

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24

STATE OF NEW HAMPSHIRE  
SITE EVALUATION

October 24 2017 - 1:13 p.m. DAY 51  
49 Donovan Street AFTERNOON Session ONLY  
Concord, New Hampshire

{Electronically filed with SEC on 11-8-17}

IN RE: SEC DOCKET NO. 2015-06  
Joint Application of Northern  
Pass Transmission, LLC, and  
Public Service Company 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:  
Chrmn. Martin P. Honigberg Public Utilities Comm.  
(Presiding as Presiding Officer)

Cmsr. Kathryn M. Bailey Public Utilities Comm.  
Dir. Craig Wright, Designee Dept. of Environ. Serv.  
Christopher Way, Designee Dept. of Resources &  
Economic Development  
William Oldenburg, Designee Dept. of Transportation  
Patricia Weathersby Public Member  
Rachel Dandeneau Alternate Public Member

ALSO PRESENT FOR THE SEC:  
Iryna Dore, Esq., Counsel to the SEC  
(Brennan, Caron, Lenehan & Iacopino)

Pamela G. Monroe, SEC Administrator

(No Appearances Taken)

COURT REPORTER: Susan J. Robidas, NH LCR No. 44

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24

I N D E X

WITNESS PANEL: EARLE "RUSTY" BASCOM, III  
ADAM ZYSK  
DAVID TAYLOR, JR.

EXAMINATION PAGE  
Cross-examination by Mr. Needleman 4

QUESTIONS BY SEC COMMITTEE MEMBERS AND COUNSEL:

Dir. Wright 78  
Mr. Way 83  
Dir. Wright (resumes) 84  
Mr. Oldenburg 89  
Cmsr. Bailey 109  
Mr. Oldenburg (resumes) 111  
Cmsr. Bailey 133  
Ms. Weathersby 134  
Mr. Way 141  
Ms. Weathersby (resumes) 142  
Mr. Way 144  
Ms. Weathersby (resumes) 145  
Ms. Dandeneau 161  
Ms. Weathersby (resumes) 163  
Mr. Way 167  
Ms. Weathersby (resumes) 168  
Mr. Way 169  
Mr. Oldenburg 178  
Mr. Way (resumes) 179  
Mr. Oldenburg (cont'd) 181

Redirect examination by Mr. Pappas 184

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24

I N D E X (CONT'D)

EXHIBITS		PAGE
CFP 596	Sketch of in-line vault installation	197
CFP 595	Sugar Hill red-list bridge	207

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24

I N D E X

P R O C E E D I N G

(Resumed at 1:13 p.m.)

CHAIRMAN HONIGBERG: Mr.  
Needleman, you ready to go?

MR. NEEDLEMAN: I am.

CHAIRMAN HONIGBERG: You may  
proceed.

MR. NEEDLEMAN: Thank you.

CROSS-EXAMINATION

BY MR. NEEDLEMAN:

Q. Gentlemen, my name is Barry Needleman. I  
represent the Applicant in this matter. I  
think I've met you all in person or by phone.  
I think, Mr. Taylor and Mr. Zysk, I'll start  
with you. Probably get you a little bit  
later, Mr. Bascom, but feel free to jump in  
if you have some information.

So, Mr. Taylor, Counsel for the Public's  
Exhibit 129 is your prefiled testimony and  
overhead report. Just a couple of  
preliminary questions about your background.

I'm correct that you're not a licensed  
engineer; is that right?

1 A. (Taylor) That's correct.

2 Q. You have a degree in landscape architecture  
3 and a master's in real estate; correct?

4 A. (Taylor) That's correct.

5 Q. And I understand that your role at Dewberry  
6 is often to serve as project manager or  
7 project director; is that correct?

8 A. (Taylor) That's correct.

9 Q. And you haven't worked on any electric  
10 transmission line projects over 230 kV; is  
11 that right?

12 A. (Taylor) That's right.

13 Q. And the longest segment of underground  
14 electric transmission that you've worked on  
15 is 3-1/2 miles of 69 kV; correct?

16 A. (Taylor) For a line that has been  
17 constructed, that's correct.

18 Q. And I understand you haven't worked on any DC  
19 projects; is that correct?

20 A. That's correct.

21 Q. Mr. Zysk, you are an engineer; is that right?

22 A. (Zysk) I am.

23 Q. But you're not licensed in New Hampshire; is  
24 that correct?

1 A. (Zysk) Not yet. I'm sorry. Not yet.

2 Q. And according to your prefiled testimony,  
3 you're generally responsible for project  
4 management, transportation and civil site  
5 design, traffic engineering, et cetera.; is  
6 that correct?

7 A. (Zysk) Generally, yes.

8 Q. And you've worked on one DC project, and that  
9 was a 28 kV underground line; is that right?

10 A. (Zysk) Yes.

11 Q. And with respect to the purpose of your  
12 testimony, am I correct that when you each  
13 undertook your work here, prior to doing so  
14 you didn't review RSA 162-H, which is the New  
15 Hampshire siting statute?

16 A. (Taylor) That's correct.

17 Q. And you also didn't review the SEC rules;  
18 correct?

19 A. (Taylor) That's correct.

20 Q. And I also understand you didn't review any  
21 prior SEC decisions to determine how  
22 construction panels were handled in other  
23 cases with respect to technical and  
24 managerial capability; is that right?

1 A. (Taylor) That's correct.

2 Q. And I understand that you're generally  
3 familiar with the requirement that an  
4 Applicant at the SEC show that it has the  
5 technical and managerial capability to  
6 construct and operate a project; is that  
7 right?

8 A. (Taylor) That's correct.

9 Q. And you were retained by Counsel for the  
10 Public to review the NPT Application and to  
11 identify short- and long-term construction  
12 impacts; correct?

13 A. (Taylor) That's correct.

14 Q. So you aren't here today offering any opinion  
15 about whether the Applicants have the  
16 technical and managerial capability to  
17 construct and operate the Project; am I  
18 right?

19 A. (Taylor) That's correct.

20 Q. And at the tech session, we asked you if you  
21 were offering any opinions regarding the  
22 maintenance and operation of the line, and  
23 you said that you didn't recall identifying  
24 any issues in the work you did associated

1 with that; correct?

2 A. (Taylor) That's correct.

3 Q. Mr. Taylor, on Page 3 of your testimony,  
4 actually, the overhead report, you said,  
5 quote -- you said that your job was review  
6 and technical analysis of the NPT Application  
7 as necessary to determine soundness of design  
8 and determine impacts of construction on New  
9 Hampshire communities and natural resources.  
10 Does that sound familiar?

11 A. (Taylor) That does.

12 Q. And if at any point I'm quoting material to  
13 you and you'd like to see it, let me know and  
14 I'll put it up.

15 So you didn't do any analysis of the  
16 overhead portion of the line with respect to  
17 making determinations about whether it's  
18 consistent with all national electric safety  
19 codes, did you?

20 A. (Taylor) No, I did not.

21 Q. And you have no actual assessment of the  
22 soundness of the overhead design; is that  
23 right?

24 A. (Taylor) We didn't review the overhead

1 design --

2 Q. So you're offering no --

3 A. (Taylor) -- electrically.

4 Q. Sorry. So you're offering no opinions on  
5 those issues; is that correct?

6 A. (Taylor) That's correct.

7 Q. Yesterday, when you were being questioned by  
8 Ms. Manzelli, she tried to ask you questions  
9 about tower collapse, and she wasn't  
10 permitted to do so, and so she made an offer  
11 of proof. In looking at your report, there  
12 isn't anything in there anywhere that talks  
13 about the risks associated with fall zone and  
14 tower collapse; is that right?

15 A. (Taylor) That's correct.

16 Q. So as a consequence, you are offering no  
17 opinions about those issues; is that correct?

18 A. (Taylor) That's correct.

19 Q. You filed your original prefiled testimony on  
20 November 15, 2016; right?

21 A. (Taylor) That sounds correct.

22 Q. And then you filed underground prefiled  
23 testimony together with Mr. Zysk on  
24 December 30, 2016?

1 A. (Taylor) That's correct.

2 Q. On March 1st, 2017, the New Hampshire  
3 Department of Environmental Services issued  
4 its final decision and proposed permit  
5 conditions. Sound right?

6 A. (Taylor) That sounds correct.

7 Q. And your original report and prefiled  
8 testimony of which I just cited were drafted  
9 without having had the benefit of reviewing  
10 those conditions; correct?

11 A. (Taylor) That's correct.

12 Q. And at the tech session which occurred on  
13 March 24, 2017, you told me you still hadn't  
14 done any assessment of those DES conditions  
15 in comparison to what the Applicants  
16 proposed. Do you recall that?

17 A. (Taylor) I do.

18 Q. And so as a consequence at that time, you  
19 couldn't offer an opinion about whether the  
20 DES conditions addressed environmental  
21 concerns in the underground portion of the  
22 Project; correct?

23 A. (Taylor) That's correct.

24 Q. And then, Mr. Zysk, you filed your

1 supplemental prefiled testimony on  
2 April 17th, 2017; is that right?

3 A. (Zysk) That sounds correct, yes.

4 Q. So I take it that you have now had an  
5 opportunity in the course of preparing that  
6 testimony to examine those DES permit  
7 conditions.

8 A. (Zysk) I did review them, yes.

9 Q. And I want to look at your prefiled  
10 testimony. And I'll refer you to the  
11 sections. I'm looking at Page 5, Lines 13  
12 and 14. Do you have that testimony in front  
13 of you?

14 A. (Zysk) I do not. If you could put that up,  
15 that would be appreciated.

16 Q. Sure. It's on Page 5, Lines 13 and 14.

17 A. (Zysk) Yes.

18 Q. And your opinion there was that there are  
19 several wetland permit conditions which may  
20 be difficult to completely enforce or have  
21 the potential to lead to long-term impacts;  
22 is that right?

23 A. (Zysk) Yes.

24 Q. And I assume what you mean is this relates to

1 your analysis of the DES wetlands permit.

2 A. (Zysk) Yes.

3 Q. And so the conditions in particular I think  
4 you called out are listed there: 31, 37, 38,  
5 39, 54, 55 and 70; is that right?

6 A. (Zysk) Yes.

7 Q. So out of the 77 conditions in that permit,  
8 you only had concerns about 7 of them; is  
9 that correct?

10 A. (Zysk) In this case, yes.

11 Q. And I understand, Mr. Zysk, that with respect  
12 to your prior experience with DES, you told  
13 me, I think, that you've worked on three  
14 alteration of terrain permits and a couple of  
15 smaller wetland permit projects; is that  
16 right?

17 A. (Zysk) Correct. Yes.

18 Q. And Mr. Taylor, my understanding is you have  
19 no experience working with New Hampshire DES  
20 on wetland permits; is that right?

21 A. (Taylor) That's correct.

22 Q. So, Mr. Zysk, when you offer your opinions  
23 about these seven permit conditions, is it  
24 your contention that, regarding those

1 conditions, DES got that wrong?

