NORTH CAROLINA LAND AND WATER FUND
BOARD OF TRUSTEES MEETING

VIRTUAL MEETING

Thursday, February 29, 2024

1:00 P.M.

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A P P E A R A N C E S

Board of Trustees:

John Wilson, Chairman
Jason Walser, Vice-Chairman
Ann Browning, Chairman Restoration, Innovative Stormwater and Planning Committee
Amy Grissom, Chairman Acquisition Committee
Clement Riddle
David Womack
Darrel Williams

Staff:

Will Summer, Executive Director
Christina Benton, Acquisition Project Manager
Steve Bevington, Restoration Program Manager
Marissa Hartzler, Acquisition Program Manager
Justin Mercer, Stewardship Manager
Damon Hearne, Western Field Representative
Chelsea Blount, Central Field Representative
Jill Fusco, Eastern Field Representative
Will Price, Restoration Program Assistant
Donna Morris, Acquisition Program Assistant
Terri Murray, Executive Assistant
Deans Eatman, DNCR Director of Legislative Affairs
Marie Meckman, Acquisition Project Manager
Phil Feagan, DNCR General Counsel

Also present:

Aaron Flannery, Conservation Trust
Jeff Michael, Deputy Secretary of Natural and Cultural Resources
Tim Johnson, Director of Outdoor Recreation Planning

P R O C E E D I N G S 1:00 P.M.

Chairman Wilson: All right, I'd like to call today's meeting of the North Carolina Land and Water Fund Board of Trustees to order. I am John Wilson, the board chair, and I want to welcome all of you who are with us today, whether in person or by Teams or telephone or some other technology that I'm not familiar with, but my daughter probably is. With that, I will call the roll of our trustees. Please let me know if you are here; Ann Browning?

Restoration Committee Chairman Browning: Here.

Chairman Wilson: Greer Cawood is not with us today. Amy Grissom; I'm not hearing you now, Amy. Are you muted maybe?

Mr. Womack: Wasn't she going to log off and try and get back on for some reason?

Chairman Wilson: Oh, is that what she said, David; okay.

Mr. Womack: I think that heard her say that, yeah.

Chairman Wilson: All right, when anybody sees Amy, tell her to please let us know that she's here.

Mr. Summer: Mr. Chair, Amy is -- she is present, and she is signifying that she's here by waving her hands.

Chairman Wilson: Okay, all right, so Amy is here; Clement Riddle, please?

Mr. Riddle: Here.

Chairman Wilson: Mike Rusher is not here today, correct?

Executive Director Summer: Yes, sir.

Chairman Wilson: Jason Walser; all right, we hope Jason will join us. I think he will, but not here yet; Darrel Williams.

Mr. Williams: Here.

Chairman Wilson: David Womack?

Mr. Womack: Here.

Chairman Wilson: And John Wilson is here also. All right, General Statute § 138A-15 mandates that the chair inquire as to whether any trustee knows of any conflict of interest or the appearance of a conflict of interest with respect to matters on the agenda. If any trustee knows of a conflict of interest or the appearance of one, please state so at this time. Okay, I'm not hearing any. Moving on, let me now ask everyone to please make sure your phones, computers, watches, et cetera, microwave

ovens won't make any noise unless you are recognized to speak, and I will now ask if there are any suggestions of revisions or additions to today's agenda.

Restoration Committee Chair Browning: I move --

Executive Director Summer: Mr. Chair, I have one request. I'm sorry.

Chairman Wilson: Okay, go ahead, Will.

Restoration Committee Chair Browning: I was going to move we approve.

Executive Director Summer: I'll offer one thing before that, if I could add a Deputy Secretary's Report from Jeff Michael as the next item after the approval of minutes, but before the Executive Director's Report.

Chairman Wilson: Okay, thank you for that, Will; is there a motion to approve; any other suggested modifications to the modification of the minutes? I'm sorry, of the agenda? If not, I'll entertain a motion to adopt today's agenda.

Mr. Womack: So move.

Restoration Committee Chair Browning: I move that we adopt it with the one revision that Will suggested.

Chairman Wilson: Okay, thank you, Ann; and, David, did I hear you seconding?

Mr. Womack: Yeah, this is David. I'll second.

Chairman Wilson: Great, all right; any more discussion on this; all right, if not, I'm going to ask you one by one how you vote, please; Ann Browning?

Restoration Committee Chair Browning: Yes.

Chairman Wilson: Amy Grissom, I think my joke about Amy's audio caused her to mute herself permanently. I sure am sorry about that joke, Amy. I wasn't funny, but I -- is Amy putting her hand up saying yes?

Executive Director Summer: She's signified thumbs up, yes, and we're working on the audio.

Chairman Wilson: Awesome; okay, Clement Riddle?

Mr. Riddle: Yes.

Chairman Wilson: Jason Walser, is he with us; Darryl Williams?

Mr. Williams: Yes.

Chairman Wilson: David Womack?

Mr. Womack: Yes.

Chairman Wilson: And John Wilson

is a yes also. So we have now adopted our agenda with the revision of adding a report from Deputy Secretary Jeff Michael. We will now entertain any discussion regarding the minutes from our December 2023 board meeting. This is usually where Amy comes in very handy with a thorough review of the minutes.

Acquisition Committee Chair Grissom: Well, I will use this opportunity -- I'll use this opportunity to test my mike. Can you hear me now?

Chairman Wilson: Yes, perfectly.

Aquistion Committee Chair Grissom: Okay, I will say nothing significant. One tiny typo that is not worth wasting time on, but I'm glad my audio is working; thanks.

Chairman Wilson: Thank you; any more discussion regarding the minutes from the December 2023 board meeting; if not, I'll entertain a motion to approve.

Acquisition Committee Chair Grissom: I'll make that motion.

Chairman Wilson: Thanks, Amy.

Mr. Riddle: Second.

Chairman Wilson: Second from, was that Clement?

Mr. Riddle: Yes.

Chairman Wilson: Thank you, Clement; any more discussion on the minutes; if not, please let us know how you vote. Ann Browning, this is motion to approve the minutes.

Restoration Committee Chair Browning: Yes.

Chairman Wilson: Amy Grissom?

Acquisition Committee Chair Grissom: Yes.

Chairman Wilson: Clement Riddle?

Mr. Riddle: Yes.

Chairman Wilson: Darrel Williams?

Mr. Williams: Yes.

Chairman Wilson: David Womack?

Mr. Womack: Yes.

Chairman Wilson: And John Wilson is a yes. We have adopted our --

Vice-Chairman Walser: And Jason Walser is here.

Chairman Wilson: Oh, good, Jason Walser, --

Vice-Chairman Walser: Sorry.

Chairman Wilson: -- how do you vote on the minutes?

Vice-Chairman Walser: I vote yes.

Chairman Wilson: Awesome.

Vice-Chairman Walser: Sorry, I was delayed.

Chairman Wilson: Okay, we will now move on to the next item that we have just added to our agenda, and that is going to be a report from the Deputy Secretary of the North Carolina Department of Natural and Cultural Resources, Jeff Michael. We can all try to guess where Jeff is. I bet he's somewhere fun.

