

U-5811 - CP 4B-20260916_095939-Meeting Recording

September 16, 2026, 1:59PM

1h 17m 31s

● **Headrick, Hannah S** started transcription

HS **Headrick, Hannah S** 0:03

All right, test, test. I'm gonna pick on Myra. Can you please verify that our speakers are working and that...

IM **Ibarra, Maira** 0:12

I can hear you.

HS **Headrick, Hannah S** 0:13

Perfect. We can hear you guys there as well. Thank you. All right.

IM **Ibarra, Maira** 0:16

It's.

HS **Headrick, Hannah S** 0:18

About a few more seconds here, let some folks log in or come to the room, and then we'll go and get started. They said we can come. Sure. I did not. Yes.

Send her an e-mail just a minute ago, but it's been too few that I hope she can write me back.

She knows.

Actually, it's.

It changed. Now I'm sorry. I have it. I actually went down.

So we'll go ahead and get started. We can catch up anyone else that comes in and be advised. This is being recorded. We're here. I know there's a lot of virtual meetings today. So for those that are in several, this is for a new 5811 project, which is improvements to the aviation parkway from the C54.

The I for you at.

S **Sedhay, Govinda - FPAC-NRCS, NC** 1:36

Yes.

HS Headrick, Hannah S 1:40

Uh, and we're here for the CP4B meeting, so the purpose of that is...

S Sedhay, Govinda - FPAC-NRCS, NC 1:43

Play.

You.

HS Headrick, Hannah S 1:49

I think it's setting the one on the top left.

Yes.

LJ Loving (Kimley-Horn), Everett J 2:20

I think the room might have been muted. We're not able to hear you online anymore.

HS Headrick, Hannah S 2:29

Turn off.

Let's test. Can we hear Sam?

LJ Loving (Kimley-Horn), Everett J 2:37

Yeah, I got you now, Joel. Thanks.

HS Headrick, Hannah S 2:38

Perfect, thank you. All right, apologies for that. So again, starting over, we're here for the U5811 improvements to the Aviation Parkway and C54 I-40 in Morrisville and Cary, question 5. Purpose today is the CP4B meeting, which is to review the preliminary drainage design prior to submitting our permit drawings. So we'll start with the introduction. That means some DRT project manager, Joel Berlin. And I'll start off here in the room, Teresa. Teresa Gresham, Kimberly Horn, Environmental Lead. Ian Burdis, Kimberly Horn, Hydraulics. Rob Roddings, Division of Water Resources. Thomas Bootson, Division of Water Resources. Mitchell Wimberly, Division Five, Environmental. Heather Montague, Division Five, Environmental. Derek Woodrow with Campo. Deanna Ricky with Environmental Coronation Permitting. All right, Sarah Houston, dot Project Management Unit. Sarah Sherman, dot Project Management Unit. Faith Harden, Division of Water Resources. Jordan

Bendel, Kimley Horn Hydraulics. Ethan Bloom.

Kimberly Horn, Environmental NIVA. Eric Allswear, Corps of Engineers. Anna Hendrick, Environmental Policy. All right, we'll go ahead down to Teams, Parisa. Ethan.

Pizza bread.

BE **Bray, Ethan** 4:02

Lehorn hydraulics.

HS **Headrick, Hannah S** 4:06

Davis.

BU **Brooke Davis- USACE** 4:09

And Brooke Davis was the Corps of Engineers.

HS **Headrick, Hannah S** 4:13

Okay.

Robert, can you hear us?

BW **Bullock, Robert W** 4:30

Robert Bullock, Division Five Construction.

HS **Headrick, Hannah S** 4:34

You know about it?

CA **Caleb Allred** 4:37

Caleb Allred, I'm with Campo.

HS **Headrick, Hannah S** 4:40

For snow.

CS **Chris Snow** 4:42

Chris Snow, Wake County Parks, Recreation, and Open Space.

HS **Headrick, Hannah S** 4:46
Ashley Cox.

CB **Cox, Ashley B** 4:48
Geo-environmental.

HS **Headrick, Hannah S** 4:51
Mitch across.

CM **Cross, Mitchell** 4:55
Mitchell Cross, Kimley Horn Roadway.

HS **Headrick, Hannah S** 4:59
Helen.
Anything yours?

LJ **Loving (Kimley-Horn), Everett J** 5:12
Hannadays, Kinley Horn Hydraulics.

HS **Headrick, Hannah S** 5:14
I don't know.

EA **Efird, Adam** 5:18
Adam Eford, Kimley, Horn, Nepa.

HS **Headrick, Hannah S** 5:22
Oh, go ahead.

HB **Hemphill, Bo** 5:27
Bohem Pl. NCDOT utilities.

HS **Headrick, Hannah S** 5:31
Did Hubert?
Sorry, sorry. And Myra.

IM Ibarra, Maira 5:40
Mary Barra dot PMU.

HS Headrick, Hannah S 5:45
Get with them.

JT Jay Twisdale 5:48
Yes, good morning. Jay Twisdale, TGS engineer, supporting the hydraulics unit as a GESC review engineer.

HS Headrick, Hannah S 5:57
Tim Kogart.

K Kjelgaard, Jim - FPAC-NRCS, NC 5:59
James Kilgard, I'm with Natural Resources Conservation Service.

HS Headrick, Hannah S 6:05
Big person.
Sorry, I didn't hear you. You're asking me?
I.

KW Kretchman, Douglas W 6:19
Doug Crutch, NCDOT Roadway. Can you hear me?

HS Headrick, Hannah S 6:22
Yes, got you this, Nick Lineberg.

LC Lineberger, Nicholas C 6:26
McLineberger, congestion management, NCDOG.

HS Headrick, Hannah S 6:29
Take a look.

LL Love, Jaime L 6:32
Jamie Love.

HS Headrick, Hannah S 6:40
Everyone.

LJ Loving (Kimley-Horn), Everett J 6:41
Everett Loving, Kinley Horn, Project Manager.

HS Headrick, Hannah S 6:44
Or can we?

MH Mark A Hamlett 6:46
Mark Hamlet, Wake County General Services Administration.

HS Headrick, Hannah S 6:47
Yeah.
Can I get you?

