to adjacent property owners WILL occur. What is more concerning is that these destructive impacts are not only certain, but they are immediate and irreversible. The devastation occurs within a few short weeks and, once done, cannot be undone. I have found multiple examples of communities, including my own, where the first “stream restoration” project was allowed to proceed because the community was not properly informed about the extent and duration of destruction that was going to occur, but the proposed second project was fought aggressively, once the community saw how these projects really work. This pattern can only be stopped by a more proactive community engagement program, including comprehensive public notification and multiple comment opportunities, beginning at the conceptual stage, and including the ability to review and comment on final design plans before a project is approved.

The negative impacts are also long-term, affecting the project area for years or decades. The public notices that I received from MDE for one of these projects not only failed to disclose the extent of tree removal adjacent to my property, but also claimed that the impacts would be “temporary”. In a recent Environmental Impact Statement for another project in Maryland, the U.S. Army Corps of Engineers (USACE) defined the duration of impacts for a project involving vegetation removal as “long-term” or “permanent”. This is a standard assumption under the National Environmental Policy Act (NEPA). Also, even non-professionals understand that it will take decades to restore a mature forest canopy and ecology once mature trees are removed from an area. Claims that the adverse impacts of these project are “temporary” can only be a deliberate attempt to misinform the public in order to minimize public scrutiny.

In contrast, the published scientific literature regarding the supposed benefits of these projects on streambank stability, improvement of water quality, and improvement of ecological function is overwhelmingly negative. I have compiled a bibliography of more than 30 recent (2008 to 2023) articles and studies, published in academic journals and funded by Chesapeake Bay protection organizations such as Chesapeake Bay Trust, which have reviewed the results from completed projects, and found them to have had few or no beneficial effects.

Similarly, I have completed an intensive study of the post-construction documentation associated with completed “stream restoration” projects in Howard County, and the results are either inconclusive, or negative. The Department of Public Works (DPW) is required to report results from three watersheds in which “stream restoration” projects have occurred. From the 2022 annual report, with my emphasis added, quotes for Wilde Lake: "Overall, the stream system in the Wilde Lake watershed . . . has NOT demonstrated measured improvement in either habitat quality or ecological stream health." "Total Suspended Solids (TSS) levels in stormflow samples CONTINUE TO BE ELEVATED." "Overall, implementation of projects in the watershed DO NOT appear to have significantly improved the physical habitat." Quotes from Red Hill Branch: "Post-restoration monitoring results indicate a subwatershed in an overall degraded condition, with LITTLE CHANGE from the first two years of pre-restoration monitoring" "The biological community and habitat . . . remain in a degraded condition and have NOT shown any significant improvement after restoration." Quotes from Dorsey Hall monitoring: "The physical habitat results show that both sites are severely impacted . . . with NO EVIDENCE yet of ecological uplift after restoration."

I have seen similar observations from the Longfellow “stream restoration” project developed by the State Highway Administration on land owned by the Columbia Association. The Year Two and Year Three Monitoring Reports show that post-construction sampling of water quality and surveys of ecological function are not even required, yet the contractor is allowed to make claims, in their report, that water quality and ecological function have been improved. The project, conducted in 2020, failed to meet its required 75% reforestation standard for the DNR,

achieving only 36% after three years. The project was required to re-plant 700 new trees in October, 2023 – yet the report still claimed that the project was “self-sustaining”. Despite the lack of any actual monitoring data, and the failure to meet the reforestation goal, the responsible stream restoration contractor still had the temerity to recommend, to the U.S. Army Corps of Engineers, that they be excused from their required fifth year of monitoring.

I have also reviewed the “Prospectus”, or applications to MDE and USACE for a permit under the Nationwide Permit 27 (NWP-27), including those for the proposed Elkhorn Branch project, and the proposed Plumtree Branch project. My review of these documents was alarming. Both of these documents presented the project in the following manner:

- Exaggerated the need for the project, including showing multiple photos of nearby infrastructure without any documentation or statement suggesting that the infrastructure referred to was in any way threatened by the stream.
- Exaggerated the benefits of the project, especially making exaggerated claims of anticipated water quality improvement and ecological uplift. Both documents were written and submitted in the 2019-2021 timeframe, and both cited published, scientific literature in order to support their claims of benefits. In both cases, the cited documents did not actually make the statements that the Prospectus claimed that they made. Also, both documents failed to cite any recent published, scientific literature. The most recent study cited in the Plumtree document was dated 2000, or more than 20 years old. The most recent study cited in the Elkhorn document was dated 2008. Both documents failed to include citations for any of the dozens of scientific, academic articles and post-construction studies published between 2010 and 2022.
- Ignored the adverse impacts of the project. Where “stream restoration” companies have mentioned adverse impacts in their correspondence, it is focused entirely on adverse impacts of the construction activities, without a word regarding the long-term impacts to hydrology, ecology, flooding, and adjacent property values.