2 A. (Zysk) I don't believe they got it wrong. It  
3 was my understanding, after reviewing the  
4 content of the condition, it seemed like, as  
5 I noted, it would be difficult to enforce,  
6 based on whether it being too -- a bit on the  
7 generic side or just a very encompassing  
8 condition.

9 Q. Would you agree with me that the conditions  
10 you saw in the wetlands permit are fairly  
11 standard conditions for similar types of  
12 construction projects?

13 A. (Zysk) A lot of them are similar. Some of  
14 them were specific to this project.

15 Q. And I would also venture to say that you've  
16 probably been required on other projects  
17 you've worked on to comply with similar types  
18 of conditions; is that right?

19 A. (Zysk) Yes.

20 Q. And would you agree that if the Applicants  
21 don't comply with the conditions in these  
22 permits for any reason, they could be subject  
23 to some type of enforcement action?

24 A. (Zysk) I would agree with that, yes.

1 Q. And do you have any reason to believe that  
2 the Applicants or their contractors would not  
3 comply with these permit conditions?

4 A. (Zysk) I have no reason to believe they would  
5 not.

6 Q. Also in your prefiled testimony, on Page 7,  
7 Lines 12 to 15, you made mention of something  
8 that Ms. Draper asked you about this morning  
9 that had to do with a 90-day requirement for  
10 certain other submittals. Do you recall  
11 that?

12 A. (Zysk) Correct.

13 Q. And I think in particular you said that you  
14 had some concern about plans being submitted  
15 only 90 days prior to construction. Do you  
16 recall that?

17 A. (Zysk) I do.

18 Q. Is it your contention that that time frame is  
19 atypical?

20 A. (Zysk) No.

21 Q. In fact, would it surprise you to learn that  
22 in a recent SEC case, the Antrim Wind docket,  
23 the New Hampshire Department of Environmental  
24 Services required similar types of submittals

1 up to 90 days prior to construction?

2 A. (Zysk) I would expect that's a standard  
3 condition.

4 Q. In the Antrim Wind docket, Permit Condition  
5 No. 18 of the Alteration of Terrain permit  
6 required submission of an SPCC plan for  
7 review and approval at least 90 days prior to  
8 construction. Would you say that's a typical  
9 and acceptable condition?

10 A. (Zysk) I'm not familiar with that project,  
11 but it would sound reasonable.

12 Q. Condition No. 19 required submission of a  
13 plan to prevent water-quality violations for  
14 review and approval by the agency also 90  
15 days prior to construction. Same question.

16 A. (Zysk) Okay.

17 Q. Typical requirement?

18 A. (Zysk) Yes.

19 Q. So when you did your work here, did you  
20 consider other types of circumstances like  
21 this where DES had taken actions?

22 A. (Zysk) In general, yes.

23 Q. But you didn't consider other SEC cases, did  
24 you?

1 A. (Zysk) Not specifically, no.

2 Q. Do you think, in retrospect, it might have  
3 been informative for you to do so?

4 A. (Zysk) I don't believe so, no.

5 Q. So you don't think it would have been  
6 necessary for you to see how the permitting  
7 agencies handled other SEC matters? That  
8 wouldn't have helped you?

9 A. (Zysk) I don't believe the 90-day requirement  
10 is specific to an SEC project. I'm sure it's  
11 an across-the-board requirement for any  
12 applications to the DES. And that was my  
13 concern, is that the volume of projects I  
14 expect are being submitted, similar to other  
15 areas of where I work, that the DES does not  
16 have the capacity to fully and thoroughly  
17 review all the documents that they've  
18 requested within that 90-day period.

19 Q. Oh, so your concern is really a resource  
20 concern at DES.

21 A. (Zysk) Yes.

22 Q. And if DES believes they have the resources  
23 to adequately do that job, would you  
24 second-guess that?

1 A. (Zysk) If they have those resources, then  
2 that's great.

3 Q. And that would address your concerns.

4 A. (Zysk) That would address my concern about  
5 their ability to review them in a timely  
6 process. The other concerns that they are  
7 enforceable or partially enforceable or may  
8 not be enforceable have no bearing on the  
9 review time.

10 Q. And do you think that DES would have included  
11 conditions in its final permits if it wasn't  
12 confident that they wouldn't [sic] be able to  
13 enforce those conditions?

14 A. (Zysk) I believe that DES issued conditions  
15 without consideration of whether the  
16 Applicant had the ability to meet them or  
17 not. That's the Applicant's responsibility  
18 to meet those conditions.

19 Q. I'm not quite sure you answered my question.  
20 Let me try again.

21 We certainly agree it's the Applicant's  
22 obligation to meet the conditions. My  
23 question to you was: Do you believe that  
24 DES, as the permitting authority, would have

1 included conditions in its permit that it  
2 didn't believe could be complied with?

3 A. (Zysk) They can issue the conditions that  
4 they issue. I would expect that they assume  
5 they can be complied with.

6 Q. Thank you.

7 Mr. Taylor, in your prefiled testimony  
8 on Page 3 -- Page 2, Lines 3 through 16, you  
9 list potential impacts that the Project may  
10 have on communities and natural resources.  
11 Do you recall that?

12 A. (Taylor) I do.

13 Q. And some of the impacts you talk about are,  
14 for example, clearing of the right-of-way.  
15 And would you agree with me that right-of-way  
16 clearing is standard for an electric  
17 transmission line project?

18 A. (Taylor) Generally speaking, yes.

19 Q. You also mentioned concerns like increased  
20 traffic, increased noise, dust and dirt,  
21 potential damage to roads, soil erosion,  
22 sediment runoff if BMPs are not properly  
23 utilized, construction in wetlands and water  
24 bodies causing adverse effects absent proper

1 conditions. Would you agree with me that all  
2 of these things are also common to  
3 transmission line projects and to large  
4 construction projects in general?

5 A. (Taylor) Generally speaking, yes.

6 Q. And you indicated that these impacts that we  
7 just went through from your November 2016  
8 prefiled testimony at the tech session would  
9 be the same types of impacts that you have  
10 experienced on other large projects you've  
11 worked on; is that right?

12 A. (Taylor) That's correct.

13 Q. And then the other impact you talked about  
14 was construction in the pine barrens in  
15 Concord and potential impacts on the Karner  
16 blue butterfly. Do you recall?

17 A. (Taylor) I do.

18 Q. My understanding is that when you noted that,  
19 it was just a general observation and that  
20 you're not an environmental expert and that  
21 you haven't been specifically retained here  
22 to assess that issue. Is that fair?

23 A. (Taylor) That's correct.

24 Q. And so you're not offering any opinions about

1 the approaches that the regulatory agencies  
2 have taken with respect to managing the  
3 Karner blue or mitigation associated with  
4 that; correct?

5 A. (Taylor) That's correct.

6 Q. You mentioned wetlands on that list, but I  
7 think we've already talked about that.

8 Let me ask you about soil erosion. On  
9 Page 2, Line 11, you say, quote,  
10 "Construction of the transmission towers will  
11 cause soil erosion and sediment runoff if  
12 Best Management Practices are not properly  
13 utilized and monitored," close quote. Do you  
14 recall saying that?

15 A. (Taylor) I do.

16 Q. And you now understand that the Applicants  
17 have received an alteration of terrain  
18 permit, a wetland permit and shoreland  
19 permit; right?

20 A. (Taylor) Correct.

21 Q. And with respect to all of those permits,  
22 Best Management Practices are built into  
23 them; is that correct?

24 A. (Taylor) That's my understanding.

1 Q. And the Best Management Practices are often  
2 the result of an iterative process between  
3 the permittee and the permitting agencies;  
4 fair to say?

5 A. (Taylor) They can be.

6 Q. And the Applicant is also committed to  
7 getting a general construction permit prior  
8 to commencement of construction; is that  
9 right?

10 A. (Taylor) That's my understanding.

11 Q. So if the Applicant complies with all of  
12 these permits which include those BMPs, then  
13 is it fair to say that erosion with respect  
14 to this project will be properly managed?

15 A. (Taylor) Not necessarily.

16 Q. So how is it that the Applicant could comply  
17 with all of those permit conditions and there  
18 would still be a problem with erosion?

19 A. (Taylor) I think there's a nuance there, as I  
20 understood your question. Obtaining the  
21 permit would define the practices that they  
22 would need to follow. My statement that it  
23 doesn't necessarily mean sediment and erosion  
24 wouldn't occur has to do with how the

1 construction is handled in the field and the  
2 BMPs, for example, are maintained.

3 Q. So, in other words, the Applicants are going  
4 to have to comply with the permits and the  
5 BMPs.

6 A. (Taylor) That's correct.

7 Q. So if the Applicant does in fact do what  
8 they're supposed to do and complies with  
9 those permits, then we can agree that erosion  
10 would be adequately controlled.

11 A. (Taylor) That's what I would expect.

12 Q. Okay. Let me ask you about access roads, Mr.  
13 Taylor. On Page 2, Lines 22 through 24, you  
14 said at the time you filed this testimony  
15 that you couldn't evaluate, fully evaluate  
16 access roads. Do you recall that?

17 A. (Taylor) I do.

18 Q. And that was in November of 2016; correct?

19 A. (Taylor) Correct.

20 Q. And DES has now issued specific permit  
21 approvals with conditions that directly  
22 address access roads; is that right?

23 A. (Taylor) That's my understanding.

24 Q. And I take it you've had an opportunity to

1 review all those conditions as they relate to  
2 access roads?

3 A. (Taylor) I've read a number of documents. I  
4 don't recall all the conditions as I sit  
5 here.

6 Q. Well, I want to call your attention to  
7 Wetland Permit Condition No. 37, which  
8 requires that all temporary access roads  
9 installed along the 192-mile project not  
10 otherwise authorized by DES shall be removed  
11 and areas shall be restored to their  
12 pre-construction condition upon completion.  
13 Do you recall that condition?

14 A. (Taylor) Generally speaking, yes.

15 Q. And would you agree with me that if all the  
16 temporary roads are restored, except for  
17 those otherwise authorized, that those  
18 impacts would only be temporary?

19 A. (Taylor) It's highly likely that they would  
20 temporary.

21 Q. And you're aware that, unless identified as  
22 permanent, the Applicant actually has  
23 committed to restoring all those temporary  
24 roads; is that right?

1 A. (Taylor) That's my understanding.

2 Q. I also want to call your attention to  
3 Alteration of Terrain Permit Condition No. 9.  
4 The permittee in this case is required by DES  
5 to identify off-right-of-way access roads not  
6 currently identified for review prior to  
7 their construction if DES permit requirements  
8 are triggered. Do you recall that condition?

9 A. (Taylor) Generally speaking.

10 Q. As part of the Application for a Certificate  
11 of Site and Facility, were you aware that  
12 Applicants have requested that the SEC  
13 delegate authority to DES for the review and  
14 approval of additional temporary access  
15 rights-of-way, to the extent they're  
16 necessary?

