

**STATE OF NEW HAMPSHIRE**  
**SITE EVALUATION COMMITTEE**

**June 16, 2017** - 1:46 p.m.  
49 Donovan Street  
Concord, New Hampshire

**DAY 17**  
**Afternoon Session ONLY**

*{Electronically filed with SEC 06-26-17}*

**IN RE:        SEC DOCKET NO. 2015-06**  
**NORTHERN PASS TRANSMISSION -**  
**EVERSOURCE; Joint Application of**  
**Northern Pass Transmission LLC and**  
**Public Service of New Hampshire d/b/a**  
**Eversource Energy for a**  
**Certificate of Site and Facility**  
**(Hearing on the Merits)**

**PRESENT FOR SUBCOMMITTEE/SITE EVALUATION COMMITTEE:**

|   |  |
|---|--|
| <b>Chmn. Martin Honigberg</b><br><i>(Presiding Officer)</i> | Public Utilities Comm.                       |
| <b>Cmsr. Kathryn M. Bailey</b>                              | Public Utilities Comm.                       |
| <b>Dir. Craig Wright, Designee</b>                          | Dept. of Enrивon.Serv.                       |
| <b>Christopher Way, Designee</b>                            | Dept. of Resources &<br>Economic Development |
| <b>William Oldenburg, Designee</b>                          | Dept. of<br>Transportation                   |
| <b>Patricia Weathersby</b>                                  | Public Member                                |

**ALSO PRESENT FOR THE SEC:**

Michael J. Iacopino, Esq. Counsel for SEC  
*(Brennan, Caron, Lenehan & Iacopino)*

Pamela G. Monroe, SEC Administrator

*(No Appearances Taken)*

**COURT REPORTER:** Cynthia Foster, LCR No. 14

I N D E X

| WITNESS PANEL                     | DENNIS MAGEE<br>ROBERT VARNEY<br>LEE CARBONNEAU<br>SARAH BARNUM<br>JACOB TINUS | PAGE NO. |
|-----------------------------------|--|----------|
| Cross-Examination by Ms. Manzelli |  | 4        |

**E X H I B I T S**

| <b>EXHIBIT ID</b> | <b>D E S C R I P T I O N</b>  | <b>PAGE NO.</b> |
|-------------------|---|-----------------|
| SPNF 199          | Normandeau Associates,<br>Northern Pass Project,<br>Wetlands Functions and Values<br>Data Sheet, NPT_DIS 042044 | 123             |

**P R O C E E D I N G S**

**(Hearing resumed at 1:46 p.m.)**

PRESIDING OFFICER HONIGBERG: We're ready to resume. Ms. Manzelli, you may proceed.

**CROSS-EXAMINATION**

**BY MS. MANZELLI:**

Q Thank you. Hello, everybody. My name is Amy Manzelli, representing the Society for the Protection of New Hampshire Forests. So I'm pretty sure almost all of my questions are for Ms. Carbonneau so the rest of the Panel knows.

Let me start with some of the basics, Ms. Carbonneau. How long have you been working on this Project?

A (Carbonneau) Since 2010. So 6 to 7 years.

Q Okay. So that included prior versions, current version, intermediate versions?

A (Carbonneau) Sure. Yes.

Q And how long has Normandeau, if the answer is different, how long has Normandeau been working on the Project?

A (Carbonneau) Approximately, the same amount of time. There may have been some contract negotiations in 2009, but generally speaking,

1 our work on the Project began in 2010, to my  
2 knowledge.

3 Q And what is your role at Normandeau?

4 A (Carbonneau) At Normandeau, generally, I'm a  
5 Senior Principal Scientist in the  
6 Wetlands/Terrestrial Group. My role is to  
7 manage some projects, to oversee other projects  
8 and help other project managers, and to  
9 supervise some staff.

10 Q Do you have an ownership or an equity stake?

11 A (Carbonneau) It's an employee-owned company so  
12 all employees that have been there for over a  
13 year are in some way, shape or form considered  
14 owners.

15 Q Do you have any ownership that would be  
16 considered elevated or sort of a partner level  
17 status by virtue of your years on the job?

18 A (Carbonneau) No.

19 Q So your ownership in the company is the same as  
20 if you hired someone right out of college and  
21 they were there for the one year?

22 A (Carbonneau) Well, the way, I'm not an expert in  
23 how employee-owned companies work, but stock is  
24 provided to employees based on both their level

1 of pay and the number of years that they have  
2 worked there. They use some formula I'm not  
3 familiar with, and so, presumably, the longer  
4 you work there and the higher you get in the  
5 company, the more stock you end up with. So the  
6 distribution isn't equal, but there is a  
7 formula, and it applies equally to everyone at  
8 that level.

9 Q Just to remind me, how many years have you been  
10 working there?

11 A (Carbonneau) Since 1989. So about 28 years.

12 Q And comparatively speaking, how long you have  
13 been working there compared to other people?  
14 I'm not looking for precision. But, you know,  
15 have you been there roughly the longest or is  
16 about everybody been there as long as you have?

17 A (Carbonneau) It's a very wide variety. We have  
18 new people coming in all the time, and we have  
19 people who have been there much longer than I  
20 have. So I would say I'm sort of getting up  
21 into the "semi been there a long time" range.

22 Q Thank you for that.

23 So going to your opinion in this matter,  
24 just to be clear, you agree that this proposed

1 Project would have an adverse impact on  
2 wetlands, right?

3 A (Carbonneau) Yes, the Project has some impacts  
4 to wetlands, and I would consider them to be  
5 adverse.

6 Q Okay. So the question with respect to wetlands  
7 is whether that adverse impact would be  
8 reasonable or would be unreasonable, and your  
9 opinion is that the adverse wetland impacts  
10 would be reasonable. Is that a fair statement?

11 A (Carbonneau) Yes.

12 Q I wanted to give you a blanket apology to when  
13 you don't get to ask questions first, sometimes  
14 you repeat. I'm going to try not to. So  
15 forgive me if I reread information that you've  
16 already gone over.

17 Let's see here. Now, are you aware of the  
18 report, Evaluation of all Underground  
19 Alternatives for the Northern Pass Transmission  
20 Project dated May 31st, 2016?

21 A (Carbonneau) No.

22 Q Let me just -- let me get this up there. So  
23 this is a document that's been provided in this  
24 matter. This is a confidential version. The

1 Forest Society is party to the confidentiality  
2 agreement. I'm not going to turn the page or  
3 anything. The public version is available in  
4 the records of this case. So now that you can  
5 see the report, does that ring any bells?

6 A (Carbonneau) I have not reviewed this report.  
7 No.

8 Q Before seeing it on the screen today, were you  
9 aware of it at all?

10 A (Carbonneau) No.

11 Q Okay. So just to be clear, I think I know what  
12 the answer is based on what you've just said,  
13 but to confirm, you didn't do any wetlands  
14 assessment or wetlands delineation in connection  
15 with this report?

16 A (Carbonneau) I don't know. We've been asked to  
17 do certain evaluations, but whether or not it's  
18 what was called for in this report, I can't say.

19 Q Did you do any wetlands assessment or wetland  
20 delineation for any alternatives that would have  
21 completely buried the transmission line?

22 A (Carbonneau) No.

23 Q So then do I understand correctly that you do  
24 not know the basis of the statement, "Extensive



1 wetland areas are located along the outer edge  
2 of the limited access right-of-way and would be  
3 significantly impacted as well."

4 A (Carbonneau) I believe that we were asked to  
5 look at portions of the I-93 right-of-way and in  
6 a limited way. We were asked to evaluate what  
7 types of resources might be within the  
8 right-of-way of I-93. So to do that, we looked  
9 at two representative portions of the  
10 right-of-way along I-93, and this was some years  
11 ago.

12 I believe one area was in Canterbury, and  
13 one was further north, and we used available GIS  
14 data and aerial photos to try to determine the  
15 potential extent of wetlands at the outer edge  
16 of that right-of-way.

17 Q So do I understand correctly, am I using the  
18 right words, that you performed a desktop  
19 review?

20 A (Carbonneau) Yes. That's fair.

21 Q And aside from what you just testified you  
22 looked at GIS, and I think you might have said  
23 you did one other thing. What do you mean when  
24 you say you looked at?

1 A (Carbonneau) We used available information and  
2 an assessment of aerial photos to try to map in  
3 a very general approximate sort of way wetland  
4 and water resources within the right-of-way in  
5 those limited locations.

6 Q And so let me just state for the record that the  
7 statement that I read previously is on page 20  
8 of Applicant's Exhibit 80 and the Bates stamped  
9 number of that page is APP 44537. So this  
10 statement that there would be extensive wetland  
11 areas, that extensive wetland areas are located  
12 along the outer edge of the limited access  
13 right-of-way and would be significantly impacted  
14 as well as the work that you did looking at  
15 these two sections of the I-93 possible  
16 alternative? Is that the basis for this  
17 statement?

18 A (Carbonneau) Well, I'm assuming that is what  
19 it's related to, but not having seen that  
20 portion of the report, I'm assuming that's  
21 what's it related to, but I don't know for sure.

22 Q Have you seen other versions of this report?

23 A (Carbonneau) I have not.

24 Q And do you know of anybody else in Normandeau

1 that also looked at impacts along a 93  
2 alternative?

3 A (Carbonneau) No. That work was requested  
4 specifically to me. I did get help from others  
5 at Normandeau, but that's the only study that I  
6 could think of that would be the basis for that  
7 statement that we performed.

8 Q Okay. I think I may have just included this in  
9 my last question, but to be clear, do you know  
10 of anybody else outside of Normandeau who would  
11 have looked at wetland impacts associated with a  
12 Route 93 alternative?

13 A (Carbonneau) I don't know of anyone. I don't  
14 know if somebody at the DOE team looked at it.  
15 But I don't know of anyone.

16 Q Okay. And to be more specific, this report is  
17 authored by Burns & McDonnell, Applicant's  
18 Exhibit 80. So you don't know of anybody from  
19 Burns & McDonnell that would have also assessed  
20 wetland impacts along a Route 93 buried  
21 alternative?

22 A (Carbonneau) I don't know.

23 Q And in terms of big picture, what your role was  
24 on this Project, do I understand correctly from

1 what we discussed at Technical Sessions that  
2 more or less you were given a route and your  
3 role was to assess the wetland impacts, you  
4 know, go over the avoidance minimization  
5 mitigation, put the packages together, do the  
6 Permit Application, do the field work that was  
7 required, et cetera? Is that a fair  
8 description?

9 A (Carbonneau) That's a fair description except  
10 for the portion of the Project in the northern  
11 part where we did also provide some information  
12 at a higher level for the selection of the  
13 overhead route in the northern portion of the  
14 Project.

15 Q And when you say the northern portion of the  
16 Project, do you mean the 32 miles of new  
17 right-of-way?

18 A (Carbonneau) Yes.

19 Q So aside from that section, the route was  
20 selected already and given to you?

21 A (Carbonneau) Essentially. Yes.

22 Q You didn't, you weren't tasked with, you know,  
23 we need to get the power from Point A to Point  
24 B. Tell us where we should go, Ms. Carbonneau.

1 A Right. That was not Normandeau's role.

2 Q Let's look at the total amount of wetland  
3 impacts, and I know you covered this in acres  
4 earlier, but I have this prepared in my remarks  
5 in square feet.

6 So the total wetland impact you proposed in  
7 your original wetland application to DES was  
8 over 6 million square feet so 6,170,053 square  
9 feet, right?

10 A (Carbonneau) Yes. This appears to be from our  
11 original Application.

12 Q And then in response to your original  
13 Application to DES, DES requested more  
14 information. In May of 2016 they sent you what  
15 is known as their Request for More Information,  
16 correct?

17 A (Carbonneau) Yes.

18 Q And that was, you know, a 30-plus page document  
19 and called for quite a lot of further  
20 information.

21 A (Carbonneau) It required additional information.  
22 I'm not sure how I would quantify it.

23 Q In response, all-told, you've submitted  
24 thousands of pages, right?

1 A (Carbonneau) I couldn't say, but we have  
2 answered all of the questions they've asked.

3 Q Over the course of several submissions.

4 A (Carbonneau) Yes. That's correct.

5 Q So item number 9 in that Request for More  
6 Information lists 22 separate locations where  
7 DES felt that the Project could avoid or  
8 minimize wetland impacts, and your response at  
9 the time was that you were still analyzing  
10 those. But you've now completed that analysis,  
11 correct?

12 A (Carbonneau) Correct.

13 Q As of February 10, 2017, after responding to  
14 DES's request for additional information and  
15 revising your plans, the total wetland impact  
16 proposed is still over 6 million but now it's  
17 6,098,016 square feet, more or less, right?

18 A (Carbonneau) Yes.

19 Q So the total acreage between the average  
20 Wetlands Application and the current Wetlands  
21 Application decreased by about 72,037 square  
22 feet which is roughly an acre and a half, 1.7  
23 acres, more or less?

24 A (Carbonneau) That sounds about right.

1 Q About one percent? Or less maybe?

2 A (Carbonneau) Right.

3 Q Do you consider that a significant change?

4 A (Carbonneau) I don't think the quantity is  
5 significant, but I think it's always valuable to  
6 decrease wetland impact. So it may not be  
7 significant in amount, but it is an important  
8 reduction.

9 Q And to be clear, you're supposed to avoid  
10 temporary and permanent impacts, right?

11 A (Carbonneau) Yes.

12 Q So, basically, at DES's urging, through their  
13 Request for More Information, you and your team,  
14 you've done every last stitch of wetlands  
15 avoidance and wetlands minimization, and the  
16 Project will impact over 6 million square feet  
17 of wetlands.

18 A (Carbonneau) I wouldn't say that there aren't  
19 additional tiny opportunities, but I think  
20 we're, we've kind of achieved the diminishing  
21 returns here on redoing and reevaluating the  
22 design. So there may be some very small further  
23 modifications that can be made to avoid. We are  
24 confident that we will continue to do that, and

1 as I said previously, there are assumptions  
2 about the impacts that we consider to be not  
3 overly conservative but somewhat conservative  
4 that allows a little bit of flexibility for the  
5 contractor. So to the extent that they can  
6 further reduce impacts, we expect that that will  
7 happen.

8 Q Okay. And I'm glad that you went there in your  
9 response because I heard earlier today and  
10 earlier this week that you've mentioned several  
11 times, many times in fact, that you will  
12 continue to find ways to avoid and minimize.

13 But my question to you is, if you went  
14 through almost a year-long process, and you  
15 revised the Project, you know, every last stitch  
16 of minimization and avoidance in response to the  
17 Department's Request for More Information, then  
18 we can't really expect significant further  
19 reductions in wetlands avoidance and  
20 minimization, can we? I think that's what you  
21 were just saying with you've reached the point  
22 of diminishing returns.

23 A (Carbonneau) There's a couple of nuances here.  
24 First of all, significant reductions, I doubt



1 that we will be able to achieve significant  
2 reductions, but one thing to consider is that in  
3 many locations the Project has permitted a  
4 20-foot wide access path across the  
5 right-of-way. We are expecting that the  
6 contractors may likely have timber mats that are  
7 only 16 feet wide, and, therefore, any place  
8 where those are placed across a wetland, the  
9 impact reduction could be significant. We kept  
10 it at 20 because we want to make sure that we  
11 don't have to keep running back to New Hampshire  
12 DES every time they have to shift slightly in  
13 one direction or another, and we don't want to  
14 have an incremental, we need another square foot  
15 here, we need another square foot there, and  
16 that was actually an approach that was  
17 recommended to us by the US Army Corps of  
18 Engineers in our Application so that it would be  
19 a smoother process.