It should also be noted that the profits generated by these companies are DIRECTLY proportional to the destruction they cause. The larger and more aggressive the project, the greater the level of effort, and therefore the greater the cost to the agencies paying for the projects. These companies actually have a financial incentive to inflict the maximum amount of destruction on an area, regardless of the adverse impacts or whether the area is residential.

At the same time, the compensation paid to these companies is completely independent of the results. For the Elkhorn Branch project, the developer proposed that they be allowed to sell 70% of their mitigation credits upon completion of construction, with no demonstration that the construction achieved any positive results. There is no requirement to conduct pre- or post-construction water quality, streambank migration, or ecological monitoring to establish whether these objectives have been achieved. The only required monitoring is visual inspection of structures, and counting of trees. At the Longfellow project in Columbia, the contractor failed on both accounts. Three years after completion of construction (and having been paid more than $2 million for it), the reforestation success rate had dropped to 36%, the contractor noted multiple instances of structures at risk of failure, and they still opened a conversation with USACE about being excused from their required fifth year of monitoring.

Based on these observations, it is my opinion that the “stream restoration” industry, in general, is not based on a solid, scientific footing. Instead, it is entirely based on greenwashing, making exaggerated claims of benefits to persuade well-meaning members of the community that these projects are environmentally-friendly and science-based, when nothing could be further from the truth. Any objective consideration of these projects must present an accurate and up-to-date

assessment of both the expected benefits AND the long-term, adverse impacts, and must honestly report the likelihood of each occurring. That information is currently completely missing from the documentation submitted by these companies, and I do not see anything in the proposed legislation that would correct this situation.

I hope you agree that, to be successful, the practice of stream restoration in Maryland must:

- Be based on the most up-to-date, published science available;
- Have its results, positive or negative, documented through comprehensive pre- and post-construction field data collection and monitoring;
- Closely coordinate with the surrounding community and potentially affected property owners at ALL stages of the process;
- Consider the realistic probability of success, rather than just assume that placement of engineered structures will automatically result in improved water quality and uplifted ecology; and
- Consider the adverse impacts, including the duration of those impacts to residents, the challenges associated with revegetation efforts, and the certainty that long-term adverse impacts will occur.

Without addressing these issues, the "stream restoration" companies will continue to present their unrealistic, unsupported opinion of the benefits of these projects, and will continue to fail to properly notify the surrounding residents of the actual extent and duration of destruction that is about to be inflicted on their communities. Packing the new Board so that it is controlled by the "stream restoration" practitioners will allow them to continue driving the process.

Specific Observations on establishment of a Stream Restoration Contractors Licensing Board (Section 18, Subtitles 1, 2, 3, and 4)

1) As a 30-year experienced hydrologist and environmental planner, I do not consider "stream restoration" to actually be a consolidated, stand-alone discipline or practice.

In the scientific literature, you will find that there is a long-standing rivalry between "stream restoration" practitioners who implement these projects, and the academic scientists who study their results. I offer here some observations regarding the technical capabilities and motivations of the "stream restoration" practitioners, taken out of published, peer-reviewed journals:

> "Charismatic personalities", and driven by the "profit factor" (Palmer and others 2014)
>
> Training has empowered individuals that "may have limited backgrounds in stream and watershed sciences to engineer modifications of streams", and "based on 50-year-old technology never intended for engineering design" (Simon and others 2007).
>
> "Dave is creating his own legion of pin-headed snarfs", and "market is being filled by folks with very limited experience in hydrology or geomorphology" (J. Steven Kite, quoted in Science Magazine, 2004)
>
> Practitioners have received "para-professional training" (Simon and others 2005).
>
> "The practice of stream restoration has far outpaced the science. Practitioners base their efforts on their own personal experience, which is not written and not

made available for study. Where they have been made available, they are non-quantitative and anecdotal." (Thompson and Smith 2021)