MG Muchane, Gichuru 6:54
structures management.

HS Headrick, Hannah S 6:57
Junior department.

PJ Park, Jinyoung 6:59
Jinyoung Po, Chiu Ta, and should be okay.

HS Headrick, Hannah S 7:01
Exactly.
Justin Rhodes.
Justin, can you hear us?

LJ **Loving (Kimley-Horn), Everett J** 7:17
Justin Roses, Kimley Horn, Roadside Environmental.

HS **Headrick, Hannah S** 7:20
You.
Govinda.

S **Sedhay, Govinda - FPAC-NRCS, NC** 7:25
Yesterday, I finished today.

HS **Headrick, Hannah S** 7:30
I just know your mic's pretty hard to hear.
Uh, Eric, Eric's here.

SD **Skinner, Eric D** 7:36
Eric Skinner, NCDOT Roadway.

HS **Headrick, Hannah S** 7:40
Will we solve it?

SW **Sullivan, Willie** 7:42
Willie Sullivan, Kimley Horn Environmental.

HS **Headrick, Hannah S** 7:47
Seth Walter.

WS **Wilcher, Seth (FHWA)** 7:49
Hey, good morning everybody. It's Seth Wilcher with Federal Highway
Administration.

HS **Headrick, Hannah S** 7:52
Travis Wilson.
Okay.



Wilson, Travis W. 7:57

Travis Wilson, North Carolina Wildlife Resources Commission.



Headrick, Hannah S 8:01

Thanks everybody for helping us through that. One rule of engagement that I'm going to request from everybody is that if you do have a comment that you say your name and then say which organization you are from, we do have a big group, not only here in the meeting room, but online. So just to help everybody out to know who's speaking,

and so that we can comment appropriately. Thank you. And with that, I'll turn it over to Teresa Grisham to start us off. Morning, everyone. It has only been a month since our last merger meeting, and so we are not going to spend a lot of time on the background of this project, assuming that you are all still

familiar with the details. However, feel free at any time to ask questions about any of the particulars from today's meeting as well as past meetings. So for today, we're going to be going through the proposed hydraulic design. We have several sets of plans, draft plans that were prepared and provided to you as part of the packet.

We have all those available today if there are questions or discussion desired about any of them. We will be taking a few minutes to go through the red line drainage plans and focusing in particular on the major culvert crossings. But as I mentioned, we do have them all available to be able to share and discuss.

So just for orientation, as Joel said, the project is about 2 1/2 miles from NC 54 to I-40 on Aviation Parkway.

It crosses through several jurisdictions, and so one of the things you'll be hearing today is the ongoing coordination with those jurisdictions.

Project schedule, we're getting awfully close to final designs. It's very exciting. We are preparing the permit drawings and you can see here in the next couple of months, there's going to be a lot of milestones reached towards those plan sets.

Those are all in your packet as well. Two design updates to bring your attention to since our last merger meeting. The first is that the RCI intersection at McCrimmon Parkway in Southport was eliminated from the plan set due to funding constraints. At this point, there is no funding for that either by NCDOT or other local agencies. Certainly our project would not preclude a future improvement to be made to that location if traffic warrants it as time progresses, but it is no longer

going to be part of our project. And then the second is that we've eliminated a left turn lane in coordination with the developer on the west side of The project right off of aviation at International.

So the primary sites that we're going to be looking at today are shown on the graphic here. And these are the same ones that are the major drainage structures that were presented in the 2A meeting. We also will be talking about one additional location. It's not a major crossing, but it is a new one to the plan sets. And so we wanted to take a couple minutes and walk through that with you today. And that's here near Clements Drive between sites 2 and 4.

This information also is in your packet as design progresses, as is always the case, the design of the structures has been refined. And so the information that had been agreed to in 2A and now is proposed as part of 4B has been summarized in this table here.

Um, as we get into walking drainage plans, we can talk about these as well, but are there any general questions about the design changes?

Just one, I noticed most of your changes have an overall length reduction, but one has an overall length increase. I think it's one day. Just curious how that one happened.

Jordan, is that? Yeah, Jordan, I believe that one. So, do you put which from when did we increase like when, from what date? I'm looking from the two way to the from the two way. There's been multiple cover changes. Yeah. It could have been.

What's most likely is that it was the change in material to the welded steel pipe.

Okay. That was February 25th. February 2025. It could have been, okay. Everett's on the line as well. It could have been, there was some reduction in, or not reduction, I think there were some changes in guardrail or something like that. So it could be associated with.

Either of those, OK.

 **Loving (Kimley-Horn), Everett J** 12:55

Yeah, I can, I can chime in here. Everett Loving with Kimmy Horn. So, I think it was a couple other things as well. Wanting to make sure those head walls get out of clear zone as best we can, and then also the phasing was really challenging here. So, it's this is the one of the existing RCBCs that we have to remove. And so, as we really worked through the phasing and how do we...

HS Headrick, Hannah S 12:56

Yeah.

L Loving (Kimley-Horn), Everett J 13:14

bore a welded steel pipe, then remove the other one, and then put the second one in. This is kind of where we ended up of, hey, this is going to be best for just kind of the engineering and then what we need for turn lanes.

HS Headrick, Hannah S 13:24

Okay.

Explosion.

The next couple of slides are the same information that is in the packet that just laid out some of the more general principles that aren't project or aren't site specific for the emergency control plans. And the reason that we wanted to have a moment where we talk about this both in the packet as well as in the meeting is because there had been some discussion about these kinds of questions in the 4A meeting and wanted to just present this as a general topic again before we got into the site-specific crossings. So I'm not going to read all of these bullets, but I am going to just highlight a little bit from each of them so that folks have a chance to think about questions that they may have or additional comments that they may have on this. So the erosion control plans, of course, have a lot of elements, but the five that we pulled out that were most related to drainage for today's conversation is the construction phasing, which we have looked at in more detail.

since the earlier meetings, specifically that related to the locations that are adjacent to streams and drainage features.

We have extensive use of temporary erosion and sediment control measures, and so those are as appropriate in each location.

