TOWN OF CARRBORO
STORMWATER ADVISORY COMMISSION

AGENDA

April 8th, 2021; 6:30 pm
Remote Meeting

Time	**Item**	**Presenter**
6:30 pm	Administrative Matters: Call to order, approval of February minutes	Chair, all
6:35 pm	Public comment (if any)	Chair, all
6:40 pm	319 grant opportunity	Staff, all
7:25 pm	Announcements and adjourn	Chair

Citizens (other than Commission members) should email stormwater@townofcarrboro.org to receive an invitation to view the meeting. The requester should also specify if they wish to make any comments in the email. If you wish to make public comment, at the time of public comment, the speakers will be allowed to address the Commission. Please send any written statement or materials to the same email provided above. All written statement and materials will be forwarded to the Commission members.

TOWN OF CARRBORO

STORMWATER ADVISORY COMMISSION – SUMMARY

Remote Meeting on March 11th, 2021, 6:30 pm (Zoom)

Commission Members		Candidates	Staff
John Cox (vice-chair)	Jeanette O'Connor (chair)	Margot Lester	Randy Dodd
Robert Dickson	Michael Paul	Satya Kallepalli (absent)	Heather Holley
Jacquelyn Gist (Council Liaison, absent)	Lauren Joca (absent)	Sarah Bloesch	Emily Cochran
			Patricia McGuire

Guests

W. Jordan Brewer – Kimley-Horn
Derek Jones – Perkins & Will
Allen Pratt – Perkins & Will

Administrative Matters

The SWAC approved the February minutes unanimously.

203 Project Review

In summary, the SWAC:

- emphasizes that the Town should take this opportunity to lead by example and exceed minimum standards, align with climate resilience goals as well as help mitigate the Town's historic flooding problems
- commends the designers for their attention to stormwater control and notes that the design exceeds minimum requirements in several areas, but asks if there can be additional peak runoff control and specifically asks the Town to consider supplemental financing to allow designers to go even further beyond minimum requirements.
- requests that the designers consider the following additional technologies:
    - Silva cells
    - Additional bioretention areas where possible
    - Various alternative roof configurations such as a green/blue roof over the entirety of the primary structure or a blue roof set back over part of the parking deck
    - Placement of a cistern, perhaps taking up one or two parking spaces on the 2nd and 3rd floors of the parking garage
    - encourages the use of native plants over non-natives in the design, and specifically requests that *Liriope* be replaced with another ground cover plant
- notes that projected estimates for the precipitation "IDF" values (intensity, duration, frequency) used for stormwater design show an steep increase within the next 20 years, and ask that the Town consider projected storm events in planning for stormwater design rather than use the standard of NOAA Atlas 14 estimates

Details of Discussion

Randy Dodd provided a brief presentation regarding the 203 site, specifically pointing out that the land use is almost entirely impervious surface, and the current Land Use Ordinance provisions does not require treatment for preexisting impervious surfaces. He also showed the existing stormwater infrastructure, noting that water flows south and daylights at a stream off of S. Greensboro St. and Old Pittsboro Rd, and pointed out the location via Google Maps, with emphasis on the fact that there is a large volume of water that exits at this point and has provided issues for neighbors along Old Pittsboro Rd.

Trish McGuire added that the building will house two Orange County social services-related programs (OC Skills and Development, Library), and the Town of Carrboro will also have staff and programming in the building as part of the Recreation, Parks and Cultural Resources Department.

Derek Jones, shared a presentation regarding the project's design. Allen Pratt, landscape architect, described the plants that are planned throughout the exterior for stormwater control and visual appeal. Jeanette asked if a native plant could replace the *Liriope* that is planned as a groundcover; Allen agreed that it could. Allen also provided an overview of the bioretention cells that are planned along the sidewalk.

Jeanette asked who would be responsible for the maintenance of bioretention cells, green roofs, and other landscaping on the sites. Randy explained that the Town is looking into contracting with a State certified firm for SCM maintenance. Derek explained that there can also be a one-year (or longer) maintenance program as part of construction.

Jeanette asked if the vegetated planters could be wider (currently 7' wide), but Derek replied that the planters make up the remaining available space after satisfying street and sidewalk width requirements. Jeanette and Allen clarified the purpose and choices of various other plants that are planned on the site.

Jordan Brewer described the stormwater control plan for the site. There are 3 bioretention cells planned for treatment of roof drainage and at-grade runoff. Drained stormwater will flow beneath the sidewalk on the west side of the property, then connect with existing stormwater infrastructure in the southwest corner. Jordan showed results from the NCDEQ HyperTool and SNAP Tool to show volume reduction and nutrient reductions. The result will be that the first 1.5" of rain will be completely infiltrated within the bioretention areas.

Jeanette asked if the Town could require the project to control stormwater above and beyond requirements in the Land Use Ordinance. Randy said that the project is currently meeting the requirements of the ordinance, as well as providing additional annual stormwater volume control. Jordan stated that the stormwater control measures' greatest impact will be in annual volume reduction. Randy added that treating the first 1.5" of rainfall is also beyond the minimum requirements (1").

Mike asked if the site was designed with projected increases in rainfall intensity in mind. Jordan stated that the design was completed with current data that is available, not future projections. Mike asked if there are any additional measures we can take to maximize stormwater control, given the Town's historic stormwater issues, and if the Town relaxed other requirements, how far could the designers go to impact annual volume reduction.