The academics studying the results of previous stream restorations have not only documented that the projects do not work, and they have not only documented the technical reasons why the projects do not work. They have gone further, and identified fundamental, systemic failings in the training, education, and even the motivations of these practitioners. When I have raised these concerns, I have found the "stream restoration" practitioners to be dismissive of the academics because "all they do is read reports, and they refuse to go into the field to see the projects." This view fails to acknowledge that the reports of the poor results that are read by the academics are often written by the practitioners themselves. Dr. Margaret Palmer's landmark 2014 article (Palmer, Margaret A., K.L. Hondula, and Benjamin J. Koch. 2014. Ecological Restoration of Streams and Rivers: Shifting Strategies and Shifting Goals. Annual Review of Ecology, Evolution, and Systematics 45:247-69) was based on a compilation and study of the post-construction reports developed for 644 "stream restoration" projects. The poor performance record and multiple failures that were cited by Palmer and others were actually based on the reports developed by the practitioners, and submitted to state agencies.

Like any environmental planning, remediation, or restoration program, "stream restoration" is a complex subject requiring a multi-disciplinary approach, and cannot be implemented by persons whose only qualification is having taken a short course in the Natural Channel Design method of stream restoration offered by a for-profit consultant. In addition to civil engineering, full evaluation of the benefits and impacts associated with these projects requires the disciplines of hydrology, upland forestry and ecology, riparian and wetland ecology, geomorphology, climatology, soil science, and environmental geochemistry. The idea that a single examination, for a single individual, could capture all of these necessary disciplines is ludicrous. Based on my reviews of the documentation developed by these companies, it seems obvious that the focus for this Board, which will be dominated by the "stream restoration" practitioners, will be limited to training in the Natural Channel Design method, with no consideration of any of the other disciplines.

2) The Board seems redundant and unnecessary.

This is especially concerning because the discipline of civil engineering is ALREADY licensed by the state of Maryland, as a stand-alone discipline. This proposal for a "Stream Restoration Board" is simply a subset of a discipline that is already licensed, and is therefore redundant. The permit applications submitted for these projects are already required to be signed by a Professional Engineer, and the technical qualifications and ethical practice of those individuals is already controlled through that other mechanism. This presents the appearance that there is no need for this new Board with respect to regulation of the industry, but only to allow one group of practitioners to limit the ability for other practitioners, or persons whose qualifications are in a different discipline, to engage in watershed projects.

It is also raises a question of whether the purpose of the bill is to remove a Professional Engineering requirement that is currently in place and replace it with a less stringent stream restoration license. Given the destructive nature of these projects, as well as their potential to cause flooding and other impacts on adjacent properties, the professional qualifications of those who conduct these projects must not be reduced.

3) The proposal to pack the committee with a majority of practitioners is unacceptable.

There could be no more direct statement of an intent to propagate these destructive projects throughout the state, regardless of the effects of the projects on the adjacent residents, than allowing the practitioners, themselves, to dominate the committee. As was discussed above, and below, the most egregious practice of these companies is the greenwashing used on the surrounding communities. In the words I found on a training package for one company, a key part of their public engagement program is what they call the “Public Relations Blitz”. In Columbia, the Board of Directors of the Columbia Association, upon approving a stream restoration project, directed the staff to go out and put the “full schmooze” on the neighborhood. These are not evidence of organizations wanting to coordinate with the residents to find ways to minimize adverse impacts to the adjacent properties and surrounding communities. These are the words of organizations who are trying to act quickly to avoid any public scrutiny until it is too late. If formed, the Board must balance the number of members from the practitioners and the community.

4) The bill does not define requirements for projects conducted on lands owned by homeowner’s associations.

Section 18-301(D) specifies that a license is not required for residential or commercial property owners. This implies that the bill is intended to only address projects conducted on state-, county-, or municipal-owned land. However, the bill should make the requirements on homeowner’s association property clear. As a resident within the Columbia Association, and observing how they operate, I believe that they would claim to be exempt from this law by claiming that they are a “commercial” business. However, the residents consider them to be a governing body, which would make them subject to the law. The text of the bill should be revised to make clear that projects on homeowner’s association property are subject to the regulation.

Sufficiency of Public Notifications and Public Comment Period (Article 8-2B-02(H)(2))

The public notice I received, and the public comment period process, regarding the Elkhorn Branch project was deeply flawed, and was apparently deliberately designed to avoid any public engagement on the project at all. Therefore, I fully agree that this legislation should address this issue, and I find that it makes some positive steps in that direction. However, the proposed measures do not go far enough to correct the failures in the Elkhorn Branch process.