We have included requirements for rapid stabilization of disturbed areas. Some of that will be through project specific locations. Some will end up being in the contract. We have installation of rip-rap geotextile and channel protection measures at several of the locations that were most appropriate. And we have detailed procedures for isolating the work areas from flowing water, which is going to help prevent erosion control.

Any discussion about these or questions of items that aren't on the list?

We also have some items in the erosion control plans that were more specifically focused on water quality and resource protection. And you can see here, we pulled out six points to bring to your attention. The first is emphasis on sediment retention and treatment.

Second is stream and surface water protection measures, including temporary diversions, controlled discharge locations, and turbidity management.

We have some stabilization requirements and we are planning to accelerate the timelines for construction in the environmentally sensitive areas to try to reduce those impacts as areas are exposed temporarily.

We've included permanent channel bank and outfall protection measures in order to help reduce long-term erosion.

And we have incorporated some reforestation and revegetation measures, of course, using native species in order to rebuild those areas after construction.

And then finally, just a general note that we will be compliant with all of the DEQ and dot erosion and sediment control requirements.

Any discussion on these items?

It.

The last thing we wanted to mention in our presentation before we turn over to the plan set is regarding the flood pool permitting. So this is in addition to the standard section 404401 permitting. And just to give everyone an update on the status of the Wake County and NRCS.

flood pool permitting. We have been updating our calculations of the impacts within the flood pool. We've coordinated with the county and NRCS on the design plans and on those impact numbers. We have drafted A memorandum of understanding, which is going to help get us started into the conversation about how to use the land for both the temporary area during construction as well as the permanent areas for the mitigation of the flood pool.

impacts. And then finally, we'll be preparing the Crabtree Creek watershed flood pool permit application, which we will be submitting to Wayne County. Much of the information that's required for those different items has been complete and is the same as the information that the merger team is seeing in the packet.

There's also then just a few additional questions that the county has as part of their application process. If there are any agencies that are in the room today that would like to be included on either meetings with the county NRCS or review of any of the materials as part of that larger team,

Please let us know. Otherwise, we'll just be following both sort of standard processes with the current DEQ and then the accounting and NRCS.

Any questions about the flood pool permitting?

All right, I'm going to stop sharing. Ian is going to start sharing and we're going to go through the red line drainage. After that, we will have just a few more minutes at the end if there's general questions, talk about next steps, etc.

Thanks, Teresa. Yeah, as Teresa mentioned earlier, we're going to go over the red line drainage plans, preliminary focusing on the five major culvert crossings on the project. I will go through each plan sheet in case people have questions on any of the red line drainage.

I did. Any questions for the Red Line drainage can be directed towards me. We also have Caitlin Foggerstrom online from Kimley Horn. And then any questions about culvert or culvert design can be directed to Jordan. He took care of the CSRs for this project.

So beginning at plan sheet 4.

Before we get into the culvert crossing here, does anyone have questions on the design on the left side of the plant St. here?

You gave us some variance. Sure. Yeah, so this is L Aviation Parkway on the start of our project. First of all, acted as Morris with Carpenter Road. This is where it intersects with NC 45 ROI 4.

We have one outfall.

To the...

to the west of Y4 before we get into the culvert down here. So this first drainage system here, small picks up drainage from Y1 and Morris will come under and out fault over here.

Hearing none, we'll move on to the cohort.

So the culvert is located on Morrisville Carpenter between Y4 and our loop 1 here. This culvert has three outfalls that discharge directly into the wing walls. It has one outfall that discharges and ditches through the buffer zone.

The drainage systems that come to this outfall are along L, Morris Hill Carpenter. We have some drainage system that comes down through NC45, discharges into the wing wall, and then also it comes down through our loop one and discharges into the stream through the buffer zones.

So...

Any question, Jordan, do you want me to pass it over to you for some corporate

background? Yeah, I can provide some background. There's this post crossing is, I believe, is that correct? Yeah, that's the one we were talking about.

The pipes are, there's three, well, the steel pipes, 2 floodplain pipes on each side of the main barrel. The spacing is a bit unique to the fact that these will be more inject. So the overall width of the culverts from beginning and end for the three barrels, the width of the headwall, I guess you could call it, is wider than normal because we're trying to bore through the existing pipes to maintain traffic. So a lot of the design was driven by maintenance of traffic, keeping traffic open for as short as possible.

and the pipe sizes were driven in diameter based on the fact that they have to be bored in under the existing roadway so they cannot be too tall that they would go above the existing roadway, which led to the increase in length, I believe, looking at it now. This is site one.

Sorry, one, sorry.

This is Simon, so.

That's in general, that's the that's going to be a common theme with these call works.

All of them, except for the causeway, are welded steel, and most of them are boring jack. So that drove a lot of the design, the width of the headwalls, the channel work that ties up and downstream is driven by the width of those headwalls as well. So Just a general overview of kind of what drove these and maybe some changes that have happened since the previous meetings.

I will say one more common theme for the red line drainage is that we outfall into our wing walls whenever we're constrained with either right away or infrastructure or property on either side of the culvert. We try our best whenever we have the space to outfall and ditch into the stream, but for the places where we have our red line drainage systems outfalling to the wing wall, that's the case, just urban constraints and space.

Yeah, I was about to ask that. So I think on the south side.

Our 2 houses, what? What's on the on the upper right on the upper left? Excuse me. The upper left, if there's a driveway access here, I think our thought was we were...

I don't know if this property is going to be developed in the future. I don't think there's anything there today. That's why I asked. Yeah. We do have a driveway access to this property. So I think that just looking into the future, we were not trying to put a

And I'll call it on to that, so OK.

If, if, if it, if there is.

any way to add more discharges outside of buffers. I'm always looking to do that, especially since this is a buffer watershed and it's three SVT, I believe. So anytime we could avoid that. Like I said, on the south side, I know there's like 2 houses right there next to the streams.

If you can't do it on the upper left hand, just try to between now and 4C, find some way to document what that constraint is so that you can get through the buffer rules. Okay, you know, because we're supposed to avoid those at all.

And all and all buses, so Edward, is there a background on this driveway connection here?

LJ **Loving (Kimley-Horn), Everett J** 25:53

That is an existing driveway connection, so we are installing it back.