20 Q So I understand that that would be a more  
21 efficient process. I understand what you're  
22 saying. But looking at the hard numbers, you  
23 went through this process of further avoiding  
24 and minimizing, and you were able to bring it

1 down about 72,000 square feet.

2 So moving forward, can you stay whether  
3 these additional efforts at avoidance and  
4 minimize would be brought down by another 72,000  
5 square feet?

6 A (Carbonneau) It's possible, but I don't have a  
7 number in mind.

8 Q Is it possible that it would be reduced by ten  
9 percent more?

10 A (Carbonneau) Possible, but --

11 Q Unlikely?

12 A (Carbonneau) Probably not.

13 Q Five percent?

14 A (Carbonneau) I don't know.

15 Q On page 53 of the Wetlands Application, you  
16 state that additional storage, staging and  
17 laydown areas will be selected at a later date,  
18 right? This is from your original Wetlands  
19 Application.

20 A (Carbonneau) I would imagine that we have  
21 something like that in there, yes.

22 Q So that was a couple years ago. Now we're in  
23 2017, and my question is, is it correct that  
24 now, as we sit here today, not all storage

1 sites, laydown areas, staging areas, or  
2 off-right-of-way access roads have been  
3 identified?

4 A (Carbonneau) All of the off-right-of-way access  
5 roads that are needed for the Project have been  
6 identified. If in the future there's some kind  
7 of a negotiation with a landowner that provides  
8 another preferable off-right-of-way access road  
9 that further reduces impacts, say it's a  
10 substitute for driving across a portion of the  
11 existing right-of-way or the new right-of-way  
12 that avoids wetlands, and that negotiation is  
13 favorable, then that would be considered.

14 As far as additional general large laydown  
15 areas as stockpiling locations, my understanding  
16 is that yes, more of those will be needed. We  
17 don't know where they are yet. But as I  
18 previously stated, the preference is to find  
19 locations that do not have natural resources  
20 that could be impacted by the use.

21 Q I want to look at each of these types of area in  
22 a little bit more detail. So for the laydown  
23 areas, I understand from the Construction Panel  
24 that three have been identified. One in

1 Clarksville of about 5 acres, and two in  
2 Millsfield. One is about one acre and one is  
3 about an acre and a half. Is that correct?

4 A (Carbonneau) I'm not sure about the sizes, but I  
5 know there are three, and I believe that's the  
6 case.

7 Q We have the transcript here. Can you read that  
8 on your monitor or do we need to try to zoom in?

9 A (Carbonneau) No. I can see it.

10 Q Okay. So you know you trust Mr. Johnson when he  
11 says that the sizes are five, one and one and a  
12 half acres?

13 A (Carbonneau) Yes.

14 Q And later in that same testimony, Mr. Kayser  
15 said that between 10 and 20 more laydown areas  
16 are needed. Does that sound accurate to you?

17 A (Carbonneau) If he said it, then I will concede  
18 to that, yes.

19 Q Okay. Let's look at that. You can see this  
20 discussion. There's a little bit of give and  
21 take, but I think you can draw from it that  
22 about 10 and 20 more laydown areas are needed.  
23 I'll give you a second to look through that.

24 A (Carbonneau) Yes.

1 Q Okay. So the known range of the size of laydown  
2 areas is one to five acres, based on the  
3 information we just looked at. Do you know what  
4 the possible biggest size of a laydown area  
5 could be?

6 A (Carbonneau) I don't.

7 Q Could it be more than five acres?

8 A (Carbonneau) I don't know. Potentially, I  
9 guess.

10 Q Could it be 10 to 20 acres?

11 A (Carbonneau) I have no idea.

12 Q Do you have any information as to whether it's  
13 likely or unlikely that it could be 10 to 20  
14 acres?

15 A (Carbonneau) I guess my response would be if  
16 there is a large area that has no natural  
17 resource impacts and it is on the order of ten  
18 to 20 acres and it is all available and usable,  
19 then potentially it could be used in that  
20 fashion. I don't know if it's necessary for it  
21 to be that large. I have no idea.

22 Q And now talking about staging. So I understand,  
23 and I think you mentioned this earlier, and the  
24 Construction Panel also explained this, that

1 some of the staging areas are going to be crane  
2 pad sites or other sites that are going to be  
3 used for other subsequent purposes. But until  
4 they're used for that purpose, then they'll be  
5 used for staging, right?

6 A (Carbonneau) My understanding is once a crane  
7 pad is established, and that impact has already  
8 occurred, that it can also serve as a staging  
9 area for materials that need to be brought to  
10 the next location.

11 Q And there are approximately 1200 crane pads  
12 planned?

13 A (Carbonneau) I believe that's about right.

14 Q Okay. Let's just take a peek at Mr. Johnson's  
15 testimony on that point so you can see that was  
16 the information that he provided.

17 So you see he testified there are about  
18 1200?

19 A Yes.

20 Q You don't have any reason to believe that's off  
21 by any significance?

22 A (Carbonneau) No.

23 Q So do you agree that a crane pad is  
24 approximately 100 feet by 120 feet for 12,000

1 square feet?

2 A (Carbonneau) Yes.

3 Q Now, do you know if there are going to be --  
4 what we just talked about is staging areas that  
5 are going to do double duty as a crane pad or a  
6 crane pad that's going to do double duty as a  
7 staging area I think is a little more accurate.

8 Do you know if there are going to be  
9 staging areas that are not on occupied crane  
10 pads?

11 A (Carbonneau) I do not know.

12 Q Could there be?

13 A (Carbonneau) You mean is it physically possible?

14 Q Sure. Let's start there.

15 A (Carbonneau) I don't know if it's planned on.

16 Q That's what I meant. Is it planned on. Could  
17 that be required by this Project?

18 A (Carbonneau) I don't know.

19 Q So then do I understand correctly that you also  
20 do not know how many more staging areas could be  
21 needed on top of the 1200?

22 A (Carbonneau) I don't.

23 Q And you also don't know what the possible size  
24 of those, of any additional staging areas would

1 be?

2 A (Carbonneau) I don't know if any are needed,  
3 and, therefore, I wouldn't possibly guess what  
4 size they would need to be. That's an  
5 engineering requirement.

6 Q Okay. Let's talk about storage. As I  
7 understand some of the testimony that I've read,  
8 storage isn't necessarily the same as staging,  
9 right?

10 A (Carbonneau) And I'm not that familiar with how  
11 those terms are used by others so, but yes, I  
12 can assume there would be differences.

13 Q Okay. And is it -- in your response to the DES  
14 Request for More Information, it said that some  
15 storage sites have been identified, and those  
16 were identified in the Wetlands Application, and  
17 that the contractor would identify more. Is  
18 that correct?

19 A (Carbonneau) I believe so.

20 Q Okay. Do you know how many more storage sites  
21 will be needed?

22 A (Carbonneau) I do not.

23 Q And do you know what the size of any additional  
24 storage sites would be?



1 A (Carbonneau) I don't.

2 Q So off-right-of-way access roads. I understand  
3 that you testified earlier that they've all been  
4 identified unless -- what I understood you to  
5 say is if there's, you know, some arrangement  
6 with a landowner where you can trade up, so to  
7 speak. So instead of going where planned, you  
8 could go in a different location that would be  
9 less impacting. Is that correct?

10 A (Carbonneau) Yes.

11 Q And how many off-right-of-way access roads have  
12 been identified, either by number of roads or by  
13 number of miles of them?

14 A (Carbonneau) I don't recall the number. Jake,  
15 do you know how many miles? It's in the 50 to  
16 60 mile range, I believe?

17 A (Titus) I was going to say 40 to 50.

18 A (Carbonneau) 40 to 50, and they're named by  
19 different segments. So it's hard to say exactly  
20 what is an entire access road, but on the order  
21 of 40 to 60 miles. Somewhere in there.

22 Q Now, do I recall correctly that during Technical  
23 Sessions you said that there would be no further  
24 wetland impacts as a result of any of these type

1 of areas: additional storage sites, additional  
2 laydown areas, additional staging areas? And I  
3 know you're saying they're not needed, but just  
4 in case an additional off-right-of-way access  
5 road were needed?

6 A (Carbonneau) I don't believe I said that there  
7 would absolutely be no need nor additional  
8 impacts. What I said was the intent is to  
9 identify locations where no natural resource  
10 impacts would be necessary. In the event that  
11 they identify a site that they really want to  
12 use, and there is a small wetland impact, that  
13 would require additional permitting at that  
14 point.

15 Q So your statement in your response to DES where  
16 you say that for storage and staging, you expect  
17 to use only already disturbed sites requiring no  
18 additional resource impacts, that that's an  
19 aspiration, if you will?

20 A (Carbonneau) That's our expectation.

21 Q And there's nothing requiring that.

22 A (Carbonneau) No. I don't believe there is.

23 Q Okay. And to the contrary, the recommendation  
24 from DES would allow you to go back to DES and

1 permit any such further wetland impacts.

2 A (Carbonneau) For a variety of reasons. If there  
3 are wetland impacts that for some reason have  
4 not been anticipated or that exceed what's been  
5 permitted or are in slightly different location  
6 than what has been permitted, then there is a  
7 mechanism to go back to New Hampshire DES and  
8 request an Amendment to the Permit Application.

9 Q But we're not talking about additional areas  
10 that have not been anticipated. In fact, from  
11 what we've just talked about, it's clear that  
12 additional areas are anticipated, right?

13 A (Carbonneau) Not that have wetland impacts. I'm  
14 talking about additionally unanticipated wetland  
15 impacts. We're not anticipating that additional  
16 laydown areas will include impacts.

17 Q So just in case, the way you've set up the  
18 permitting is that there's no requirement to  
19 avoid additional wetland impacts, and to the  
20 contrary, the recommendation from DES  
21 specifically allows us to skip the SEC process  
22 and go right through a delegated authority to  
23 DES and have additional permitting with DES,  
24 right?

1 A (Carbonneau) I don't know if that's legally how  
2 it works. All I know is it's very typical on a  
3 Project that if for some reason your impacts are  
4 not as permitted, there is a mechanism to go  
5 through New Hampshire DES and make adjustments  
6 as required. And you can't have additional  
7 impacts without going back through that process  
8 and getting DES approval for it.

9 Q So is your understanding then that after the  
10 Site Evaluation Committee, the Subcommittee here  
11 makes its decision on its Application, and in  
12 the event they decide to issue this Certificate  
13 of Site and Facility, and then after that, an  
14 additional wetland impact is identified, would  
15 you have to come back to this Subcommittee or  
16 any part of the Site Evaluation Committee or  
17 would you work exclusively with the Department  
18 of Environmental Services at that time?

19 A (Carbonneau) I don't know in reality what will  
20 happen, but my understanding is it would  
21 probably be easier for a small change in the  
22 impact area if it did not need to go back to the  
23 SEC, and I know that New Hampshire DES has also  
24 requested that that be the case for small

1 impacts.

2 Q Actually, isn't the language DES uses in their  
3 recommendation, quote, any further alteration?  
4 Not just small impacts, but any further  
5 alteration?

6 A (Carbonneau) I'm not sure. I don't have that  
7 language in front of me.

8 Q Let's look at that, Nicole. That's number 15.  
9 This one is really small font so forgive us. We  
10 might need to zoom in here.

11 MR. IACOPINO: When you say number 15, you  
12 mean it's Applicant's number 75?

13 MS. MANZELLI: I might.

14 MR. IACOPINO: Thank you.

15 MS. MANZELLI: Yes. I do. Thank you. So  
16 the Bates stamp number on this page for the  
17 record is APP 44448.

18 BY MS. MANZELLI:

19 Q And if you can see there, I think you'll be able  
20 to read it at this size. Number 15 there, it  
21 says any further alterations, is that correct?

22 A (Carbonneau) It does.

23 Q So DES hasn't said come back to us for small  
24 further alterations, and go back to the SEC for

1 alterations that are more than small?

2 A (Carbonneau) It doesn't say anything about the  
3 Site Evaluation Committee either way here.

4 Q All right. And since we're looking at this --  
5 Nicole, if you would turn to the next page which  
6 is APP 44449, and conditions 22 and 23, also  
7 allow you to go back to DES for permitting of  
8 additional impacts that might be associated with  
9 laydown areas and work pads, right?

10 A (Carbonneau) That's correct.

11 Q And I know you've testified that you don't know  
12 whether any of this would come back to the SEC.  
13 So assume for the purpose of this question that  
14 it would not, and that any wetland impacts that  
15 occurred subsequent to the Site Evaluation  
16 Committee's action on that Application would go  
17 only to DES. Am I correct to understand that  
18 such subsequent permitting would not involve any  
19 public hearings?

20 A (Carbonneau) I don't know. There is a threshold  
21 that New Hampshire DES has where a permit can be  
22 amended within, and I can't remember the exact  
23 percent, it's 10 or 20 percent of the original  
24 permitted impact amount where additional

1 information needs to be supplied to New  
2 Hampshire DES. I don't know, I've never worked  
3 on a Project where that quantity of impact was  
4 sufficient to call a public hearing. I haven't  
5 experienced that. I have worked on several  
6 where additional impacts were requested. We  
7 always also notify any the towns that would be  
8 involved in that, but I do not know whether a  
9 hearing would be held at that point.

10 Q And in the several projects that you've worked  
11 on where you were going back to DES for  
12 permitting after the original permitting, were  
13 you ever involved in any public hearings in  
14 those?

15 A (Carbonneau) No. Not for the additional amount.

16 Q And so in that case -- let me back up for a  
17 second based on something you just said.

18 So are you saying that even if it's just  
19 the smallest little speck of additional wetland  
20 impact, the Project is going to notify all of  
21 the municipality where that additional wetland  
22 impact would occur?

23 A (Carbonneau) If the impacts are beyond what's  
24 been permitted, we are required to notify DES,

1 and it's typical to also copy the officials in  
2 the town where that occurs when we submit that  
3 information to New Hampshire DES.

4 Q Do you know if it's typical because it's  
5 required or if it's typical because that's just,  
6 you know, the practice?

7 A (Carbonneau) I don't know.

8 Q Okay. So leaving aside that possibility of  
9 municipal notice, in the situation where you  
10 were going back to only DES for additional  
11 permitting, aside from the Applicant, of course,  
12 none of the other parties to this case would  
13 receive any notice of those additional impacts;  
14 is that correct?

15 A (Carbonneau) I don't know. I don't know what  
16 other mechanism there might be for a  
17 notification.

18 Q Have you ever been involved in a project where  
19 opponents to the project had intervened in a  
20 similar fashion as this case?

21 A (Carbonneau) I have been involved in projects  
22 where the local towns wanted to take their  
23 opportunity to comment on the project, and we  
24 have been asked by DES to work with that town



1 and resolve any issues and then respond to both  
2 DES and the town with a resolution.

3 Q What about -- I'm sorry. I didn't mean to cut  
4 you off.

5 A (Carbonneau) No. Go ahead.

6 Q How about a nonmunicipality? So, say, a  
7 nonprofit organization or an individual  
8 homeowner or a group of homeowners?

9 A (Carbonneau) Not to my knowledge.

10 Q Okay. So you have no experience whether in this  
11 scenario where you're at DES and you're doing  
12 additional permitting, parties such as these  
13 would be or would not be notified of those  
14 additional impacts?

15 A (Carbonneau) I don't have that experience.

16 Q And, to be clear, this additional wetland  
17 permitting, dealing exclusively with the  
18 Department of Environmental Services, that could  
19 be for, it's for an amount of wetland impacts  
20 that are unknown right now.