17 A. (Taylor) Yes, I believe we mentioned that in  
18 our report.

19 Q. And the Applicants requested the same  
20 delegation for DES approval of permanent  
21 roads; is that right?

22 A. (Taylor) That's correct.

23 Q. I think you were asked questions about  
24 laydown and staging areas. I want to talk

1           about that for a minute. You address those  
2           in your prefiled testimony at Pages 4 and 5.  
3           Like access roads, you said you were unable  
4           to fully assess the impacts of these areas;  
5           is that correct?

6    A.    (Taylor) That's correct.

7    Q.    Is it your understanding that all of these  
8           areas will be previously disturbed sites?

9    A.    (Taylor) I recall testimony to that effect,  
10           but I don't recall seeing where the locations  
11           are, so I can't confirm that that will be the  
12           case.

13   Q.    And I think you told me at the tech session  
14           that in previous projects you had worked on  
15           elsewhere, you didn't necessarily know where  
16           all the laydown and staging areas were at  
17           that point in the process; is that correct?

18   A.    (Taylor) Correct.

19   Q.    I want to call your attention to DES Wetland  
20           Permit Condition No. 22. That condition  
21           specifically requires DES to review and  
22           approve additional laydown areas. Do you  
23           recall that?

24   A.    (Taylor) General speaking.

1 Q. So, to the extent that they haven't already  
2 been identified, the Applicants have asked  
3 the SEC to delegate review and approval to  
4 DES; correct?

5 A. (Taylor) That's my understanding.

6 Q. Are you aware that in another recent  
7 transmission line project, the Merrimack  
8 Valley Reliability Project, the Applicants in  
9 that case requested and received the same  
10 type of delegation?

11 A. (Taylor) I was not aware of that.

12 Q. So if such areas are previously disturbed,  
13 have no archeological sensitivity, and are  
14 permitted and approved as necessary by DES, I  
15 assume that would address your concerns about  
16 impacts in these areas?

17 A. (Taylor) Not necessarily. Our charge at this  
18 point is to review impacts as we understand  
19 them to the Application. By default, if that  
20 approval was deferred, and even if those  
21 conditions were met, not knowing where that  
22 site is located, we wouldn't be able to  
23 advise the SEC on what the potential impacts  
24 are.

1 Q. Do you have concerns about the ability of the  
2 Department of Environmental Services to  
3 adequately evaluate those impacts like they  
4 were charged to do in the Merrimack Valley  
5 project?

6 A. (Taylor) No, I don't.

7 Q. And with respect to traffic impacts in those  
8 areas, if any traffic associated with those  
9 areas was included in a Traffic Management  
10 Plan that had to be approved by the New  
11 Hampshire Department of Transportation, would  
12 that satisfy concerns of yours?

13 A. (Taylor) Again, I would say the same thing  
14 applies. Our charge is to identify what the  
15 impacts are at this point. A Traffic  
16 Management Plan that we haven't seen, that  
17 would potentially be approved at a later  
18 date, even though it's approved by DOT or  
19 others, still would preclude us from  
20 indicating what potential impacts would be  
21 available.

22 Q. And I take it you would have no concerns  
23 about DOT's ability to assess and approve  
24 those impacts?

1 A. (Taylor) No, I wouldn't.

2 Q. You're aware that the Project is going to  
3 submit for approval a Traffic Management Plan  
4 to DOT; correct?

5 A. (Taylor) Correct.

6 Q. And I think you're probably also aware that  
7 traffic control plans have already been  
8 submitted?

9 A. (Taylor) That's my understanding.

10 Q. And is it your understanding DOT is going to  
11 work with the Applicant to finalize those  
12 plans?

13 A. (Taylor) I believe that's what's been  
14 testified by the Applicant.

15 Q. And my understanding is that you haven't  
16 identified any concerns about the management  
17 of traffic for this project that you don't  
18 believe can be adequately addressed by the  
19 DOT permitting process; is that right?

20 A. (Taylor) I don't think we've made that  
21 statement.

22 Q. Do you believe there are any traffic concerns  
23 that cannot be adequately addressed by the  
24 DOT permitting process?

1 A. (Taylor) I don't know what may be put before  
2 them.

3 Q. As you sit here today, can you think of any?

4 A. (Taylor) Not as I sit here, no.

5 Q. Okay. In your prefiled testimony, you talk  
6 about concerns related to potential road  
7 damage. Do you recall that?

8 A. (Taylor) I do.

9 Q. And I think you told me at the technical  
10 session that any construction project has the  
11 potential to damage roads; is that right?

12 A. (Taylor) That's correct.

13 Q. And I take it you're aware of the fact that  
14 the Applicants have committed to restoring  
15 roads to their pre-construction status or  
16 better in their prefiled testimony?

17 A. (Taylor) That's correct.

18 Q. And I take it you're also aware that the  
19 Applicants reaffirmed that commitment under  
20 cross-examination during the course of these  
21 proceedings?

22 A. (Taylor) Yes, I'm aware.

23 Q. And you were asked a little bit yesterday  
24 about MOUs. I don't know whether you've had

1 the opportunity to look at any of the  
2 executed MOUs. But are you aware that the  
3 Applicant in those circumstances has also  
4 made commitments about of road repair and  
5 restoration?

6 A. (Taylor) I recall some testimony.

7 Q. You were asked about construction noise. And  
8 there is some information in your testimony,  
9 Mr. Taylor, your prefiled testimony on  
10 Page 6, about construction noise. When you  
11 were doing your work for this project or at  
12 any time afterward, did you review the draft  
13 or the final Environmental Impact Statement?

14 A. (Taylor) As it relates to?

15 Q. Northern Pass.

16 A. (Taylor) As it relates to the noise impact?

17 Q. Yes.

18 A. (Taylor) Yes, I recall some documents related  
19 to that.

20 Q. Did you have an opportunity to read what the  
21 final Environmental Impact Statement said  
22 about construction noise?

23 A. (Taylor) I'm sure I did. I don't recall it  
24 as I sit here.

1 Q. And actually, these may be better questions  
2 for Mr. Zysk. I recall you speaking about  
3 noise. But either one of you can answer.

4 In the final Environmental Impact  
5 Statement, on Page 2-67, it found that all  
6 construction activities would be short-term  
7 and that Applicant-proposed measures would be  
8 expected to keep noise below U.S. Department  
9 of Transportation guidelines. Were you  
10 familiar with that conclusion?

11 A. (Zysk) Generally, yes.

12 Q. Do you disagree with it?

13 A. (Zysk) In general, no.

14 Q. And also in the final Environmental Impact  
15 Statement, on Page 4-56, it concluded, quote,  
16 "With the application of APMs" -- which are  
17 Applicant-proposed measures -- "such as the  
18 implementation of a blasting plan,  
19 coordination with community officials, and  
20 utilization of the construction equipment  
21 manufacturer stock sound-muffling devices,  
22 the noise levels would be expected to fall  
23 below U.S. DOT guidelines." Were you  
24 familiar with that conclusion?

1 A. (Zysk) Generally, yes.

2 Q. Do you agree with it?

3 A. (Zysk) There's a lot of "ifs" in there. If  
4 they were all actually incorporated, then I'm  
5 sure it's fine.

6 Q. Did you have an opportunity to review Doug  
7 Bell's conclusions regarding construction  
8 noise?

9 A. (Zysk) I did not.

10 Q. And you haven't done any of your own  
11 sound-specific analysis for this project,  
12 have you?

13 A. (Zysk) That was not part of our scope.

14 Q. And is it correct that all of the  
15 construction equipment that's going to be  
16 used here and the noise produced by that  
17 equipment is fairly typical for construction  
18 projects of this nature?

19 A. (Taylor) I would say yes.

20 A. (Zysk) Yeah, in general.

21 Q. Are any of you aware that one of Counsel for  
22 the Public's witnesses, their visual witness,  
23 suggested that the use of, quote, "paint or  
24 product such as Natina steel should be

1           considered at specific locations"? Did any  
2           of you know that?

3    A.    (Zysk) I have not reviewed documentation from  
4           other Counsel for the Public witnesses in  
5           general.

6    Q.    Mr. Taylor?

7    A.    (Taylor) I'm not aware of that, no.

8    Q.    Have either of you heard of a Natina finish?

9    A.    (Zysk) Not specifically, but I'm aware of  
10           paint.

11   Q.    Mr. Taylor?

12   A.    (Taylor) No.

13   Q.    Were you aware that when the Applicant's  
14           witness, Ken Bowes, put in his supplemental  
15           prefiled testimony, he did speak about this  
16           issue of Natina finish?

17   A.    (Taylor) I don't recall it specifically as I  
18           sit here, no.

19   Q.    All right. So then, not having recalled it,  
20           you would have no basis to opine one way or  
21           the other on what Mr. Bowes's opinions were  
22           regarding Natina finish.

23   A.    (Taylor) That's correct.

24   Q.    Have either of you ever had experience with

1 Natina finish in the northeast United States?

2 A. (Taylor) I have not.

3 A. (Zysk) Not being overly familiar with it, I  
4 can't say "Yes" or "No."

5 Q. Okay. I want to turn now to your underground  
6 testimony. You filed a separate set of  
7 prefiled testimony on December 30th that  
8 related just to the underground portion of  
9 the Project. Do you recall that?

10 A. (Taylor) I do.

11 Q. All right. And those were CFP Exhibits 130  
12 and 132. And as described in Exhibit 130,  
13 the purpose of that testimony was to address,  
14 quote, "short-term and long-term impacts on  
15 New Hampshire's communities and natural  
16 resources from the construction and  
17 maintenance of the underground portion of the  
18 proposed Northern Pass Project." Sound  
19 right?

20 A. (Taylor) It does.

21 Q. And at the technical session you told me that  
22 you weren't offering an opinion about whether  
23 of any of these impacts were unreasonable; is  
24 that correct?

1 A. (Taylor) That's correct.

2 Q. And same question for the underground portion  
3 as the overhead portion: You aren't offering  
4 any opinions here as to whether the  
5 Applicants have the technical or managerial  
6 capability to construct and operate; is that  
7 correct?

8 A. (Taylor) That's correct.

9 Q. On Page 2, Lines 4 through 21 of that  
10 prefiled testimony, Mr. Taylor, you discuss  
11 impacts of the Project from underground  
12 construction. And at the tech session you  
13 stated that many of these construction  
14 impacts are consistent with what you've seen  
15 in other projects; is that right?

16 A. (Taylor) That's correct.

17 Q. And one of the things that you note in your  
18 list is the possible need for temporary  
19 easements. Do you recall that?

20 A. (Taylor) I do.

21 Q. And I take it that you're aware that it's the  
22 Applicant's position that it does not need  
23 any temporary easements to accomplish this  
24 construction?

1 A. (Taylor) That's my understanding.

2 Q. And did you have the opportunity to review  
3 the draft DOT -- or the DOT permit that was  
4 issued in this matter?