Deputy Secretary of Natural and Cultural Resources Michael: No, I wish I was. I am actually at home today, and so as you were talking about making sure we silence our phones and everything else, I was over here trying to silence my dogs to make sure that they don't join in the fun here today, so my apologies in advance if they decide to make an appearance. It is great to see all of you and even more exciting as I'm looking forward to the next meeting when you're going to be together with Natural Heritage Program down in Uwharries. So I really enjoyed that time with you last year in the mountains and I am looking forward to this spring's kind of joint meeting and visits as well. In terms of updates from the Department, first of all as always, staff extends greetings from Secretary Wilson and our appreciation

for all the work that you all do. We know it's a lot of time that you invest in the Land and Water Fund Board and that you take this job seriously. And certainly, our success over the last couple of years with the Legislature and our budgets reflects the confidence that people have in the work that you do. A great segue then to talk about the budget, we are right in the middle of the budgeting process. I don't have anything to report in that regard. I will say that we are being -- I guess our expectations managed across the board from many people a little closer to that process that we should not expect the same level of increases across the board in all of our programs that we've enjoyed the last two years. There's much more modest projection in terms of the funds that will be available for this year's budget. I don't know exactly what that means, but rest assured that we continue to do everything we can to advocate for the work of Land and Water Fund, Natural Heritage Program, but really, all of our initiatives related to land conservation and environmental protection and stewardship. Along those lines, I don't know if you have heard, but this is the 30th anniversary of the Parks and Recreation Trust Fund, sort of your -- one of your sister funds, agencies, and the work that they do through our

Division of Parks and Recreation. So you're likely to hear a lot about that this year. You know, the growth for those of us who have been around long enough, we who were doing land conservation back in the ’90s. We understand really the significance that Parks and Recreation Trust Fund, the old Clean Water Management Trust Fund, which of course is now the Land and Water Fund, that that was a period when this, you know, so many great things were beginning to happen. And we can look back now at all the great things that those two funds have accomplished and see that they're both going really strong. So I wanted to share that with you. The last thing, and Will may want to elaborate on this as well. I know he sent you an announcement a couple weeks ago, and you probably saw it in the news, Governor Cooper's new Executive Order 305, which is an Executive Order focusing on what we refer to as natural working lands. You probably more than most of our agencies understand what natural and working lands are. But this is a real exciting Executive Order for all of us, because again, looking back to that period in the late ’90s and early 2000s, many of us remember Governor Jim Hunt issuing the Million Acre Initiative Challenge to all of us who were working in the conservation community, not only state agencies, but for those of us

who were the Land Trust community. And it really was sort of a focusing of our attention on a set of goals that we could work together. We could, you know, seek to expand the funding opportunities that were out there, things like the top conservation tax credit that was in existence back then, and it took us a little longer, I think, to achieve that. But now as part of the Governor's ongoing work around climate and resiliency and sustainability, two weeks ago he issued Executive Order 305, which sets forth another goal of a million acres protected by the year 2040. Also, in that Executive Order was a goal of a million acres of restored lands to be defined exactly what we mean by restoration, but also with a focus on urban areas, a challenge to plant at least another million new trees to start working, in our urban areas to start working towards enhancing urban forest and urban tree canopy. There are a number of other things in there related to the work that we all do, including working with our natural heritage program, land and water, part of state parks, and others to begin benchmarking where we currently stand so that we have that benchmark to measure our progress from. The Governor's office is going to be looking to the Department of Natural and Cultural Resources to play a central role in the

coordination of this. We're in the process now of trying to figure out what that looks like. We're not the only agency obviously that are going to be involved. It does appear that we're going to be the lead agency in working with our sister agencies and our partners across the state to figure out how we can do this initial benchmarking and then how do we coordinate reporting on our progress going forward. So I think it's a real exciting time for all of us in the conservation community. Anytime you have the Governor sort of setting forth an Executive Order like that, it draws attention to the issue and it also kind of mobilizes the resources and the talent collectively to do what we need to do to achieve those goals. So you'll be hearing more about that as we -- maybe at our -- at your May meeting when we have a little more clarity about the structure, the organizational, and the process by which we're going to try to tackle the goals set forth in Executive Order 305. So, Chairman Wilson, that's all I've got. I will say I usually like to stick around as long as I can, but I've got another meeting coming up at two o'clock. So I'll stick around as long as I can, but I'll turn it back over to you, and I'm happy to answer any questions anyone has.

Chairman Wilson: Thanks, Jeff;

any questions, comments for Jeff Michael; I'm not hearing anybody, but that is very exciting, and thank you so much for being with us, and we will now move to the Executive Director's update from Will Summer.

Executive Director Summer: Thank you, Mr. Chair, and good afternoon, trustees, staff, and guests; you heard Deputy Secretary Michael share the news about the Governor's Executive Order and its bold goals for conservation. I'm excited about this and I hope it creates a focus around which our partners can advocate for more resources for the conservation and restoration work that we do. Much of the work required to benchmark and measure the goals outlined in Executive Order 305 will be led by our Natural Heritage program with some assistance from Land and Water Fund staff as needed, and so stay tuned for more on this in the coming months. It's been a conspicuously quiet first quarter for board-related issues, and that has been intentional. Staff have used that time to get prepared for the upcoming grant cycle, get contracts from 2023 out the door, and continue with funded project implementation, which never stops. Speaking of, since we last met on December 5th, 21 acquisition projects have closed, including five through state parks alone. In fact, we've closed nine projects in the month of

February, and even in a leap year, it's still the shortest month. This is a really big deal and reflects a lot of hard work from our acquisition team, Marissa, Marie, Christina, and Donna, and our legal team, Zoe, Amani and Jill. Speaking of the legal team, I'm pleased to announce that we are in the process of onboarding and additional legal team member to add capacity to our closing process. I look forward to sharing more as that's finalized. Also, you may have seen that we are advertising a property agent position in the State Property Office to assist with our appraisal review and other state property office needs. I hope to have this filled in the coming months as well. So there's a lot of good things happening here and more to come. On the restoration side of the shop, I'm pleased to report that all of our flood risk reduction projects are underway and already in at least some stage of design with a few projects far enough along to request reimbursement for construction costs. I look forward to letting Steve and Will Price give you all an update on that in another board meeting in the future. Damon, Chelsea, and Jill have been busy doing pre-application consultation with our partners, and I'm expecting some really exciting applications in 2024. They've also been hard at work with our program staff

to refine our internal application review process, which I'm also expecting will continue to bear fruit. You wouldn't believe me if I told you how many moving pieces there are to manage each grant cycle, but I know you appreciate the result of all this work having consistent ground troops' information available when you all review applications this fall. Justin continues to be thrilled to be in charge of a now fully funded stewardship program, even if now busier than ever. And we are in the process of advertising for a temporary stewardship associate with plans to create a permanent position soon. So if you know anyone that doesn't mind the great outdoors, this should be a very field-centric position. Unless you think we've left Terri out of all the fun, she spent most of the last few months keeping our budget straight and our payments moving. This fall the State switched over from our previous budget and accounting software of many decades, and it's gone about as well as you might imagine a task that size and complexity might in state government. She has us now in good enough order that we are loaning her out a few hours a week to help the department get caught up on their backlog of the transition. So though you haven't seen much of us in recent months, I wanted to let you all in on a little

bit of the good stuff and hard work going on behind the scenes. Switching gears, we continue to march down the provisional list funding another 16 million since you awarded funds in September. Of course, much of that's from a budget that passed the week after you met, which included substantial recurring and non-recurring increases in our funds. It also includes the usual license plate revenue and return funds from projects that either finished under budget or were withdrawn. That leaves us having funded a total of 88 projects at over 56 million for our 2023 grant cycle so far. And I expect a few more to be added to that list before the fiscal year ends on June 30th. Looking ahead to the next cycle, today we are nearly on the eve of our 2024 grant application deadline, which is March 1st. Look for an email from me next week summarizing the request for the upcoming cycle. As Deputy Secretary Michael noted, we are planning our next board meeting in May in person in the Uwharrie area. I won't spoil all the surprises yet, but I know we'll get to see some excellent projects, some other fun site visits and activities, and maybe even enjoy a little behind-the-scenes tour at the zoo in Asheboro, so stay tuned for more on that from me soon. Today, we have just a few items to bring before you. First, the restoration

committee has a few business items for which Will and Steve Price will provide a brief review. And then I'm excited to have a special guest, Tim Johnson, from Destination by Design, to tell us more about sustainable trail design, construction, and maintenance. I think there are a lot of places that we protect to which the public can and should have access, and I think we've done a lot as an organization in recent years to further that cause. And most importantly, we've done so using the best available science and practices to ensure that the conservation values are protected. Experts, like Tim, are a big part of that, and I'm excited to welcome him to share a little of what he knows directly with you all today. Mr. Chair, that concludes my report.

Chairman Wilson: Thank you, Will; any questions or comments from trustees to Will Summer, our Executive director?

Acquisition Committee Chair Grissom: I just have one quick question. Will, I know last meeting we voted to approve the 3 percent of recurring funds for administrative costs, which I'm glad you're starting to spend and hope the troops are -- or the reinforcements are coming soon. I know that anything left over was going to be going -- was to go to the provisional list,

and you were going to report annually. Do you plan to do that in August, our August 28th meeting after the year closes or an update in May, or I'm just wondering what you're thinking about the timing on that.