21 A (Carbonneau) And it might not happen at all.

22 Q Right. Could be zero. Could be 100 acres.

23 A (Carbonneau) Exactly.

24 Q We just have no idea.

1 A (Carbonneau) It's not likely to be 100 acres,  
2 but --

3 Q Okay. It's unknown.

4 A (Carbonneau) It could be zero or more than that.  
5 Yes.

6 Q And 100 is more than zero, right?

7 A (Carbonneau) It is.

8 Q Okay. So, ultimately, it's your opinion then,  
9 right, that this Subcommittee should conclude  
10 that the Project would not have an unreasonable  
11 adverse impact on wetlands without knowing the  
12 full extent of wetland impacts that could occur  
13 because of this zero to whatever the number is  
14 potential for additional impacts?

15 A (Carbonneau) I think that the Committee has a  
16 tremendous amount of information about the  
17 wetland impacts. I think that the information  
18 in the design is very adequate for a  
19 determination and that any additional impacts  
20 associated with the Project would need to be  
21 minor. Otherwise, Permit Application has to be,  
22 a whole new Permit Application would need to be  
23 submitted.

24 Q But isn't minor in the context of over 6 million

1 square feet of impact, isn't that kind of  
2 substantial?

3 A (Carbonneau) No. I think the information that's  
4 been provided is standard information. It's the  
5 kind that goes with every Permit Application.  
6 For every project, there is a possibility that  
7 the impacts could change slightly. It's the way  
8 it's done. It's very standard. It's typical of  
9 any project. This Project just happens to be  
10 longer and a little larger than a typical  
11 project.

12 Q Little larger?

13 Let's talk about avoidance and  
14 alternatives. So I want to talk a little bit  
15 about your understanding of the word site and  
16 what you understand that to mean.

17 We discussed earlier in your response to  
18 the original Wetlands Application that DES  
19 requested further information. That was their  
20 May 2016 letter, right?

21 A (Carbonneau) Yes.

22 Q And you submitted a response dated 7/12/2016,  
23 and what I'm showing here is a portion of that  
24 response. Right? And I don't know why the Qs

1 printed with the circle filled in. We couldn't  
2 figure that one out. It's still legible, I  
3 think.

4 A (Carbonneau) Yes.

5 Q And you can see here that you have restated  
6 DES's request number 1, right?

7 A (Carbonneau) Yes.

8 Q So could you please read that?

9 A (Carbonneau) "It appears that the transmission  
10 line could be buried along the New Hampshire  
11 Route 3 right-of-way from Pittsburg to  
12 Northumberland to avoid creating a new 32-mile  
13 right-of-way that runs cross-country in a  
14 southeasterly direction almost to the  
15 Androscoggin River, only to eventually return  
16 due west to the Connecticut River Valley. The  
17 Route 3 alternative would avoid most of the  
18 significant wetland and wildlife impacts in Coos  
19 County. Therefore, DES review found that this  
20 portion of the Project does not avoid and  
21 minimize wetland impacts to the greatest extent  
22 practicable per RSA 482-A and New Hampshire  
23 Administrative Rule Env-Wt 302.03 and Env-Wt  
24 302.04. Please provide revised plans that

1 consider and utilize the New Hampshire Route 3  
2 alternative from Pittsburg to Northumberland."

3 Q Okay. Thank you for that. Having to avoid and  
4 minimize wetlands impacts to the greatest extent  
5 practicable; that's a legal requirement, right?

6 A (Carbonneau) Yes.

7 Q And so essentially DES here is questioning the  
8 legality of the new right-of-way, right? That's  
9 the new right-of-way they're talking about?

10 A (Carbonneau) They're requesting that we provide  
11 information as to why an underground alternative  
12 in that location was not addressed or not --  
13 they're requesting information about an  
14 underground alternative in that section of the  
15 Project.

16 Q So you disagree that they're questioning the  
17 legality of the new right-of-way? I mean, isn't  
18 it fair to say that their initial, not their  
19 final, their initial finding is that it didn't  
20 meet a legal requirement?

21 A (Carbonneau) I guess I could agree with that.  
22 I'm not a lawyer so --

23 Q Now, moving on, immediately below where you've  
24 restated the request number 1, is your response.

1 It starts with response, and then it takes up  
2 the middle portion of the page there. And in  
3 it, you claim the DES does not have the  
4 authority to request an impact of a quote, and  
5 quote, alternative project. And that DES can  
6 ask only for impact assessments and avoidance  
7 within the site.

8 Do you see the language there that I'm  
9 referencing?

10 A (Carbonneau) I do.

11 Q So I have some questions, again, about what you  
12 mean by site. So confirm for me, right, the  
13 right-of-way for Route 116 in Easton. That's  
14 considered to be part of the site?

15 A Yes.

16 Q And this is just an example showing Route 116  
17 and the right-of-way for Route 3 in Plymouth.  
18 Also part of the site.

19 A (Carbonneau) Yes.

20 Q And you're also using other State roads, right?  
21 I'm not going to go through them all.

22 A Right.

23 Q So that means, doesn't it, that the state  
24 highway rights-of-way that you're using on Route

1 116 and on Route 3 and on other State roads,  
2 those are part of your site.

3 A (Carbonneau) That's correct.

4 Q So if you can use the state highway right-of-way  
5 for a portion of 116, State Route 116, and a  
6 portion of State Route 3, and portions of other  
7 State roads, and those are, therefore, part of  
8 your site, then why wouldn't this part, the  
9 northern portion of Route 3 be considered to be  
10 part of your site?

11 A (Carbonneau) Because it's not part of the  
12 Project site. It's not one of the alternatives  
13 that is part of the route of the Project. So  
14 just because it's a right-of-way doesn't mean  
15 it's a site, but if it's part of the site, it  
16 could be a right-of-way. They're not the same  
17 thing.

18 Q Correct me if I'm wrong, Route 3 basically runs  
19 north to south almost the entire length of the  
20 state, and I don't mean to imply that it's  
21 straight.

22 A (Carbonneau) That's correct.

23 Q And the purpose of this Project is to bring  
24 power from Quebec to southern New England.

1 A (Carbonneau) Yes.

2 Q And other routes than the one currently proposed  
3 such as along Route 3 could accomplish that  
4 purpose.

5 A (Carbonneau) Sure.

6 Q So moving on through your response, you also  
7 state that the Route 3 alternative would  
8 require, quote, "an entire new design and  
9 plans."

10 Aren't new designs routinely part of the  
11 Wetland Permitting Process?

12 A (Carbonneau) Not necessarily.

13 Q What does that mean?

14 A This would be a different route. That is not  
15 the same as design modifications on a local  
16 scale.

17 Q I'm just using your language. You said an  
18 entire new design and plans. Are you saying  
19 that DES doesn't have authority to require an  
20 entire new design and plan?

21 MR. WALKER: Objection. She's getting into  
22 an area where it's calling for the witness to  
23 draw a legal conclusion.

24 MS. MANZELLI: Let me rephrase.



1 BY MS. MANZELLI:

2 Q In your experience, has DES ever asked you to  
3 provide an entire new design and plan?

4 A (Carbonneau) In my experience DES has never  
5 required that we completely go to a different  
6 Project site or has never required any of the  
7 Applicants that I have worked with to consider a  
8 different site for their Project.

9 Q That's not what I'm asking you. I'm asking you  
10 if in any Project you've ever worked on an  
11 entire new design and plan was required.

12 A (Carbonneau) No.

13 Q Never.

14 A (Carbonneau) Not to my knowledge, no.

15 Q To be clear, up to today, you and your team have  
16 refused to provide a design for the route along  
17 Route 3.

18 A (Carbonneau) Correct.

19 Q Now, moving on to number 2. I promise I'm not  
20 going to go through every request in the Request  
21 for More Information, but moving along to number  
22 2, you also responded to that and just like you  
23 did for number 1, you restated number 2 in your  
24 letter. Would you, please, read number 2?

1 A (Carbonneau) "Per rule Env-Wt 302.04(a)(2), the  
2 Applicant is required to demonstrate by plan and  
3 example that the proposed alternative is the one  
4 with the least impact to wetlands or surface  
5 waters. It is not clear how the proposed  
6 32-mile new right-of-way in Coos County avoids  
7 surrounding wetlands on a landscape scale when  
8 the Wetland Impact Plans only represent wetlands  
9 located within the right-of-way. DES finds that  
10 the proposed 32 mile right-of-way in Coos County  
11 is not a alternative with the least impact to  
12 wetlands or surface waters."

13 Q So again, initially, DES questioned the legality  
14 of the route, right?

15 MR. WALKER: Objection to the extent that  
16 she's asking for the interpretation of what DES  
17 said.

18 MS. MANZELLI: Well, it's the second time  
19 I've asked the question. It's a different  
20 context this time, but the first time wasn't  
21 objectionable.

22 MR. WALKER: I'm objecting now.

23 PRESIDING OFFICER HONIGBERG: I don't think  
24 there's a waiver of the right to object ever,

1 but it doesn't seem like an unreasonable  
2 question. How she interprets what DES has  
3 written is not an unreasonable thing for her to  
4 do. I guess I'll leave it at that. I think you  
5 can answer the question.

6 A (Carbonneau) I interpreted this to mean that the  
7 DES believed that we had not demonstrated that  
8 the proposed 32 mile right-of-way was the  
9 alternative with the least impact.

10 Q And, again, immediately following that is your  
11 response to their request number 2, and let's  
12 see here. You provide in your response a table  
13 with a number of possible alternative segments  
14 and alignments to argue that your proposal  
15 minimizes wetland impacts, right?

16 A (Carbonneau) We endeavored to show them that the  
17 Project considered wetland impacts among other  
18 impacts in the selection of the route in  
19 northern Coos County, yes.

20 Q Am I correct that no where in this chart is  
21 there a alternative of burying the line within  
22 Route 3 or any other state highway or any other  
23 rights-of-way from Pittsburg to Bethlehem?

24 A (Carbonneau) Correct.

1 Q Now, did anyone at DOT tell you that Route 3 was  
2 not available for this Project?

3 A (Carbonneau) I did not speak with DOT directly  
4 so nobody had that conversation.

5 Q So the answer is no?

6 A (Carbonneau) It is no from my perspective,  
7 right.

8 Q And did any other part of State government tell  
9 that you Route 3 is not available for this  
10 Project?

11 A (Carbonneau) No one in State government told me  
12 that it was not available, no.

13 Q And did anyone at DOT -- I guess the answer is  
14 no based on what you previously said, but let me  
15 make sure. No one at DOT told you that Route 93  
16 was not available for this Project?

17 A (Carbonneau) No one spoke to me directly. No.

18 Q And no other party of State government told you  
19 that Route 93 was not available for this  
20 Project?

21 A (Carbonneau) Correct.

22 Q To the contrary, DES specifically told you to  
23 look at the Route 3 alternative and you refused.

24 A (Carbonneau) DES requested additional

1 information, and in a followup email the legal  
2 team had with New Hampshire DES, they clarified  
3 that they were looking for additional  
4 information as to why that route was not  
5 selected, and that information was provided to  
6 New Hampshire DES, and they were satisfied with  
7 the response.

8 Q But the answer to the question, DES told you to  
9 look at Route 3 and you refused, the answer is  
10 correct. Right? I'm not seeing a Route 3  
11 alternative laid out by the Applicant anywhere.

12 A (Carbonneau) Right. We did not show that as an  
13 alternative, correct.

14 Q So I want to talk about the potential for burial  
15 to have less impacts, and I want to start by  
16 looking at the Draft Northern Pass Transmission  
17 Line Project Environmental Impact Statement  
18 Supplement, which I'm desperately hoping you  
19 will agree with me we can call the Draft EIS,  
20 all right?

21 A (Carbonneau) Sure.

22 Q Are you familiar with this document?

23 A (Carbonneau) Yes.

24 Q Now, the DOE calculated that the Project as

1 currently proposed will have 85 acres of direct  
2 and temporary wetland impacts, right?

3 A (Carbonneau) Could you repeat that, please?

4 Q Sure. The DOE calculated that the Project as  
5 currently proposed would have 88 acres of direct  
6 and temporary wetland impacts.

7 Nicole, can you go to Table 19? That might  
8 be helpful.

9 So this is, what I'm showing you now is  
10 Table 19 from the Draft Environmental Impact  
11 Statement which is part of SPNHF Exhibit 26 and  
12 the Bates stamp number reference for this page  
13 is SPNF 01551.

14 So you see here that you agree the DOE  
15 calculated the proposed Project to have impacts  
16 of 88 acres to direct and temporary wetland  
17 impacts? What I'm doing there is I'm adding 23  
18 and 65.

19 A (Carbonneau) Yes.

20 Q So based on the DOE's calculations, the  
21 Department of Energy concluded that the Project  
22 as currently proposed is not the least impacting  
23 alternative, right?

24 A (Carbonneau) Correct.

1 Q And which one is the least impacting  
2 alternative?

3 A (Carbonneau) It could be 4 A, 4 B or C.

4 Q And for purposes of our conversation, I'm just  
5 going to say Alternative 4, and when I say that  
6 I mean, you know, the three of those  
7 collectively because they're quite similar.

8 And the primary difference between  
9 Alternative 4 and the Project, the current  
10 proposed version of the Project, is that  
11 Alternative 4 is buried the entire length of the  
12 line and the currently proposed Project, of  
13 course, is not.

14 A (Carbonneau) Correct.

15 Q So according to the DOE the least wetland  
16 impacting alternative is a buried line. Let's  
17 look at some of the details of that.

18 Isn't it true that the analysis that the  
19 DOE did concluded that the Project Northern Pass  
20 currently proposes will have 95 acres of wetland  
21 impact, and the buried alternative would have  
22 only 10 acres of wetland impact?

23 A (Carbonneau) That appears to be what Table 1  
24 says, although we don't agree with the way

1 they've characterized the impacts. It's not  
2 consistent with the way New Hampshire DES and  
3 the Army Corps of Engineers, New England  
4 District, has us do those calculations.

5 Q Can you briefly describe if these calculations  
6 were done in a way that was agreeable to you  
7 what these numbers would be?

8 Let me just try to illustrate here. Are  
9 you saying that DOE says the Project has 95  
10 acres, but you think the Project has only 50  
11 acres? I would consider that to be a  
12 substantial difference. Or are you saying that  
13 DOE says 59 but we say 93 and a half which I  
14 would consider to be not so substantial a  
15 difference. That's what I'm trying to get at.

16 A (Carbonneau) I think the numbers just, I don't  
17 know how they did their numbers. I think we  
18 have permanent, temporary and secondary impact  
19 numbers that vary greatly from what they have  
20 here.

21 Q Okay. So I'm confused by what you've said. I  
22 thought you said you disagreed with the  
23 methodology they used, but now you're saying you  
24 don't know how they did the numbers? So do I



1 understand -- help me out.

2 A (Carbonneau) I don't know how they did their numbers,  
3 but my understanding is they may have lumped  
4 some temporary impacts into their category  
5 called direct. We don't have a distinction  
6 between direct and indirect. We have permanent,  
7 temporary and secondary, and I think the  
8 categories are different, and I think the  
9 numbers are different.

10 Q Okay. Leaving all of that aside, do you agree  
11 that these numbers here, the 95 to 10, is an  
12 apples to apples comparison; and what I mean by  
13 that is do you agree that however the Department  
14 of Energy arrived at 95, they arrived the same  
15 exact way at 10.

16 A (Carbonneau) I would assume they used the same  
17 methodology to calculate impacts across each  
18 alternative. That would be standard practice.

19 Q All right. So with that caveat that you may  
20 disagree with the methodology, but as between  
21 alternatives, we'll assume DOE used consistent  
22 methodology, isn't it also true that the  
23 analysis found that the Project Northern Pass  
24 would currently propose would disturb over 1100

1           acres in flood zones and the buried alternative  
2           would disturb less than 275 acres in flood  
3           zones?