5 A. (Taylor) I believe I've reviewed that  
6 document, yes.

7 Q. So I want to remind you of Condition 10 in  
8 that DOT permit, which only granted approval  
9 for work to be done in the right-of-way. And  
10 DOT said, quote, "The Department cannot and  
11 does not grant permission to enter upon or  
12 use any privately-owned land," close quote.  
13 Do you remember that?

14 A. (Taylor) Sounds familiar.

15 Q. And are you aware that the Applicants did not  
16 seek an exception to that requirement?

17 A. (Taylor) I'll accept that as true.

18 Q. So if that's the case, is it fair to say that  
19 the Applicants fully intend to comply with  
20 that requirement?

21 A. (Taylor) I can't speak for the Applicants.

22 Q. Are you familiar with the use of bentonite  
23 slurry?

24 A. (Taylor) Generally at a high level.

1 Q. How about you, Mr. Zysk?

2 A. (Zysk) Yes.

3 Q. This may be a place for you to chime in, too,  
4 Mr. Bascom. We'll see. I'll ask you some  
5 questions later about it.

6 It's a naturally-occurring clay; is that  
7 right?

8 A. (Zysk) Yes.

9 Q. And it's fair to say that it's commonly used  
10 in drilling applications, like water wells  
11 and HDDs that we've heard so much about here?

12 A. (Zysk) Yes, it is.

13 Q. In fact, Dewberry has used bentonite slurry  
14 on its projects; right?

15 A. (Zysk) Yes, we have.

16 Q. So I want to call up Applicant's 364. This  
17 is an article that we took off the Dewberry  
18 web page. Are either of you familiar with  
19 this article?

20 A. (Taylor) I am not.

21 A. (Zysk) Not specifically.

22 Q. This is talking about the drilling of a  
23 2500-foot water main project 12 feet below a  
24 6-lane interstate highway project. Do you

1 see that description?

2 A. (Zysk) Yes.

3 Q. And it says there at the end of that first  
4 paragraph that it was 7 feet below an  
5 unusually high water table and through  
6 extremely unstable geotechnical conditions,  
7 all without the use of excavation. Do you  
8 see that?

9 A. (Zysk) Yes.

10 Q. I'll give you a chance to glance at the rest  
11 of this, but then I want to move to the  
12 paragraph below it. Just let me know when  
13 you're ready.

14 MR. PAPPAS: Mr. Chairman, while  
15 they're reading that, I have an objection. I  
16 don't believe in their testimony they talked  
17 about bentonite, and I don't believe it has come  
18 up with this panel. So I think it's outside the  
19 scope of direct and therefore outside the scope  
20 of cross.

21 CHAIRMAN HONIGBERG: Mr.  
22 Needleman.

23 MR. NEEDLEMAN: We've heard  
24 extensively about the use of bentonite slurry

1 and drilling muds in this project. We've heard  
2 extensively about HDDs. This panel is being  
3 offered specifically to talk about HDDs, and I  
4 think we've heard it's not possible to do an HDD  
5 without some sort of lubricant, which is  
6 typically bentonite slurry. So I can't imagine  
7 that they couldn't speak to this.

8 CHAIRMAN HONIGBERG: Overruled.  
9 They can answer.

10 BY MR. NEEDLEMAN:

11 Q. Have you had a chance to look at the rest of  
12 this?

13 A. (Zysk) Yes.

14 MR. NEEDLEMAN: Let me flip then,  
15 Dawn, to the next line down.

16 BY MR. NEEDLEMAN:

17 Q. It says as the machine made its way under the  
18 interstate, slurry had to constantly be  
19 pumped to its head in order to match the  
20 pressure exerted by the soil and the water  
21 from above. Do you see that?

22 A. (Zysk) Yes.

23 Q. My question is pretty straightforward here.  
24 This sounds to me like your firm touting its

1 success using bentonite slurry in a long  
2 directional drill in a very unstable  
3 environment; correct?

4 A. (Zysk) I would agree with that.

5 Q. Are you aware of any environments along the  
6 Northern Pass route, based on the information  
7 available to you, that are as unstable as the  
8 environment described in this article?

9 A. (Zysk) Not specifically along the entire  
10 route.

11 Q. So would it be fair to conclude that, if a  
12 firm like Dewberry was capable of  
13 successfully accomplishing a directional  
14 drill with the use of bentonite slurry in an  
15 unstable environment like this, that the  
16 Applicant would be capable of successfully  
17 accomplishing its drills in more stable  
18 environments?

19 MR. PAPPAS: Objection. Calls  
20 for speculation.

21 CHAIRMAN HONIGBERG: Mr.  
22 Needleman.

23 MR. NEEDLEMAN: I'm not sure  
24 there's anything speculative about it. Again,

1 we're talking about directional drills, and this  
2 clearly shows what they were capable of doing in  
3 a difficult environment.

4 CHAIRMAN HONIGBERG: Overruled.  
5 You can answer.

6 A. (Zysk) I can only speak for Dewberry, that we  
7 were successful with this project. Whether  
8 the Applicant is or will be, I cannot say.

9 Q. Okay. Let me call up Applicants 159.

10 Mr. Zysk, we've heard about fluidized  
11 thermal backfill. And I believe it's  
12 discussed in your prefiled testimony in  
13 Exhibit 133; is that correct?

14 A. (Zysk) I believe so, yes.

15 Q. I don't know whether you've had -- this was  
16 an exhibit introduced earlier. It's the  
17 American Association of State and Highway  
18 Transportation Officials document on the use  
19 of fly ash. Have you ever seen this document  
20 before?

21 A. (Zysk) I have not.

22 Q. It talks about 46 state DOTs using fly ash as  
23 part of fluidized thermal backfill. Does  
24 that number surprise you?

1 A. (Zysk) No.

2 Q. Would you agree with me that the use of FTB  
3 is standard for highway construction projects  
4 in the United States?

5 A. (Zysk) It's a regularly used product. It's  
6 not often used in highway construction. It's  
7 more common to utility construction, based on  
8 my experience.

9 Q. And I assume that you've been involved with  
10 projects that have also used FTB; is that  
11 right?

12 A. (Zysk) I have.

13 Q. In your prefiled testimony, you discuss heat  
14 dissipation with respect to FTB; is that  
15 right?

16 A. (Zysk) I believe so, yes.

17 Q. On Page 2, Line 21, you found that with  
18 respect to FTB, it is, quote, "reasonably  
19 unlikely that the heat output of the cables  
20 will create substantial, long-term damage to  
21 the roadway pavement structure of Tier 2, 3  
22 and 4 highways"; is that right?

23 A. (Zysk) Yes.

24 Q. And are you aware that the Applicants have

1 conducted field tests of FTB?

2 A. (Zysk) With regards to what?

3 Q. With regards to the use of the material on  
4 this project.

5 A. (Zysk) I understand there have been some  
6 tests done. I have not seen the reports or  
7 the results of those tests.

8 Q. Were you aware that on June 19th of this  
9 year, the Department of Transportation  
10 approved the use of FTB for this project,  
11 subject to certain conditions?

12 A. (Zysk) I am aware of that, yes.

13 Q. And I think you said earlier that, with  
14 respect to use in this project, you have no  
15 concerns about FTB; is that right?

16 A. (Zysk) For the application for which it's  
17 proposed, I do not have any objections.

18 Q. Okay. Mr. Pappas yesterday was asking you  
19 some questions about work zones as they  
20 relate to HDD areas. And I think his  
21 questions were premised on a generic work  
22 zone 30 feet wide and 300 feet long. Do you  
23 recall some of those questions?

24 A. (Taylor) I do.

1 Q. And I think it was you, Mr. Taylor, that said  
2 you thought several road closures associated  
3 with particular exception requests, like 180,  
4 182 and 184, might be necessary in places  
5 like Bear Rock Road, for example. Do you  
6 recall that?

7 A. (Taylor) I do.

8 Q. And Mr. Pappas, I think, asked you to review  
9 Applicant's Exhibit 227, which is a diagram  
10 of HDD construction methods that was  
11 presented to the New Hampshire DOT. Do you  
12 recall that?

13 A. (Taylor) I recall the exhibit.

14 Q. And that exhibit included material about the  
15 Applicant's ability to customize the size of  
16 these HDD work zones. Do you recall seeing  
17 that when you reviewed the exhibit?

18 A. (Taylor) I do.

19 Q. And you're aware that the Applicants have  
20 stated that they can reduce the width of  
21 these HDD work zones to accommodate tighter  
22 spaces like Bear Rock Road?

23 A. (Taylor) Yes, I'm aware of that.

24 Q. And are you aware that the Applicants have

1 testified about being able to utilize, quote,  
2 "in-line construction methods" in places like  
3 that?

4 A. (Taylor) Yes, I am.

5 MR. NEEDLEMAN: So I want to call  
6 up Applicant's 227. And Dawn, if you could put  
7 up Page 83364.

8 BY MR. NEEDLEMAN:

9 Q. So when we talk about in-line HDD drilling,  
10 these photographs are representative of that  
11 approach; is that right?

12 A. (Taylor) I would agree.

13 Q. And my understanding is that what these  
14 photographs represent is maybe a slightly  
15 less typical orientation of the drilling  
16 equipment, so it's all in a continuous  
17 straight line to accommodate a narrow area;  
18 is that right?

19 A. (Taylor) I would agree.

20 Q. And so are you aware that if the Applicant  
21 used this type of in-line construction in  
22 places like Bear Rock Road, it's the  
23 Applicant's position that it wouldn't have to  
24 close the road?

1 A. (Bascom) I think we're aware of that  
2 statement and understanding. On Applicant's  
3 Page 83361 there's an illustration of the  
4 in-line configuration I think you're  
5 referencing.

6 Q. Hmm-hmm.

7 A. (Bascom) I wonder if we maybe could take a  
8 look at that as well?

9 Q. Sure.

10 MR. NEEDLEMAN: Dawn, want to go  
11 to 83361?

12 A. (Bascom) Now, this configuration does appear  
13 to use more than one lane width, if I'm  
14 interpreting it correctly. It also does not  
15 appear to show the movement of equipment in  
16 that configuration. It's a static figure,  
17 obviously, where you'd be swinging cranes or  
18 manipulating a drill stem, for example, to do  
19 directional drilling, which would potentially  
20 extend beyond the limits of a traffic lane.

21 Q. And what's the label on this page, Mr.  
22 Bascom? What's it called?

23 A. (Bascom) "Typical HDD work zone."

24 Q. Right. So this would not be an example of

1 the customized work zone I was talking about  
2 a moment ago; correct?

3 A. (Bascom) It is correct, but it does not  
4 illustrate an example of the customized work  
5 zone that is referenced.

6 Q. It illustrates one example; right?

7 A. (Bascom) Well, if this is typical, then it  
8 wouldn't be an in-line work zone, is my  
9 understanding.

10 Q. So is it your testimony that it would not be  
11 possible for the Applicant to utilize an  
12 in-line HDD work zone occupying a single  
13 lane?