Executive Director Summer: In May I'll be able to give you a rough update, but it won't be until June 30th when I see exactly to the penny what's left unspent, which will be this year because of just the speed at which we could implement and bring people on. I expect it to be the large -- largely the majority of what that, of that 3 percent. But in August, I'll be able to give you an exact number of what was put towards the provisional list, and if any is left over, what will be in front of you to spend in 2024.

Acquisition Committee Chair Grissom: Okay, well, great, and congratulations on all of your planning, and I'm just delighted things are moving forward and so many projects are closing; so thanks.

Executive Director Summer: Thank you; yeah, we're excited about that.

Chairman Wilson: Any more questions, comments for Will; okay, thanks, Will; we will now move to the public comment section of our meeting. And I wanted to -- before I open the meeting floor for public comments, I wanted to remind everyone

that Land and Water Fund Guidelines and the Land and Water Fund Guidelines and Practices manual states that comments shall be limited to subjects of business falling within the jurisdiction of the North Carolina Land and Water Fund. We welcome public comments on general issues. Comments will not be allowed on individual projects before the Land and Water fund for funding during the regular meeting. And please limit any comments to three minutes per person and be sure to let us know that you would like to make a comment by either unmuting yourself or raising your hand or something. Do we have any comments from the public?

Executive Director Summer: Mr. Chair, I don't see any, and I was not anticipating any.

Chairman Wilson: Okay, all right, then we will move to the business section of our agenda. Our first business item is consideration of the Restoration Committee recommendations, and I'll pass it on to Chair Ann Browning.

Restoration Committee Chair Browning: Thank you, Chair Wilson; we had a very productive meeting back on February 8th and considered these two items that we bring to you today. And before Will Price and Steve present them to you, I just wanted to let you know that we had thorough discussions and wound up

unanimously supporting the recommendations of the staff. On the first item, a contract extension, not that unusual, but we did have a good discussion of this specific project, and I always like to understand why things are taking a bit longer than they originally forecast, but I felt good about that. And on the second one, this is really quite an unusual thing we bring to you, a scoring error, but the committee took a good bit of time just understanding and getting comfortable that this was in fact the project that we thought it was despite just an error in the score that was presented to us. So we were very comfortable with that, and we spent a good amount of time talking about, even though this is quite an unusual occurrence, what might we do to minimize the chance of it happening again. I'm sure Steve will touch on that. So with that backdrop, I will just turn it over to Will Price for our first item.

Mr. Price: Thank you; this is just one request to extend a construction contract deadline. Quickly by way of background, this requirement is in the State law, and it originally required that our partners enter into a construction contract within one year of the grant being awarded. Just last year, it was changed to make the deadline one

year from the date the contract with us was signed, which is a great change for everyone involved. That being said, if they anticipate that they can't meet that deadline, the board has the power to extend that deadline and pick a new date if they have -- if they can show good cause. So this is a request from the North Carolina Coastal Federation for project 2020-413, Marine Corps Air Station at Cherry Point Living Shoreline. Essentially, their delay is due to taking a really long time to get their permit from the Army Corps of Engineers. They wanted to expand the scope of to basically review all the living shoreline work in this area as one application, and they were -- kept requesting additional information. They did finally get their permit right at the end of last year, but now they have to sort of restart on their bid packet because that was prepared three years ago. And it -- you know, everything's more expensive now. Coastal Fed is requesting extension from this month to just about the end of this year. There's an image of the coastline. You can see it really does need some work, and it's eroding a lot. The staff recommends approving this request. It's a complicated project. It's an important project, and they've finally been able to move past the permitting process. Our restoration

committee reviewed the requests just at the beginning of this month, and they recommended to approve it. And today we ask the board to either approve, deny, or amend the committee's recommendation. I'm happy to answer any questions that folks have.

Mr. Williams: I move approval.

Chairman Wilson: Okay, we've got a motion from Darrel to approve this recommendation coming from the committee. It's actually coming from the committee as a motion. So we don't need a second on this. So we can go straight to the vote, but do we have any more discussion on this? Ann, is there anything more you would like to say, or would any trustee?

Restoration Committee Chair Browning: We viewed it as pretty straightforward. The, you know, permitting was complex and was really the bottleneck there, but making progress.

Chairman Wilson: Okay, if there's no more discussion, I will ask you how you vote on this motion coming from the restoration committee. All right, Ann, how do you vote, please?

Restoration Committee Chair Browning: Yes.

Chairman Wilson: Amy?

Acquisition Committee Chair Grissom: Yes, and I love these living shoreline projects.

Chairman Wilson: Clement?

Mr. Riddle: Yes.

Chairman Wilson: Jason?

Vice-Chairman Walser: Yes.

Chairman Wilson: Darrel?

Mr. Williams: Yes.

Chairman Wilson: David?

Mr. Womack: Yes.

Chairman Wilson: I, John, am a yes also; thank you; Ann, back to you for item number two or item B, whichever it was.

Restoration Committee Chair Browning: Yeah, I will just volley it right over to Steve to take us through that.

Mr. Bevington: All right, thank you, Madam Chair and Chairman; I appreciate it much. I'm going to share my screen as well. All right, so we've got a project where frankly staff made an error. I made an error that we're going to explain to you today very briefly. It's -- the chair of the restoration committee said we went through this in some depth. So I'll go back up after this brief introduction and answer any questions you have, but

quickly, I'll just say here's the background. In September of 2022, an award was made to Resource Institute for an EQIP project, an agricultural restoration activity on a stream in the amount of around $225,000.00. At that time, we reported a stream length of over 4,000 feet, when in fact it was more closer to 1,500. This resulted in a scoring exaggeration, which essentially we calculated as being more cost-effective than it actually will be. This resulted in -- originally its rank was given as 27th ranking scoring project, where really 31 was a better number. However, all project -- all project scores above Project 60 were actually eventually funded. So the bottom line really is that we should have told you it was 1,500 linear feet. It’s sort of a long story of how that came about to be an error that we didn't catch. I'll go into some of the reasons we feel we won't be making that mistake again. The application score should have been 62, ranked 31 out the 40 projects that were funded, with three of them being on the provisional list. It's before you today because of your own practices and guidelines, policies that require any change in product scope. Really, it's the top bullet there on the bottom segment. The percent change in cost per acre or linear foot did change

significantly. So we're bringing that to you today. So if we use a decision matrix, you can see the farthest column to the right. The full board considers any changes in scope or cost greater than 25 percent. We're certainly at that level, although it's sort of an unusual case in that the applicant never said anything different than 1,500 linear feet. And it's just we wanted to make sure that you had a chance to review it in its true form. But that project never got smaller. It's just what you anticipated funding has now become -- actually become a smaller contract when contracted, if you so choose to do so today, to proceed with that. Madam Chair Browning did mention that we've taken some steps to make sure this doesn't happen again. Working with Damon and other folks, we've got several new changes in line. I think a lot of them would've matured anyway as we get better and better at our review of projects in the Airtable software. But we did actually go back. Of course, this -- the subject project is a 2022 project. We looked at all 2023 projects and were relieved to find no similar errors. We have reorganized some of my views in the Airtable program so that -- it's a little hard to see here probably, but the application stated the linear feet, and what I use to calculate numbers are now adjacent to

each other in columns, so it'll stand out any sort of error. We actually have instituted a quick checkbox to make sure this step is taken explicitly to make sure those numbers are correct, and we have a dedicated date on their view calendar to look at these sort of important metrics instead of just a two-week window to make sure everything in the materials for the board are correct. We've put a little period where I'm actually going to go and make sure these sort of things are 100 percent correct. Just very quickly just to peek at the stream itself, on the East Fork of the French Broad River, it really is in need of some work. There's some very clumsy stream armoring in place at present. That will be replaced with a very large buffer for an agricultural project. Now this is a federally-funded agricultural EQIP project, which means we only receive a term easement, but it's consistent with other projects we've funded in the past and the value to be able to get into these agricultural areas that we really wouldn't have restoration opportunities in at all -- similar programs in the past, we've done several of these and I hope you continue to consider them in the future. But what's nice about this project is the buffer widths actually exceed the minimums for the federal standard. They're in the bottom of the yellow