4       A     (Carbonneau) Again, I don't know how they came  
5           to those calculations.

6       Q     But I'm not asking you if you know how they came  
7           to the calculations. I'm asking you do you  
8           agree that that's the conclusion of their  
9           analysis?

10      A     (Carbonneau) It appears to be.

11      Q     Moving to Table 15, isn't it true that the DOE  
12           analysis found that the Project Northern Pass  
13           currently proposes would disturb over 1000 acres  
14           of wildlife habitat and the buried alternative  
15           would disturb less than 275 acres?

16      A     (Carbonneau) That appears to be their conclusion  
17           as well.

18      Q     So by those measures, burying the line,  
19           according to DOE, would have one-tenth to  
20           one-third the impact as the proposed Northern  
21           Pass Project, right?

22      A     (Carbonneau) That sounds about right.

23      Q     And if we extrapolate it a little bit, and we  
24           used those numbers, by the DOE numbers, it means

1 that the currently proposed over 6 million  
2 square feet of impact, wetlands impact, with the  
3 mostly overhead Project could be reduced by  
4 one-tenth or one-third to somewhere in the range  
5 of 600,000 square feet to two million square  
6 feet if the line were 100 percent buried, right?

7 A (Carbonneau) I'm not going to comment on your  
8 math, but I know the point you're trying to make  
9 is that an all-underground route through  
10 existing roads rights-of-way would be less  
11 impact, and I do not disagree with that.

12 However, part of the evaluation of  
13 alternatives is to come up with the least  
14 environmentally damaging practicable  
15 alternative. The underground route through the  
16 Route 3 corridor in the northern section of the  
17 Project has been identified as not being  
18 practicable. That is why it's not included in  
19 the design. Practicability, again, includes  
20 other issues, logistics and cost and other  
21 things, and we have been told by the Project  
22 that the cost would be prohibitive.

23 Q Who's the "we" in that sentence?

24 A (Carbonneau) We as in Normandeau, the

1 environmental consultants who are preparing  
2 Permit Applications.

3 Q And who is "by the Project" in that sentence?

4 A (Carbonneau) The Project team, the design team,  
5 the Project proponents.

6 Q Can you tell me an individual human being who  
7 said that to you or communicated it in writing  
8 or --

9 A (Carbonneau) The Project team, the Project  
10 directors, the environmental engineers who've  
11 designed the Project. I mean, this was  
12 discussed multiple times in many meetings.

13 Q So let's talk about what your own numbers  
14 indicate about the impact of burial.

15 On page 2-2 of the Northern Pass Project  
16 Natural Resource Mitigation Plan which we're  
17 going to get up here in a second. This is APP  
18 Exhibit 1, Bates stamped APP 21314. Normandeau  
19 states that burying section UG, quote,  
20 "substantially reduces impact on sensitive plant  
21 communities, wildlife habitat, wetlands, and  
22 streams along the entire stretch of the route,"  
23 and this goes back to what you said earlier.  
24 You don't disagree that burial can have less

1 impacts, right?

2 A (Carbonneau) Yes. And in particular, that  
3 portion of the White Mountain National Forest  
4 had many sensitive plant communities, wetlands,  
5 large long wetlands, and a number of streams,  
6 yes, that is now not part of the Project.

7 Q Just to clarify, my next question was going to  
8 be to confirm that that section UG refers to the  
9 52-mile section largely in the White Mountain  
10 National Forest?

11 A (Carbonneau) Yes.

12 Q Going back to something you just said, is having  
13 sensitive plant species and long wetlands the  
14 criteria that you used to determine where the  
15 line should be buried?

16 A (Carbonneau) The determination of where the line  
17 should be buried was not a decision made by  
18 Normandeau. It was a Project team decision.  
19 But environmental impacts was part of the  
20 consideration. Whether or not the precise  
21 location of rare plants was part of it, probably  
22 all part of the reason that the line was  
23 relocated out of that current existing  
24 right-of-way.

1 Q You agree that there are, I'll use the  
2 scientific term here, "lots" of areas of the  
3 route that are proposed to be overhead that also  
4 have sensitive plant and wildlife species and  
5 also have significant wetlands, right?

6 A (Carbonneau) There are some locations where  
7 there are, in the North 40, we did not find any  
8 listed rare, endangered plants, or threatened or  
9 endangered plants. There were some watch list  
10 species there, some indeterminate species there.  
11 There were a couple of, there were two exemplary  
12 natural communities, but this section of the  
13 existing right-of-way in the White Mountain  
14 National Forest also included some rare,  
15 threatened and endangered plants, Bog Pond which  
16 is very sensitive habitat, and a fair amount of  
17 good wildlife habitat. So it's not exactly  
18 comparable to what we have in the Northern 40.  
19 There are some similarities.

20 Q And just so I can make sure I understand what  
21 you say when you say the Northern 40, you mean  
22 the new 32-mile right-of-way of which is  
23 overhead and then the 8-mile section to the  
24 north of that to the Canadian board that kind of

1 dolphins in and out?

2 A (Carbonneau) The 8-mile underground section in  
3 the northern portion of the Project area.

4 Q Excuse me. Okay.

5 A It doesn't go to the border, but --

6 Q That's what you mean by you say the Northern 40.

7 A Yes.

8 Q Okay. So in this 52-mile section, section UG  
9 through the White Mountain National Forest, the  
10 proposed wetland impact is roughly 3700 square  
11 feet, right?

12 A (Carbonneau) I don't know the exact.

13 Q Does that strike you as -- I don't have the  
14 reference from your Application here. Does that  
15 strike you as way off?

16 A (Carbonneau) That doesn't strike me as accurate.  
17 I think the wetland impacts are really small in  
18 the underground section, but I'm not sure if  
19 that's the right amount or not.

20 Q Compared to six million, I think 3700 is pretty  
21 small.

22 A (Carbonneau) But most of the work is in the  
23 existing shoulder of the roadway so it's a  
24 pretty small impact. We can agree with that.

1 Q Okay. I have some math laid out using 3700 so  
2 if you want to correct me later on the numbers,  
3 we can do that, but let me walk through what I'm  
4 getting at here. So if it is 3700 square feet  
5 over 52 miles, that's roughly 70 square feet per  
6 mile. Are you looking for the reference?

7 A (Carbonneau) No. I'm sorry.

8 Q Okay. So are you with me? If it's 52 miles, if  
9 it's 3700 square feet, that's 70 square feet per  
10 mile of impact?

11 A (Carbonneau) I don't have a calculator with me.  
12 I'll take your word for it.

13 Q Okay. So just for illustration, 70 square feet,  
14 that's about five of these tables that we're  
15 sitting at here, right? These tables are about  
16 two and a half by six and a half feet?

17 A (Carbonneau) Okay.

18 Q Now, Northern Pass has also proposed as part of  
19 the Project, we were just talking part of the  
20 Northern 40, the 30.2-mile section just to the  
21 north and does it sound correct to you that the  
22 wetlands impact associated with that section  
23 would be 2.74 million square feet?

24 A (Carbonneau) I don't know. I don't know in



1 square feet. I'm sorry.

2 Q Conceptually, this section is the area with the  
3 highest level of wetland impact, right. On a  
4 per-mile basis would you agree with that?

5 A It is, although most of the impacts are  
6 associated with Transition Station 1 which is a  
7 very localized area.

8 Q Okay. If we extrapolate that out or we do the  
9 math, you have 2.74 million square feet overall  
10 in the 32-mile section. That comes out to just  
11 over, almost 91,000, 90,828 square feet per  
12 mile. Right? Do you take me on the math? I  
13 double-checked.

14 A (Carbonneau) I have to do that.

15 Q Okay. So that difference, well, and also I  
16 wanted to give you an illustration. I measured  
17 the room. So the room is roughly 80 by 90 feet.  
18 So if you do the math, 90,828 square feet,  
19 that's about 12 and a half times the size of  
20 this room. So the impacts by your own numbers  
21 in the underground section are about five tables  
22 versus 12 and a half of these rooms for the new  
23 right-of-way. It's about a 95 percent  
24 difference.

1           Now, again, applying the math, your own  
2 numbers show that if the underground stretch,  
3 the passage through the White Mountain National  
4 Forest, if that were representative, and I'm  
5 asking you to make that assumption, if that were  
6 representative of the wetland impacts associated  
7 with burying the entire line, then by your own  
8 numbers would indicate that burial would reduce  
9 the wetlands impact by over 95 percent, right?

10       A   (Carbonneau) I don't think that's quite  
11 accurate. The majority of the wetland impacts  
12 associated with the northern section of the  
13 Project are associated with Transition Station  
14 1. When you go from overhead to underground or  
15 the other way, you have to have a transition  
16 station. The three largest wetland impacts on  
17 the entire Project are Transition Station 1,  
18 Transition Station 5, and the Deerfield  
19 substation expansion. These are very discrete  
20 locations.

21           Along the right-of-way itself, the impact,  
22 the permanent impact areas and the temporary  
23 impact areas, are distributed very widely and  
24 across, not widely, but they're distributed

1 across the entire right-of-way. If you look at  
2 the permanent impacts in the right-of-way  
3 itself, it's a very small number if you divide  
4 it over 192 miles. It's a very small area per  
5 mile that's affected in the overhead section of  
6 the Project. It's these transition stations  
7 which would be required, even if you were to go  
8 underground in Route 3, you'd have to find sites  
9 to put transition stations that may or may not  
10 be devoid of wetlands. So while I'm trusting  
11 your math, I don't necessarily agree with the  
12 premise.

13 Q So how many transition stations would be needed  
14 across the Project if it was buried 100 percent?

15 A (Carbonneau) I have no idea. I do not know how  
16 far you can go before you have to have a  
17 transition station. That's not my area of  
18 expertise.

19 Q So let's talk about what EPA has to say about  
20 burial. Are you familiar with the EPA letter?  
21 Oh, I'm sorry. I missed a question. Let me go  
22 back real quick.

23 Just out of curiosity, if you looked at the  
24 N 2, this is the new right-of-way section, what

1 would your opinion be as to whether the Project  
2 would be reasonably adverse impact to wetlands  
3 or unreasonably adverse impacts to wetlands? So  
4 if the whole Project were the new right-of-way.

5 A (Carbonneau) I would not say it's unreasonable.  
6 And N 1 is the new right-of-way, not N 2.

7 Q Okay.

8 A (Carbonneau) But no, I do not agree that that  
9 would be an unreasonable adverse effect.

10 Q So now let's turn to EPA. Have you seen their  
11 letter of July 14, 2016, which is SPNHF Exhibit  
12 43?

13 A (Carbonneau) Yes.

14 Q And EPA did not find that the Project Northern  
15 Pass currently proposes is the least impacting  
16 alternative, did it?

17 A (Carbonneau) They requested additional  
18 information as well.

19 Q Doesn't the letter state that the proposed  
20 alternative is not the least impacting  
21 alternative?

22 A (Carbonneau) You'd have to put that back up for  
23 me to --

24 Q Sure.

1 A (Carbonneau) I don't recall the actual writing.  
2 It says it would not pass the alternatives test  
3 based on the information already provided.

4 Q So DOE did an extensive analysis. We looked at  
5 that. That was the Draft EIS. They did a  
6 couple of iterations of it before they came out  
7 with the version that we've looked at today.  
8 They received voluminous public input, as you  
9 know. EPA drew from that this pretty simple  
10 conclusion, didn't they? When you bury the  
11 line, you don't damage the aquatic environment  
12 as much because essentially, these are my words  
13 not theirs, burial messes with far fewer trees  
14 and wetlands, right?

15 A (Carbonneau) If it's buried in a road  
16 right-of-way, the impacts are less, yes.

17 Q And doesn't EPA also state that all of the  
18 alternatives in the Draft EIS appear to be  
19 practicable, including burying the entire line  
20 alternatives?

21 A (Carbonneau) I don't know that it states that  
22 they're all practicable.

23 MR. IACOPINO: Ms. Manzelli, can you tell  
24 us what exhibit number that is that you're

1 referring to?

2 MS. MANZELLI: It is SPNF 43. What we were  
3 just looking at is SPNF 03980.

4 Q So can you read that highlighted sentence, Ms.  
5 Carbonneau?

6 A It says, "All of the alternatives in the DEIS  
7 appear to be practicable."

8 Q And as we've talked about, three of the  
9 alternatives in the Draft Environmental Impact  
10 Statements are full burial options, right?

11 A (Carbonneau) Right.

12 Q You mentioned earlier, and I want to talk for a  
13 few minutes about the term practicable. You and  
14 your Panel members here have used the word  
15 "practicable" in the earlier part of this Panel  
16 with respect to plants and wildlife. And as I  
17 understood what you said on Wednesday, it was  
18 whatever was decided amongst the Applicant, the  
19 environmental monitor, the contractor, along  
20 with the nonbinding advice of the agency is what  
21 was practicable.

22 Today I understand that you've refined your  
23 meaning of practicable, and you said don't quote  
24 you and I won't because I can't write it down

1 exactly, but you said something like practicable  
2 means how it's defined in the 404 regs, and you  
3 said that that was available and capable of  
4 being done given technology, logistics, cost in  
5 light of overall Project purposes.

6 That's something like what you said earlier  
7 today, right?

8 A (Carbonneau) Right.

9 Q So "practicable" with respect to wetlands,  
10 that's a legally defined term, right?

11 A (Carbonneau) It's in the regulations, yes.

12 Q Do you understand that regulations have the  
13 force and effect of law?

14 A (Carbonneau) Yes.

15 Q So let's look at Env-Wt 101.74, and I did not  
16 make an exhibit number for this, and I don't  
17 intend to. I assumed that State law did not  
18 need to come in as an exhibit?

19 PRESIDING OFFICER HONIGBERG: That's a  
20 pretty safe assumption.

21 MS. MANZELLI: Okay.

22 Q So you can see here the definition. You came  
23 exceedingly close to nailing the definition.  
24 You want to read it for me?

1 PRESIDING OFFICER HONIGBERG: Off the  
2 record.

3 (Discussion off the record)

4 A Env-Wt 101.74, "practicable," in quotes, means  
5 available and capable of being done after taking  
6 into consideration cost, existing technology and  
7 logistics in light of overall Project purposes.

8 Q Thank you. So I'm trying to put together the  
9 two ways in which you've talked about  
10 practicable over the course of this Panel. Am I  
11 correct to describe this as, in your mind, the  
12 working definition of practicable, it means the  
13 legal definition which you just read which I  
14 won't repeat, and that the decider of what's  
15 practicable is this combination of folks? It's  
16 the combination of the contractor, the  
17 environmental monitor, the Applicant, and the  
18 nonbinding advice of the agency? Am I  
19 understanding your different statements about  
20 practicability correctly?

21 A (Carbonneau) I think in the context of the  
22 wetlands regulations, it's a little bit  
23 different from the way we might be using it for  
24 plants and wildlife. For the plants and



1 wildlife, the Agency decision is going to be  
2 binding. We will have to follow what the final  
3 decision from New Hampshire Fish & Game or New  
4 Hampshire DES or the Natural Heritage Bureau is.

5 From a wetlands standpoint, I think that  
6 the Project itself, the Project proponents have  
7 a handle on whether the cost and the existing  
8 technology and the logistics make an alternative  
9 practicable or not and whether to actually  
10 produce a plan that shows an alternative. If  
11 it's not cost effective, or it's not  
12 technologically feasible, then it's not a  
13 alternative that they can design.

14 Q Northern Pass responded to the EPA letter by its  
15 own letter dated November 6th, 2016, right? And  
16 this is a copy of that letter?