1) The Elkhorn Branch notices failed to disclose the nature and extent of the removal of mature trees that would occur in residential neighborhoods. The notices did present maps of the “Limits of Disturbance” (LOD), but never equated this with “tree removal”. LOD is a construction term that is not widely known among non-technical residents. In my 30+ years of experience as an environmental contractor and planner, I am fully aware that the only possible interpretation of the acronym “LOD” is full removal and clearing of all vegetation, and grading of soil, within the area. However, when residents made this assumption and commented accordingly, both the contractor and the Columbia Association argued, in writing, that the LOD shown on the maps in the public notice was not final, and that, in any case, just because an area is within the LOD does not mean that its trees would be removed.

   Having visited and studied several completed projects in Maryland and Virginia, it is quite obvious that, not only are all trees within the LOD removed, but trees outside of the LOD

also died because of the change in their local hydrology, amount of sunlight, and other components of their microenvironment. This has happened at The Glade in Reston, where there is no indication of reforestation 14 years after the project was completed, and at Longfellow in Columbia, where the contractor has recently re-planted 700 new trees to replace the stick-trees planted in 2020, that died.

Also, the common practice of both the contractors and the agencies is to define “tree” as a plant that is 12 inches in diameter at breast height (dbh). For the Plumtree project, the contractor claimed that only about 40 “trees” would be removed, when the real number was more than 900. This is an unacceptable attempt to avoid public opposition, and ignores the critical hydrologic, ecological, and residential functions of trees smaller than 12 inches dbh.

Item 9 of the completion checklist for NWP-27 specifically requires that the permit application describe the “amount of tree clearing in forested areas”. The application for the Elkhorn Branch project, and the associated public notices, made no mention of tree clearing. Instead, they showed the LOD, and then argued that the LOD had no relationship to the actual tree clearing. The proposed bill does nothing to stop this kind of malpractice on the part of the “stream restoration” industry.

2) The Prospectus and public notice for Elkhorn Branch referred to all impacts as “temporary”.

In general, the documents failed to address any adverse impacts resulting from these projects but, when such impacts were discussed, they were only discussed within the context of the construction activity, and failed to acknowledge that the impacts of the deforestation on ecology, hydrology, and residences will extend for years or decades following the completion of construction. Article 8-2B-02(H)(2) must specify that the notice properly disclose adverse impacts that are reasonably foreseeable, including the location and actual duration of those impacts.

In terms of the concerns of residents, it is easy to see that their primary concern for impacts of a stream restoration project would be the impact on their own properties, including the effect of the project on views, and the potential for the project to increase flood and erosion risks to their property. Both of these impacts are directly associated with tree removal, and both impacts are defined by the USACE as long-term or permanent in nature. Once the scope of the Elkhorn project became known, my neighbors and I spent a good deal of time interviewing other residents, including dozens of people who live on property directly adjacent, and who received notices. Every single one of these residents who acknowledged receiving the notice stated that they ignored it, because it did not seem to suggest any concerns other than short-term construction noise. When informed that the project would have cut down tens of acres of trees directly along their property lines and the reforestation of these areas would take years or decades, these residents expressed anger that the notices failed to disclose this information.

It is unacceptable to require public notification, but then allow the contractor and/or the agency to fudge the text of the notice so that it is meaningless. This approach does not serve anyone, including the stream restoration companies. It is in everyone’s best interests to fully disclose all potentially negative information up front, rather than allow the contractors to hide it until the damage is done.

3) Article 8-2B-02(H)(2)

It is good to see the legislation address the need for public meetings. However, the requirement in Article 8-2B-02(H)(2) is too vague, and needs to be made more specific. The bill requires only one opportunity to public comment, and only at the preliminary design stage. What is needed, and what would match the Federal process under the National Environmental Policy Act (NEPA), would be a public comment process at two different stages of the process. Under NEPA, these are for scoping, and for review of the draft environmental analysis document.

The scoping process is intended to notify the public that a project is going to be proposed, to explain the objectives, and then to solicit, from the residents who know the project area and the concerns of the residents the best, conceptual options to achieve the objectives. The purpose of the process is not just to notify the public – it is to offer the public the opportunity to be full participants in the process, so that the ultimate objective can be accomplished with maximum probability of success and minimal impacts. The scoping process can be, and should be, done as soon as the agency knows that a project is likely to be proposed, and once the conceptual outlines of potential alternative actions are developed.