Jeanette echoed Mike's question about whether or not the Stormwater Enterprise Fund could be used to subsidize stormwater control measures in projects. The design team offered that space constraints were important in considering additional treatment. Trish clarified that the width of Maple Avenue is already being reduced by 50% to accommodate the building footprint, but closing the street completely is not an available option at this time.

John Cox introduced the idea of Silva Cell installments with pipes running through it, though these areas do have considerable constraints. Allen said there is an area that may be appropriate for Silva Cells, along the south side of the property, however the cost may be a significant constraint. Jordan added that the Silva Cells could achieve a higher level of peak flow reduction.

Jeanette asked if it would be possible to place a green roof over the entirety of the primary structure, and place the solar panels over the parking deck. Trish and Derek said that they're still exploring possibilities for the roof infrastructure, including the idea of a blue roof with a green roof on top of it. Derek and Allen discussed the need for depth in constructing a blue roof rather than a green roof, which affects multiple parts of the construction.

Robert asked if it would be possible to put a partial blue roof over the parking deck, which is already built to withstand substantial weight. Derek said that the height for the parking deck is at the maximum per LUO provisions as it is, so adding an additional roof would push beyond the limit.

Randy asked if the stormwater analysis was completed with the green roof in mind; Jordan said that the green roof was not included in the calculation, and he anticipates that analysis with refined measurements will show further stormwater control. Randy also asked if there are any possibilities for underground detention; Jordan said that they are constrained by rock on the north side, and seasonal high water table on the south side of the site.

Jeanette asked about the potential of stormwater features within the courtyard. Derek explained that initial plans included an underground storage tank and fourth bioretention area in the courtyard, but these plans were not feasible due to the seasonal high water table. John mentioned the availability of elevated planter box-style bioretention areas that could be above grade. Allen also mentioned that the area is quite confined so there is a need to keep the area as open as possible for movement, but that a Silva Cell could be a possibility in this area.

Mike asked how much irrigation is required with this landscaping; Allen said he hasn't done a calculation for irrigation. Mike asked if we could place a very large cistern for additional volume control that could also be used for irrigating the ground-level landscaping. Allen and Jordan said that they have studied this idea, specifically for the green roof, and found that it was a feasible idea but it is constrained by space and is still being studied.

Jeanette asked if the courtyard needs to be a paved plaza, or if it could be a garden with sitting areas and a walkway. Allen said that the required hardscaping space takes up most of the space anyway, and additional planted areas probably wouldn't add much in terms of stormwater control. Derek added that the area is also required to be open due to egress areas, and pointed out the three less obvious doors in the area that require means of egress.

Mike reiterated that he will send projected IDF curves to Randy and others. Jeanette thanked the designers for putting so much thought into stormwater control for this project.

The SWAC discussed options for allowing the developers to make additional improvements, such as requesting that the height limits not include solar cells or blue/green roof depth. Jeanette asked if this option could be placed on a future agenda. Trish stated that there are provisions for equipment on roofs, which are not structural, but blue/green roofs are closer to a structure on a building. However, there is some legislative leverage for making changes. She also stated that the SWAC can emphasize the preference for using Silva Cells and/or altering the height requirements for the site in its recommendation to Council.

Mike suggested placing a cistern on the first and second floors of the garage in one parking spot. The SWAC discussed the possibility of using stored rainwater for toilet flushing, but there may be constraints to doing so.

Randy and Heather reiterated that a major goal of Town-managed stormwater infrastructure is to use native plants in an attractive way to encourage the use of natives in stormwater control, as well as plants that are beneficial to pollinators and otherwise locally adapted and beneficial.

Adjourn

The meeting was adjourned at 8:31 pm.

TOWN OF
CARRBORO

NORTH CAROLINA

TRANSMITTAL
PUBLIC WORKS DEPARTMENT

To: **Stormwater Advisory Commission**

From: **Randy Dodd, Stormwater Utility Manager**

Cc: **Heather Holley, Stormwater Specialist**
Emily Cochran, Stormwater Administrator

Date: **April 1, 2021**

Subject: **EPA 319 Grant Opportunity**

Summary

The purpose of this memo is to provide background information regarding a proposed 319 grant application.

Information

What is an EPA 319 Grant?

Through Section 319(h) of the Clean Water Act, the U.S. Environmental Protection Agency provides states with funding to reduce nonpoint source pollution. North Carolina has received $1.2 million for competitive funding of watershed restoration projects for the current cycle. State and local governments, interstate and intrastate agencies, public and private nonprofit organizations, and educational institutions are eligible to apply for 319 funding. An interagency workgroup reviews the proposals and selects those to be funded.

What will a 319 Grant fund?

Funds may be used to conduct projects such as stormwater and agricultural best management practices and restoration of impaired streams. Section 319 grant projects must be used to help restore waterbodies currently impaired by nonpoint source pollution in areas with approved watershed restoration plans.

What does Bolin Creek watershed restoration involve?

EPA's 319 program identifies "9 elements" of a watershed restoration plan. These are

1. An information/education component
2. A monitoring component
3. Identification of the causes (stressors) and sources or groups of similar sources that need to be controlled to reduce pollution
4. Identification of the needed restoration measures.
5. An assessment of the improvements associated with the chosen actions
6. Criteria used to determine whether substantial restoration progress is being made
7. An assessment of the resources (technical, financial) needed and authorities that will be relied upon, to implement the plan.