14 A. (Bascom) If the movement of equipment is  
15 going to extend beyond the single lane, I  
16 would represent that it may not be an  
17 accurate depiction.

18 Q. And are you aware that it remains the  
19 Applicant's position today that it will be  
20 able to use that approach on Bear Rock Road  
21 and the other roads that were mentioned  
22 yesterday so that it will not close any of  
23 those roads?

24 A. (Bascom) I'm aware that's your position, yes.

1 Q. Okay. We also looked at work zones, and one  
2 in particular was a sample zone that was  
3 30 feet by 300 feet long. Am I correct, Mr.  
4 Taylor, that an entire work zone won't  
5 necessarily be occupied all of the time or  
6 necessarily have activity occurring in it all  
7 of the time?

8 A. (Taylor) That's possible.

9 Q. In fact, isn't it true that, just like with  
10 the construction pad areas in the overhead  
11 section of the Project, the Applicant has  
12 over-permitted these work zones, so the whole  
13 zone may not even be used at all?

14 A. (Taylor) I'm not aware that that's the case.

15 MR. NEEDLEMAN: Let me call up  
16 again Applicant's Exhibit 227. And Dawn, let's  
17 go to Page 83369.

18 BY MR. NEEDLEMAN:

19 Q. So I want you to look at that picture there  
20 for a minute. Do you note all the plating in  
21 the distance?

22 A. (Taylor) I see the plating.

23 Q. And you see that there's a driveway with the  
24 plating in front of it?

1 A. (Taylor) Yes.

2 Q. And the driveway is not blocked; is that  
3 correct?

4 A. (Taylor) It does not appear to be blocked.

5 Q. And the caption says, "Driveways: Use steel  
6 plates to allow pipe to be pulled under  
7 without disrupting traffic"; is that right?

8 A. (Taylor) That is what it states.

9 Q. So were you familiar with the fact that pipe  
10 can be pulled under and through conduit with  
11 the steel plating remaining in place?

12 A. (Taylor) Yes.

13 Q. So am I correct, then, just because a plan  
14 shows a work zone in front of a driveway for  
15 four to six weeks, it doesn't mean that the  
16 homeowner will not have access? Is that  
17 correct?

18 A. (Taylor) That's correct.

19 Q. In fact --

20 A. (Bascom) Sir, there would be potential  
21 interruptions because the initial trench has  
22 to be excavated before the plates can be  
23 installed. So there would be interruptions  
24 from time to time.

1 Q. Sure. So there would be that short-term  
2 period of time; is that correct?

3 A. (Bascom) There would be an interruption. I'm  
4 not sure of the duration.

5 Q. So, Mr. Bascom, were you aware of the fact  
6 that the Applicant has committed to giving  
7 homeowners access to their driveways at all  
8 times?

9 A. (Bascom) I'm aware that that has been  
10 described, yes.

11 Q. And this issue was also raised with respect  
12 to access to businesses. And are you aware  
13 that the Applicant has made a commitment to  
14 ensure access to businesses in the same  
15 manner?

16 A. (Bascom) I'm aware of that.

17 A. (Zysk) I wanted to touch on one point. You  
18 first started with a 30-by-300-foot work  
19 zone. And based on my understanding of the  
20 way the HDD processes work, once that  
21 equipment is moved in place, that work zone  
22 will probably, likely be active or in use the  
23 whole time. And to move some of that  
24 equipment around is time-consuming. So

1 unless it was set up the first time around to  
2 allow access to occur, then there's a good  
3 chance that access would not be available in  
4 the 300-foot work zones where the drilling  
5 originates from. What you're talking about  
6 in this picture that you brought up is the  
7 other side where the pull-back occurs.  
8 That's a different story.

9 Q. And Mr. Zysk, have you done any analysis to  
10 determine whether there are HDD drill areas  
11 in front of those locations that would block  
12 access in the manner you're talking about?

13 A. (Zysk) I believe we noted several yesterday.

14 Q. And are you familiar with the fact that DOT,  
15 when those types of conditions have been  
16 encountered, has denied exceptions in some  
17 circumstances and required the Applicant to  
18 reconfigure the work zone to ensure access?

19 A. (Zysk) I have not seen any wording regarding  
20 configuration of work zones. I've seen  
21 wording regarding locations of entry and exit  
22 pits.

23 A. (Bascom) Our understanding is that any  
24 exceptions that were rejected were also

1           withdrawn, so the ultimate outcome of each of  
2           those is not yet determined.

3   Q.   Let me ask you a little bit more about  
4       plating.

5           Yesterday, Mr. Thompson went through an  
6       exercise where he asked you to envision  
7       putting -- lifting up the plating in the  
8       morning and then putting it down at the end  
9       of the day, and he envisioned about 45  
10      minutes for each exercise. Do you recall  
11      that?

12   A.   (Zysk) I do.

13   Q.   Is it your understanding that DOT has now  
14      allowed the use of plating?

15   A.   (Zysk) Yes, they have.

16   Q.   Were you aware of the fact that, prior to the  
17      use of plating, DOT's default position on the  
18      trenching was that it would need to be filled  
19      every day and then dug out the next day?

20   A.   (Zysk) I was not specifically aware of that,  
21      but I have seen that requirement in other  
22      circumstances.

23   Q.   So that's actually not an uncommon  
24      requirement, is it?

1 A. (Zysk) That's correct.

2 Q. And by DOT approving the use of plating, in  
3 fact, would you agree with me that it's going  
4 to dramatically speed up construction because  
5 they're not going to have to fill in and dig  
6 out the trench?

7 A. (Zysk) I don't know that I'd use the word  
8 "dramatically." It would increase -- it  
9 would allow a little bit faster productivity,  
10 yes.

11 A. (Bascom) I think the main modification to  
12 using steel plating is it allows the  
13 construction company to have more trench open  
14 at a given time, but not necessarily  
15 accelerate the construction process.

16 Q. Mr. Pappas asked you yesterday about  
17 Transition Station No. 4. And I believe you  
18 stated that you had estimated about  
19 75,000 cubic yards of material would need to  
20 be removed from that station; is that right?

21 A. (Taylor) That's correct.

22 Q. And are you aware of the fact that the  
23 Applicants calculated that approximately  
24 30,000 cubic yards of ledge would have to be

1 removed from that area?

2 A. (Taylor) I recall that testimony.

3 Q. So when you say 75,000 cubic yards of  
4 material, are you accounting for about  
5 30,000 yards of ledge and about 45,000 yards  
6 of overburden? Did you distinguish in that  
7 manner?

8 A. (Taylor) We didn't distinguish. It's simply  
9 a gross volume of material.

10 Q. Okay. And I think you said that it would  
11 take up to 7500 trucks to remove that amount?

12 A. (Taylor) That's correct.

13 Q. And I assume that that's premised on each  
14 truck carrying 10 tons of material?

15 A. (Taylor) No. Approximately 10 cubic yards on  
16 average of material.

17 Q. I'm sorry, 10 cubic yards of material.  
18 That's the premise.

19 A. (Taylor) That's correct.

20 Q. Were you aware that Mr. Johnson testified  
21 that overburden from the site might be moved  
22 to uplands on the same site?

23 A. (Taylor) I don't recall that, but I'll accept  
24 it.

1 Q. So if that were the case, then that would  
2 reduce the amount of material that needed to  
3 be trucked off the site; is that right?

4 A. (Taylor) Yes. However, I'll point out that  
5 the limit of disturbance shown on the  
6 documents that we were able to review do not  
7 show a spoil location.

8 Q. Are you aware that the area of disturbance on  
9 that site is between three and four acres?

10 A. (Taylor) That sounds about right.

11 Q. And are you aware that the total site that  
12 the Applicant owns is in the neighborhood of  
13 50 acres?

14 A. (Taylor) I'm not aware of their land, the  
15 land that they own.

16 Q. Were you aware that the Applicant also owns  
17 an adjacent site that's 170 acres?

18 A. (Taylor) I don't recall that, no.

19 Q. So it's certainly reasonable to conclude that  
20 they could dispose of some of those materials  
21 on the site or the adjacent site?

22 A. (Taylor) That's possible.

23 Q. And that would limit or reduce the number of  
24 truckloads that you calculated?

1 A. (Taylor) No. The truckload amount would stay  
2 the same. That volume is what needs to be  
3 removed from the LOD of the transition  
4 station so that it can be constructed for the  
5 plans that we reviewed.

6 Q. Understood it would stay the same. But  
7 trucks would be moving on site or to an  
8 adjacent site and not to a remote location  
9 over the local roads; is that correct?

10 A. (Taylor) Under this scenario, that's correct.

11 Q. And I think you said the capacity is, the  
12 capacity of the trucks is 10 to 15 cubic  
13 yards; is that right?

14 A. (Taylor) We assumed an average of 10 cubic  
15 yards.

16 Q. But you can use trucks up to 15 cubic yards;  
17 is that right?

18 A. (Taylor) That's my understanding, yeah.

19 Q. And the ability of the truck to carry an  
20 amount depends on the configuration of the  
21 material. So, loose rock, there may be more  
22 space left in the truck; whereas,  
23 consolidated overburden, all the space could  
24 be filled. Is that right?

1 A. (Taylor) I'll accept that.

2 Q. So it's somewhere between 10 and 15 yards per  
3 truckload; is that right?

4 A. (Taylor) If you're using the larger trucks,  
5 that could be the case.

6 Q. So, given all of these factors, Mr. Johnson,  
7 in his testimony, said that he expected it  
8 was more in the neighborhood of  
9 5,000 truckloads that would need to be moved  
10 offsite. Is that a reasonable estimate in  
11 your view?

12 A. (Taylor) Those aren't the numbers that we  
13 came up with. Again, we had calculated  
14 around 75,000 gross yards needed to be  
15 removed, and our assessment was, on average,  
16 about 10 cubic yards per truckload.

17 Q. Mr. Zysk, yesterday Attorney Pacik was asking  
18 you questions about MOUs that have been  
19 executed between the Applicants and host  
20 communities. Do you recall that?

21 A. (Zysk) I do.

22 MR. NEEDLEMAN: Could we put up  
23 Applicant's 208, please.

24 BY MR. NEEDLEMAN:

1 Q. This is the executed MOU with the Town of  
2 Thornton. Did you say you had had an  
3 opportunity to look at this?

4 A. (Zysk) I had not.

5 MR. NEEDLEMAN: All right. Dawn,  
6 if you could blow up the fourth, fifth and sixth  
7 "Whereas" clauses.

8 BY MR. NEEDLEMAN:

9 Q. So I'd ask you, Mr. Zysk, to take a moment to  
10 look at this. That first clause talks about  
11 the Town and NPT desiring to construct the  
12 project in a particular manner and avoid,  
13 minimize and mitigate impacts; correct?

14 A. (Zysk) That's what it says, yes.

15 Q. Second clause says, "Whereas, it is in the  
16 best interest of the Town and NPT to maintain  
17 an open line of communications regarding the  
18 construction of the Project in order to  
19 achieve common goals and establish consistent  
20 practices in furtherance of such goals";  
21 correct?