The public review of the draft environmental analysis document normally occurs much later, after enough details of a proposed action and alternatives have been developed to allow the public to provide meaningful comment on the proposal. This is where the Elkhorn Branch project failed, because, once the contractor and agency saw the amount of community opposition, they claimed, in writing, that the opposition could be ignored because the Prospectus was incomplete. However, despite this acknowledgment that the Prospectus upon which the public comments was too incomplete to allow for meaningful public comment, the contractor and agency objected to re-opening a new formal public comment period once the document was revised. Taken as a whole, this process completely eliminated the ability of the public to understand the actual scope of the proposal before expressing their concerns and opposition to MDE.

Based on the current language in the proposed legislation, there is no mechanism for the public to comment on the final design, even if the project has changed substantially from its preliminary state. The language must be made more proscriptive, specifying that two public comment periods must be held at two different stages of the process, once to solicit input on the conceptual plan, and one to solicit comments following completion of a permit application document that describes the project in enough detail for the public to be able to meaningfully understand the impact that the project will have on their properties.

4) Article 8-2B-02(H)(2)

The legislation makes no attempt to specify who must be notified of a public meeting or comment period. This subsection of the legislation should define a radius or distance within which all residents, renters, and property owners, including those in multi-family complexes, are directly notified. This notice must occur by US Mail, must describe the project fully enough for them to be able to provide meaningful comment on the impacts of the projects, and should explain the availability of project documents, dates and times of public meetings, and the ability to express concerns and opinions in writing to the agency.

In my situation, my property is directly adjacent to Elkhorn Branch, so I received a notice in the mail (the notice was fundamentally flawed, but I received it). My neighbors live 15 feet from me, and are just as affected by the project as I am, but received no notice because they are not directly adjacent. This is wrong.

I have been the project manager responsible for public engagement processes under NEPA for decades. In my experience, the competent and ethical agencies and contractors actually want to notify and involve as many people as possible, while those who are seeking to make a quick buck and then leave town try to slip their project past the public with as little notification as possible.

Additional Items that Should Be Required

While the proposed legislation does provide some framework for improving the public engagement components of these projects, it has failed to identify address many of the most egregious failures of past projects.

1) Need to define contents and accuracy of applications

   As discussed above, the application and notification documents associated with past projects have been fraught with technical errors, and failed to satisfy even the minimal requirements outlined in the checklist for NWP-27 applications.

   The Prospectus for two recent projects failed to acknowledge and address more than 20 years of more recent scientific study and investigation that called into question the ability of these projects to meet ANY of their supposed objectives. If these documents were written for a sophomore course in environmental science, they would have been given an “F”, for having failed to perform even a perfunctory level of online literature review. In my interactions on both the Elkhorn and Plumtree documents, I have directly challenged the contractors and agencies to at least acknowledge, in writing, that these studies exist. If “stream restoration” was an honest, science-based practice, the contractors would cite these opposing publications, and explain either why they are technically incorrect, or are not applicable to the project being proposed. They do neither. It is obvious that they have gotten away, for years, with no actual agency or public scrutiny of these documents. The proposed legislation does nothing to force the agency, or the contractor, to include recent, opposing viewpoints from published, peer-reviewed scientific literature in their written documents. This serves the purpose of making their documents appear to be science-based, when they are not.

   As discussed above, the NWP-27 checklist proscribes very few specific items that must be full described in these permit applications. Easily, the biggest concern to adjacent property owners and residents will be the extent to which a project will alter our view of forests from our homes for decades, reducing our property values, and the extent to which the project will increase the frequency and intensity of flooding on our property lines. NWP-27 acknowledges this by REQUIRING that the applications define the extent of clearing of forests. Despite this requirement, the Elkhorn Prospectus still managed to be submitted, and accepted by the agency to support the public comment period, without having met this requirement. Because the NWP-27 checklist is a USACE requirement, the MDE staff may have failed to enforce it. Therefore, because a main purpose of this legislation is to provide direction to MDE staff regarding these projects, the parallel Maryland state legislation should repeat, and enforce, this requirement.

2) Hydrology calculations

   As a hydrologist, I have assisted other regulatory agencies in developing standardized requirements for hydrology calculations conducted by developers proposing projects on

public lands. I also have extensive experience analyzing the hydrologic effects of the planting and removal of trees on watershed hydrology.

I know of no project that has more potential to impact hydrology, increase the amount of runoff, and increase the frequency, extent, and intensity of flooding than a “stream restoration” project. Most projects affect hydrology temporarily and indirectly, without long-term effects on the amount of runoff in the watershed. Stream restoration projects are different – the entire purpose of these projects is to drastically, and permanently, modify the hydrology of these watersheds. This implies that extra care must be taken to ensure that these modifications actually achieve their objectives, do not cause further degradation of the watershed, and do not create flooding or erosion risks to infrastructure or adjacent properties.