markings there; some unusual riff raff sort of in there. Stabilization techniques using tires in the past will be removed and replaced with natural materials. And you can see there's really some pretty heavy scour taking place that would be restored and protected for a period of 25 years, I believe. After that, we hope with most of these projects that forced regrowth will encourage all practices to stay off the stream banks in any case, but there will be no legal protection beyond the term, but that's what was presented to us. Really, what we get within this type of project is a prioritization. So as federal moneys come in as high match and protect these areas and restore them, but they do it sort of on basis of agricultural needs and farmers' willingness to participate. So they do all sorts of streams. Our project targets specific waterways. In this case, it's a high-quality waterway, class B wild stream segment, wild trout segment, so that we're sort of prioritizing this project to get earlier service that might have to wait through quite a long backlog to get this erosion stopped. Instead, it sort of jumps to the front of the class with our match, essentially our part of the project. That's what you guys have agreed to pay for in the past is really a prioritization of high-quality

streams or highly eroded 303(d) listed streams. Again, they're well-matched at over 50 percent, and just a quick view here of the -- how the score should have been presented to you, still a relatively high-scoring project with well-balanced of effective measurable outcomes ready to go and a pretty good value, instead of an exceptional value. So again, I can go back and answer any questions you have because I went through that more quickly than we did with a committee. But we believe this project really is -- it still represents a valuable opportunity. It hasn't changed from the original concept presented by the applicant. We just didn't present it to you in a fair way. So we wanted to make sure you were aware of that. The committee did make a recommendation to affirm the award made in last -- in an earlier date and that Resource Institute be allowed to proceed with this project. And we would be contracted at -- shortly after this meeting, should you so wish. And really that's what we're asking today for you to approve, deny, or recommend the committee recommendation as put forward.

Restoration Committee Chair Browning: Thanks, Steve, and I'll just reiterate. I mean, this was really a simple transposition of the first two numbers in Airtable, so that's how we got from 14 to

41. But when we talked about it, when the projects were being evaluated, it is as it -- the project is as it was now, as it was intended to be. So really the reason we're talking about it today is because of that transposition.

Chairman Wilson: Okay, thank you, Steve and Ann; is there any discussion on this committee recommendation coming from the restoration committee? The question --

Vice-Chairman Walser: It's easy for me.

Chairman Wilson: Okay, again, we have a recommendation from the restoration committee to affirm the award made on September 20th, 2023 to the resource institute for project 2022-439 in the amount of $225,800.00 for the corrected project length of 1,490 linear feet, last chance for discussion. All right, coming to us from the committee, we don't need a second on this. How do you vote, please, Ann?

Restoration Committee Chair Browning: Yes.

Chairman Wilson: Amy?

Acquisition Committee Chair Grissom: Yes.

Chairman Wilson: Clement?

Mr. Riddle: Yes.

Chairman Wilson: Jason?

Vice-Chairman Walser: Yes.

Chairman Wilson: Darrel; I can't hear you, Darrel. Sorry, you're muted.

Mr. Williams: Yes.

Chairman Wilson: Thank you, David.

Mr. Womack: Yes.

Chairman Wilson: And I, John, am a yes also; thank you for these both, Ann and Steve and Will. And then which way am I kicking the ball now? Is this back -- this to Justin?

Stewardship Manager Mercer: Yes, sir.

Chairman Wilson: All right.

Executive Director Summer: Yes, a special presentation on Sustainable Trail Design with Justin introducing our guest.

Chairman Wilson: All right, go ahead, Justin.

Stewardship Manager Mercer: So this is just a little bit of context. This is sort of a direct follow up to conversations we've had back in the fall surrounding trails and whether or not to allow or to continue to prohibit ebikes on natural service trails within Land and Water Fund easements. And through that process, several trustees expressed an interest in

hearing more about trails, and while I would be happy to share the information that I gained from the trails training I participated in back in the fall, we thought it might be -- might be better to bring in an expert. And the instructor for that course that I participated in was Tim Johnson, and Tim graciously offered to spend a little bit of time speaking to you today. And so with that, I will turn it over to Tim and let him give his presentation.

Mr. Johnson: Thanks, Justin; I appreciate that. I appreciate you all's time this afternoon. I will share my screen here if it will allow me to. So, Justin, it is not allowing me to share a PowerPoint screen. Is there something in particular I need to do? It's only allowing me to share Chrome tabs it appears.

Stewardship Manager Mercer: Will, do you have any insight? There's -- Tim got the right permissions on Teams.

Executive Director Summer: He does have the right -- he's got the same permissions. It might be best, Tim, if you could just email it straight to Justin, and maybe, Justin, if you wouldn't mind sharing, that may be the best way to go forward or --

Mr. Hearn: Tim, just to

check, you're sharing with the share button at the top rather than right clicking on the icons at the bottom?

Mr. Johnson: Correct, the share content; it's a button up in the upper right-hand corner of my window, and it's screen window or tab. Okay, hold on a second. I think I've got it here. Let me try this. Can you all see that we see that?

Executive Director Summer: We see your browser.

Mr. Johnson: Okay, you're not seeing the PowerPoint presentation?

Executive Director Summer: No, sir, not at the moment.

Mr. Johnson: I can email that to you. It's a huge file.

Mr. Hearn: If you share the whole screen and then you can -- if you're dealing with multiple screens, you could move the PowerPoint into that screen and just double confirm it's not going to let you do that. There we go.

Mr. Johnson: You see it; all right?

Mr. Hearn: Yes.

Mr. Johnson: All right.

Executive Director Summer: Thank you for

that suggestion, Damon?

Mr. Johnson: Yes, thank you; all right, so as Justin mentioned, I'm with Destination by Design. We're a planning, engineering, communications firm based in Boone. I am the director of outdoor recreation planning there, and I did spend 15 years working for the North Carolina Division of Parks and Recreation, as well as a park ranger, as well as a regional trail specialist for the Trails program. And I spent about a year and a half at Rockingham Community College creating a continuing education trails program. So what I've tried to put together today is a brief presentation, probably about 30 minutes or so, to kind of hit the high points. And I'm willing to answer any questions as I go through this. You know, if there's anywhere you would rather me go into more detail, then I can do that as well. So please feel free to interrupt as I'm presenting if need be and, you know, ask any questions you might have. So I always tell folks that take my workshops and my class that the information I present isn't really rocket science, but it's not really obvious. So I try to make it easy to understand and point out things that perhaps a lot of people don't think about when they think about trails. So there's a little bit of math in there, a

little bit of science, and then there is some art to trail planning and design and, you know, all three of those things together hopefully will create a sustainable trail for projects. The first step when we're planning trails is to basically define the trail experience. So whoever is designing those trails, the land manager, needs to understand from the beginning -- the very beginning what experience do they want to offer to the user. A trail experience can be different depending on a bunch of different variables that we'll talk about. And the first step is you're not just designing a trail. You're designing a hiking trail or a mountain bike trail or an equestrian trail. You're designing it for a particular user, whether that be a beginner, intermediate, or advanced user. So that's sort of the first thing folks need to think about when they're thinking about designing and planning trails. Again, what use; what's the planned use for this trail, so hike, mountain bike, horse, or multi-use? What skill level or difficulty level are you designing this trail for, beginner, intermediate, or advanced? Some of the things that can affect that experience are the width of the trail. So is this going to be a narrow trail or a wide trail? Is it going to be smooth, or will it be very technical with roots and rocks, and

then what kind of experience from the standpoint of steepness? So is it a gentle experience for a more beginner user, or is it going to be a moderate or steeper experience for an intermediate or advanced user? Several things affect the trail experience. These are just a list of some of them. So for instance, trail specifications, a trail width affects the trail experience. A two foot wide natural surface trail provides a much different experience than a 10-foot wide asphalt trail. Trail design, so again location affects trail experience. A trail located in the back country of say South Mountain State Park is going to be very different than the trail located at Crowders Mountain State Park, just based on the location and the amount of people that might be on that trail at that time. Other things can affect the trail experience, like points of interest. So waterfalls, lakes, cemeteries old home sites, all those things can affect the trail experience. Trail management, level of maintenance affects experience. So in some areas where you have lots of people, close to urban areas using the trail, your level of maintenance might be quite a bit higher or more intense than perhaps a trail that's, you know, 10 miles out in the back country at one of our parks in the western part of the State. And