HS **Headrick, Hannah S** 25:58

Okay.

FK **Faugerstrom, Kaitlyn** 26:01

Yeah, this is Caitlin Foggerstrom, Kimley Horn. I think I think we ended up not pursuing outletting just to the right of that driveway there, because there's just really limited room to get any treatment between that driveway and the buffers. You know, we can we can reevaluate that, but I think it was just more...

HS **Headrick, Hannah S** 26:14

Okay.

FK **Faugerstrom, Kaitlyn** 26:21

a lack of space and, you know, room for that outfall, then not considering it to begin with, if that makes sense.

HS **Headrick, Hannah S** 26:29

Yeah, definitely does. I'm just looking at all options. And if another possibility is to reroute more pipes to the upper right and enlarge that riprap pad to a company, or that's another possibility if y'all could look at that between now and 4C.

We amicable to that as well. So the one of the hardest problems that we have for all of these culvert crossings is, especially with welded steel, there is not a lot of cover between the welded steel and the road. So right now we do not.

There's not enough cover to put pipes over the over the cover. Now we used to have pipes discharging directly into the RCBCs when they were concrete.

But yeah, we do. There's just very minimal cover with the welded steel to put pipes over them. Yeah, OK.

Any more questions in this area?

Yeah, this is Eric Alsman of the Corps. I guess I just need some clarification about the notes as far as this. It says that this is installed trenchlessly, trenchlessly and has flood benching. But then the detail, which was 2D6.

Detail one doesn't show that.

So, I'm just wondering, I mean, it should have flood benching to narrow down the channel width, the low flow channel.

So.

It may be hard to see. I'm looking at our CSR, so I'm not sure the line weights on that. We're only proposing a six-inch tall flood bench, so there's only 6 inches of vertical difference between.

the actual flood bench at the bottom of the channel. That was driven largely by the hydraulic having to maximize our hydraulic openings on these.

 **Loving (Kimley-Horn), Everett J** 29:00

Jordan, maybe one other thing here. This is Everett Loving, Kim Horn. This is true for most of our culverts as well. The trenchless install of these welded steel pipes is only for the length of pipe under the existing Rd. So the plan is to trenchlessly install that while maintaining traffic. Then many of these culverts are longer than the existing Rd. because we're widening.

 **Headrick, Hannah S** 29:03

As I say.

 **Loving (Kimley-Horn), Everett J** 29:23

And so for that additional length, that will not be trenchlessly installed. We'll be

installing that away from traffic. So I don't know if that's another piece here that might be causing some confusion.

HS Headrick, Hannah S 29:33

Yeah, you can zoom way in on that middle barrel just to make sure where we could make it more clear there. You'll see a tiny little blend. Right. It's hard to see, but the sills will drive the fact that the main barrel has a sill one, but main barrel in this case doesn't have a sill, but it will be buried 1 foot. They're all set at the same invert.

So those two 1 1/2 foot sills on each one will result in the flood benching. All right.

Yeah, I see it now. Thank you.

So, for me.

Any more questions on site one?

This isn't really a question, but I would just reiterate Rob's question and say that when it comes time for terminating, more info, like what we discussed.

included, we'll just solve time, like save time later on. Yeah, absolutely. I've made a note to include our reasoning for the outfalls at each corporate location. Great.

Thank you. Hey, I have a follow up. This is Heather Montague, Division Five Environmental.

Just to follow up on what Eric was asking for clarification, the extra detail sheet that's in the early permit drawing set was not in the red line, so I'm not sure Eric has seen those flood plain bench details that

L Loving (Kimley-Horn), Everett J 30:59

Mhm.

HS Headrick, Hannah S 31:08

We're just on the screen. Gotcha. Eric, you can tell me if you have it, if you have seen that or not, that detailed looking like that, because they weren't in the.

There was one day of flood plain benches that I saw. OK. And then we were on the impression that.

L Loving (Kimley-Horn), Everett J 31:19

Got it.

HS Headrick, Hannah S 31:30

Float flow barrels were one foot seal and all the flood plain benches were 1 1/2 foot seals. And on that ditch detail that was just up for detail one, one of our comments was going to be

bolt in the seal on the low flow, which is not currently bolted and like that whole entire sheet. So I just wanted to say to the group, in case I'm wrong, weren't all the low flows getting a one-foot seal and all the foot plan bench is getting a 1 1/2 foot seal, like seals everywhere? That's partially correct. The

The flood bench barrels will always have the 1 1/2 foot sill to hold, to force it to be a flood bench barrel. The low flow barrels, whether or not we add a sill or not, is dependent on the slope of the culvert. So if it's a really flat slope, we're not worried about having to hold in the sediment.

And that's in the hydraulic guidelines of like, generally, it's a gray area. So it's not like we can't add the sill to all the low flow barrels. Just not being needed. Okay. Yeah, but they're all, so it'll be buried 1 foot, which, you know, essentially is what the sills are supposed to do.

It's just if the culvert barrel is flat enough that it won't be a concern of washing out until there would be some unburied. Makes sense. So if first, like on detail one, for example, it didn't have a bolted seal there, then it's probably not getting one. It's just buried in it all. The slope of that culvert is.

Point 1%, so we wouldn't be worried about there, but on some of the other ones you would see that the main barrel would have a sill, I think, so I'd have to OK look at it, but it's driven by that. Thank you, yeah.

Yeah, let me just double check all your details and make sure that they are bolted correctly and must be called out in addition to the bearing one foot, which one to have the sills. You want specific all for the for the bolting? Is that like something different that needs to be?

For the called out, you said bolted, so ohh, no, no, no, bold the line. Ohh, bold, sorry, I can't hear you. Gotcha, yes, I understand that.

Any more questions on site one?

Yeah, we can jump to site on that. Thanks for questions.

Is on Y4, so it's a little bit later in the plan set.

But site 1A is on Y4 and C54.

Um, it has...

It has one outfall from, or one outfall directly into the upstream side by the railroad.

This is conveying a stream that is between the railroad and this parking lot, this park

parking lot over here.

Then, on the downstream side.

drainage picked up on Y4 is outleted and ditched into the buffer and reaches the jurisdictional stream and the downstream end of this culvert.