When I first learned of these projects, I was shocked by the glaring contradiction between the supposed objective of the project, and the methodology used to implement the project. Since then, I have found nobody, whether in an agency or in a contracting firm, willing to even acknowledge the contradiction, let alone address it.

The contradiction is that it is commonly believed, I believe accurately, that the primary cause of degradation in our urban and suburban watersheds is increased runoff due to development. Development has cut down trees and converted pervious surfaces to impervious, drastically increasing the amount of stormwater runoff that our watersheds must handle.

It is also accurate, yet less well-known, that the amount of runoff in our watersheds is largely controlled by the hydrologic functions of mature trees. As shown in Figure 13 of Sanford and Selnick (2012), mature forests in Maryland remove more than 50% of the precipitation by means of crown evaporation and evapotranspiration. When forests are cut down, that water remains within the watershed. It remains mostly as groundwater, but that causes a rise in the water table which, in turn, reduces stormwater infiltration and storage capacity. It is well known, in areas of the world where logging occurs, that removal of trees directly leads to flooding.

In the case of these stream restoration projects, I have yet to have someone explain to me why there is no contradiction between high levels of runoff being the source of the problem, and the creation of more runoff as part of the proposed solution. This makes no sense, and is clearly ignored by the stream restoration companies, who benefit from short-term profits generated by cutting down trees.

For the three recent projects I have reviewed, I found that a discussion of the impact of tree removal on hydrology was completely absent from the documents, and the associated hydrology analyses failed to account for the effect of tree removal. The legislation should be revised to proscribe that each project include a hydrology analysis to quantify the amount of change in runoff levels due to the project. Also, it should specifically require that the analysis be based not on current conditions, but on future permeability, groundwater levels, curve numbers, and surface roughness levels after tree removal has been inflicted on the watershed.

The monitoring reports for the Longfellow project even claim that the increased elevation of the water table is a positive benefit of that project, completely ignoring the fact that this rise of the water table directly leads to increased runoff, and therefore additional degradation of the stream in the future.

Conclusion

The documents developed by the "stream restoration" practitioners that I have reviewed contain multiple flaws. As mentioned above, the Prospectus for two proposed projects in Howard County completely ignored decades of 20 years of published, scientific literature. They both reached back more than 20 years to find a published article that supports their claims of benefits, while ignoring dozens of more recent articles. This is either grossly incompetent, or deliberate misrepresentation. However, this has not stopped the individuals within those "stream restoration" companies from signing those documents, as licensed Professional Engineers. There is no indication that this new Board will operate any differently than the Professional Engineering Board already does, so this will NOT result in more competent or ethical documents.

Also, the bill does not include any other measures that will solve this problem. For instance, it MUST include measures to ensure complete and accurate contents of permit applications, including:

- Enforcing the NWP-27 requirement to disclose, up front, the full extent of tree clearing. The Prospectus for the Elkhorn project failed to discuss tree clearing, allowed the full public comment period to proceed, and then notified the Board of the Columbia Association that public comments regarding tree clearing could be ignored because the Prospectus was not complete.
- Adding discussion of adverse impacts, including impacts both during and following construction. This must include an honest disclosure of the duration of impacts, which, for tree removal, is long-term. This information must also be properly disclosed to the public in the notices of public comment period, and in presentations at public meetings.
- Beefing up requirement for public notification of comment period, to include a larger radius of mailing and signage. Public notifications must include all residents who may be potentially affected by the project, including unit owners and renters in multi-family communities, in addition to the Boards and management companies.
- Ensuring a two-stage public notification process, including the conceptual stage and the final design stage.
- Requiring up-to-date literature review and disclosure and incorporation of published, peer-reviewed scientific literature and studies from NGOs that present opposing opinions regarding the expected benefits and risks of the project.

Thank you for considering these comments.

Robert Dover

6354 Tamar Drive

Columbia, MD 21045

bobatwaterbury@aol.com

References:

Palmer, Margaret A., K.L. Hondula, and Benjamin J. Koch. 2014. Ecological Restoration of Streams and Rivers: Shifting Strategies and Shifting Goals. Annual Review of Ecology, Evolution, and Systematics 45:247-69.

Sanford, Ward E., and David L. Selnick. 2012. Estimation of Evapotranspiration Across the Conterminous United States Using a Regression with Climate and Land-Cover Data. Journal of the American Water Resources Association. Vol. 49, Issue 1.