when I talk about experience with land managers, we typically have a design use and a managed use. Designed use is who is that trail or that experience designed for? And that can be different than managed use. So for instance, you can design a trail for a horse or an equestrian user, but manage it for horses and hikers. The thing to think about here is that when that trail is designed, it's designed for the most impactful user, which with horses and hikers are going to be the horses. So you've got to make sure that some of the rules that we call them or the elements that you use to design a horse trail are going to have to fit that use even though that trail might be managed for horses and hikers. And again, these are just -- this is a table that has some examples of a design versus managed use and what those widths, grades, and trail characteristics might look like for those uses. And again, all of those things affect the experience that that trail is going to offer. So once the land manager figures out what that experience looks like, the next thing they need to do is identify control points on the properties where they're planning on designing and building these trails. And those control points tell us where the trail is going to go. They can be positive or negative, natural or manmade. So for

instance, here you're seeing a rare plant, Ginseng, on the left side that for most people is going to be a negative control point; whereas, on the right, you see a great view of Rumbling Bald in Rutherford County and that could be a positive control point. You might want to provide that view to your users on that trail. So these are control points. Again the same thing here, we've got a few natural and manmade control points. So you've got a nice view of the lake and a bowl here in Western North Carolina on the left. In the center, you've got an old spring house of an area that could be a positive or negative control point. It might be that the land manager wants to keep people away from that home site. And so that becomes a negative control point, or they might want to interpret the home site and so becomes a positive control point. The big tree you're seeing on the right could definitely be a positive control point to show folks, you know, perhaps a rare -- you know, the size of a tree, which is rare in Western North Carolina. So all these are control points, and the key with trail planning and design is to connect all of those positive control points while avoiding the negative control points. So at the end of the day, when they're looking at a map of the property that they're wanting to put a trail on, they're marking

those positive control points in green, the negative ones in red, and trying to connect the dots basically, connecting all the positive ones while staying away from the negative ones. But they're trying to do it in a sustainable way. And so when I say that they're wanting to do this sustainably, you know, the question I often ask people is, what exactly does sustainable mean when it comes to trails? That word is used in all sorts of ways nowadays as far as all sorts of things. But what does it mean when we talk about sustainable trails? These are a few of the things that come to mind when I think about sustainability and sustainable trails. They're environmentally friendly. They're designed appropriately for the intended use. That's a very important point there. They're light on the land, you know. We're trying to protect and manage these lands, and so we don't want to provide access to these lands to the user if we're going to hurt or damage the land. So sustainable trails are light on the land. They minimize impact. So one thing, one point I try to make in my class is that sort of is counterintuitive is that with sustainable trails, we're actually minimizing impact by concentrating impact. So we're putting people where we want them and concentrating their use in those areas so that we can manage that use in a

sustainable way. You know, otherwise, if we don't have a trail that's concentrating that impact, then they might have greater impact across a wider swath of the land. So we're minimizing impact by actually concentrating impact. Sustainable trails are also low-maintenance typically, and they're community-supported. So when I think about sustainability, there are three components that typically, you know, come to mind. The first is environmental. So these are those things thinking about how water reacts on the trail and the soil and the trees and the flora and fauna, the environmental components of sustainability. And most of what I'm going to present to you today is going to deal with that part of sustainability. Another component of sustainability is social sustainability. Basically, this involves user conflict on the trail between different user groups might -- that might have goals or desire different experiences. Social sustainability also involves, you know, how many people advocate for that trail. So for instance, if you have a trail on some preserved land locally that only one or two people pushed for and perhaps built, once those one or two people are gone, the trail really is no longer sustainable. There's no one else there that perhaps cared about the trail to keep up with it. So social

sustainability is very important that you have a number of different users and user types that are advocates for that trail so that as time passes on, there's still support for it. The third component of sustainability is economic sustainability. So once that trail is built, who's going to pay to maintain it? Who's going to pay to make improvements? Who's going to pay to, you know, replace bridges or structures that might be located on those trails? That's known as the economic sustainability of the trails. And some people would also call this managerially sustainability. So again, these are the three primary components of sustainability, but what I'm going to focus on today is environmental sustainability. So even though sustainable and the word sustainability is sort of a buzzword, and it's -- you know, you've heard a lot about it in the last five or ten years. Way back in 1991 the National Park Service came up with a definition of a sustainable trail, and it's listed on the screen here. And two points I want to sort of, you know, make sure you notice the most are the first and the last one. So the sustainable trail supports current and future use with minimal impact to the area's natural systems. So again, you know, one of the primary goals is to protect land. And so we want to

have as little impact as possible on that land that we're protecting when we provide access to it. The other point is that it requires little rerouting and minimal long-term maintenance. So again, we're focusing on minimal impact and minimal long-term maintenance. The International Mountain Bike Association also has a definition of a sustainable trail, and again, if you focus on the two bullet points that are in white. One, it protects the environment, and two, it requires little maintenance. So again, this pretty much, you know, mimics what we saw on the last one by the National Park Service, but these are kind of the two guiding points that I think about when I think about trail layout design and sustainable trails. So the way that we maximize trail sustainability is, quite honestly we think about water, and that's our primary concern when we think about trail sustainability. This is a video of a trail that's here in Burke County, North Carolina, here at the Linville Gorge. And you notice that water is running right down the middle of the trail. This is something we don't like to see happen, and there's a number of reasons for that and a few things we can do to keep this from happening or to minimize the effect it has on the trail. So the way that we maximize trail

sustainability is first we put the trail in the right place. So I've got a picture on the screen here that you can take a look at. And often in my classes, I'll show this picture, and I'll ask the class, you know, what type of trail is this? Who uses this trail? And the answer most of the time is horses. This is an equestrian trail, Tim. And you know, I'll ask the question, well, why? Why do you feel like this is an equestrian trail? And they say, well, it's a ditch, and that's what horses do to trails. Surprisingly enough, this is a hiking only trail located in a wilderness area in western North Carolina. And the reason that this hiking trail has turned into this ditch that's probably three to four feet deep is because it's in the wrong place. So the first thing we have to do is we have to put trails in the wrong -- in the right place, and this one's in the wrong place. The issue with this trail is that as hikers walk up and down the trail, they loosen dirt and leaves and stones, and then when it rains, all that water, the droplets come together. They form a lot of volume of velocity. They pick up the loosened material, and they wash it to the bottom of the trail. Obviously when this happens, you end up with a ditch like you're seeing in this picture. And so that picture basically represents the

fall line trail. And fall line trails are trails that are basically in the wrong location. The water -- once they turn into a ditch, the water has nowhere to go. So it comes down the fall line, which is typically the trail, and washes all of the material that's loosened to the bottom and creates this ditch. Instead of a fall line trail, we try to design a rolling contour trail. And so this is a trail that basically traverses the side slope. Instead of going up and down the fall line, it goes across the slope. And by designing a trail in this way, this allows water that hits the trail tread surface to -- basically it minimizes the volume and velocity of water that hits the trail tread surface. And when you minimize volume and velocity, you're minimizing the amount of soil and leaves and sticks and rocks that are going to be moved off of your trail tread. So when I say you've got to put the trail in the right place, this is what I'm referring to. Instead of a fall line trail, we're wanting to design a rolling contour trail. With this rolling contour trail, what it also does is it promotes sheet flow of water across the trail tread or that surface that your users are walking or riding on. So when you have a rolling contour trail, water comes down the slope, the side slope, hits the trail and shoots across the trail

instead of running down it. And again, what this does is this limits the amount of volume and velocity of water on the trail, and that minimizes the amount of material that can be picked up and washed off the trail. So here's an example of a rolling contour trail. If you can't see it, then hopefully these arrows will help you to see how it's traversing the side slope. This trail also fits in much more appropriately than the fall line trail as far as, you know, the definition of not disrupting the natural environment. And so rolling contour trails definitely kind of check that box a lot better than a fall line trail does. When you have this rolling contour trail that's designed to flow with the contours of the land, then water that falls on the slopes within that land will hopefully sheet across the trail. And again by doing that, we're minimizing volume and velocity of that water, which minimizes the amount of material that's going to be washed off the trail. So after we decide where the trail goes and we want to put that trail in the right place, we have to incorporate the five essential elements of sustainable trails. I'm not going to go into a lot of detail with this, but I think the bottom line here is that you realize there's a right way and a wrong way. And so these five essential