17 A (Carbonneau) Yes.

18 Q And this is SPNHF Exhibit 6. The Bates stamp is  
19 actually still the NPT Discovery Bates stamp  
20 177917.

21 Just out of curiosity, who is the Catherine  
22 Finneran which is the author of this letter?

23 A (Carbonneau) She's an Eversource employee.

24 Q So what was your role in this letter?

1 A (Carbonneau) To the extent that in details about  
2 environmental issues or how we've worked to  
3 minimize wetland impacts is relevant, we would  
4 have provided that information to her, but in  
5 the respect of whether or not a alternative was  
6 practicable based on other considerations, that  
7 would have been her determination.

8 Q And would I be fair if I characterized the gist  
9 of this letter as saying that it's not  
10 practicable to bury any more of the proposed  
11 line because to do so would be too slow, too  
12 expensive, and not logistical? Is that it, more  
13 or less?

14 A (Carbonneau) I don't recall if being too slow  
15 was part of it. I just recall that it was not  
16 practical.

17 Q So we'll show you a couple sections here. Let  
18 me know if you need us to zoom in. And I think  
19 we're okay to flip to the next page to look at  
20 the rest of the highlighted portion there.

21 So I'm trying to avoid having to read the  
22 whole letter. That's why I'm trying to just  
23 characterize the gist of it as being too slow,  
24 too expensive, not logistical. Is that

1 essentially right?

2 A (Carbonneau) That appears to be a good  
3 interpretation.

4 Q Okay. And the letter admits that more burial  
5 may be technically feasible, right?

6 A (Carbonneau) I'm not sure.

7 Q We'll show you.

8 A (Carbonneau) I'm just not familiar with this  
9 letter. I haven't reviewed it recently so.

10 Q Okay. You can see the language there.

11 A Maybe technically feasible.

12 Q Okay. Now, to your knowledge, did EPA respond  
13 to this letter?

14 A (Carbonneau) Not to my knowledge.

15 Q And to your knowledge, did Army Corps respond to  
16 this letter?

17 A (Carbonneau) Not to my knowledge.

18 Q So the July 14th letter from EPA is the last  
19 word that any of us have from EPA on the  
20 Northern Pass Project?

21 A (Carbonneau) I believe we do not have any  
22 further written information from them, but  
23 members of the Project team have been in touch  
24 with EPA and they have been copied on our

1 response to this letter. We were required to  
2 submit a response to the Army Corps of  
3 Engineers, and they were satisfied with the  
4 response.

5 Q And how do you know that Army Corps was  
6 satisfied with the response?

7 A (Carbonneau) We have been in verbal contact with  
8 the Army Corps of Engineers all along on the  
9 Project.

10 Q Are you aware of SEC Site Rule 301.14(d)? Does  
11 that ring any bells? We'll pull it on the  
12 screen. I'll give you a second to review  
13 Section (d).

14 So is it fair to say that that rule  
15 essentially says that the SEC will not consider,  
16 will not only consider DES's determination in  
17 determining unreasonable adverse effect on water  
18 quality but also what Army Corps and EPA have  
19 had to say?

20 A (Carbonneau) Yes.

21 Q So you've done everything you can with the  
22 current plan to avoid and minimize wetland  
23 impacts of the current route. We still have  
24 over 6 million square feet of proposed impact,

1 and given the numbers from EIS, your own number  
2 from the underground route, the input from EPA,  
3 are you acknowledging here today that burying  
4 the entire line is likely to dramatically reduce  
5 wetland impacts?

6 MR. NEEDLEMAN: Mr. Chair, I'm going to  
7 object. I think there's a relevancy issue here,  
8 and I'm raising it because I was the attorney  
9 who handled the routing issues. I think the  
10 Committee has previously ruled with respect to a  
11 motion that somebody filed that alternative  
12 routes are not relevant, and they denied  
13 intervention based on that, and this all relates  
14 to alternative routes that are not in front of  
15 the Committee for consideration.

16 MR. ROTH: Mr. Chairman, if I can, I didn't  
17 say anything the last time Attorney Needleman  
18 objected, but we had, I thought we had agreed  
19 that when a witness was sponsored by one  
20 attorney that that attorney would be the person  
21 objecting, and I believe this Panel of witnesses  
22 was sponsored by other than Mr. Needleman.

23 PRESIDING OFFICER HONIGBERG: Mr. Roth,  
24 you're absolutely correct, although I actually

1 think maybe Mr. Pappas complained the last time  
2 it happened.

3 And Mr. Needleman addressed why he is the  
4 one who raised the objection. I'm sensitive to  
5 it. I perked right up when Mr. Needleman  
6 started to talk, and I think he saw the look on  
7 my face and decided to address it up front.

8 Regardless, he's raised it. I don't even  
9 know if Ms. Manzelli had a problem with the  
10 objection. But why don't I let Ms. Manzelli  
11 respond to the objection, and then we'll figure  
12 out what to do.

13 MS. MANZELLI: Thank you. I agree with  
14 what both of the other attorneys, Needleman and  
15 Roth, have said, and I understand why Attorney  
16 Needleman would be the one raising this issue,  
17 but I disagree with the merits of the objection.

18 PRESIDING OFFICER HONIGBERG: Let's talk  
19 about that for a moment. Why do you disagree  
20 with the objection?

21 MS. MANZELLI: My understanding is that  
22 through motion practice prior to this hearing or  
23 perhaps even during the beginning of the  
24 hearing, I apologize for not knowing the timing,

1 the parties discussed whether or not any  
2 evidence of alternatives would be blanket  
3 excluded from the proceeding. And I believe  
4 that the Forest Society argued that while the  
5 current state of law does not require the  
6 Applicant to provide a fleshed-out second  
7 alternative, that that does not in any way  
8 preclude any other party, or preclude the  
9 Applicant if it wishes to, from presenting  
10 evidence about alternatives.

11 PRESIDING OFFICER HONIGBERG: Overruled.  
12 That means you can answer. If you remember the  
13 question.

14 A (Carbonneau) You're going to have to repeat the  
15 question. I'm sorry.

16 Q So given that you've done everything you can to  
17 avoid and minimize wetlands impacts of the  
18 current route, and as much as you possibly can  
19 do there, there's still going to be over 6  
20 million square feet of impact, and given the  
21 numbers from the Draft Environmental Impact  
22 Statement that we looked at, your own numbers  
23 from the underground section of the route that  
24 we looked at, and the input from EPA, will you

1 acknowledge today that burying the line is  
2 likely to dramatically reduce wetlands impacts,  
3 burying the entire line?

4 A (Carbonneau) Well, I have not looked at that  
5 alternative. I would say if the line is buried  
6 in existing roadways it would greatly reduce  
7 impacts to wetlands and natural resources, but  
8 again, we have not evaluated that alternative.

9 Q Thank you. Mr. Chair, I've concluded a topic  
10 here. I'm not sure if you're anxious for a  
11 break?

12 PRESIDING OFFICER HONIGBERG: That's  
13 actually perfect. So we'll take a ten-minute  
14 break.

15 MS. MANZELLI: Thank you.

16 (Recess taken 3:10 - 3:30 p.m.)

17 PRESIDING OFFICER HONIGBERG: All right,  
18 Ms. Manzelli. You may continue.

19 BY MS. MANZELLI:

20 Q Ms. Carbonneau, how familiar are you with the  
21 New England Clean Power Link Project in Vermont?

22 A (Carbonneau) I'm aware of it. I'm not familiar  
23 with all of the details.

24 Q Are you aware that the Clean Power Link includes



1 57 miles of buried line and no towers?

2 A (Carbonneau) Yes. I believe that's the case.  
3 But I'm not positive.

4 Q Are you aware that the Clean Power Link will  
5 have zero acres of permanent wetland impacts?

6 A (Carbonneau) Well, I know that's how it's been  
7 characterized, but I believe that it also goes  
8 under Lake Champlain, and, therefore, there  
9 would be some impacts in Lake Champlain.

10 Q Are you aware that it has 2.3 acres of temporary  
11 impact per mile?

12 A (Carbonneau) I'm not familiar with those  
13 numbers.

14 Q I apologize for a little bit more math. So  
15 assuming it does have 2.3 acres of temporary  
16 wetland impact per mile, and I'm trying to, I  
17 know math on a Friday afternoon, we're way into  
18 the after-lunch period here.

19 Let me represent that this Project would  
20 have 1,758 square feet per mile of wetland  
21 impact versus the 90,828 square feet per mile  
22 proposed for some portions of the Northern Pass.  
23 Are you aware of that?

24 PRESIDING OFFICER HONIGBERG: There's

1 something wrong with the question. Don't answer  
2 it. There's something wrong with the question.

3 BY MS. MANZELLI:

4 Q So let me break it down a little bit more. I  
5 guess you are not aware that the Clean Power  
6 Link has 1,758 square feet per mile of wetland  
7 impact.

8 A (Carbonneau) I'm not aware.

9 Q Assuming that it did. That's 95 percent less  
10 wetland impact than the most impact wetland  
11 impacting portion of the Northern Pass Project,  
12 right?

13 A (Carbonneau) I don't know. I have no idea.

14 Q Well, we talked about this number earlier. The  
15 most impacting portion of the Northern Pass  
16 Project is a segment that has over 90,000 square  
17 feet per mile. That's the new right-of-way  
18 segment. And I think your testimony was that  
19 that was in large part because of the transition  
20 station.

21 A Yes. But I would like to point out that most of  
22 the impacts are temporary. So Transition  
23 Station 1 is a source of the largest amount of  
24 permanent impacts which is right about one acre.

1 The total area of permanent wetland impacts on  
2 Northern Pass, the entire 192 miles, is only two  
3 and a half acres. The temporary impacts are  
4 greater than that, but again they're temporary.  
5 They will be restored. They're not permanent.

6 Q And the only, I'm representing to you that the  
7 only wetland impacts associated with the Clean  
8 Power Link Project are temporary, and that on a  
9 per mile basis that number is 1,758 square feet  
10 of temporary wetland impact.

11 So I'm just looking for a confirmation on  
12 the math. If in this one section of the  
13 Northern Pass Project, the temporary impact is  
14 up to 90,000 square feet per mile, and I'm  
15 representing that the temporary wetland impact  
16 in the Clean Power Link is 1,758 square feet per  
17 mile, that's more than a 95 percent difference.

18 MR. WALKER: Objection. I think at this  
19 point, she's going to need a calculator.

20 PRESIDING OFFICER HONIGBERG: I'm going to  
21 sustain the objection. You're looking for a  
22 witness who doesn't know, you're just giving her  
23 some numbers and asking her to confirm your  
24 math? The math is the math. If you've got

1 numbers that you can prove up at some point, you  
2 don't need somebody under oath to agree with you  
3 that X is 95 percent of Y or X is 95 percent  
4 less than Y.

5 MS. MANZELLI: Thank you. I'll withdraw  
6 that question.

7 BY MS. MANZELLI:

8 Q Do you agree that a 95 percent difference would  
9 be a significant difference?

10 A A 95 percent difference of something in general  
11 is a significant difference in a statistical  
12 analysis.

13 Q Let's talk about temporary wetland impacts. So  
14 as you just stated, the majority of the impacts  
15 associated with the currently proposed version  
16 of this Project, they would be temporary, right?

17 A (Carbonneau) As opposed to permanent, yes.

18 Q And this is just an example that illustrates the  
19 numbers of temporary versus permanent.

20 Do I understand correctly that the purposes  
21 for which the Northern Pass Project would  
22 temporarily impact wetlands would be primarily  
23 access roads and pads?

24 A (Carbonneau) Yes.

1 Q And can you just explain briefly, but exactly,  
2 how will these wetlands be temporarily impacted?

3 A (Carbonneau) The vast majority would have timber  
4 mats laid down upon the surface of the wetland  
5 so that equipment can pass across them to get to  
6 the structure location where they will need to  
7 do earth disturbing work.

8 Q So do I understand correctly that it's sort of  
9 in tandem it's the placement of the mats  
10 themselves, and then it's the use of the mats,  
11 the passage over them?

12 A (Carbonneau) Right.

13 Q And the impact associated with that would be  
14 worse on the wetland the heavier the equipment,  
15 is that right?

16 A (Carbonneau) Potentially, but it also depends on  
17 other factors.

18 Q Like frequency?

19 A The type of the soil, the frequency of use, et  
20 cetera.

21 Q Okay. And roughly speaking, the weight of the  
22 heaviest vehicle that could be used in this  
23 Project would be around 200,000 pounds?

24 A (Carbonneau) I don't know.

1 Q You don't have any information about the weight  
2 of cranes?

3 A (Carbonneau) I don't personally know the weight  
4 of a crane, but I believe the Construction Panel  
5 probably testified to some details on that.

6 Q Yeah. In fact, they didn't have at their  
7 fingertips the typical weight of a crane. They  
8 did say that that would be the heaviest one. My  
9 understanding is that a crane is about 200,000  
10 pounds.

11 Do I understand correctly that these  
12 temporary wetland impacts are planned to be in  
13 place for up to three years?

14 A (Carbonneau) I doubt that that would be the  
15 case. I think, my experience with construction  
16 wetland of rights-of-way, of structures in  
17 rights-of-way are there that are several  
18 different construction events that take place.  
19 There's a gap of time between those events, and  
20 in many cases, timber mats being at a premium,  
21 they may be lifted up while that structure,  
22 after, for example, the foundation is excavated,  
23 if there is a time, a gap of time between that  
24 point and when the foundation material is

1 installed, and then the curing process that  
2 those timber mats may be lifted up and taken  
3 away. When the equipment comes back, they could  
4 be laid down again. But the construction season  
5 could, I believe the construction duration  
6 overall may be in the range of two to three  
7 years.

8 Q So in that event where, you know, the mat was  
9 laid down, it was used to access some work site,  
10 work was done, but like you said, it needed to  
11 cure or for some other reason work was not going  
12 to proceed at that particular location and then  
13 the mat was pulled up, what would happen to that  
14 temporary wetland at that time or to that  
15 temporary wetland impact at that time?

16 A (Carbonneau) It depends on the season, and it  
17 depends on the duration of the time that it is  
18 uncovered, I guess is the right way to say it.

19 Q Can you give me some for instances? What would  
20 be some likely scenarios?

21 A (Carbonneau) If the work was to, if the mats  
22 were laid down in the winter and there was  
23 frozen ground and potentially snow cover, when  
24 those mats are removed, there would, the wetland

1 would not have changed since the mats went down,  
2 and the conditions would be similar to what they  
3 were before the mats went down.

4 If there was shrubbery, for example, that  
5 was in the wetland and the mats were laid down  
6 on top of it, when a mat is removed, oftentimes  
7 the shrubs spring back. They can be left in  
8 place and flattened and then restored.

9 The longer a mat is left in place,  
10 especially during the growing season, there may  
11 be mortality of the vegetation under the mat, in  
12 which case, if the site is not going to be used  
13 again, some temporary seeding would be  
14 appropriate to make sure the soils are  
15 stabilized until work resumes.

16 Q And just help me understand. I had asked that  
17 the temporary impacts might be in place for up  
18 to three years, and I think what you said is no,  
19 but the overall construction could take three  
20 years. So let me try to drill down on that a  
21 little bit more.

22 So for any given wetland, what is the  
23 longest period of time between when that wetland  
24 would be first impacted, you know, the mat would



1 go down, versus when restoration would begin?

2 A (Carbonneau) I don't know an exact length of  
3 time. I do know that one of the final tasks for  
4 construction that needs to occur is to string  
5 the conductor. Access across a wetland might be  
6 necessary but not necessarily to the same level  
7 or extent. So it's possible that some  
8 restoration activities could be undertaken if no  
9 more driving access across those areas are  
10 necessary.