And if you want to talk about some core specifics here. Yeah, we can talk about this one. Again, same reason as the last one. I have to boring Jack.

The railroad culvert is right upstream of it as well. So we're pretty much just rip wrapping between that and the proposed inland.

The outlet protection has to sort of turn based on the skew pipe and the skew of the stream, so trying to tie in to that as well.

Yeah.

Similar to the last one.

Main barrel on this one has is buried on foot, but does not have the sill because the culvert is sloped at 0.4%.

Okay, I'll open it up to questions on site 1A.

Or any of the the drainage surrounding site one.

Hearing none, we'll jump back to the beginning.

I'm sorry.

Can go back in one night. Yes, sir. Just wondering about the skew of the pipe related to the.

Downstream to the outlet at the outlet where the stream is, is that?

Is there any way to get that more lined up or?

So, by something there, the the current skew would be set, like, yeah, like you said, trying to, it's a balancing act between trying to minimize the length of the caller versus matching the skew up appropriately.

Um, if we, if we, if we make the skew.

Larger to try and line it up even better.

you'll end up with sort of an odd configuration at between the outlet of the railroad culvert. So the railroad culvert is 90 degrees. And then if you end up skewing even more, you have this very sharp turn that you have to make. You'd also end up with, you know, a bit more stream impacts because the length of the culvert would have to increase. If you look at the

downstream corner. So to the downstream corner there by the guardrail, zoom in on that top right corner. So we're really close to the road there. That's your critical point there, driven by just where the fill slope has to hit. So if we skew it,

It, it's gonna, that's gonna push, you know, into the road more, so we'll have to lengthen the culvert, um.

So, it's generally driven by those two things, but it's a balancing act, like I'm saying, but...

We feel like the outlet is is well protected enough with that, you know, large supposed to be directed at that large cut on the side that we're calling for.

Class one right now, if it's a concern, we can certainly beef up the detail for that.

But I do think it would it would present an odd.

Flow.

Flow turn at the inlet if we were to skew it much more.

I'm not opposed to, you know, changing the SKU, but if people feel strongly about it, it's not going to.

Change the hydraulics of the culvert in terms of uh FEMA compliance or anything like that, so which which culvert is the local?

The low flow is the one of them.

Sorry, my orientation is different. You can see the sill in the flood bench barrel. Yeah, so it's the left. Yes, left one is the main one. So it's like, I wonder if that skew would be less.

Was that right? I was wondering if the SKU would be less sharp. It would. I'm trying to think the...

I'm trying to think if the phasing is playing a role in that because that is a, like you said, it would be better to match it up.

Justin's on the line with the erosion control phase and we can, I don't know if we have those plans to pull too. It may be a flow management during construction aspects of that in terms of.

You know, when you're putting in this, the flood bench barrel with sales.

You could have that be your temporary.

Well, management barrel, when you're installing these in faces, um, we'd have to go back in and install the cells.

in like a third or fourth phase.

We can take a look at that as well. I mean, if that's...

If the preference is to switch the low flow barrel to just flip them.



Loving (Kimley-Horn), Everett J 40:45

Well, and Jordan, just so, just so...

HS **Headrick, Hannah S** 40:46

Thank you. Thank you. Yeah.

LJ **Loving (Kimley-Horn), Everett J** 40:48

Yeah, just so we're tracking with the phasing here. So from my memory, what we're having to do is we're installing the right barrel first so we can maintain the existing barrel. And so as we install that trenchlessly under the existing road and then complete the rightmost barrel, that's where Justin has kind of shown, you know, how we'll maintain the existing stream while installing that.

Then once that rightmost barrel is fully in, the stream gets rerouted into that rightmost barrel, at which point we'll be doing a weekend closure of the road to remove the existing culverts. This is that challenging one that's I think it's 8 by 10 or no, it's 5 by 5 concrete RCBC. So we'll be doing a weekend closure to actually open the road, remove

the culvert and then fill it back so we can open it back up to traffic. At that point, we would then install trenchlessly the second barrel under the existing Rd. and then complete it away from traffic and then fully open both barrels to the stream. So just want to make sure that's kind of the phasing that we felt like we could identify while maintaining flows.

HS **Headrick, Hannah S** 41:51

Okay, yeah, no, so it's coming back to me now. The, so we could do that then because the right barrel is installed first. That one is going to be, the cells are going to be installed later anyways. I think the goal was now, I think the goal was, thinking back on it was, it's not really, if you flip them, the, it's, you just put the problem will be in.

Side, so if it's preferred, yeah, if the outlet side is more important, we can flip up. I think so too, because the inlet's gonna look bad regardless. Yeah, yeah, with that railroad stream coming in, it's fully parked and there's no transition, yeah, and working on to the distance stream, so I don't.

I would prefer that it be less mosquito and demonstrator. OK, yeah, we can that would be great, yeah.

BW **Bullock, Robert W** 42:41

Hey everyone, this is Robert. Can you refresh my memory on the intent of the sills? Are we just putting this like a one sill on each side close to the inlet or are these... Making sure we got my terminology right, or are these sills that we're spacing like every 10 feet or something throughout the cohort?

HS **Headrick, Hannah S** 43:03

So the sills, the sills that would be spaced throughout the culvert, we typically refer to those as baffles. We do have that on culvert 3 site. I don't know what side of the site. It's culvert 3, so they're culvert in the plants, but so we do have that. And that's again, that's based on slope of the culvert.

BW **Bullock, Robert W** 43:12

Okay, right. Thank you.

HS **Headrick, Hannah S** 43:24

Having to hold sediment, so if you have a steeper slope in the culvert, we're gonna have silicide.

More increment, we're going to space them throughout as baffles, so I can hold the sediment in.

BW **Bullock, Robert W** 43:37

Okay, right. Battles. Thank you.

HS **Headrick, Hannah S** 43:37

But for this one, for this one, is just headlet, just the just the flood bench on the headlet outlet side.

BW **Bullock, Robert W** 43:46

Okay, thank you for that clarification.

HS **Headrick, Hannah S** 43:59

Any more questions on covert site 1A?

We will jump back to the beginning and start moving east along project corridor. supply sheet 4.