elements should always be considered whenever designing trails. They include the half rule, the 10 percent average guideline, the maximum sustainable grade, grade reversals, and the out slope. And basically with the half rule and 10 percent average guideline discussed, these are the math that's involved with trail design and layout is that the average trail segment grade should be 10 percent. When we're designing trails for certain users, the goal when we're measuring grades of the trail is to average out at 10 percent. Now that doesn't mean there won't be some sections that are greater than 10 percent or less than 10 percent, but the overall goal is to average 10 percent. If we can average 10 percent, then that's going to help us to minimize the amount, the volume and velocity of water on that tread. The half rule is another one of those math-related rules with trail design and layout. And basically what it says, is that the trail grade should not exceed more than half the side slope that that trail traverses. So for instance if you have a side slope that's 20 percent grade, your trail grade shouldn't exceed 10 percent. This half rule really is more important in the Piedmont and Coastal regions of North Carolina because in Western North Carolina, you're typically laying out trail on side slopes that

are greater than 20 percent, and you're going to hit that 10 percent average guideline. So therefore, it's not as applicable in the mountain region because you're always going to be less than half of that side slope grade if you're doing things appropriately and correctly. So that's a rule that we try to pay more attention to down in the Piedmont area and the Coastal areas in North Carolina. Maximum sustainable grade is basically the steepest section of trail that's no more than 10 feet in length in a trail system. And a number of things affect maximum sustainable grade including the half rule and 10 percent rule. The other things that can affect it are soil type. You can build a much steeper trail in a clay soil type than you can in a more sandy soil type because those clay particles stick together. And so that allows you to create a steeper trail if you desire that experience with that soil type. Rainfall makes a difference. In areas where you have a lot of rain, like in Western North Carolina, your maximum sustainable grade is going to be a lot less than in areas where you might not have as much rain, like out west in the western United States. So sometimes or typically can see much steeper trails in the western part of the United States than you can in North Carolina just because of the rainfall

differences. Types of users affect maximum sustainable grade. For instance, when I'm designing an equestrian trail, just based on the way equestrians use trails and the dynamics of the horses and their hooves, I typically will only try to hit a 5 percent max on my grade, simply because as horses go up steeper slopes, they dig in and loosen more soil. So what we do to try to minimize that is we design horse trails with a lower grade than we would say for a bike or a hiking trail. And again, there's other variables here that affect maximum sustainable grade that are listed on the right side of the screen there, but there are a number of them there. Another element of sustainable trails is what we call grade reversals. These are basically things that are put in on trails when we designed them and lay them out. So if you'll notice in the diagrams to the left, instead of the trail going straight across the slope as you're seeing there, there's a grade reversal. The trail goes down and then back up again. And what this does is this creates a little, a small swell that allows water to be forced off the trail. Water can't go back uphill, so it's just going to flow until it gets to the grade reversal and go off the trail, therefore minimizing volume and velocity of water yet again and minimizing the amount of material

that's removed from the trail tread. These grade reversals also basically, you know, they provide interest. A trail that does gradual ups and downs, in my opinion and most users' opinions, is going to be much more interesting than one that just goes level across the slope like you're seeing at the top of that picture on your diagram on your left there. So a grade reversal is part of trail design, and this is something that's put in during your layout and design of the trail. And then outslope is the fifth essential element of sustainable trails. So when you build a trail correctly, you actually want the trail tread, that surface that your user is riding or walking on, to be outsloped slightly. Typically, we say 3 to 5 percent, and what this does is this encourages the sheet flow that I mentioned earlier. So again, water comes off your side slope, hits your trail tread, and since the trail tread is slightly outsloped, it runs across the tread instead of down it, minimizing the amount of material that is moved off the tread surface. So once we incorporate those five essential elements into our design, we can construct the trail, and there is a right and wrong way to construct the trail. So before I get into too many details on that, I'm going to just talk very briefly about terminology. But when

we think about a trail corridor, we've got the corridor and the tread. And the corridor is horizontal as well as vertical. So what that corridor is, is this is the open area that your trail tread is located within. And typically when we maintain trails, we want to keep this corridor free of vegetation. If we do that, then this promotes the user to use the trail tread, which is the surface of the tread trail that the user is walking or riding on. And there's two ways to build trails. And the first way is called a partial bench cut trail. Some people call this cut and fill and this is a standard way that they build roads. DOT will build roads in this way, in that they cut a little bit off the side slope, and they fill, and then they've got the large equipment, large machinery to actually compact that fill, and that provides them with a bench cut for the road. We can do this with trails as well, although we typically don't want to do this because we're not using the big equipment that DOT is using to build the roads. And it's very hard to get the fill material to compact in a way that's going to stay there forever and be sustainable. So lots of times, partial bench cut trails over five or ten years will actually lose the fill, and the bench becomes narrower than what you had planned. So if you had a four-foot wide trail that

offered that certain experience, you know, over five to ten years, two feet of that tread could actually slough off, and that's going to change the experience of the trail. And it's also going to put loose material in places that you don't want it, you know, which is off the trail. The way that we would rather build trail is what's called a full bench cut trail. So we're going in and basically we're creating the bench for the tread surface on completely solid ground. There's no fill when you build a full bench cut trail. You'll notice in this diagram you've got the trail tread. It's on solid ground. All of the excavated material is basically distributed downhill of the trail tread. And when built in this way, what happens is this allows your user to be on solid ground and you're not going to have material slough off over time. The other things I kind of want to point out here is you'll notice you've got the back slope cut, which is the slope that goes from the trail tread back to the initial or the original hillside there. It's very important that this back slope cut is laid back in such a way that water can come down off the hillside, down the back slope cut and across the trail trip. If the back slope cut is not laid back gently and is more straight up and down, what's going to happen is water, the surface tension of

that water is going to stick to your back slope, and it's going to push loose material on to your trail tread. This loose material is then going to force your users to walk on the outside edge of the trail tread, and that's your most susceptible part of the tread to erosion. So we don't want them to do that. So it's very important that your back slope cut is laid back gently. And then you're also going to notice there's a critical point there where your back slope cut meets the original hillside as well as on the downhill side of your bench cut. It's very important from a user standpoint that you visually delineate the critical point because this communicates to the user exactly where on the tread they're supposed to be. A couple things to think about when we think about tread construction is that all stumps should be completely removed from the tread itself. Those stumps, if not removed, will rot and they will create holes within your trail tread, which is not something we want to do from a user experience standpoint. So when trails are built, we typically remove all stumps from the tread. The other thing we need to make sure of is that the trail corridor should be cleared of all limbs, brush, vines, and vegetation, and this keeps the trail user on the tread exactly where you want them, concentrating

impact on the tread and not elsewhere in the woods. I mentioned how the back slope should transition smoothly to the hillside above, and the trail tread should be outsloped. Again, these are two things that are done to make sure that water sheets across and off the trail and then all vegetative and root matter should be removed from the tread itself as well, because if it's not as people walk or ride on these trails, that vegetation and root matter is basically going to wear away and create an incised or a ditch trail, and then water won't be able to sheet across it due to that ditch. So it's very important that when you build trail, you get down to mineral soil and get rid of all anything organic that could rot or, you know, break down as folks use your tread. So here's an example of a hand crew using hand tools to build a bench cut on the trail. And you know, there's probably 12 to 15 folks here, and they're digging trail. And I just want you to notice where their feet are in relation to the tread. You know, when they build trail tread, they're having to get rid of a lot of excess dirt excavated material, and they're dragging it off the trail to create that full bench cut. And in doing this, they are impacting the corridor. So this video in particular, that one shot there shows how, you know,

several of those -- those group members are off of the tread and impacting that excavated material that they're dragging off the tread. We don't see a lot of people building hand-cut trail anymore simply because it takes a long time. It's hard work. We do see folks are now using mechanized equipment in trail building. In this slide, you're seeing what we call a Sutter Trail Dozer on the left side of the slide and then a mini excavator on the right side of the slide. Lots of times, land managers kind of look at me strangely when I propose mechanized trail building, and they comment on how impactful that must be to the land and why on earth would they ever use a mechanized piece of equipment if they could have a hand crew go in there and build it by hand. And again, there's a few reasons why it's more beneficial. One is it's quicker. So you can get in and get out, and you're not in the woods as long, and you're getting that trail built. It's more efficient from that standpoint. The other thing is, I would argue that building a trail with mechanized equipment is actually less impactful than building one by hand, because you'll notice as folks build trail with equipment, the equipment is on the tread. So it is on the surface that your user is going to be riding and walking on. It's not getting off of that tread.