8. A longer term implementation plan and schedule
9. Identification of interim, measurable milestones to track progress in achieving restoration goals.

The Bolin Creek Watershed Restoration Plan (2012) was directed by these 9 elements and provides a comprehensive framework for restoration work. In addition, 319 funding heavily relies on "measurable results" of improvements. This involves water quality/water resources based metrics.

What is proposed in the application?

The purpose of the proposed project is to stabilize soils and an eroding gully in a small catchment draining three adjoining neighborhoods both for its inherent importance and as a highly relevant demonstration for broader watershed restoration efforts. This project would restore approximately 700 linear feet of an ephemeral channel and treat stormwater runoff from 11 acres in the Bolin Creek watershed right at the upstream extent of where Bolin Creek is recognized as an impaired stream. The ephemeral channel directly conveys untreated stormwater from adjacent properties into Bolin Creek. The project area includes land owned by three homeowner's associations (Phase 2 Bolin Forest HOA, Phase 3 Bolin Forest HOA and Forest Court HOA) and an easement of the Orange Water and Sewer Authority (OWASA). Preliminary design work has been completed/sponsored by the Bolin Forest Phase II and III HOAs and reviewed by all project partners. The project will be a partnership between the Homeowner's Associations, Orange Water and Sewer Authority, Orange County, the Friends of Bolin Creek, the NC Cooperative Extension Service, UNC, the local school system, and the Town of Carrboro. There will be extensive volunteer work and publicity and outreach to fully leverage the grant funds. Land use in the Bolin Creek watershed, and especially in the upper Bolin Creek watershed, is dominated by single family residential neighborhoods, and geomorphic instability is a driver of water quality concerns. This project will be a very important demonstration not only of a creative and effective technical solution for this setting, but of the critical importance of the public/private/nonprofit partnerships needed to address erosion and sediment delivery in small residential catchments and along headwater and ephemeral streams. Considerable attention will be given to sharing solutions with other residents and neighborhoods in the Bolin Creek watershed. Outreach products will also be created that will be broadly applicable for other communities and watersheds.

Additional information about the proposed project scope is available in Appendix A.

Why is this particular project recommended? Where any alternatives available or considered?

This project is recommended because, in staff opinion: it presents a positive step towards watershed restoration; it will be of benefit to the neighborhoods and residents; it is responsive to the RFP and appears to have a good probability of success; it is a good example of what can be accomplished through a broad collaboration; and it promises to have community and watershed wide benefits.

Staff have been interested in identifying/developing 319 grant application projects, have some general ideas for opportunities to consider, but have not had the capacity to fully develop another good 319 project to consider, to date.

What are the match requirements?

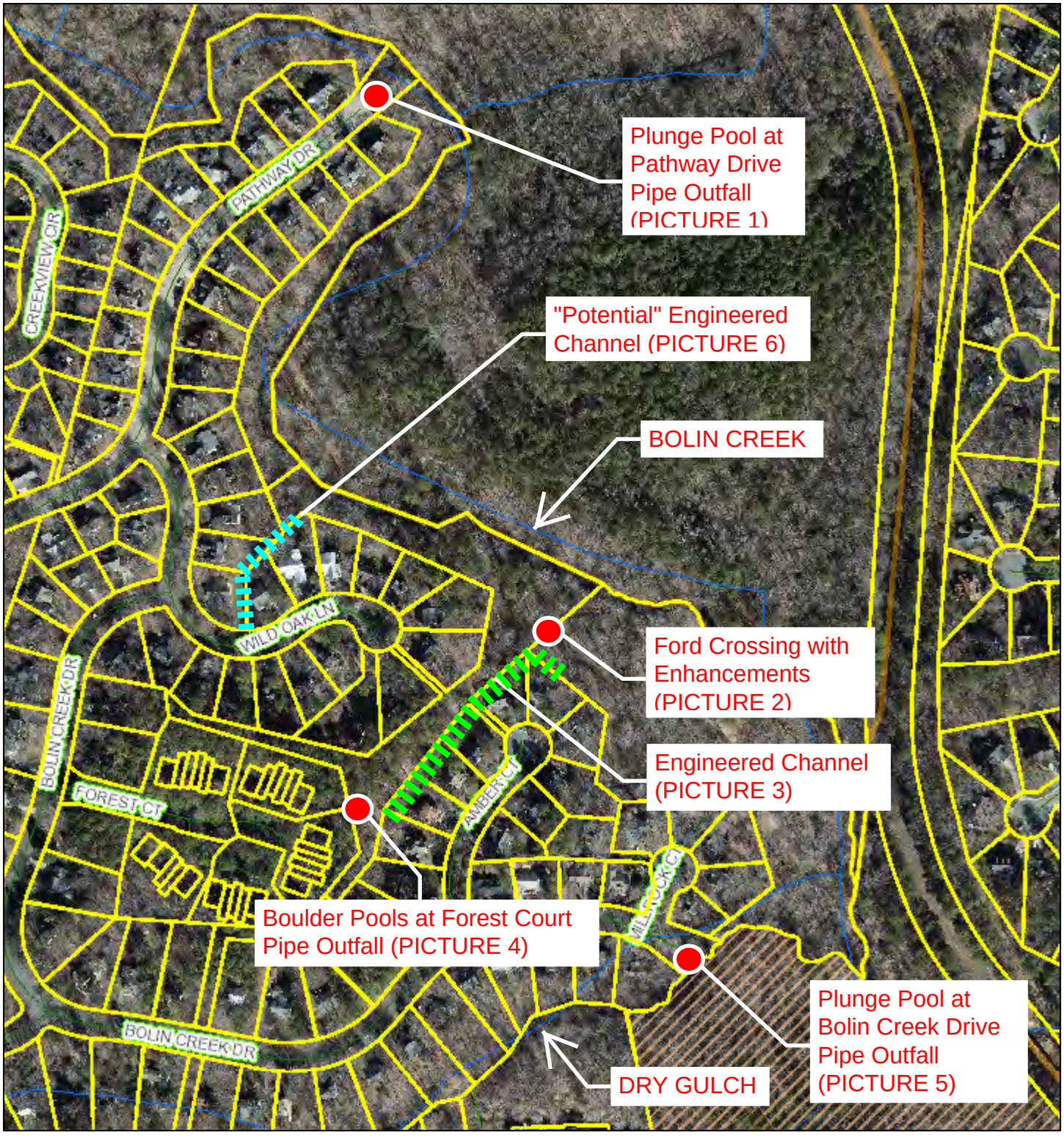
All projects must include non-federal matching funds of at least 40% of the project's total costs. For this effort, the match is proposed to be met mostly through in kind from all the project participants, but with some cash match from the HOAs and neighborhood residents.