11 Q So is it possible then that for some wetlands it  
12 could be the entire construction period so the  
13 temporary impact could be three years? I mean,  
14 you've got to start somewhere. So if it was the  
15 first wetland to be impacted on the Project, and  
16 then it had to wait all the way until that last  
17 stringing the conductor phase, do I understand  
18 correctly that it could be up to three years?

19 A (Carbonneau) I guess that's possible, but I  
20 don't have a construction schedule from the  
21 contractors yet. That's something that they are  
22 working on now. And I don't know exactly how  
23 they're going to phase the work in any given  
24 location so I can't really answer that question

1 accurately.

2 Q Thank you for explaining that.

3 So I have a couple similar questions as to  
4 what you discussed with Counsel for the Public  
5 regarding seasonal restrictions and  
6 practicability. You agree that wetland impacts  
7 can be minimized by crossing wetlands only  
8 during frozen conditions, right?

9 A (Carbonneau) Crossing wetlands during frozen  
10 conditions is one way of minimizing impacts,  
11 yes.

12 Q But at this point, there's nothing requiring the  
13 Project to cross wetlands only in frozen  
14 conditions.

15 A (Carbonneau) Correct.

16 Q And it's possible or perhaps even likely that  
17 for some of these deep organic soil wetlands  
18 that they would be crossed in the morning under  
19 frozen conditions, but then in the afternoon  
20 they're not frozen anymore. They're melted,  
21 they're crossed in not frozen conditions, right?

22 A (Carbonneau) That's possible.

23 Q Do you think that's likely?

24 A (Carbonneau) If the work was being conducted in

1 the springtime, I think that that's a condition  
2 that could definitely be possible. I don't know  
3 if I would say it's likely, but it's possible.

4 Q This is the time of year, you know, when you  
5 kind of have to dress for winter when you leave  
6 for work in the morning and then you forget your  
7 jacket at the office because you come home and  
8 it's no where near what it was in the morning,  
9 right?

10 So I want to go back to the EPA letter that  
11 we looked at earlier. This is SPNF of Exhibit  
12 43. Bates stamp SPNF 03978. Can you please  
13 read on page 4 the highlighted section about  
14 what it says about the ability of temporary  
15 impacts to become permanent, starting with while  
16 temporary impacts are?

17 A (Carbonneau) Can you remind me what this  
18 document is?

19 Q Sure. And we're also going to zoom in a little  
20 bit for you.

21 A I will read the section.

22 "While the temporary impacts are not  
23 permanent, impacts can be substantial in size  
24 and remain long after the fill is removed. The

1 Application states that some of the staging,  
2 storage and laydown areas could be as large as  
3 50 acres. For example, soil compaction can  
4 greatly alter the movement of surface and  
5 groundwater in and near the site of the  
6 temporary road or work area. This can result in  
7 a change of the wetland type and soil  
8 temperature and in some cases result in a  
9 conversion to upland".

10 Q So let's talk a little bit about deep organic  
11 soils. Now, is it correct that there are  
12 roughly 140 acres or so of proposed temporary  
13 impacts?

14 A (Carbonneau) That's about right.

15 Q And approximately how many are wetlands with  
16 deep organic soils?

17 A (Carbonneau) I don't have that number at my  
18 fingertips, but we have calculated that number.  
19 It's in our Application materials, I believe.

20 Q I would like to, in the event that I do not  
21 finish cross-examination today, I'd like to ask  
22 that you get that number at your fingertips, and  
23 we can revisit that next week, please?

24 So just to make sure everybody understands

1 what I'm talking about when I say organic soil  
2 wetland, I understand that to be wetlands that  
3 are saturated, wetlands that are ponded,  
4 flooded. They, therefore, have anaerobic  
5 conditions. Very poorly drained soil. Is that  
6 sort of the basic characteristics of a deep  
7 organic soil wetland?

8 A (Carbonneau) Not necessarily. A deep organic  
9 soil wetland implies that there is a substantial  
10 amount of organic material that has the  
11 possibility of becoming compressed. It does not  
12 include all unindated areas or saturated areas.  
13 It's a subset of what you just listed.

14 Q So am I correct to understand that, or is it  
15 correct to say that not all ponded areas are  
16 deep organic soil wetlands, but that all deep  
17 organic soil wetlands tend to be saturated,  
18 ponded or flooded?

19 A (Carbonneau) They're typically at least  
20 saturated, not necessarily ponded or flooded,  
21 but they typically have anaerobic conditions  
22 that prevent the organic material from  
23 decomposing rapidly.

24 Q And, you know, Attorney Plouffe earlier used

1 some layperson's language, and I think that's  
2 helpful in these technical topics so words like  
3 muck, peat, that sort of image. Is that the  
4 right image for deep organic soil?

5 A (Carbonneau) Yes, as long as it's relatively  
6 deep. If it has a bedrock underlayment or dense  
7 mineral soil underneath it, then the possibility  
8 of compression is reduced. So these are areas  
9 that are very deeply mucky or peaty.

10 Q Now, can you look at photographs -- we're going  
11 to put some photographs up. Let me just state  
12 for the record what they are. They are from  
13 Applicant Exhibit 1. Bates stamp APP 21290,  
14 21299, 21300, 21301. And these are from  
15 Appendix 31 of your Wetlands, River, Streams,  
16 Vernal Pools.

17 So you want to just flip through those,  
18 Nicole?

19 This if the first one. So am I correct  
20 that these are very poorly drained organic  
21 wetland soils that are within the Project area?  
22 Is that what these depict?

23 A (Carbonneau) I would say that at least portions  
24 of these wetlands appear to be very poorly

1 drained. I couldn't tell you just from the  
2 photograph whether or not these particular  
3 wetlands have deep organic soils, but we have  
4 identified which ones that applies to. I just  
5 don't have that information at my hands.

6 Q Okay. And we'll talk more about that later.

7 And do these wetlands strike you as easy or  
8 difficult to cross?

9 A (Carbonneau) It depends on the conditions. If  
10 they are frozen and they're solidly frozen,  
11 they'll be very easy to cross.

12 Q And if they're not?

13 A (Carbonneau) Then they will require timber mats.  
14 In some cases, they may require stacked timber  
15 mats to cross them.

16 Q Does stacked timber mats essentially mean, you  
17 know, if that water is two feet deep, then  
18 you're going to kind of fill the water with  
19 stacked mats and so the vehicles would be  
20 crossing --

21 A (Carbonneau) Yes.

22 Q -- above the water?

23 A (Carbonneau) Right.

24 Q Now, I think you already testified that one of

1 the properties of deep organic soils is that the  
2 soil compacts and compresses very easily, right?

3 A (Carbonneau) I don't know that I would say it  
4 happens very easily, but it is possible for  
5 compression to occur.

6 Q And as part of that, are they taller, are they  
7 easily able to support heavy loads or not easily  
8 able to support heavy loads on their own without  
9 matting?

10 A (Carbonneau) It would be more difficult for them  
11 to support heavy loads.

12 Q Is rutting common in these deep organic soils if  
13 a heavy piece of equipment is driven across them  
14 without matting?

15 A (Carbonneau) Yes. I would say that's more  
16 likely to occur in a deep organic soil than a  
17 solid mineral soil, yes.

18 Q And isn't it true that impacting deep organic  
19 soils could crush and destroy wetland plants?

20 A (Carbonneau) Yes. That's possible.

21 Q And that it could decrease water infiltration?

22 A (Carbonneau) In some cases, that could be  
23 possible.

24 Q And that impacting deep organic soils could



1 change the wetland flow pattern?

2 A (Carbonneau) It's possible in certain  
3 circumstances. It's not necessarily going to  
4 happen.

5 Q And that impacting deep organic soils could  
6 change the wetland biotics?

7 A (Carbonneau) I don't exactly know what you mean,  
8 but if it could result in a slight change in the  
9 grade of the wetland in that location, then  
10 different plants could be adapted to that water  
11 depth than in the immediately adjacent wetland.  
12 So from a plant perspective, I would say that's  
13 true.

14 Q And the impacting deep organic soils could  
15 change the water quality perhaps by changing pH,  
16 DO, dissolved oxygen, or nutrient levels?

17 A (Carbonneau) I don't know if that's true or not.

18 Q So you don't disagree. You're not saying that  
19 impacting deep organic soils can't change water  
20 quality. You just don't know.

21 A (Carbonneau) I don't know.

22 Q Let's talk about mapping of these deep organic  
23 soils. So let's see here. I guess I do have a  
24 figure of 42 acres of deep organic soil impact

1 stated in your Application.

2 Do we have an exhibit of that number,  
3 Nicole? The 42 acres?

4 MS. MANTEAU: No.

5 Q I'm sorry, Ms. Carbonneau, I don't have a  
6 reference for that number. Does that sound  
7 right to you?

8 A (Carbonneau) I'm not sure. I'm going to look in  
9 a mitigation plan and see if I can find  
10 something here.

11 Q I don't want to hold us up. I had previously  
12 asked you if you could look up this number, and  
13 we can revisit this topic, and I think I'd like  
14 to leave it at that. So we can move on if  
15 that's okay with you.

16 A (Carbonneau) Yes.

17 Q Let me just make a note.

18 Now, you identified some amount of deep  
19 organic soils, right?

20 A (Carbonneau) Actually, I did find it.

21 Q Oh, great.

22 A (Carbonneau) 42.35 acres.

23 Q Okay. And could you, please, tell us for the  
24 record what you're looking at to see that, to

1 find that number?

2 A (Carbonneau) Yes. It's Table 3, the ARM Fund  
3 Calculation Results for the Northern Pass  
4 Project by town, and it's in our Final  
5 Compensatory Wetland Mitigation Plan.

6 Q Could the Applicant's Counsel tell us what  
7 exhibit number that is? Perhaps after the next  
8 break?

9 MR. WALKER: Yes, we'll work at it.

10 Q To arrive at this, I'm just going to call it 42  
11 acres. I understand you said 42.35. To arrive  
12 at this 42 acres of deep organic soil, did you  
13 actually go into the field and map out the  
14 locations of deep organic soils?

15 A (Carbonneau) No, although we did use field  
16 observations to help identify them. The primary  
17 way that we did that was to use Soil  
18 Conservation Service documents.

19 Q This is the USDA NRCS Coos County Web Soil  
20 Service?

21 A (Carbonneau) Yes.

22 Q Web Soil Survey. And this is an example of what  
23 that would be here. SPNHF 197. I'll represent  
24 to you that I went onto the Soil Survey and

1 plunked in an address along the route for  
2 Bethlehem. So when you say you're looking at  
3 the Web Soil Survey, this is an illustration of  
4 what you were looking at, right?

5 A (Carbonneau) Yes.

6 Q And this Web Soil Survey was created a number of  
7 years ago by the federal government. Right?  
8 The data included in this survey?

9 A (Carbonneau) The data included in the survey has  
10 been developed at different times in different  
11 parts of the state and the country so the dates  
12 vary.

13 Q Right, but it's a nationwide database of soil  
14 data gathered by federal employees or  
15 contractors.

16 A (Carbonneau) Yes.

17 Q Did you ever participate personally in the  
18 mapping that resulted in this soil survey?

19 A (Carbonneau) No.

20 Q So you have no personal knowledge as it relates  
21 to this Project about whether all organic soils  
22 were identified?

23 A (Carbonneau) By the Web Soil Survey? No.

24 Q And it's possible then that some deep organic

1 soil wetlands were not identified.

2 A (Carbonneau) By the Web Soil Survey, I would say  
3 that's possible, but it is a source of  
4 information that is widely used and has been  
5 widely used for many purposes by many people on  
6 many projects.

7 Q Do you know how many of the proposed wetland  
8 restoration areas contain deep organic soils?

9 A (Carbonneau) I don't know the number of wetland  
10 segments that comprise these 40 acres of wetland  
11 impacts to deep organic soils, but they would  
12 probably include some longer stretches in some  
13 of the larger wetlands, particularly in the  
14 North Country, and then a number of small  
15 scattered locations elsewhere in the  
16 right-of-way.

17 Q So this here is Applicant's Exhibit 1, Bates  
18 stamp APP 21162. Again, this is from your  
19 Appendix B, Wetlands, Rivers, Streams, and  
20 Vernal Pools which was part of the Wetlands  
21 Application. So correct me if I'm wrong, but  
22 what I see here in the third column is the  
23 temporary impacts to deep organic soils, and  
24 this is with respect to a particular segment of

1 the line. And you can see there the different  
2 numbers for the acreage impacts. Am I  
3 interpreting, understanding that correctly?

4 A (Carbonneau) Yes.

5 Q And this is a breakdown that provides the amount  
6 of deep organic soils by municipality, right?

7 A (Carbonneau) Yes.

8 Q So did you provide anything more specific than  
9 the number, the area of deep organic soils in  
10 each municipality?

11 A (Carbonneau) In our Application materials? I  
12 don't believe so.

13 Q You could have done a site specific soil map out  
14 in the field for this Project, and as part of  
15 that determined where deep organic soils were  
16 located, right?

17 A (Carbonneau) We could have.

18 Q And isn't it true that site specific soil maps  
19 are required as part of the AOT Application, but  
20 you requested and received a waiver of that  
21 requirement?

22 A (Carbonneau) Site specific soil surveys were  
23 provided for the site development sites where a  
24 considerable amount of actual construction

1 activity would take place, but we did request a  
2 waiver for doing that kind of survey within the  
3 right-of-way. The overhead right-of-way.

4 Q And so to be clear, the answer is yes, that site  
5 specific soil surveys were required as part of  
6 the AOT Application, but that you received a  
7 waiver for a portion of that requirement?

8 A (Carbonneau) A portion of the requirement, yes.

9 Q Now, wouldn't that site specific information  
10 have been helpful to assess and possibly reduce  
11 wetland impacts?

12 A (Carbonneau) It's possible, but as you stated  
13 earlier, we did also use some of our onsite  
14 observations that were collected during our  
15 wetland delineation process where we walked the  
16 entire right-of-way to also inform our  
17 assessment.

18 Q Correct me if I'm wrong, though, wetland  
19 delineation involves identifying the topographic  
20 extent of a wetland, if you will, you know,  
21 where the upland stops and where the wetland  
22 begins. Right?

23 A (Carbonneau) Wetland delineation is focused on  
24 the edge of the wetland.

1 Q So it doesn't involve putting on whatever  
2 equipment you would need to put on to wade into  
3 that muck to figure out is this deep organic  
4 soil wetland, how deep is the water.

5 Delineation doesn't include anything like that?

6 A (Carbonneau) The delineation of the boundary  
7 does not necessarily include that information,  
8 but given the constraints of moving through this  
9 Project area and not being able to stray from  
10 the right-of-way, most of the wetlands were  
11 trudged across by our wetland delineators during  
12 the course of their work field work and notes  
13 are taken not just about the conditions of the  
14 boundary but the conditions within the wetland  
15 because that information is also used for the  
16 functions and values assessment.

17 Q Okay. So let's talk about ponded areas. Item  
18 number 15, going back to the Request for More  
19 Information that DES gave to the Project in May  
20 of 2016 in response to the original Application,  
21 this here depicts Request 15 and Response 15.  
22 This is Applicant's Exhibit 62. Bates stamped  
23 APP 35062. So this asks for details about how  
24 deep water habitats in open water will be



1           crossed by access roads, and in your response  
2           you state that ponded wetlands are relatively  
3           shallow.

4                       How many ponded wetlands are there in the  
5           Project?

6       A       (Carbonneau) I don't know an exact number, but  
7           so I can't give you an exact number, but I know  
8           there are several, and I'm familiar with most of  
9           them.

10      Q       I heard you say you can't give me an exact  
11           number. I'm not looking for one. Can you give  
12           me a number by order of magnitude? More or less  
13           than 10, more or less than 100?