22 A. (Zysk) Yes.

23 Q. And then the next "Whereas" clause says that  
24 the Town desires that NPT comply with the

1 following provisions regarding construction  
2 and operation of the Project facilities. Do  
3 you see that?

4 A. (Zysk) I do.

5 Q. Am I correct that in the course of the work  
6 that you do, you've encountered situations  
7 where clients you work for have tried to work  
8 out similar types of agreements with  
9 communities that you're working in?

10 A. (Zysk) I've had a few of these, not a lot.

11 Q. Do you think that the Project working with  
12 towns to reach agreements like this is a good  
13 thing?

14 A. (Zysk) Absolutely.

15 Q. And is that because, to the extent possible,  
16 it's beneficial to resolve issues to the  
17 mutual satisfaction of both parties?

18 A. (Zysk) Yes.

19 Q. Do you believe that the town officials  
20 negotiating these MOUs have the best interest  
21 of their citizens in mind?

22 A. (Zysk) I have no idea.

23 Q. Do you think that towns are competent to  
24 assess what's important to them?

1 A. (Zysk) I have no idea.

2 MS. PACIK: I'm going to object.  
3 Sorry. Over here. It calls for speculation.  
4 He's asking the witness to assume what officials  
5 are thinking and what they're doing, and I don't  
6 think there's any basis for the witness to opine  
7 on that.

8 CHAIRMAN HONIGBERG: Mr.  
9 Needleman.

10 MR. NEEDLEMAN: I don't think  
11 there's anything speculative about it. He's  
12 testified that he's had some experience, and he  
13 was capable of answering extensive questions  
14 yesterday about these MOUs.

15 CHAIRMAN HONIGBERG: Overruled.  
16 You can answer.

17 A. (Zysk) I'm not familiar with the capabilities  
18 of the individual municipalities in this  
19 situation, of their ability to assess or not  
20 assess.

21 BY MR. NEEDLEMAN:

22 Q. You'd certainly disagree with me that, if  
23 they choose to, a town could consult counsel  
24 and members of its communities to ascertain

1           whether their interests are being  
2           sufficiently protected?

3       A.     (Zysk) They certainly could do that.

4       Q.     And you understand that each town is free to  
5           enter into an MOU or not with Northern Pass;  
6           it's entirely their choice?

7       A.     (Zysk) That's my understanding, yes.

8       Q.     And you understand if a town and the Project  
9           can't agree on terms, the town doesn't have  
10          to sign anything; right?

11      A.     (Zysk) I'm unfamiliar with what the agreement  
12          is, whether they're verbal or written  
13          otherwise.

14      Q.     Would it surprise you to learn that several  
15          towns have decided not to pursue MOUs with  
16          the Project?

17      A.     (Zysk) I'm not surprised. Not at all.

18                               MR. NEEDLEMAN: Dawn, can you go  
19          to the final page of this document?

20      BY MR. NEEDLEMAN:

21      Q.     So this is the signature box for this MOU.  
22           It's signed by John Paul Hilliard, as chair.  
23           I assume that's chair of the Board of  
24           Selectmen of the Town of Thornton. Do you

1 see that?

2 A. (Zysk) I do.

3 Q. When Ms. Pacik asked you yesterday if these  
4 MOUs addressed your concerns and you said no,  
5 just to be clear, you're not trying to  
6 substitute your judgment for the judgment of  
7 Mr. Paul Hilliard in Thornton on issues like  
8 this; is that correct?

9 A. (Zysk) I'm not.

10 Q. And you're also not trying to substitute your  
11 judgment for any other town or entity that  
12 signs an MOU with the Project; is that  
13 correct?

14 A. (Zysk) I am not.

15 Q. Yesterday, when Mr. Thompson was questioning  
16 all of you, he asked you about cranes and  
17 lifts associated with the splice vaults. Do  
18 you recall that?

19 A. (Zysk) We do.

20 Q. And Mr. Thompson had a drawing that  
21 illustrated a vault, a crane and then the  
22 hole all in line with each other. Do you  
23 recall that?

24 A. (Zysk) Correct.

1 Q. And he envisioned a situation where the crane  
2 would lift the vault, swing it around  
3 180 degrees and then drop it into the  
4 receiving hole. Do you recall that?

5 A. (Zysk) I do.

6 Q. All right. Are you aware that the Project is  
7 not necessarily intending to move splice  
8 vaults as single entities, but actually to do  
9 it in pieces?

10 A. (Zysk) I understood that's a possibility.

11 Q. So, to the extent that they were doing that,  
12 that would affect the lifts and the size of  
13 the cranes; is that correct?

14 A. (Zysk) Without seeing any details of the  
15 vaults, I could not say.

16 A. (Bascom) Mr. Needleman, could we take a look  
17 at Applicant 227, Page 83375?

18 Q. I'm not sure what it is, but we can pull it  
19 up.

20 MR. NEEDLEMAN: Dawn.

21 MS. GAGNON: What page number?

22 MR. NEEDLEMAN: That's the DOT  
23 provision.

24 WITNESS BASCOM: 83375.

1 BY MR. NEEDLEMAN:

2 Q. Okay.

3 A. (Bascom) The photo on the right appears to  
4 illustrate a crane consistent with the one  
5 that was being offered by Mr. Johnson [sic]  
6 yesterday, and it does appear to show the  
7 placement of half of a vault. And behind the  
8 crane it looks like there's a truck that is  
9 being used to perhaps deliver the vault.

10 Q. Yup. So that --

11 A. (Bascom) So if that's being offered as  
12 representative of what Northern Pass is  
13 intending to do, that would be the basis for  
14 assessing that that is the approach that  
15 might be used.

16 Q. So let's keep that up there. That's helpful,  
17 actually. So that's certainly one approach,  
18 right, as Mr. Thompson described, swinging it  
19 around; correct?

20 A. (Bascom) Yes, as I understand it.

21 Q. Are you any of you familiar another approach  
22 where the crane would be located as in that  
23 picture, the hole would be located where it  
24 is, and then the splice vault would be

1 located in-line on the other side of the  
2 hole? Have any of you seen that done before?

3 A. (Bascom) It's possible. But I believe this  
4 crane also represents the size of the  
5 outriggers and the amount of swing that the  
6 crane would be required to maintain to move  
7 the vault in that space. And I think  
8 perhaps --

9 Q. Understood. But it's clear that this is  
10 simply meant to be a representative example  
11 and not the actual and only way that they're  
12 going to do this; correct?

13 A. (Bascom) It was presented as evidence of the  
14 approach that might be used, so I assumed it  
15 might be appropriate for what the Applicant  
16 is intending to do.

17 Q. Are you aware, Mr. Bascom, that the Applicant  
18 actually is intending to use the in-line  
19 approach I just described, where the vault is  
20 on the other side of the hole and it's lifted  
21 and put in without swinging the crane around?

22 A. (Bascom) I didn't see an illustration that  
23 demonstrated that configuration with the  
24 large crane setting a vault.

1 Q. And there's another configuration where you  
2 could pull the vault up next to the hole,  
3 lift it off of a truck and put it into the  
4 hole; is that correct?

5 A. (Bascom) As I understand it, that would also  
6 block a lane of traffic, though, which is  
7 what the Applicant has indicated would not  
8 happen.

9 Q. Well, it would block the lane of traffic for  
10 some short period of time, whatever it took  
11 to move that into the hole; is that correct?

12 A. (Bascom) From my experience, when they're  
13 setting a vault of this size, the setup time  
14 and configuration can be a full work shift.  
15 So that would be longer than a short period  
16 of time. But I'm not sure what you're  
17 referencing in terms of "short period of  
18 time."

19 Q. So we do agree, though, that with respect to  
20 the way Mr. Thompson described how those  
21 vaults would be moved, that was not the only  
22 way it could be done; right?

23 A. (Bascom) I agree it's not the only way it  
24 could be moved.

1 Q. Okay. Mr. Bascom, you performed an  
2 electrical assessment of the Project; is that  
3 right?

4 A. (Bascom) Yes.

5 Q. And you generally offered an opinion as to  
6 whether the Project as designed is  
7 electrically feasible; is that right?

8 A. (Bascom) Yes.

9 Q. And your testimony, which is CFP Exhibit 135,  
10 on Page 2, Lines 24 to 29, your opinion is  
11 that generally as proposed, the Project is  
12 feasible; is that correct?

13 A. (Bascom) From an electrical design and  
14 capacity limit, yes.

15 Q. And on Page 1, Line 28, and over to Page 2,  
16 you also discuss the general design of the  
17 underground section of the Project, including  
18 trenchless methods to install the  
19 transmission line underneath rivers, bridges  
20 and other areas along the route; is that  
21 right?

22 A. (Bascom) Yes.

23 Q. My understanding is that you were not present  
24 when the construction panel, Northern Pass

1 construction panel, testified at any point;  
2 is that right?

3 A. (Bascom) I was not present during the  
4 testifying. I was present during the  
5 information session.

6 Q. Did you have the opportunity to read all of  
7 the transcripts with respect to their  
8 testimony?

9 A. (Bascom) I did familiarize myself with the  
10 transcripts.

11 Q. Okay. On Page 3, Line 12 of your testimony,  
12 you discuss certain route constraints in the  
13 underground section. Do you recall that?

14 (Witness reviews document.)

15 A. (Bascom) I recall that, yes.

16 Q. And then you discussed specific constraints  
17 along the Project route in more depth in your  
18 report starting on Page 23. Do you recall  
19 that?

20 A. (Bascom) Yes.

21 Q. And on Page 23, you specifically conclude,  
22 quote, "Electrically, there do not appear to  
23 be any technical issues that would prohibit  
24 the installation of the cable system." Is

1           that correct?

2       A.     (Bascom) Yes.

3       Q.     So, assuming the Applicants carefully manage  
4           the construction of the Project, including  
5           construction equipment, access, laydown areas  
6           and material delivery, I take it you have no  
7           reason to conclude that the Applicants can't  
8           construct the Project safely and as proposed;  
9           is that right?

10      A.     (Bascom) I agree, yes.

11      Q.     And then on Page 3, Line 12 of your  
12           testimony, Mr. Bascom, you raised four issues  
13           related to construction. Do you recall that?

14      A.     (Bascom) I do.

15      Q.     Just quickly, one was unrealistic rates of  
16           construction due to subsurface ground  
17           material; the second was unrealistic rates of  
18           construction due to traffic control and  
19           ability to maintain various kinds of access;  
20           the third was potential impacts to business  
21           and residents in areas with limited parking;  
22           and the fourth was routing options appear to  
23           offer limited ability to remain in the public  
24           rights-of-way and still perform the civil

1 work; correct?

2 A. (Bascom) Yes, that's my conclusion.

3 Q. I want to look at each of those quickly.

4 With respect to construction rates and  
5 subsurface materials, I think you confirmed  
6 for me at the tech session that you didn't  
7 prepare any specific construction rate  
8 calculations; is that right?