What is the grant schedule?

- Late January 2021: Request for Proposals released
- May 4, 2021: 319 Grant Application deadline
- Early June, 2021: Applicants notified whether they will be invited for in-person interviews
- Late June, 2021: Selected applicants interviewed in Raleigh and projects announced
- January of 2022: Projects may start (estimated, depending on grant award date to NCDEQ and time for contract preparation)

Additional information about the grant opportunity, including the RFP, application, and review criteria is available at https://deq.nc.gov/about/divisions/water-resources/planning/nonpoint-source-management/319-grant-program#2021-319-grant-application-materials. Additional information about the Bolin Creek watershed restoration effort is available at https://www.townofcarrboro.org/280/Bolin-Creek-Watershed-Restoration .

Locations of Proposed Stormwater Management Improvements

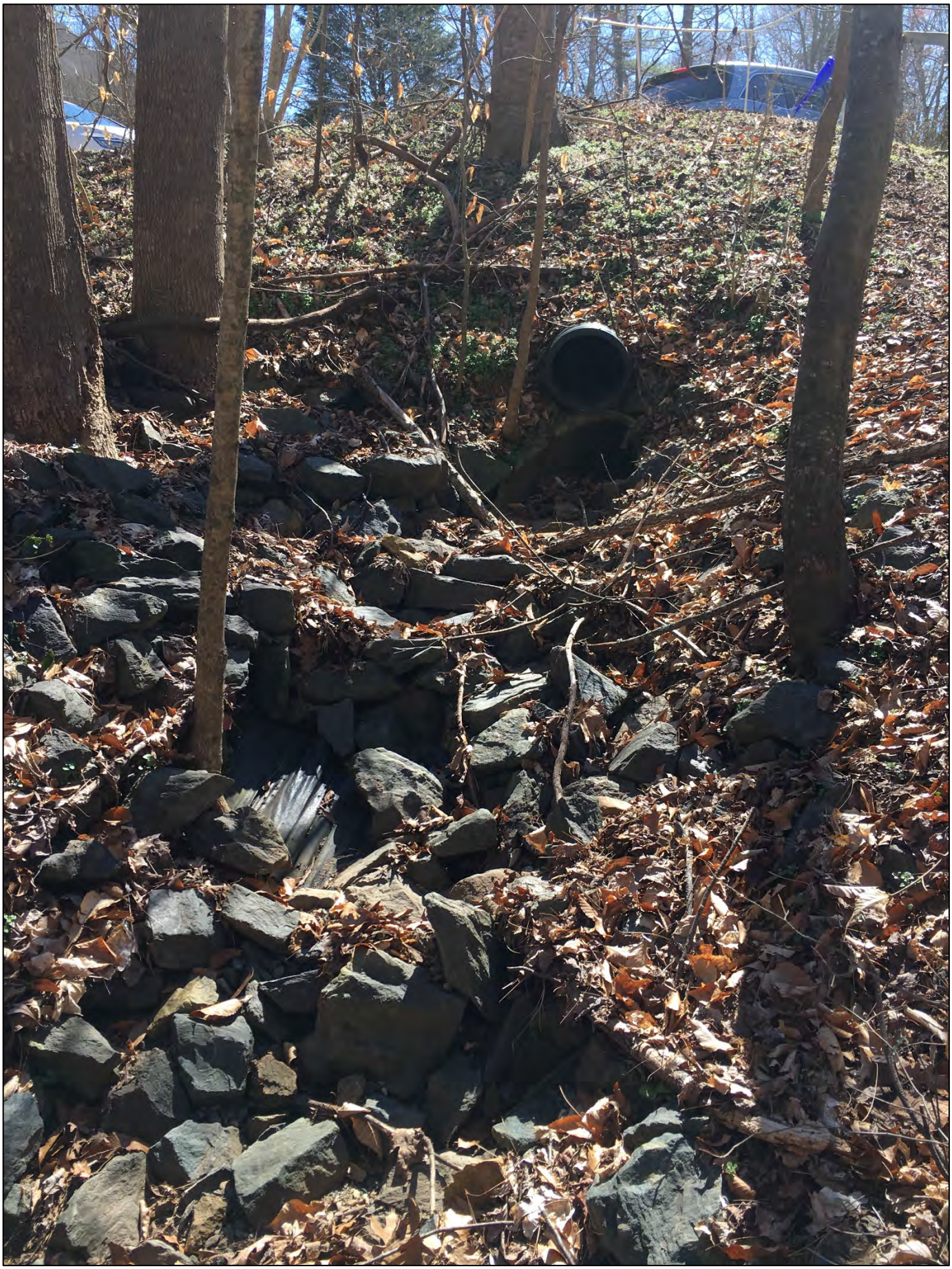


March 10, 2021

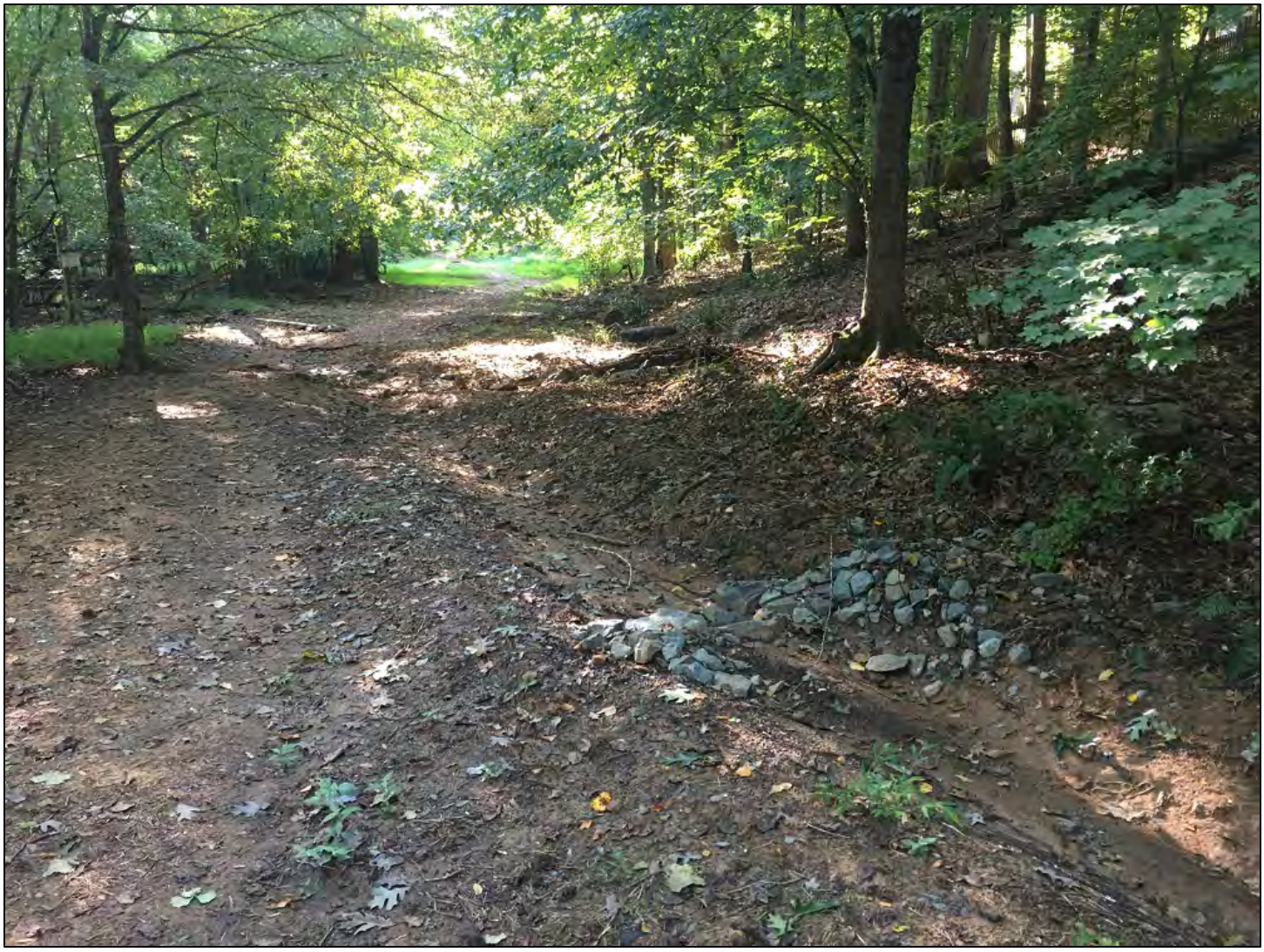