14      A       (Carbonneau) I would say it's in the order of  
15           maybe a dozen or less.

16      Q       Now, you have provided data concerning the depth  
17           of water at each of these at, I understand,  
18           approximately 12 ponded wetland sites?

19      A       (Carbonneau) No. Not at all of them. We have  
20           some depth information for some of them.

21      Q       And so do you know for these, and, again, I'm  
22           going to say approximately 12, but I understand  
23           it's a very rough approximation on your part,  
24           approximately 12, do you know how many of these

1 approximately 12 are underlain by deep organic  
2 soils?

3 A (Carbonneau) I can't tell you sitting here which  
4 ones had the deep organic soils. I don't have  
5 that list in front of me.

6 Q And if you did have the information in front of  
7 you, it would be information that you gleaned  
8 not from actually surveying the soil.

9 A (Carbonneau) There is one of the ponded wetlands  
10 in Deerfield where we do have bathymetric data  
11 that we collected where we indicate both the  
12 water depth and the depth to the soft surface  
13 and hard surface of the underlying substrate.  
14 So we do have that information for one of the  
15 ponds in Deerfield.

16 Q So for one of the approximate 12?

17 A (Carbonneau) Yes.

18 Q Help me out here. I'm not obviously a wetland  
19 scientist. How do you get bathymetric data?

20 A (Wells) Well, depending on the water depth, in  
21 the case where we collected it we were in boats,  
22 and we had stadia rods that are used for  
23 surveying that we would lower into the water,  
24 and you would use equipment to determine how,

1 you would measure exactly where the water is  
2 when you hit the soft substrate, and then you  
3 would continue to deploy the stadia rod to a  
4 point where you no longer could, and that would  
5 be the harder surface down at the bottom.

6 Q Okay. I'm sorry. I can't help myself. Is  
7 deploy, that means jam it in there, right?

8 A (Carbonneau) Yes.

9 Q Okay. And so you haven't done that type of  
10 analysis at any of these approximately 12 ponded  
11 wetlands except for the one that you mentioned  
12 in Deerfield?

13 A (Carbonneau) We haven't. Most of the areas with  
14 ponded water have vegetation growing out of them  
15 so we know for a fact that they're fairly  
16 shallow. This one in Deerfield has what we call  
17 floating leaved vegetation which means there  
18 could be a very long stem under the water, and  
19 so we knew we needed to collect data at that  
20 particular pond.

21 Q Okay. I want to talk about secondary. So on  
22 page 7 of your Supplemental Testimony which will  
23 be up here in a moment, and this is Applicant's  
24 Exhibit 98, Bates stamped APP 53978, you state

1 that compression of organic soils is a secondary  
2 impact, and that's not a quote. I'm summarizing  
3 there. At least, I don't think it's a quote.

4 Does this mean that DES does not consider  
5 compression of organic soils as a regulated  
6 wetland impact?

7 A (Carbonneau) It was not required for us to  
8 quantify it for our DES Application. The  
9 requirement to quantify secondary impacts such  
10 as deep organic soil was a federal requirement.

11 Q So federal Army Corps of Engineers is expected  
12 to consider an individual permit for this  
13 Project and then either grant or deny that,  
14 right?

15 A (Carbonneau) Yes.

16 Q So it would be under that process, let me  
17 understand what, confirm what you're saying.

18 It would be under that process that the  
19 secondary impacts come to bear.

20 A (Carbonneau) That's correct.

21 Q And do I understand correctly that even though  
22 we're talking about the DES Application, not the  
23 Army Corps Individual Permit Application, that  
24 the bulk of the materials for your State Wetland

1 Applications will also serve as your Application  
2 materials for the individual permit?

3 A (Carbonneau) Yes. The wetland-related  
4 information is identical for both in terms of  
5 the impact calculations.

6 Q Okay. Now, we touched on this a little bit when  
7 we were looking at how the Department of Energy  
8 in the Draft EIS quantified wetland impacts with  
9 respect to the currently proposed Project, and  
10 you didn't know the methodology that they used  
11 but the numbers were off, in your opinion. And  
12 I think you said it was because of the different  
13 ways that wetland impacts are categorized. So I  
14 want to try to nail down now the meanings of  
15 some of these different terms.

16 So I think permanent is pretty  
17 straightforward. But let me ask you. Is  
18 permanent the same thing or is it different than  
19 direct?

20 A (Carbonneau) I would say that a permanent impact  
21 is a direct impact.

22 Q Okay.

23 A (Carbonneau) I guess it depends on how you  
24 define it. We use the categories that New

1 Hampshire DES and the Army Corps of Engineers  
2 asked us to use, and we confirmed with them that  
3 the calculations, the way we were calculating it  
4 and what fell into each category was what they  
5 were expecting.

6 So I don't really know how the DOE used the  
7 term direct, but I can tell you that when we're  
8 talking about permanent impacts, we're talking  
9 about a wetland that will no longer be a wetland  
10 due to permanent fill.

11 Q Okay. Let me go a little bit through the  
12 terminology before I talk about the agencies.

13 Can a temporary impact be direct?

14 A (Carbonneau) Sure. I would assume so, if you  
15 define direct as something that's actually  
16 happening on the ground that directly affects  
17 the vegetation for some duration of time.

18 Q So just to illustrate in the context of this  
19 Project, if you, as we talked about, put a  
20 timber mat on a deep organic soil, and then  
21 according to your testimony, it has this  
22 resilient ability, the shrubbery can just bounce  
23 back when you peel the mat off, that could be  
24 fairly categorized as a temporary direct impact,

1 is that right?

2 A (Carbonneau) I could agree with that.

3 Q So let's take this same deep organic soil  
4 wetland, but instead we're going to build a  
5 tower on it, and the tower is going to be there  
6 for 40, maybe more years. So that would be a  
7 permanent direct impact?

8 A (Carbonneau) Yes. The foundations would be.

9 Q Right. Yes. Not the road to get there but the  
10 foundation itself. So what then is a secondary  
11 impact?

12 A (Carbonneau) A second impact as the way it's  
13 been defined for this Project by the Army Corps  
14 of Engineers and the USEPA can fall into a  
15 couple of categories. From a soils perspective,  
16 they recognize the possibility that a deep  
17 organic soil may not rebound fully from the  
18 placement of a timber mat and construction  
19 vehicles in the event that that happened during  
20 a time when the ground was not frozen.

21 Another secondary impact could be, includes  
22 the removal of tree canopy from forested wetland  
23 which converts the wetland from a forested  
24 wetland to either a shrub wetland or an emergent

1 wetland that's not a loss of wetland area, but  
2 it's a change in the type of wetland it is, and,  
3 therefore, a change in the way the wetland  
4 functions.

5 One other category of secondary impacts is  
6 the cutting of tree canopy within buffer zones  
7 of streams and vernal pools. It's not a fill,  
8 it's not a permanent loss of habitat, but it's a  
9 change in habitat. So it's a secondary impact  
10 as opposed to a temporary one that's going to be  
11 restored or a permanent loss.

12 Q So couple followups on there. Is it fair to say  
13 that an indirect impact is the same as a  
14 secondary impact?

15 A (Carbonneau) I don't know if it's fair to say  
16 that in every case. It depends on how you would  
17 define indirect impacts.

18 Q Okay. And do I understand correctly then that  
19 in what you're saying is if you have a wetland  
20 and it's converted to a different type of  
21 wetland through the impact, that that is not --  
22 let me back up for a second.

23 If you have a wetland and it's converted to  
24 a different type of wetland, and it is never



1 ever going to go back to its original condition,  
2 it's going to forever remain as that different  
3 type of wetland, that that is not a permanent  
4 impact?

5 A (Carbonneau) It's a permanent change, but it is  
6 not quantified as a permanent loss of wetland.

7 Q Because the area of the wetland has not changed.

8 A (Carbonneau) That's right.

9 Q Okay. So and I think you may have said this  
10 already. DES doesn't regulate secondary  
11 impacts. That's the Feds?

12 A (Carbonneau) Correct.

13 Q Now, if a piece of heavy equipment were to  
14 travel across the deep organic soil and compress  
15 it creating a rut, would DES consider that to be  
16 a regulated wetland impact?

17 A (Carbonneau) Probably.

18 Q And so compressing deep organic soils is not  
19 merely a secondary impact, it's a regulated  
20 temporary impact?

21 A (Carbonneau) It could be.

22 Q And let me skip that one. Let's talk about the  
23 mats.

24 So you indicated earlier that you're going

1 to be, you might be using 16 by 16 mats, but you  
2 might also be using, would they be 20 by 20 or  
3 20 by 16?

4 A (Carbonneau) I think the typical size of a  
5 timber mat is more like 4 by 16 or 8 by 16. So  
6 they get laid down next to each other.

7 Q So if you have in your information that you  
8 would be using 16 by 16 wood mats, does that  
9 mean that you're referencing one mat that's 16  
10 by 16 or maybe you're referencing two that are  
11 put next to each other?

12 A (Carbonneau) Right. Unlikely to be a 16 by  
13 16-foot mat. That would be kind of wide to  
14 drive across the roads.

15 Q Okay. Do you have the -- let's look at that.

16 So I'm showing you here also Applicant's  
17 Exhibit 1, Bates stamp 02468 through 2470.  
18 There's a couple pages of this chart. This is  
19 from Appendix H, the Impact Assessments, and you  
20 see here there's a reference to 16-foot-wide  
21 timber mats. So what you're testifying to today  
22 is that these might be 16 feet wide by 8 feet or  
23 4 feet?

24 A (Carbonneau) Right.

1 Q They're not 16 foot square?

2 A (Carbonneau) Right.

3 Q And the amount of weight that these mats can  
4 carry without compressing the soil beneath, that  
5 varies depending on a few things, right?

6 A (Carbonneau) I would expect so. Yes.

7 Q So depends on the type of soil. Is that a yes?

8 A Yes.

9 Q The depth of organic material.

10 A Sure.

11 Q The longer the mats are in place?

12 A (Carbonneau) Possibly.

13 Q The frequency of crossing?

14 A (Carbonneau) Yes.

15 Q What else?

16 A (Carbonneau) The weight of the equipment that  
17 might be traveling across them.

18 Q And am I correct that you don't know the exact  
19 type of the soil underlying the majority of the  
20 ponded wetlands? That's what we talked about  
21 earlier?

22 A (Carbonneau) We don't have the exact depth of  
23 material that is the substrate of those ponds  
24 under the water, but we relied upon the Soil

1 Survey Manual for that information for the most  
2 part.

3 Q So you relied on the Soil Survey Manual to  
4 ascertain the depth of the organic soil?

5 A To ascertain whether it would be considered a  
6 deep organic soil or not.

7 Q And, again, forgive my ignorance not being a  
8 certified wetlands scientist, but is there only  
9 one type of deep organic soil?

10 A (Carbonneau) There are several different named  
11 versions of deep organic soils. It doesn't  
12 really matter what kind it is. The depth, it's  
13 the depth of it that makes the most difference.

14 Q Am I correct to assume that it doesn't matter  
15 what kind of deep organic soil it is because  
16 they all have the exact same properties with  
17 respect to how easily they can be compressed  
18 under the mats?

19 A (Carbonneau) No, I'm sure the properties must  
20 vary somewhat. The soils are named differently.  
21 It's because they have slightly different  
22 origins, parent materials, et cetera. So there  
23 would be some differences in it, but for our  
24 purposes, those differences are less relevant

1 than whether it's deep or not.

2 Q So how are you going to know then? Won't you  
3 just be guessing as to what size or depth of mat  
4 would be adequate to protect deep organic soils?

5 A (Carbonneau) Well, the mats themselves are  
6 pretty uniform size. They're stacked if they  
7 need to be depending on primarily the water  
8 depth. If they sink more into the soil, then  
9 more mats may need to be added, but the approach  
10 is to try not to cross these particular areas  
11 unless there's some ice cover or they are  
12 frozen. That's the first option is to try to  
13 cross these under frozen conditions.

14 Q Which we talked about earlier is aspirational.

15 A (Carbonneau) It's our expectation that the  
16 Project will attempt to do that because it is  
17 easier for them as well. Easier for the  
18 construction team as well.

19 Q So if you put out a wooded mat on a deep organic  
20 soil and you start the construction equipment  
21 over it and it sinks in and then you have to  
22 stack more mats on top of it, aren't you  
23 unnecessarily impacting that wetland?

24 A (Carbonneau) If it's necessary to cross the

1 wetland, then I don't think the impact is  
2 unnecessary. I think you have to construct the  
3 Project. So to the extent that you have to  
4 cross it --

5 Q Let me put it a different way.

6 A (Carbonneau) Yes.

7 Q So couldn't you minimize the situation where the  
8 use of mats is inadequate by knowing more than  
9 you currently know about the various  
10 characteristics of deep organic soil wetlands?

11 A (Carbonneau) Could you rephrase that question?

12 Q I can try. So if you knew the depth of the  
13 organic material for any given deep organic soil  
14 wetland, wouldn't that help you understand  
15 whether you need to stack your mats or not?

16 A (Carbonneau) I don't think it would change the  
17 outcome. I think that if you end up having to  
18 stack mats, you need to stack mats whether you  
19 knew ahead of time that you need to stack them  
20 or not.

21 Q So if you put one mat on and you drive over and  
22 it sinks down and then you have to put two more  
23 on, that would be the same exact wetland impact  
24 as if you just started with three in the first

1 instance?

2 A (Carbonneau) I guess I don't know exactly how  
3 the contractors will make that determination.  
4 That is something that the contractors do during  
5 construction. Obviously, they can't drive a  
6 piece of equipment up stacked mats too high.  
7 They're trying to get an even surface so that  
8 they can drive across it. I honestly am not  
9 sure exactly how they will make that  
10 determination in the field, but I have seen them  
11 operate on ponded wetlands in the past, and they  
12 seem to have a pretty good system.

13 Q Now, if it happens that somehow the matting  
14 isn't adequate or perhaps it didn't quite go as  
15 close to the upland as it ought to have gone and  
16 rutting were to occur inadvertently, that would  
17 be something that would require after-the-fact  
18 permitting from DES, right?

19 A No. It would require restoration. The impacted  
20 areas are impacts. They're part of the permit  
21 decision. We have quantified the total square  
22 footage. They don't do it in a  
23 three-dimensional view. They permit the square  
24 footage, and all of those mats are already

1 included in the temporary impact area. The key  
2 is that as temporary impacts they need to be  
3 restored. So if there is rutting that takes  
4 place, then those ruts need to be raked out,  
5 restored in some way.

6 Q So what I mean is if rutting occurs in an area  
7 of any given wetland that is not currently, that  
8 does not receive approval to be impacted, then  
9 that would be a nonpermitted impact, right?

10 A (Carbonneau) Yes. That's right.

11 Q So if they drove, you know, in the wrong spot or  
12 something went awry, then that would require  
13 after-the-fact permitting?

14 A (Carbonneau) Yes.

15 Q Now, you say in your Application that crossing  
16 of ponded areas may be able to be avoided, but  
17 even though you say that, the plan is not  
18 actually to avoid them, right?

19 A (Carbonneau) I know from experience having  
20 worked on two Eversource Projects in Deerfield  
21 where structures were replaced in ponded water  
22 that Eversource was able to secure alternative  
23 access that much reduced the quantity of access  
24 path across the pond. We can't guarantee that



1 that same arrangement would be made on the  
2 Northern Pass Project. So it's still possible.  
3 And that could definitely reduce the impact  
4 area. It could still involve some impacts but  
5 perhaps a smaller amount in a slightly different  
6 location. We would still need to go back to New  
7 Hampshire DES with that proposed change, but it  
8 is possible.