9 A. (Bascom) I did not. My assertion was based  
10 upon anecdotal information from projects that  
11 I've been involved with.

12 Q. And you also didn't calculate any specific  
13 construction rates for particular locations  
14 along the Project route; is that right?

15 A. (Bascom) I did not.

16 Q. So I think, as you said, you're just relying  
17 on your general experience; is that correct?

18 A. (Bascom) That's correct.

19 Q. With respect to the second category,  
20 construction rates due to traffic, you  
21 reference on Page 3, Line 19, that there may  
22 be unrealistic rates of construction due to  
23 traffic issues; right?

24 A. (Bascom) Yes.

1 Q. Now, you're not a traffic engineer; is that  
2 correct?

3 A. (Bascom) I am not.

4 Q. And my understanding is you don't have any  
5 experience dealing with the creation of  
6 traffic control plans; is that right?

7 A. (Bascom) I do not, other than to give input  
8 to experts in those areas.

9 Q. Did you assess the traffic control counts  
10 that Ms. Frazier reviewed in this matter?

11 A. (Bascom) I did not.

12 Q. And you haven't done any specific analysis of  
13 this particular project in relation to those  
14 types of issues; is that right?

15 A. (Bascom) That's correct. I have not.

16 Q. So again, this is just a general observation  
17 about an issue that could arise if traffic is  
18 not effectively managed; is that right?

19 A. (Bascom) Yes.

20 Q. Also related to traffic, you raised concerns  
21 about access to emergency services in several  
22 places in your report. Do you recall that?

23 A. (Bascom) Yes.

24 Q. And did you have the opportunity to review

1           Lynn Farrington's, now Lynn Frazier's,  
2           supplemental prefiled testimony on these  
3           issues?

4    A.    (Bascom) I did not.

5    Q.    So you weren't aware that she actually spoke  
6           to those specific issues?

7    A.    (Bascom) I did not -- I'm not aware of that.

8    Q.    And I guess you probably also weren't aware  
9           that when she was here, she testified about  
10          these issues?

11   A.    (Bascom) That's correct.

12   Q.    Your third category was impacts to businesses  
13          and residents. That was on Page 3, Lines 23  
14          and 24. And again, my understanding is that  
15          you're relying simply on past observations  
16          when discussing these types of impacts; is  
17          that correct?

18   A.    (Bascom) Yes.

19   Q.    You didn't do any type of specific studies.

20   A.    (Bascom) No, I did not.

21   Q.    You don't have specific experience designing  
22          or implementing methods to mitigate such  
23          impacts; is that right?

24   A.    (Bascom) I've provided input in design

1 studies, but nothing I think the way you're  
2 referencing.

3 Q. And then that final category was work areas  
4 and private property. And on Page 3, Line  
5 25, you said, quote, "Some routing options  
6 appear to offer limited ability to remain in  
7 the public rights-of-way and still perform  
8 the civil work." Do you recall that?

9 A. (Bascom) Yes.

10 Q. And you haven't identified any specific areas  
11 where the Applicants can't stay in the  
12 right-of-way; is that correct?

13 A. (Bascom) That's true.

14 Q. And you heard earlier and understand that the  
15 DOT permit requires the Applicants to stay  
16 within the right-of-way; is that correct?

17 A. (Bascom) That's my understanding.

18 Q. And you understand the Applicant isn't  
19 seeking any exceptions to that; is that  
20 right?

21 A. (Bascom) I understand that any exceptions  
22 that haven't been resolved have been  
23 withdrawn.

24 Q. We discussed earlier that your main objective

1 in reviewing the Application was to determine  
2 electrical feasibility; right?

3 A. (Bascom) Yes.

4 Q. And you evaluated the rating of the proposed  
5 underground cable to be used?

6 A. (Bascom) Yes.

7 Q. And in your report on Page 22, you said,  
8 "Based on this evaluation, there appears to  
9 be viable cable sizes available to meet, in  
10 general, the stated power transfer  
11 requirements listed in documents provided by  
12 the Applicants"; is that correct?

13 A. (Bascom) Yes.

14 Q. And you also evaluated the physical cable  
15 installation criteria; is that right?

16 A. (Bascom) Yes.

17 Q. And on Page 22 you said, quote, "No damage to  
18 the cable would be anticipated based on the  
19 Applicant's drawings"; correct?

20 A. (Bascom) Yes, that's correct.

21 Q. And then you also looked at the conduit size;  
22 is that correct?

23 A. (Bascom) I did.

24 Q. And again on Page 22 you said, "Conduit size

1 is anticipated to be of adequate size to  
2 accommodate the expected size of the power  
3 cables listed in the table above, provided  
4 that due diligence is used during the  
5 installation of the conduit system with  
6 appropriate connections of conduit joints,  
7 compliance with minimum cable bending radii  
8 and successful certification of the conduits  
9 by passing a suitable mandrel"; correct?

10 A. (Bascom) Yes.

11 Q. And then, just coming back to you on  
12 bentonite and inadvertent releases, at the  
13 technical session you told me you did have  
14 prior experience with inadvertent returns; is  
15 that correct?

16 A. (Bascom) That is correct.

17 Q. And I think at the tech session you said  
18 that, in your experience, inadvertent returns  
19 generally occur because there are deviations  
20 from a planned approach; is that right?

21 A. (Bascom) That is one cause of inadvertent  
22 returns, yes.

23 Q. What's another cause?

24 A. (Bascom) Unknown aspects of the Project, for

1 example, or sometimes equipment failure.

2 Q. So there is an element of inadvertent returns  
3 that can be managed through following a  
4 preapproved plan, and then there's an element  
5 that I guess you're saying is purely random.

6 A. (Bascom) I wouldn't say random. But yes,  
7 obviously a better design and more thorough  
8 plan would generally lead to better results.

9 Q. And so I guess you'd agree with me that it's  
10 good practice to conduct pre-drilling  
11 investigations at each location to determine  
12 potential for inadvertent returns?

13 A. (Bascom) Yes.

14 Q. And generally, this is a concern for a civil  
15 construction team; right?

16 A. (Bascom) Yes, it is.

17 Q. And would you agree with me that when doing  
18 an HDD, it's appropriate to have an  
19 inadvertent return policy in case something  
20 unexpected occurs?

21 A. (Bascom) Yes.

22 Q. Have you reviewed the Applicant's proposed  
23 inadvertent return policy?

24 A. (Bascom) I did.

1 Q. And are you aware that the policy has to be  
2 approved by DES prior to the Applicant  
3 commencing construction?

4 A. (Bascom) I was not specifically aware of  
5 that, but it seems logical.

6 Q. When doing an HDD, would you expect that the  
7 contractors would follow an approved  
8 protocol?

9 A. (Bascom) Yes.

10 Q. And if they did that, would it be consistent  
11 with what you've seen elsewhere with industry  
12 standards regarding management of inadvertent  
13 returns?

14 A. (Bascom) Can you rephrase your question?

15 Q. Yeah. If they followed the approved  
16 protocol, would that be consistent with  
17 industry standards with respect to how you've  
18 seen this issue managed elsewhere?

19 A. (Bascom) Yes. If they follow a protocol  
20 that's been approved, it would seem  
21 reasonable that they would have better  
22 success and be able to proceed with the  
23 process.

24 MR. NEEDLEMAN: Okay. Thank you.

1 I'm all set, Mr. Chair.

2 CHAIRMAN HONIGBERG: Anyone on  
3 the Committee ready to rock and roll with this  
4 group? Mr. Oldenburg?

5 (Discussion off the record.)

6 CHAIRMAN HONIGBERG: We're not  
7 going to start with Mr. Oldenburg. We're going  
8 to start with Mr. Wright.

9 QUESTIONS BY SUBCOMMITTEE MEMBERS AND SEC COUNSEL:  
10 QUESTIONS BY DIR. WRIGHT:

11 Q. Craig Wright from the Department of  
12 Environmental Services. Yesterday, I think  
13 it was you, Mr. Bascom, we had a picture up,  
14 and I think we saw it again today of a  
15 typical HDD in-line operation.

16 A. (Bascom) Yes.

17 Q. And one of the components was a frac tank.  
18 What's the purpose of that tank?

19 A. (Bascom) It can serve two purposes. One is  
20 if there's not a local source of water, which  
21 is a component necessary for directional  
22 drilling, it can be a source of the water,  
23 like a water tanker, for example. It can  
24 also be a storage facility for the byproducts

1 of directional drilling, the bentonite mud  
2 slurry that's recovered, so that it can be  
3 transported away from the site, because  
4 normally it cannot be disposed at the  
5 location where construction happens.

6 Q. Okay. That's what I was going to ask. My  
7 assumption was that eventually there's a  
8 waste product that needs to be disposed of.

9 A. (Bascom) Yes.

10 Q. And how is that normally handled?

11 A. (Bascom) It depends on the local  
12 requirements. And I'm honestly not that  
13 familiar with what would be required here.  
14 But there is some processing to dewater the  
15 material; for example, separate out the water  
16 from the solid components so that it can be  
17 dried and then more easily disposed of as  
18 clean fill or some type of fill material.

19 Q. Okay. It could end up in a landfill or  
20 something like that possibly?

21 A. (Bascom) Yes, potentially.

22 Q. Okay. But it would be a regulated waste at  
23 that point.

24 A. (Bascom) My understanding, it would be

1 regulated or unregulated. I don't know the  
2 details. It depends on the jurisdiction.

3 Q. Okay. My understanding is that DOT has  
4 determined that the top 24 to 36 inches in  
5 the trenches needs to be filled with gravel  
6 material or something along those lines; is  
7 that correct?

8 A. (Zysk) That's correct, yes.

9 Q. And so below that would be the fluidized  
10 thermal backfill.

11 A. (Zysk) Yes.

12 Q. And ABB provided a study of how that material  
13 would dissipate the heat?

14 A. (Zysk) Yes.

15 Q. Would that top 24 or 36 inches have any  
16 impact on that ABB analysis?

17 A. (Bascom) It potentially would have an impact.  
18 Normally in the design process for a power  
19 cable, the volume of material that's  
20 immediately around the conduits would be  
21 adjusted to allow for the heat to escape from  
22 the power cables and avoid having the cables  
23 exceed a maximum temperature that would  
24 normally damage the cable otherwise.

1 Q. So at this point, do we know if anybody's  
2 gone back and looked at that issue?

3 A. (Bascom) It would be the Applicant's  
4 responsibility to select the cable size that  
5 would meet the requirements of their project  
6 in consideration of the volume of material  
7 they're allowed to put around the conduits  
8 and any fill material that might be required  
9 above the conduits.

10 Q. Okay. I'm just trying to understand the  
11 sequence of events when you have a trench  
12 open and you bring in this fluidized thermal  
13 backfill. Now, that needs some sort of setup  
14 period; is that correct?