1:3,600

0 0.03 0.06 0.12 mi

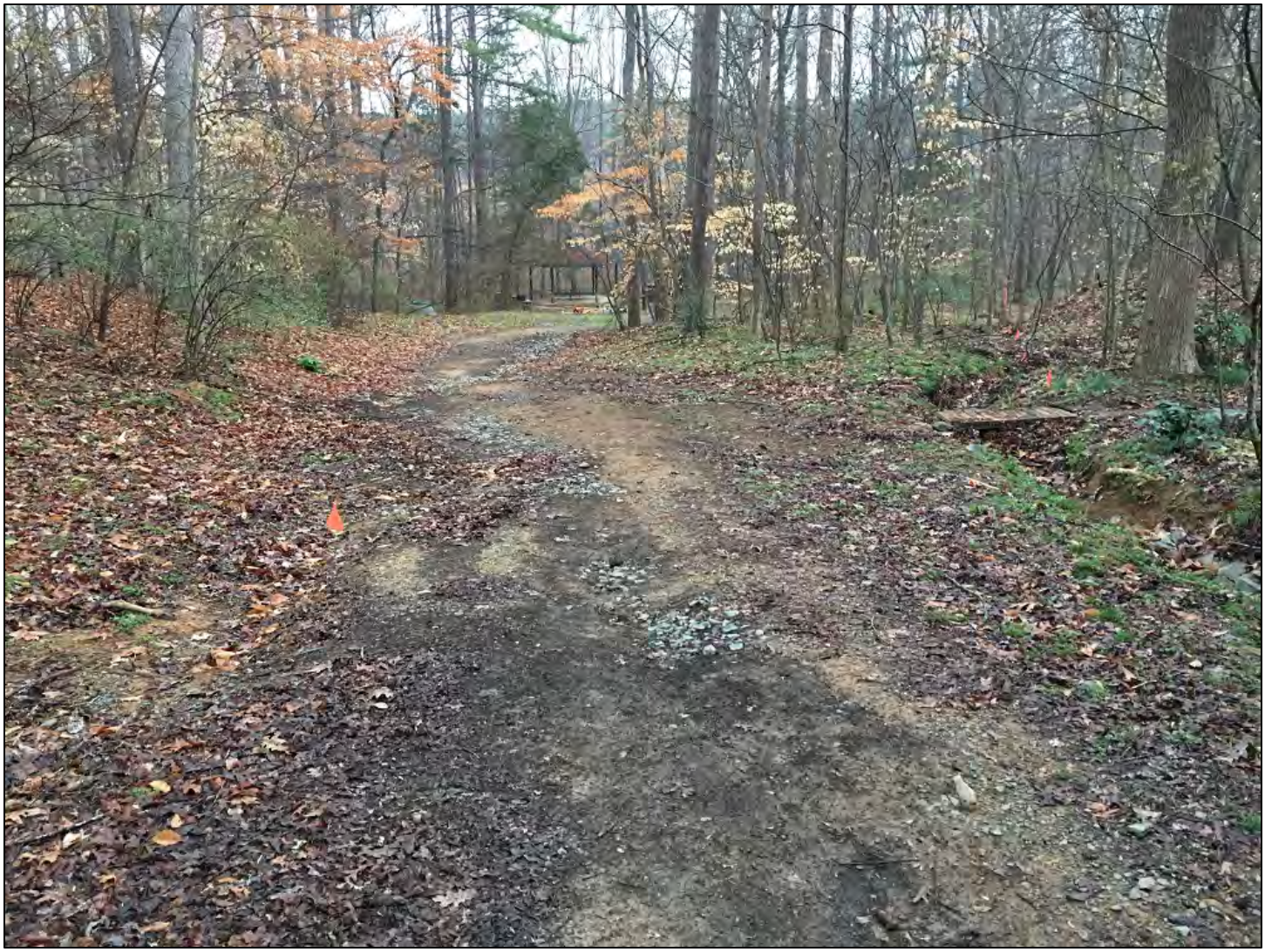
0 0.05 0.1 0.2 km



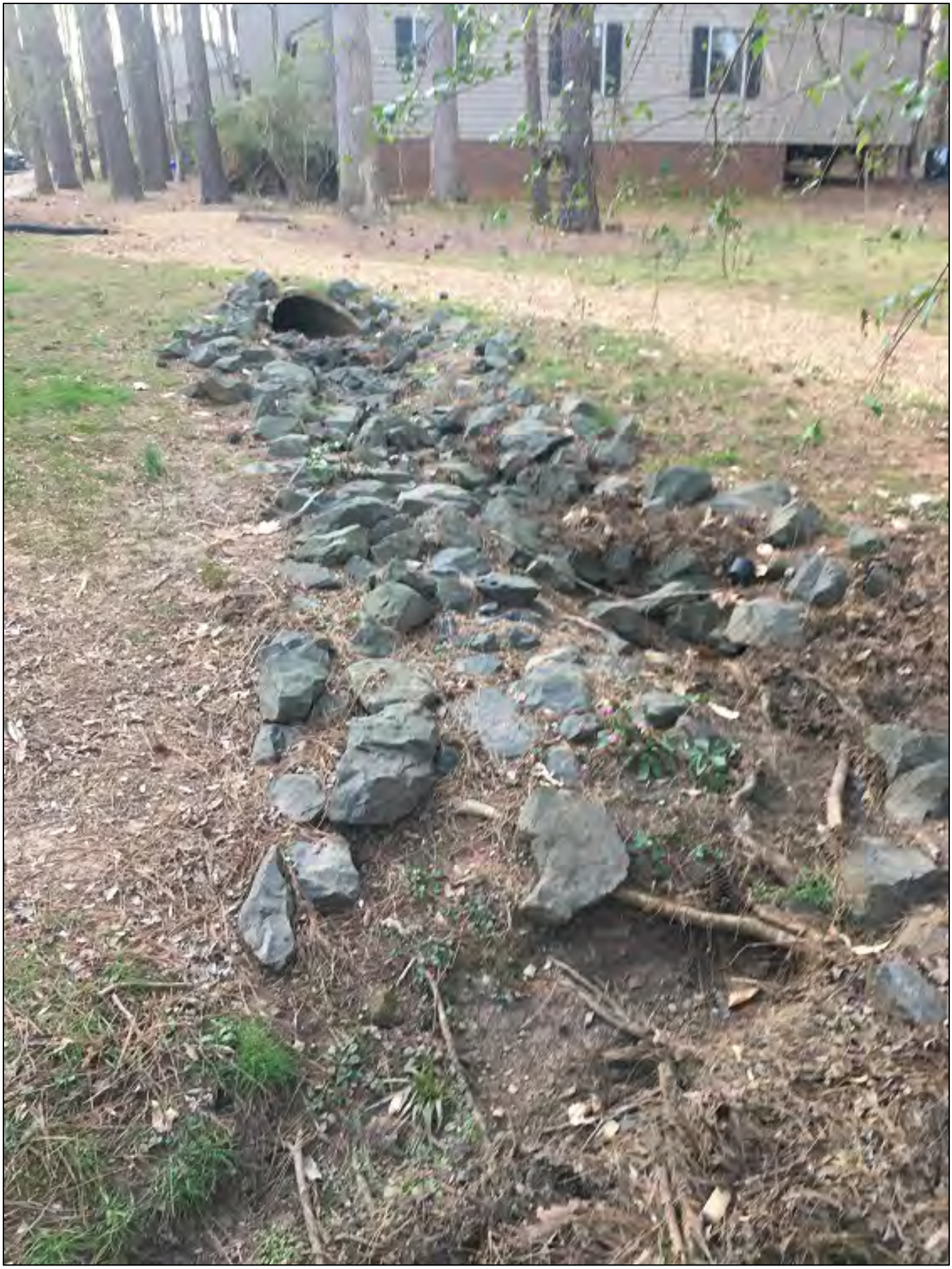
PICTURE 1 – PLUNGE POOL TO BE LOCATED AT PATHWAY DRIVE PIPE OUTFALL



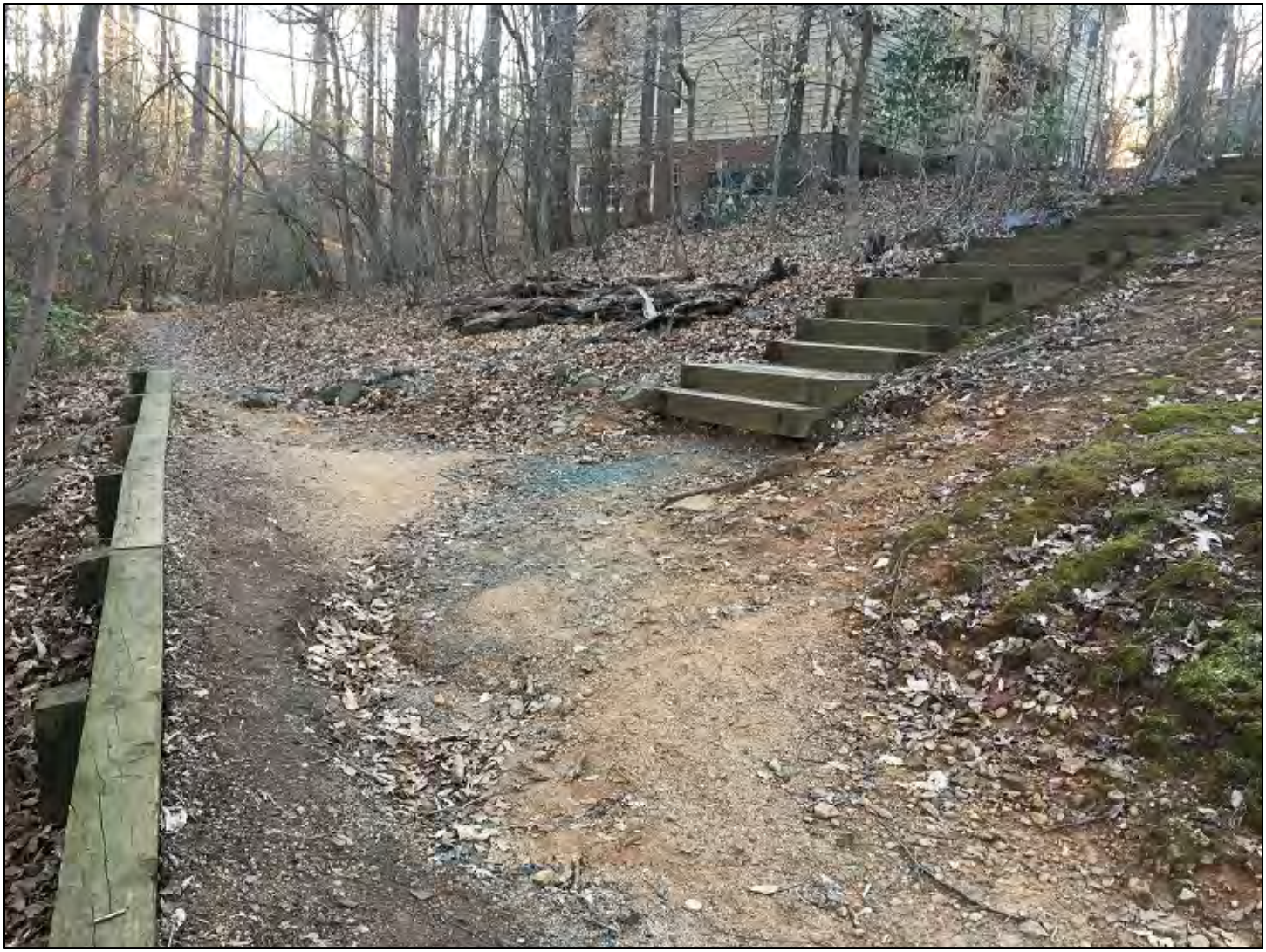
PICTURE 2 – FORD CROSSING WITH ENHANCEMENTS TO BE LOCATED ACROSS OWASA EASEMENT