It's not going below the tread or above the tread like a hand crew would be doing if you were building it with a hand crew. So when building trail with mechanized equipment, you're really limiting that impact to the tread surface itself and not the surrounding land like you would be with a hand crew. So that's one reason why I'm a big advocate of mechanized controlled construction just because it's more efficient, and I quite honestly feel like it's less impactful than using a hand crew that would be stomping all of your excavated material and, you know, basically impacting the corridor much more than a piece of equipment would be. This is a video of that Sutter Trail Dozer building a trail, and you will notice that it's a small dozer. It's about four feet wide. This fellow is going through and creating a bench cut, which the distance that he's going in this video would probably take a crew of 10 about half a day to build. So generally when people build with these dozers, they do a -- what we call a rough cut with a dozer, and they come back with a mini excavator that's driven on the bench cut, and they use the bucket of the excavator to distribute the excavated material downhill of the trail. So again, that equipment is being -- you know, is minimized the impact by staying on the tread surface

and not leaving that in the woods. So once that trail is constructed correctly, the next step is to maintain and manage the trails. And one point I want to make pretty clearly is that all trails require maintenance. So even if they're designed sustainably, they still require maintenance. The goal, though, is to minimize the maintenance that is required. So trails need to be maintained and managed once they're built. This is just sort of a saying that I usually tell folks to try to help remember, you know, what exactly kind of maintenance do we need to think about. Well, you need to think about vegetation because trees grow, and then you need to think about water. These are some pictures of a trail that was built probably about 10 years ago. It was designed sustainably. It was constructed sustainably. But you'll notice there's already a ditch in the middle of the trail here. If you'll look at this picture, you'll see that trees have fallen across the trail and been cut out of the way. But again, we've got a ditch developing on the left side of the trail there. Same issue here, water is collecting on the left side. It's not able to get off of the trail tread. It's staying on the tread, and it's picking up that little loose material that users are loosening and carrying it down the trail, creating that ditch. So

this is just an example of a well-designed trail that's not being maintained, and therefore it's showing damage like this. If the land manager would have maintained this trail by deep -- what we call deberming the tread and cleaning out rolling grade dips of material every two to three years, this would not happen. This is a direct result of lack of maintenance. So all trails have to be maintained. Typically, if a trail is designed correctly and sustainably, it basically needs to be checked once a month for downed trees. What you don't want to happen is have a tree fall across your trail and have it sit there for a year, and then a new trail is created by the user going around that downed tree. So that's why it's very important to make sure that downed trees are cut as soon as you find them. Twice a year, the corridor should be trimmed. So again, we're trying to keep the user on our trails in a comfortable space, and we can do that by trimming the trail corridor twice a year. And then every two or three years, the trail needs to be assessed to see what water is doing. And so if the land manager notices that water is being held on the trail and picking up material, they need to do what they -- whatever they need to do to get water off the trail to, again, limit volume of velocity. And with sustainable trails, what

this usually involves is going in and basically clearing off the berm that develops on the outside edge of a rolling contour trail after two to three years. That material that is loosened by your users will create a berm on the outside edge, and that will prohibit sheet flow from going across your trail. And that's what's happened in the pictures I just showed you of the trail that had not been maintained. So again, to maximize trail sustainability, you've got to put the trail in the right place. You know, if we're looking at a rolling contour trail, not fall line trail, you need to incorporate those five essential elements into design and construction, needs to be constructed correctly with a full bench cut trail, and then it needs to be maintained and managed. All users impact the trail tread surface. I feel like that's an important point to make. Hikers impact the tread; bikers and horses, they all impact the trail tread surface. Soil on the tread is loosened, compacted, moved, and disturbed. And depending on your user and the design of the trail, that can be greater. For instance, if it's an advanced mountain bike trail with steep slopes, a horse would do a lot more damage to that trail than the mountain bike or hiker would. So you've got to think about that when you're designing

and laying out these trails. You know, we can minimize that impact through planning and design, construction, maintenance, and management. So one thing I want to address as far as management is concerned, and most of you -- most of you may be aware of this, you may not, but there is -- over the last five to ten years, there's been an effort to start to close trails when they're wet. This is a management decision that some land -- some land managers, you know, take very seriously, and they do that; others don't. But again, by closing trails when they're wet, what you're doing is you're limiting the amount of soil that can be disturbed on the tread surface. And when you limit that, you're going to limit the damage to the trail. One thing I will say is that I'm an advocate for closing all trails when they're wet, not just mountain bike trails, not just horse trails, hiking trails included, and that's not often a very popular -- popular opinion for most people. But again, all users affect the trails, and so therefore, if a user can damage the trail by using it when it's wet, then that user needs to be prohibited from that trail when it's wet. And that is basically it as far as the presentation goes. Are there any questions or comments?

Mr. Williams: Great presentation.

Executive Director Summer: Absolutely; I've got a comment, Tim. First, as Darryl said, great presentation. So long, long ago my background was forest hydrology. I spent a lot of time teaching loggers to build skid trails and forest roads using much of the same principles that you're using, you know.

Mr. Johnson: Yeah.

Executive Director Summer: The big difference is, of course, you're incorporating this management of the human aspect, which is a whole different beast. But having -- and I've been a long time mountain biker, so having all those credentials on the table, I learned a lot today, which is really awesome because I came into this thinking I knew it all. So I really, really appreciate the information, Tim, and I'm glad that Justin is now one of your students since he is on our team reviewing and ensuring our trails are done sustainably. So really, really, I appreciate your taking time.

Mr. Johnson: Sure, thank you; any other questions; again, that was a very quick, high-level sort of a view of it.

Aquisition Committee Chair Grissom: I have one -- sorry, go ahead, Ann.

Restoration Committee Chair Browning: Okay, I'm just curious, with the number of trails being added across the state, are there adequate resources, I mean, knowledgeable people that use the principles that you've talked about to sort of fulfill that demand?

Mr. Johnson: Gosh, that could be a conversation. Well, I mean, what I will say is this. When I worked for State Parks as the Regional Trail Specialist, I tried my best to get the word out about all this material as well as when I was at Rockingham Community College, and I can't remember the exact numbers, but I think we touched at least 500 different students at Rockingham Community College. And those were local government folks. Those were state parks folks, national parks, national forest, but I try to get this information out there, so people understand it. The presentation I just gave you was actually one that I gave to the Piedmont Legacy Trails folks conference back in 2021 that had a whole host of different people. So I think -- you know, my goal has been at least to let people know there's a right way and a wrong way. Now there are professional trail builders out there who, yes, are very well-versed in

this information, and they're very busy right now because of all the trail works. So I mean, the knowledge is out there. You know, it's just a matter of finding the right people. And I wish it was more common that folks knew this information, but you know, I'd like to think I've made an impact over the last five or ten years, kind of presenting this to folks. But really, I don't know, you know. There's still people out there that probably use waterbars, which is a big no-no in the trail building world now. Waterbar is a bad word. You know, and so I don't know, Ann, hopefully there are, but yeah, any of the folks that call themselves and classify themselves as professional trail builders, they know this information and should be able to incorporate into their work, yeah.

Restoration Committee Chair Browning: Well, thanks for all you're doing to help promote best practices.

Mr. Johnson: Thanks.