Play Sheet 5.

On Aviation Parkway, this is where our drainage splits a little bit. So the drainage in front of the townhomes is going to that the culvert site one that we've just covered. There is a private pond here that we have a couple of outfalls for our roadside drainage.

The rest of the roadside drainage, outfalls, along.

Not in the headwall, but inside or on the riff-rap of the upstream and downstream side of this culvert here.

This one does have the baffles. You can see in plan view, the slope of this culvert is 1.2%.

So, we'll have sills and baffles in both barrels.

The back is being horizontal lines.

The this, we typically refer to the sills as just at the inlet and outlet of the battles to be able, so there's space in the middle of the barrel, but then pizza, yes, correct.

And this one we do have the low flow barrel aligned with the channel here.

If anyone did not hear that online, the horizontal lines in the middle of the culvert, these horizontal lines, those are the baffles within the culvert.

Any questions about this corporate location?

To site two.

We will continue moving east along the project. This is plan sheet 5, going to plan sheet 6. We have a few outfalls on the bottom of the plan sheet. One is tail ditch.

There is an existing pipe outfall here today. We've extended it.

and create a tail ditch that runs into the woods where it channelizes.

Along Aviation Parkway, we have a lot of off-site flow on the top of the sheet here that we are capturing. That is getting cross-piped, cross Aviation Parkway into this ditch system here, and then it eventually reaches stream SQ.

So, stream SQ, as Teresa mentioned before, was not shown as a jurisdictional stream, and...

I think in the last time we submitted red line drainage for the CP4B that everybody reviewed, but it is in here now marked as a jurisdictional stream.

For this location, we have...

At Stream SQ, we have two 30 inch RCPs outletting directly to Stream SQ, and also, like I said before.

We have the cross pipes that carry this dish flow that meet with stream as queue also.

Any questions or comments about this location?

Yeah, this commission from a later division by environmental. Since this is a stream, if we could have the roof rapids at this pipe out, let's be assured of the detail with dimensions.

Or like a pipe with stabilization? Yeah, I think we have that on our list. There was a comment from a CFI meeting, I think, yeah.

There would be, we probably wouldn't show any flood benching on that on that detail though, for these type of elements. That's OK.

And they're just looking for the the geotextile keyed in, the yep, counter soft group rep.

Hearing no more questions, we'll continue moving on. So this is sheet 6. Moving on to sheet 7.

At International Drive, we have a split in our flow, so to the left of International Drive. drainage flows to that.

Dual 30 inch RCP crossing we saw before, outlets at stream SQ. To the right we have. our roadside drainage that outfalls and discharges through a ditch through the buffers, which reaches the upstream side. We also have our ditch, a rip-rap ditch through the wetlands here that outfalls and reaches the upstream side of this culvert. Then on the bottom, we have our roadside drainage.

That outfalls and ditches through the buffers to the downstream side, so...

Unlike some of the other locations, this was one where we did have room to outfall and ditch. We weren't so constrained on space and...

with properties and buildings, so we were able to have ditches that reach the stream here through the buffer zones.

And Jordan, anything to add to these cohorts?

Um...

I don't think so. There's a little bit more channel work on this one.

And some string grading as well to get cover. You'll notice that the upstream side is... has some proposed channel grading to get cover on the, well, the steel pipe, the road is in a very extreme super and the low side is on that on the onstream side. So we have to get the pipe down a little bit.

This one has battles set at 1.8%

Yeah, can you also address what we did in order to mitigation? Yes, yeah, that's the the outlet side has, you know, standard. We can pull up the detail. I don't know which detail it is, Ian, while I'm talking about this standard.

Outlet would be, you know, you lay back the banks at 2 to one, um, flood bench

would be.

matching natural conditions as best as possible. We're doing a little bit more than that, which from a stabilization standpoint is actually a good thing. We have a wider flood bench, 4 to 1 side slopes. So from an erosion standpoint, that's helpful.

but not necessarily, if you wouldn't necessarily see that from a hydraulic design standpoint, you would try to keep that, you know, matching. But what drove it was the excavation this is in, because it's below elevation, I don't know what it is, to something, whatever, we needed to excavate.

and have a balance with that same flood pool mitigation in this area. And because we were already doing work and excavation at the culvert outlet, we chose the spot as

the best of the worst, I guess, you know, we wouldn't want to have to do a ton of buffer impacts, but there wasn't really any other spots to do it. And we figured if you're going to do it, you're going to do it at the outlet, the culvert and stabilize that a little bit better and, you know, reduce the potential for erosion even more. So it is odd to see a ton of excavation there at the outlet, but that's what drove it.

So for the county and NRCS folks, what this means is that we were able to balance the cut and fill within the flood pool at the correct elevation at the same location.

And so there won't be any additional mitigation needed because of fill into the flood pool at this site.

This is Sarah Causeman and Core. Are you still going to be able to maintain the stream bank on the side the activations app?

So, our, yeah, if you look down at the outlet, that we go, we go quite a bit further with the tapering back in and the outlet protection there.

Because of...

going so far out there. We try to usually taper back in at 45 degrees or less. We feel like it'll be okay.

Giving us low enough time to contract back in there.

But open to congestions, if you feel like that's not an adequate enough, we can increase it. What about passing color protection where you do the activation? Oh, so the excavation is completely contained within that regret pattern you're seeing there.

For the over, but what about the floodplain excavation? Pass that, yeah.

The floodplain excavation, correct me if I'm wrong, it's going to follow the cut line, right?

It ties back up into the wing.
The true.

L **Loving (Kimley-Horn), Everett J** 54:35

And maybe, maybe Jordan, maybe it's better to say it this way. The excavation required to install that ditch and the culvert offsets the amount of fill that we are putting in the flood pool. So there isn't really any dedicated additional flood pool mitigation. There's not like a specific spot for that. Through our design here, we are able to offset all flood pool impacts.

HS **Headrick, Hannah S** 54:57

OK, yeah, thank you. Thanks for that clarification.

L **Loving (Kimley-Horn), Everett J** 55:00

Yeah.

HS **Headrick, Hannah S** 55:21

Any more questions at this overt location?

We're gonna talk about the wetland too.