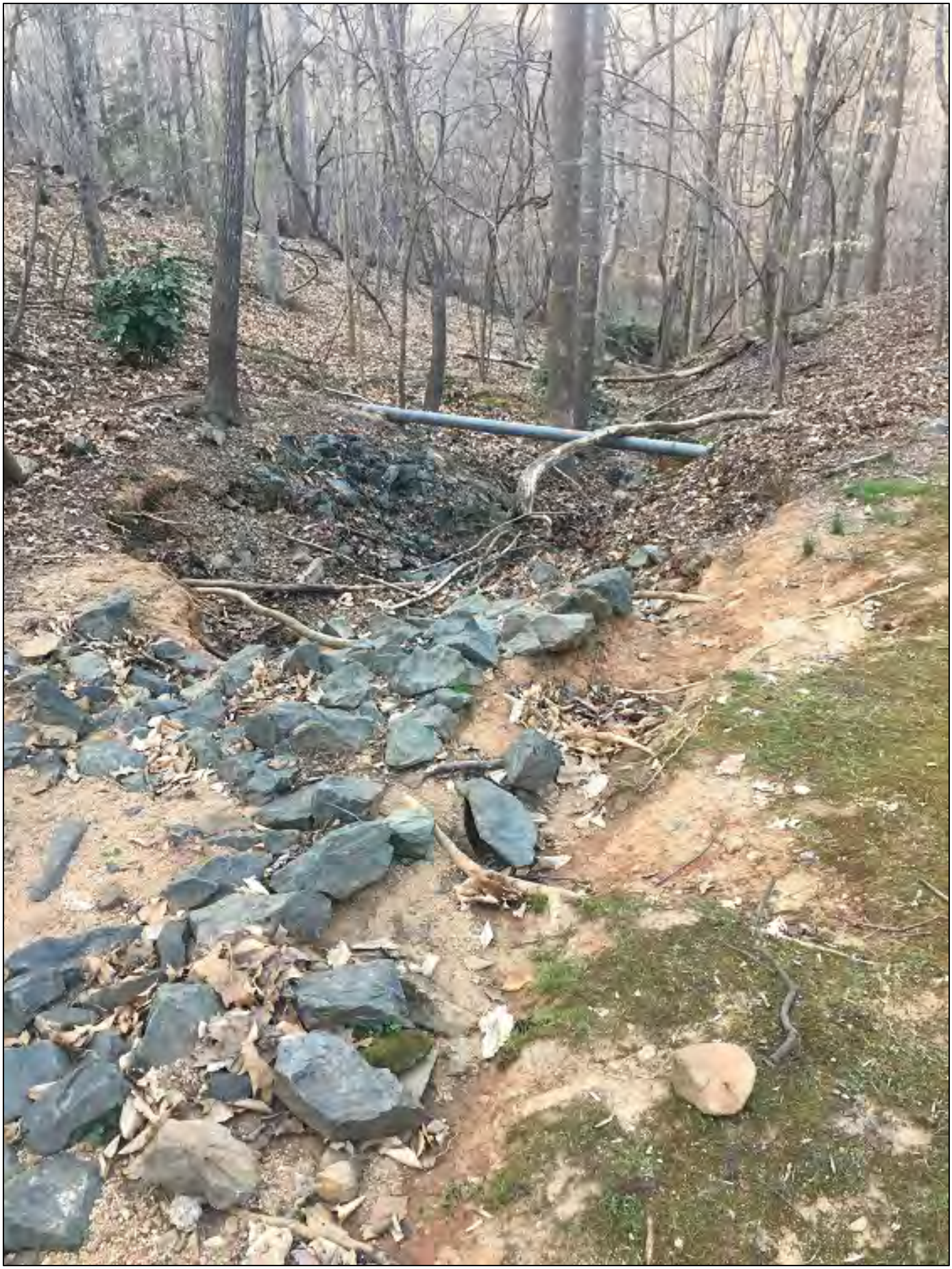
PICTURE 3 – ENGINEERED CHANNEL TO BE LOCATED ALONG EXISTING CHANNEL (ON RIGHT)



PICTURE 4 – BOULDER POOLS TO BE LOCATED AT FOREST COURT PIPE OUTFALL



PICTURE 5 – PLUNGE POOL TO BE LOCATED AT BOLIN CREEK DRIVE PIPE OUFALL



PICTURE 6 – “POTENTIAL” ENGINEERED CHANNEL (SCOPE BEING REFINED)