Acquisition Committee Chair Grissom: So am I next? So I totally appreciate your presentation. I think it's great. And I also bring kind of a private landowner and forestry management kind of perspective, like Will was talking about. One of my concerns, like, you know, you're talking about the land manager. You

know, we -- so many of the projects that we fund have no dedicated park ranger or land manager. Do you have any thoughts about, you know, just frequency of stewardship, frequency of management, what management costs might be because, you know, it was rather sobering to see the kind of regular management and maintenance of a trail that actually is built using those best practices that you're talking about, but oftentimes, I find in land that I spend time on, you know, lots of bad decisions where contours aren't followed and, you know, we -- how you think about how often one needs to do deal with that, or ways to prevent damage when there's no one there to say, guess what, we can't, you know, shut down this trail because it's rained a lot in the last day or two or week.

Mr. Johnson: Right, I mean, I think it -- that goes back a lot. You know, that goes back to what I talked about managerial sustainability. And, you know, quite honestly, I mean, a land manager has to -- has to address that issue, whether it's a -- you know, a state park, a city park, a private landowner, they've got to understand that a trail requires maintenance. And they also have to understand that the way that that trail is designed and built is going to effect the amount of maintenance they

do. So, for instance, just an example, and especially in Western North Carolina, how many times have you walked on a trail in Western North Carolina that was open because it was an old road, an old logging road, and it was easy, right? Well, they didn't think about that it might have been easy to open, but it's not easy to maintain. And you know, as far as like a rule of thumb on how often is maintenance required or that kind of thing or what types of resources are required, it totally depends on the design and layout of the trail and where it's located. Just an example, I did a maintenance plan for a municipality in Western North Carolina, and we did. We were able to put, you know, a time commitment and a price on that maintenance, but we had to look at that trail specifically. And we -- you know, at the end of the day, we divided that trail into four different segments based on the characteristics of the trail as far as the grade, the slope aspect. All of those things factored into maintenance. So it's one of those things that, again, if folks are going to build trails, they've got to have some sort of idea on how they're going to maintain those trails. You know, lots of folks nowadays use volunteers, which is fine. I've done a lot of training of volunteer groups so that they understand what's required. A lot of folks will

put money aside, and they'll hire a professional trail builder to come in every three to five years to do maintenance, which is another great option because the trail builder knows what they're doing. They know what's required, but it does cost money that often land managers don't have. You know, so I think it's just one of those things from the beginning, the land manager just has to understand this is going to require maintenance and figure out how they're going to address that in the long run. The other thing I'll mention is there's been a lot of development lately of mountain bike parks on public lands, and when I see that, I sort of cringe a little bit. I'm a mountain biker. I love riding mountain bikes, but these mountain bike parks are designed in such a way that they're going to require intense maintenance and management. That's more intense than what I just mentioned for a sustainable trail. And lots of times, I don't know if land managers are aware of that when they hire a contractor to build these trails. And so I warn land managers all the time, if you're kind of going to do that special mountain bike park experience, then you need to understand there's going to be intense maintenance associated with that. And you've got to prepare for it in some way, whether that be, you know,

financially by hiring folks or having a big volunteer crew or whatever. You've got to address that. I don't know that that answers your question, but.

Acquisition Committee Chair Grissom: Well, it helps because we do want to provide access to the public and to all kinds of users, you know, mountain bikers, horseback riders, you know, hikers, whatever, you know, but just to help us think about issues that the partners might need to address in both designing, building, and maintaining those, so thank you.

Stewardship Manager Mercer: And for how -- sorry, go ahead, Tim.

Mr. Johnson: Perhaps that's a question, you know, on the application, you know; what is your plan for future maintenance of these trails if funded or, you know, or whatever that might be because who knows if the land manager has thought about that.

Stewardship Manager Mercer: And that's where I was going next is part of our guidelines and practices on construction and design of natural surface trails is a requirement to provide a maintenance plan for those trails. So that is certainly something on our mind, something that has been a -- sort of an emphasis because that does seem to be the piece that

folks forget about when they're submitting trail designs, as they don't think about the long term, how they're going to maintain them. And so that is a piece of our review process in making sure that folks are thinking about that and have a plan in place for the long term. The other thing that I'll just touch on quickly, as Tim was mentioning, mountain bike parks, and I think, largely we agree on that. We do have some situations where we've got properties with mountain bike parks on match easements, but we largely view those as not appropriate within our easement. Those more intensely developed type trails are not really compatible with us. We do allow mountain bike trails, but not those bike park-type things. So I just wanted to add those couple of things there, but we'll turn it back if anybody else has additional questions.

Chairman Wilson: Justin, I'm glad you said what you said. My question was going to be for you, which was, you know, what did you -- what changed in your mind from before you took this course from Tim and after, in terms of your work, your stewardship work?

Stewardship Manager Mercer: Absolutely; that's a great question. There were a lot of things, just that -- just general knowledge that were helpful,

but I think one thing that really hit home for me was the user experience piece of this. I mean, prior to talking with Tim, I wasn't all that concerned about user experience. Let's make sure the environmental sustainability is there, and whatever impact that has for the user, so be it. But I think where I've shifted to now is recognizing that user experience does have an impact on the safe sustainability and sort of environmental part of it, because if you build a trail that has the right user experience, folks are going to want to stay on that trail instead of wondering off and creating their own trail or other impacts off-trail. So I think that was a big thing for me. Maintenance has always kind of been a focus area, but definitely got some better insights and details from Tim on how frequently we need to expect maintenance, kind of what to look for, key points to look for when folks are submitting their maintenance plans, are all great things that I think have shifted for me a little bit since last fall when I went through this course.

Chairman Wilson: So I know you already had high standards for trail building and trail maintenance before you took Tim's class. But what about existing trails on land that we protect, that we have an easement on, how do you decide, okay, this just

is across the line. We've got -- they've got to make some modifications to this trail. There's got to be some maintenance of this trail where there may be very little interest in doing that and zero money.

Stewardship Manager Mercer: Sure, and I think part of the problem is that we don't always know about those situations. That's something where we're trying to do better with, making sure that when we're out monitoring ourselves, we're paying attention to trails, but also encouraging our partners to do that as well. And most of our partners are really good about reporting those things. I've had several situations where they've identified a problem and said, oh, we're going to go -- we're going to reroute this trail to avoid either this sensitive area or this area with lots of erosion or this -- this fall line trail that was -- that predated the easement. We're going to go ahead and take the step to reroute this trail. Let's get this approved so that we get it in a better location. And we'll close off that old trail that was no good. So it's -- there are also some other techniques where you don't always have to abandon the existing trail. You can -- there are certain things that you can do to improve it, whether if it's a fall line trail, whether it's going in and adding steps to make that more stable

and sustainable or as I think Aaron mentioned before the meeting started, installing things like turnpikes to get folks over or around wet areas. So there are a lot of techniques that can be used to sort of make those existing trails more sustainable, where rerouting is not the best option. Funding is certainly an issue. Most of our organizations that have partner organizations that have trails have a really good volunteer base that they can tap into, but to be sure they will -- there will come a point where we've got trail issues and no funding to deal with it. And unfortunately, those cases will likely result in trail closure until they can figure out a solution.

Chairman Wilson: Okay, any more questions for Tim; Justin; thanks again, Tim; this has just been great, and Justin. Well, that concludes our agenda for our meeting. Are there any other business items or comments from either trustees or staff?

Executive Director Summer: None from me.

Chairman Wilson: Okay, I will then entertain a motion to adjourn.

Restoration Committee Chair Browning: I move that we adjourn.

Chairman Wilson: Thanks, Ann.

Mr. Riddle: Second.

Chairman Wilson: Second, who was that?

Mr. Riddle: Clement.

Chairman Wilson: Clement; thank you, Clement; any discussion; all right, we can do this all at the same time. All in favor, say aye, please.

Trustees: Aye.

Chairman Wilson: Anybody opposed; all right, we are adjourned; thank you, everyone; thanks as always to our wonderful staff and to our special guest, Tim Johnson; makes us all want to get out there and hike, I know, and build trails.

(The proceedings were concluded at 2:36 P.M.)

NORTH CAROLINA

WAKE COUNTY

C E R T I F I C A T E

I, Dona E. Overby, Notary/Reporter, do hereby certify that this Board of Trustees Meeting was taken by me and transcribed under my direction and that the seventy-two pages which constitute this Board of Trustees Meeting are a true and accurate transcript.

IN WITNESS THEREOF, I have hereunto set my hand this 2nd day of May, 2024.

Dona E. Overby

Dona E. Overby
Notary Public
Certificate No.: 19971920107