Come to that. Yeah, we can bring that up. I know, so we've had on a, we've had coordination. I think, Willie, if you're on the call, it might be a good time to talk about it, but we've had coordination with dot.

about this location. Well, if you want to give a give a rundown or a highlight of what was discussed in the outcome of that.

SW **Sullivan, Willie** 55:58

Sure. Yeah. So we, the question was raised whether this riprap line ditch would have an effect to the hydrology outside of the immediate cut fill area that's proposed. And so we did a little bit of investigating. The wetland seems supported mostly by kind of over bank events and surface water runoff. There's a large apartment complex that has been built just on the top right side of the screen right there that it puts a lot of surface water into the feature. And generally the wetland flows north to south, page north to south here.

And so the ditch is 2.5 feet deep and kind of just based on where the hydrology comes from, the lack of fall really across the wetland and the shallowness of the

ditch, and then in addition, the depth of the stream that's immediately adjacent, our analysis is not likely to have a effect outside the immediate vicinity of the ditch on the hydrology within the wetland. So that was something we'd looked at. I don't know if that's where you're driving towards Eric, but we've put some thought into it and have some good information there if you want to talk more about it.

HS Headrick, Hannah S 57:17

Yeah, I appreciate you looking at, you know, that was a question. So I'm good with that. I did have a comment about the. just how the wetland is depicted, that I understand the delineation apparently went to that PUE and stopped, but I just wanted to ask you to, when you depict the wetland on the permit drawings, make it clear that the wetland actually goes past the PUE. Yeah. And same thing on. Sheet 11, too.

SW Sullivan, Willie 57:50

Absolutely. So yeah, so that the wetland you see on the screen now is kind of what we picked up and refreshed in 2024, just to those limits. But our 2016 data has the full wetland boundary that extends further north and it's a closed shape, right? And keep going within that 2016 boundary.

We're actually kind of hunting down a question now. It doesn't, in 2016, it did not about the stream, right? And so we're actually conducting a site visit this week out there just to spot check and make sure that the off-site area is still the same as it was in 2016.

So we may have some more information to come there if it isn't adjacent to the stream, doesn't have a continuous surface connection. I'll leave it up to dot whether the pursuit of an AJD or calling it non-jurisdictional is worth it or not or what. But yeah, absolutely. Whatever we find here this week, we'll get updated on the permit drawings.

HS Headrick, Hannah S 58:52

Great, thank you.

Did anyone from dot Environmental have anything to add about this location? No, I've been the one mainly corresponding with Willie and that's what we decided

because knowing, not knowing what was above and now we've seen kind of what was above based on the 2016 data and the drainage and that. So he's He's on the right track that Willie is that we would like to see just in case, you know, with the new waters rules, what happens with this wetland. Absolutely.

Okay. Any other more, any more questions on this location before we move on? Hearing none, we're going to move on to sheet 8.

No major crossings or covert crossings on Sheep 8.

We, for our red line drainage, most of our drainage on Y-10 and Aviation Parkway gets picked up and it is outlet to the left to that culvert.

to the ditches that reach that culvert that we just talked about. And then we also have a outfall location here, which is an existing system. So we have.

our roadside drainage system getting picked up and it outfalls through this existing 48 inch RCP and then continues plan sheets out.

Any questions on this sheet?

And on.

The White 12 Southport.

This system discharges to the existing outfall that we just saw on the previous sheet.

Again, no major culvert crossings at this location.

We have a separate system here on aviation parkway, kind of in the middle of the sheet, middle left of the sheet that also outfalls to an existing system that runs down Southport, Y-13.

And then the last system is on LA Aviation Parkway, starts past this crest and continues to run to plan sheet right.

So, any questions on the drainage in this area?

Moving on.

So that dual system that we just saw crosses the road and outfalls.

picks up, we have some more drainage that picks up and...

more drainage than the road in the median that picks up and also this existing drainage within a parking lot and development over here. It picks up and outfalls into an existing channel here.

And also we have two more outfalls, one coming from Y-14 and then also a roadside drainage on Aviation Parkway that outfalls into a rip-rap line ditch.

into the wetland that eventually goes to the causeway and another outfall down here into a ditch.

that eventually goes into low-lying areas and into the causeway.

And turn around, not Coswell.

Like Crabtree.

So, any questions about the drainage in this area?

Not about the drainage, but I was wondering here and on the following sheets, are you not gonna have any toe protection at the wetland areas?

It's because it's slow, so...

The toe protection on the north side here, or or both sides? I just used to seeing it on where you have wetlands about the fill slopes.

But that's it, because this isn't much bills, well, and even those cases, I'm gonna.

Yeah, so on Plan Street North here.

We can, we can continue to run.

I guess where this ditch ends, we could continue to run some toe protection along the fill slope here.

I guess this, this is, yes, low lying areas and it's not particularly delineated as a wetland. I think it would be an easy add to add toe protection in that area. I don't know. If it's requested, I'm just asking. Yeah. Yeah, that's something that we can look into.

I think that question becomes more.

Interesting on the next, yeah, yeah, so the south side here looks like uh, it's all flowing away, the north side it might be warranted to continue.

We typically only add to air prediction if we feel like there's flow that has the possibility to flow along the fill slope. So if it was flowing, if we felt confident it was flowing away, we would not add it. There's only 5 foot contours on here, so it's hard to tell. Yeah, the other ones are on here, they're just very, oh, they're very, yeah, it's hard to see on the screen, but...



Loving (Kimley-Horn), Everett J 1:05:11

Me.

And maybe one other thing, I think this is something we're going to add next go around is, right, so our plan is for all fill slips on the north side to add rock plating. So we're going to get that hatching in here as well. So that rock plating is going to interact a little bit with what you see on the north side. On the bottom side, our intent is really not to get into the existing rock plating for the majority of the causeway. And so that's, you know, the existing rip rap that's there out there on the

south side is not showing up here either, but
Anyways, just trying to call that out as well.

HS **Headrick, Hannah S** 1:05:50

Thank you.

Any more questions on this sheet?

Yeah, moving on to sheet 11, College Way.