9 Q Going back to our earlier discussion, you also  
10 testified that wetland impacts can be avoided if  
11 the line were to be fully buried. So that would  
12 include avoiding impacts or minimizing and  
13 avoiding impacts to ponded deep water and  
14 organic soil wetlands, right?

15 A (Carbonneau) If we're talking about burial in an  
16 existing disturbed roadway without wetlands,  
17 yes.

18 Q I want to talk about functions and values.  
19 Nicole, I'm on page 17 in my questions.

20 So I want to talk about your assessment of  
21 impacts in the right-of-way. So do I understand  
22 correctly that no matter the size of the actual  
23 wetland complex, you assessed only the area of  
24 impact within the right-of-way, and I'm talking

1 about for the aboveground section. Is that  
2 correct?

3 A (Carbonneau) No, it's not correct. We assessed  
4 what was visible from within the right-of-way.

5 Q Okay. And that did not include assessing an  
6 entire wetland complex as a whole in some  
7 instances, right?

8 A (Carbonneau) Correct.

9 Q And in your opinion, let's say, for example,  
10 there's a 100-acre wetland complex, do you  
11 believe that assessing only one acre of that  
12 wetland truthfully represents the wetlands  
13 functions and values?

14 A (Carbonneau) It might not represent the complete  
15 set of wetland functions and values for that  
16 whole wetland system, but there are certainly  
17 occasions where you want to assess the functions  
18 and values of a particular portion of a wetland,  
19 and that is an acceptable way to assess  
20 functions and values of a wetland. The features  
21 in a wetland that give rise to functions and  
22 values are not necessarily evenly distributed  
23 throughout the wetland. So portions of the  
24 wetland will function one way and other portions

1 may function another way.

2 Q When you say that it's acceptable to assess  
3 wetlands without assessing the entire wetland  
4 complex, is that simply your professional  
5 judgment?

6 A (Carbonneau) No. I also take that from the  
7 manual, the Army Corps of Engineers manual that  
8 we use to do the functional assessment where one  
9 of the first steps is to determine how much of  
10 the wetland you want to include in your  
11 assessment.

12 Q On page 2 of your recent Supplemental Testimony,  
13 you indicate that Normandeau did additional  
14 studies included extending wetland mapping  
15 beyond the Project right-of-way, which is I  
16 think what you were just talking about, to areas  
17 visible from the right-of-way. Did you do any  
18 field work to extend that wetlands mapping?

19 A (Carbonneau) The wetland mapping extensions that  
20 you're referring to were a new SEC requirement  
21 that came out after our original Application  
22 materials went in that required wetland  
23 boundaries within a particular distance from the  
24 Project area. That work was done from a desktop

1 study. It included a review of soil maps, of  
2 National Wetland Inventory Maps, as well as an  
3 aerial photo interpretation exercise. We did  
4 not field-check those boundaries because for the  
5 most part we don't have access to those  
6 properties.

7 But while we were delineating wetlands in  
8 the right-of-way, we did note on all of our data  
9 sheets whether or not the wetland boundary  
10 continued off of the right-of-way. So we had a  
11 couple of sources of information. So we knew in  
12 our Supplemental Wetland Boundary Extension  
13 exercise whether or not the wetlands within the  
14 right-of-way could be connected to from things  
15 that we saw on the aerial photos or from other  
16 sources.

17 Q And you didn't use any of this information that  
18 you gathered to extend the wetlands mapping to  
19 also update your wetland function and values  
20 assessment, did you?

21 A (Carbonneau) We did not use the  
22 after-the-supplemental-mapping materials, but  
23 that's not to say we don't use aerial photos.  
24 We do use aerial photos. Those are typically

1 brought in the field with the field crews when  
2 they're out delineating wetlands so that they  
3 would know what to expect and what parts of the  
4 right-of-way. So all of the wetland delineation  
5 crews had aerial photos with them in the field.

6 Q And I think you stated just now when you also  
7 state on page 6, beginning on line 9 of your  
8 Supplemental Testimony, which for the record is  
9 Applicant's Exhibit 98, that the reason why you  
10 did not revise the wetlands function and values  
11 assessment beyond the right-of-way was because  
12 you couldn't trespass, and I think your words  
13 today were something like you didn't have  
14 access.

15 Why don't you put her testimony up.

16 A (Carbonneau) The wetland delineation methodology  
17 that we use requires that you do field work to  
18 complete your wetland functional assessment  
19 which is what we did. We went out in the field  
20 and recorded data that we had ready access to.  
21 It doesn't mean we had blinders on. If the  
22 wetland extended beyond the right-of-way and we  
23 could see that, that information was also  
24 incorporated into the functional assessment.

1 Many of our field notes indicate this is a large  
2 wetland, extends off the right-of-way. But the  
3 detailed information that we have to collect to  
4 do a functions and values assessment relates to  
5 what kind of plants are there, what are the  
6 soils like, what is the structure of the  
7 vegetation. Those are fairly site specific  
8 details that we record, and so we record that  
9 from our vantage point within the right-of-way  
10 for those details.

11 Q So at this late hour, I would like to talk with  
12 you about rationales which I know is a very  
13 titillating topic.

14 Rationales are an important part of the  
15 assessment of wetlands, right?

16 A Yes.

17 Q Now, let's look at Appendix A of SPNF 34. This  
18 is the, I believe you refer to this as the  
19 Manual. Are you familiar with this?

20 A Yes.

21 Q This is an example of the rationales to use for  
22 the 13 functions and values that are listed in  
23 this document?

24 A Yes.

1 Q Isn't it true that many of the rationales  
2 required by the manual can be obtained in the  
3 same ways that you talked about extending the  
4 wetlands map? Like aerial photos, existing  
5 maps, existing reports and other "non"  
6 in-the-field methods?

7 A (Carbonneau) Some of them can.

8 Q For example, wetland watershed size, downstream  
9 flooding issues, et cetera?

10 A (Carbonneau) Potentially.

11 Q So you wouldn't have to trespass to get any of  
12 that information.

13 A (Carbonneau) Not for those two specific topics,  
14 but generally speaking, a lot of these details  
15 are related to what you see in the field on the  
16 ground.

17 Q Don't some of the rationales looking at the  
18 entire wetland complex involve looking at the  
19 entire wetland complex?

20 A (Carbonneau) Again, we are, it is a  
21 discretionary process to review a portion of the  
22 wetland. In fact, the primary purpose of doing  
23 functions and values assessment is to identify  
24 what type of mitigation and how much would be

1 appropriate. We focused on the portions of the  
2 wetlands that are actually being impacted by the  
3 Project, and that actually provides you with a  
4 better in-kind idea of what mitigation would be  
5 appropriate.

6 Q So just as was discussed with plant and wildlife  
7 impacts earlier, the requirement to avoid  
8 harming wetlands is that you need to avoid as  
9 many of them as you can. For the ones you can't  
10 afford, you need to minimize those impacts. And  
11 then for the impacts that you can't minimize,  
12 you need to mitigate, is that correct?

13 A (Carbonneau) Correct.

14 Q So what you're telling me is that the primary  
15 purpose of functions and values assessment is  
16 not for avoidance, not for minimization, but for  
17 mitigation?

18 A (Carbonneau) For this process, that's true. We  
19 tried to avoid and minimize impacts to every  
20 wetland regardless of how important its  
21 functions and values were. So for the most  
22 part, the functional assessment, the primary  
23 purpose of it is in determining compensatory  
24 mitigation.



1 Q And it's required by law to avoid and minimize  
2 as much as you can, no matter what the function  
3 and value of the wetland, right?

4 A (Carbonneau) That's right.

5 Q Now, let's look at a different page in Appendix  
6 A of the manual. There is also SPNHF 34. Now  
7 we're on Bates 01719. I assume you recognize  
8 this?

9 A (Carbonneau) Yes.

10 Q Can you just say what this is, please?

11 A (Carbonneau) This is an example form that the  
12 Army Corps of Engineers includes to show what  
13 type of information would be appropriate to  
14 collect in the field. It's a suggestion.

15 Q Do they have any other types of suggestions in  
16 the manual? You know, are there different  
17 variations of this form in the manual?

18 A This is the one they typically include.

19 Q So I just want to walk through for a second how  
20 this would work. So, correct me if I'm wrong,  
21 you can see here, for example, actually, I can't  
22 see here, but if you look at -- a little bit, so  
23 we can see the numbers in the Rationale column  
24 along with the Function and Value column.

1 That's great.

2 So you can see here, for example,  
3 Groundwater Recharge/Discharge. It has a whole  
4 host of numbers in the Rationale section. 2, 6,  
5 7, 9, 10. I'm going to fail the reading test  
6 after that. So to understand what those numbers  
7 mean, then you would flip back, and if you would  
8 do this, please, Nicole, to the Functions and  
9 Values that we just had up, and you would see,  
10 for example, that this particular wetland, it  
11 has number 2 so the potential exists in this  
12 wetland for public or private wells downstream  
13 of the wetland.

14 And what was the next number here? It also  
15 is number 6. Would you pronounce that for me,  
16 please?

17 A (Carbonneau) Fragipan.

18 Q Fragipan, impervious soils or bedrock does occur  
19 in the wetland. So, essentially, on the  
20 recommended data sheet from the Army Corps,  
21 you're using the numbers in shorthand in the  
22 field, and they're referring back to the numbers  
23 in this Appendix A. Is that basically how it  
24 works?

1 A (Carbonneau) Yes.

2 Q And within this Army Corps data sheet, these  
3 rationales are quite important, right?

4 A (Carbonneau) Some of them are more important  
5 than others, but they are sort of the universe  
6 of things to consider when evaluating a wetland.

7 Q And Normandeau didn't complete any of these Army  
8 Corps forms for the Wetlands Assessment, right?

9 A We didn't use this particular form.

10 Q You created your own form?

11 A We did.

12 Q Let's get that on. So this is Exhibit number  
13 199, which I believe we have not filed yet, but  
14 will immediately following this.

15 It's still Bates stamped with the discovery  
16 Bates stamp, NPT DIS 042044 which is the Bates  
17 stamp that will remain on it.

18 Now, just to walk through this a little  
19 bit. You can see or why don't you walk through  
20 for us, high level, what are the major pieces of  
21 information on this form?

22 A (Carbonneau) So the top portion of the form  
23 provides some identifying information about the  
24 wetland and when it was visited and by whom.

1 Whether or not the wetland is an open wetland,  
2 in other words, does it extend off of the  
3 right-of-way. What photos were taken of it, is  
4 there a vernal pool associated with it. Some  
5 basic information that we needed to collect in  
6 the field about that. What is the cover type,  
7 what is the water regime, what are the modifiers  
8 for the wetland hydrology.

9 And then it also includes a section on  
10 collecting information on the functions and  
11 values, it contains a section where you can  
12 write down the dominant vegetation and soil  
13 conditions, any other notes that you'd like to  
14 add, and then a sketch map of more or less what  
15 you delineated in the field, what was wetland,  
16 what was upland and where the right-of-way lines  
17 were in relation to that.

18 Q And you testified earlier that when folks were  
19 in the field, they weren't blind to conditions  
20 that they saw. So would this be the place where  
21 they would document things they saw in the  
22 field? This is, you know, actually what you  
23 have with you in the field. The raw data?

24 A This was one of the things that we used in the

1 field. They also had GPS units that had  
2 dropdown menus to collect some additional  
3 information, and then there were data sheets for  
4 streams and also separate data sheets for vernal  
5 pools and then separate data sheets for US Army  
6 Corps of Engineers' delineation documentation  
7 information.

8 Q This Normandeau form doesn't include rationales  
9 for determining if a wetland has a particular  
10 function, does it?

11 A (Carbonneau) The field personnel would have the  
12 manual with them, but it doesn't, this form  
13 doesn't include which particular numbers were  
14 used, but these certified wetland scientists all  
15 have a great deal of experience with this  
16 method, and they sort of in their minds cook the  
17 lists down into things that they readily  
18 recognize and can make these determinations  
19 without listing specifically the numbers  
20 associated with the attributes in the manual.

21 Q So is the Army Corps form that we looked at that  
22 has the column to include the rationale, is that  
23 designed only for inexperienced certified  
24 wetlands scientists?

1 A (Carbonneau) It's designed as a suggestion of a  
2 way to document the information for a Project.  
3 I'm not saying who they designed it for. It was  
4 designed for anyone who wanted to use it.

5 Q And so we have no information whatsoever about  
6 why it is that, you know, and I just picked this  
7 form as an example and I can't actually see it.  
8 Hold on. I'll take the mike.

9 Why, for example, this, the person  
10 collecting this data determined that this  
11 wetland was suitable for nutrient removal. Or  
12 suitable for wildlife habitat. We don't see any  
13 of the underlying rationales that went into that  
14 conclusion, right?

15 A (Carbonneau) We don't see them listed here, but  
16 the assumption is that it would have included  
17 some of those, at least some of those rationales  
18 that are in the methodology.

19 Q So the Normandeau approach then for this  
20 Project, I guess is it fair to say, deemphasized  
21 rationales?

22 A (Carbonneau) No. I don't think that's fair to  
23 say. I think it was a matter of applying their  
24 professional experience with the manual to

1 identify what was suitable and what wasn't  
2 suitable based on their familiarity with all of  
3 those considerations. They just didn't write  
4 the numbers down.

5 Q So the only way that the entire wetlands  
6 assessment in this Project is supported by  
7 rationales is in the individual minds of the  
8 people who went in the field and collected this  
9 data?

10 A (Carbonneau) Well, it does also go through a  
11 quality assurance and quality control process so  
12 once the wetlands were delineated and those  
13 delineations showed up on the map, someone also  
14 looked at the functions and values to make sure  
15 that, first of all, that it was for the correct  
16 wetland and also that they made some sense and  
17 that nothing was left out.

18 Q So then in the minds of the one individual who's  
19 in the field checking the data and the other  
20 individual who QA/QC'd it?

21 A Well, usually, we had more than one wetland  
22 scientist contributing to these things because  
23 they worked in teams, but because they're  
24 professionals and they're very experienced doing

1 what they do, they evaluated the wetland and  
2 they used the correct manual. It's just that  
3 they didn't add all of the additional numberings  
4 that could have been put on it but wouldn't  
5 necessarily change the outcome at all.

6 Q But it could.

7 A (Carbonneau) Somebody else could go out there  
8 and come up with a slightly different  
9 assessment. That's always a possibility with  
10 professionals. But we're confident that the  
11 assessment was done professionally and with good  
12 background information on the wetlands and  
13 professional judgment of the people who did it.

14 MS. MANZELLI: Mr. Chair, I am at a  
15 breaking point. I know we need time to talk  
16 schedule. I'm not done.

17 PRESIDING OFFICER HONIGBERG: I understand.  
18 This seems like a decent time to break for the  
19 day.

20 MS. MANZELLI: Thank you, Ms. Carbonneau.

21 PRESIDING OFFICER HONIGBERG: So we'll  
22 resume the hearing Tuesday morning at 9 o'clock.  
23 I believe that there's a scheduling discussion  
24 that needs to take place afterwards. We'll



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close the record and have a discussion off the record.

(Hearing recessed at 4:43 p.m.)

C E R T I F I C A T E

I, Cynthia Foster, Registered Professional Reporter and Licensed Court Reporter, duly authorized to practice Shorthand Court Reporting in the State of New Hampshire, hereby certify that the foregoing pages are a true and accurate transcription of my stenographic notes of the hearing for use in the matter indicated on the title sheet, as to which a transcript was duly ordered;

I further certify that I am neither attorney nor counsel for, nor related to or employed by any of the parties to the action in which this transcript was produced, and further that I am not a relative or employee of any attorney or counsel employed in this case, nor am I financially interested in this action.

Dated at West Lebanon, New Hampshire, this 22nd day of June, 2017.

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Cynthia Foster, LCR