Not a lot of drainage. I'll pass it over to Jordan in a sec, but we have 5 median inlets that outfall onto the fill slope with rip-rap protection that do discharge.

on the fill slope until the Crabtree and Jordan, I'll pass it over for a run down a pick over here.

Yeah, so we're proposing a dual.

9 by 14 reinforced concrete box culverts matching the height of the existing box culvert, maintaining opening for kayakers to go through.

There will be quite a bit of lake excavation because the existing culvert is set below the surrounding lake elevation. So we'd have to match those inverts in the new location next to it.

Um...

That'll be done, but there's been plenty of discussion on that, as I'm sure everyone's aware. So as Everett said as well, that what's not shown here, which will be added in the permit drawings, is the riprap patching, which will be the Causeway riprap, which will be on the upstream side will be for the entirety.

or the north side will be on the entirety of the new fill slope because we're putting a new fill slope into the upland area. The downstream side will just be removing and resetting that riprap on the causeway due to the culvert excavation and the area that gets dug up during construction and then placed back.

There won't, as far as I know, based on recent discussions, we won't be putting rep rep.

In the actual lake at the outlet of the at the invert of the culvert.

We don't feel that there's any erosive potential in a lake audit condition that's a permanent audit condition.

I think that's all.

Yeah, just talking through, I guess apart from the drainage, we are, the covert has shifted a little bit, not recently, but here from the original location of the Causeway. So we are filling into some wetlands here. This is presented in last month's CP.

Or I need to shift to the north. Yeah, go ahead. Yeah, so we are filling over some wetlands to the north.

due to the shift from where the existing causeway is today. Have you seen the permit drawings? The sheet might hurt your eyes a little bit because there's a lot of hatching on it.

But other than that, from on the south, we are not impacting the wetlands at all from fill from the causeway.

So, from there, I'll open it up to questions about this location.

So there will be, it will show the, where the excavation, the permit grounds will show the excavation impacts. Yep, correctly.

Yeah, the permanent drawings show.

The yeah, all the wetland impacts for still clearing or mechanized clearing and and clearing, and then we also have we showed the.

Impacts to Lake Crabtree as open water impacts. Right. I don't think we differentiate between the excavation and the just the fill into the lake. It's just all P. Correct. Yeah, it's all P. Into the into the water, it's all hatched as open water impacts.

whether it be excavation or fill.

But for the wetlands, it is, that was hatching. Yeah. Okay. And that probably answer the next question was about, it's kind of hard to tell where exactly, but what the lake is on here, reservoir, but I guess when you have the impacts shown, that would be.

Yeah, how?

And.

Pretty sure just from from the permit drawings, and...

From being in these files, I think that wherever the wetland boundary ends is where like Crabtree starts, so the...

The water boundary of Lake Crabtree should be the same as that wetland boundary, and then we have...

We have some more going in here.

Your wetland boundary.

to your easement line is openly considered water increments on permit draft plans.

And then there's a different set of drawings that goes around the inlet.

Or, I guess, that they in corporate.

So we were going to have a comment on permit drawings. Would it not be beneficial to show a even in open water differentiate between permanent surface water impact and the temporary impact for the excavation, things like that versus

where we're place curtains or inside of our working room that we're not putting any sort of fill or excavation in. Right. Yeah, I think, and I think it would be beneficial if I recall, our summary tables do have the temporary and permanent, but it is hard to. to tell when you just have the open water hatching, yeah, where it actually starts and ends. Yeah, yeah.

I don't think they can educate like that. Yeah, it's just all with open water impact. I think there was discussion of copper dams for that. Right. Yeah, there's no standard. Patching in the workspace that, but if you have a preferred.

Patching that we could just make one, can you get a?

A temporary AT in the open water? Oh yeah, yeah. There might be a T. Yeah, we might have, yeah. And then anything that's permanent field, of course, would be. Well...

Should it be F or should it be a P and a T?

In the water. Right now, it's all, so we, I think, as long as you have a legend, then we can just say we can, we just make up a hatching. Sure. If you have a preferred one, OK, we can also do that too. That's kind of my question.

This is Heather Montague. In the area that's going to be coppered in and excavated for mitigation, but also serve as the footprint of the construction.

That would be temporary, right? Yep. OK. As long as it's not being filled above the water level, the temporary.

Okay, to remember when you make it use the TS line and just define it, there's in your legend on this page is temporary search water for pine one kind of thing.

Yeah, I think you're right. I think there's a C, but I'm not sure if there's a differentiation between F and an E fill and an exclamation. I think that would all be under the P.

But yeah, you can do a legend specific to this page if you need it to. But, and Eric, correct me if I'm wrong, were you, so you're saying that...

areas for the excavation that are outside the bill slope or the structure would be a temporary impact. Yes. So wouldn't necessarily need excavation hatching, but you would just have the temporary and any permanent bill would be here too.

Options.

Connection.

Any more questions about the this culvert crossing?

I know there is.

What for mitigation?

to the top right of the screen over here. I do not have that up.

At the moment, that was presented at the last meeting as well. It was.

And as long as they stay in the...

There are details. They'll be in the permit drawing. It's yeah, and it's also highlighting the erosion control and creating a brief vegetation plans as well.

Okay.

That's the end of our red lime drainage plant. Are there any of the other plant sets folks would like to see?

Any other questions or discussions for today's meeting?

I appreciate all the input. This is going to help us clean those up and have to be even a stronger sit middle when the time comes.

Okay, so next steps then, we are hoping to be back to you with our 4C merger meeting, if not in October, then in November. So you'll have one more chance to take a look at those updated plan sets for the permit submittal and the permit submittal.

I think, Dan, we're looking at December for permit submittal. That sound right?

Nope.

Not if I just get the drawings in the next after 4C. So it will depend on the timing.

Probably be driving over before those go in, but...

Yeah.

I don't think that the policy will show the. Yes, I think that's a good idea, because we've got them in the other plan sets, but not part of. Yeah, it's probably just part of the permit drawing, so you'll see it then. That's a good time to look at the total impacts.

All right, anything else for today?

Thank you all very much.

Yes.

 **Kjelgaard, Jim - FPAC-NRCS, NC** 1:17:24

Thank you.

● **Headrick, Hannah S** stopped transcription