15 A. (Bascom) Yes.

16 Q. How long is that? I'm just trying to again  
17 understand the sequence of events and how  
18 long a trench would be --

19 A. (Bascom) Fluidized thermal backfill is  
20 normally just an engineered concrete that has  
21 good heat-transfer properties. And the  
22 extent to which there's cement in the  
23 material controls the compression strength,  
24 which is hardness of the material. The

1 amount of time to set up is normally a work  
2 shift; so, on the order of, you know, six to  
3 eight hours. So, generally the sequence of  
4 events would be, once the conduits are placed  
5 in the trench and the FTB is poured into the  
6 trench, the construction would probably  
7 involve plating the trench until the next  
8 work shift and then backfilling with the  
9 bedding layers that would be necessary to  
10 satisfy the Department of Transportation, you  
11 know, gravel and so forth.

12 Q. Okay. You mentioned plating. Are plates  
13 anchored, or are they free-floating on the  
14 surface of the roadway?

15 A. (Bascom) Normally they're very heavy, so  
16 they're generally used in areas where the  
17 asphalt on a road surface is sawcut, and the  
18 friction between the plate and the asphalt is  
19 sufficient with the weight of the plates so  
20 that they don't move too much. But they can  
21 be anchored with asphalt, I guess --

22 A. (Zysk) It varies from place to place. A lot  
23 of times they're just placed over the trench.  
24 But depending on the volume potentially of

1 the road that they're in, they may be -- the  
2 contractor may have to put a little bevel of  
3 asphalt to reduce the bump, as it were, and  
4 make the transition onto the plate a little  
5 bit better.

6 Q. Okay. So there's no risk of the plates  
7 sliding or anything like that --

8 A. (Zysk) No.

9 Q. -- and the trench opening up.

10 A. (Bascom) Generally minimum risk.

11 MR. WAY: Mr. Wright, one quick  
12 question.

13 QUESTIONS BY MR. WAY:

14 Q. For the plates, are there weight limits for  
15 the plates? You have them at the entrance of  
16 driveways.

17 A. (Zysk) These are inch-thick steel plates.  
18 There's usually unlimited -- the average  
19 traffic that would travel on any given road  
20 will be accommodated by the plate.

21 MR. WAY: All right. Thank you.

22 QUESTIONS BY DIR. WRIGHT (CONT'D):

23 Q. We had some discussion yesterday regarding  
24 the town MOUs and idling trucks. In the

1 MOUs, as prepared by the Applicant, it  
2 indicates that trucks may idle for 30 to 60  
3 minutes before the beginning of a  
4 construction day at 7 a.m. Is that a  
5 reasonable period of time, in your opinion?

6 A. (Bascom) Some of the equipment is diesel  
7 engines, and especially in colder climates  
8 they may idle them for an extended period of  
9 time. Some of the concrete trucks are  
10 normally idling on site or in preparation to  
11 go to a site to deliver materials, so they're  
12 ready to go.

13 A. (Zysk) It is time-of-year-dependent.

14 Q. I was going to guess that it was air  
15 temperature more than anything.

16 A. (Zysk) Yeah. In the summertime, maybe 10 to  
17 15 minutes, tops, and then they're ready to  
18 go.

19 Q. And in the colder climates, is 60 minutes a  
20 reasonable amount of time for a truck to need  
21 to idle to get up to temperature?

22 A. (Zysk) Sixty seems a bit much, but the 30  
23 minutes is not out of the realm.

24 Q. Okay. There was some discussion today about

1 the DES permit conditions and some of the  
2 concerns -- taking away the time constraints,  
3 the 90 days' filing, and assuming DES has the  
4 resources to evaluate those plans, do you  
5 have any other concerns related to those DES  
6 conditions? Did DES miss something, in your  
7 opinion?

8 A. (Zysk) I'd have to review the conditions.  
9 But as I read them, I think based on the, I  
10 want to say the size and the scope and the  
11 type of project, the conditions were worded  
12 such that they appeared that they might be  
13 difficult to enforce. And I'd have to review  
14 the specific conditions I mentioned, and I  
15 don't have that. I thought I had it with me,  
16 but I do not today.

17 Q. So you would have some specific  
18 recommendations for -- I mean, this Committee  
19 has the ability to make some changes,  
20 obviously. I mean, those are DES --

21 A. (Zysk) I would certainly welcome some  
22 discussion on it, sure.

23 Q. I think, Mr. Taylor or Mr. Zysk, you  
24 indicated you witnessed the setting of splice

1 vaults in previous work that you've done?

2 A. (Taylor) That's correct.

3 Q. Is there anything particular about this case  
4 that is different than what you've  
5 experienced personally in your professional  
6 career?

7 A. (Taylor) Only to the extent that there's been  
8 dialogue about, particularly this afternoon,  
9 everything being generally linear and  
10 characterized as "in one lane." While I  
11 believe that can certainly be done, my  
12 experience is that one to two lanes is  
13 generally needed at some point in time. A  
14 lot of it's dependent upon the terrain,  
15 what's around where the splice pit may go.  
16 That affects the size of the crane and also,  
17 as noted today, how many pieces the splice  
18 pit comes in. I think today, and in previous  
19 testimony, it's been that it will come in  
20 two. And some of the exhibits and pictures  
21 we saw earlier showed what I would  
22 characterize as a bottom half and a top half.  
23 So if there were three pieces, that changes  
24 our looking at how it might be done. But

1 from what I have seen, generally speaking,  
2 it's usually a top and a bottom half and/or a  
3 lid.

4 Q. And have you witnessed a linear setting of a  
5 vault as has been suggested here by the  
6 Applicant?

7 A. (Taylor) Not completely linear. I've seen it  
8 where there's a splice vault going in and a  
9 lifting mechanism was behind where the vault  
10 is and then a truck coming up besides. So,  
11 one of the three examples. Then I've also  
12 seen when the crane is actually not quite  
13 perpendicular, but -- in fact, it's in our  
14 report. There's a photo we show where the  
15 crane is adjacent to where the pit is going  
16 in, almost perpendicular to it, and it's  
17 reaching for the vault and swinging it out  
18 into, say the linear path of the line that  
19 the vault would be placed in.

20 Q. Okay. I think Mr. Thompson yesterday was  
21 alluding to whether you'd ever run into a  
22 situation where you had a cable buried, and  
23 what I assumed he was referring to, in a very  
24 northern climate, very cold temperatures.

1 And I think you were looking for examples.

2 Is there anything unique about an  
3 extremely cold climate such as northern New  
4 Hampshire that would have an impact on the  
5 ability to successfully bury and operate a  
6 cable?

7 A. (Bascom) I think the reference to Mr.  
8 Thompson's comments were related to a cold  
9 climate with a heat-producing cable, in which  
10 case it's warming the ground in the vicinity  
11 of the cable. And, you know, cables are used  
12 in really a lot of parts of the world.  
13 Canada, obviously. Not too much in New  
14 Hampshire at this point for transmission  
15 cable. But certainly upstate New York and  
16 Minnesota, Michigan. So, I mean, there's a  
17 history of cables being installed in those  
18 environments.

19 The specific issue I think Mr. Thompson  
20 was raising was installing cables that are  
21 producing heat under gravel or dirt roadways.  
22 And there's probably limited experience with  
23 that type of installation environment.

24 DIR. WRIGHT: Okay. I think I'm

1 all set, Mr. Chair.

2 CHAIRMAN HONIGBERG: All right.  
3 Let's take a 10-minute break. It's now 2:35 p.  
4 (Recess was taken at 2:35 p.m.  
5 and the hearing resumed at 2:54 p.m.)

6 CHAIRMAN HONIGBERG: Mr.  
7 Oldenburg.

8 MR. OLDENBURG: Thank you, Mr.  
9 Chairman.

10 QUESTIONS BY MR. OLDENBURG:

11 Q. Good afternoon, gentlemen. Just for point of  
12 reference, my name's Bill Oldenburg, and I  
13 work for the Department of Transportation. A  
14 lot of the questions that I have Mr.  
15 Needleman just covered and Mr. Wright just  
16 covered. So as I pause and try to skip  
17 questions, please forgive me for the long  
18 pause. Also, I had a lot of lead-up  
19 questions about what you were asked to do and  
20 resume information that Mr. Needleman asked,  
21 so I'm just going to jump into the middle of  
22 sort of my questioning.

23 Now, if I understand right, just for  
24 clarification, Mr. Bascom, you had mentioned

1           that you were hired to review the underground  
2           only; right? You didn't review any of the  
3           electrical overhead.

4    A.    (Bascom) That's correct. I only looked at  
5           the underground electrical component and  
6           related activities.

7    Q.    And in reading your report, there was a  
8           statement in there that I put up on the  
9           screen. Could you explain that statement?

10   A.    (Bascom) Yes. It's just providing  
11          background. The power cable itself is an  
12          electrical component, so it requires  
13          electrical engineering. The cable rating and  
14          heat-transfer mechanism away from the cable's  
15          generally in the discipline of mechanical  
16          engineering. And the fact that the materials  
17          that are around the cables in the trench and  
18          the way the trench is excavated and  
19          configured impacts the cable rating and the  
20          design, that's generally a civil engineering  
21          activity. So I was pointing out that it  
22          combines the three disciplines of engineering  
23          in the design of a cable system.

24   Q.    And by "cable system," you mean the whole

1 component of the underground.

2 A. (Bascom) The whole component. The trench,  
3 the conduits, the cables that are installed  
4 in the conduits, the splices, the vaults, et  
5 cetera.

6 Q. So I see the civil engineering portion. Did  
7 you have someone from a mechanical  
8 engineering viewpoint review your report, or  
9 did you just use your experience?

10 A. (Bascom) The mechanical engineering component  
11 of what I did was the ampacity, the cable  
12 rating, which involves evaluating thermal  
13 conduction of heat away from the conductor  
14 through the various layers of the cable  
15 through the soil and out to the ambient soil  
16 environment. So that's generally a  
17 mechanical engineering activity from the  
18 standpoint of the type of engineering that's  
19 applied.

20 Q. Okay. All right. So, moving on to the  
21 actual project itself. From a highway  
22 standpoint, or highway and bridge standpoint,  
23 I think you have a lot of highway, bridge  
24 experience, civil engineering experience.

1           Would you classify this type of contract as  
2           like a "design build contract"? Maybe a  
3           little reference. So --

4    A.    (Zysk) It's not a classic design build, but  
5           they have brought a contractor in, early in  
6           the process, to help them develop the final  
7           documents. So there's a different  
8           terminology that has come up in the last few  
9           years, but I wouldn't call it --

10   A.    (Bascom) It would normally be characterized  
11           as "engineering, procuring, construction."  
12           So they're doing engineering design  
13           themselves; they're procuring the materials  
14           and the construction services, and they're  
15           constructing, building the Project.

16   Q.    So one of the advantages to that is you have  
17           a contractor who's actually going to build  
18           the project in to discuss the design. So  
19           some of these things that we see going on  
20           with the design changes can be that  
21           contractor input saying, no, it's easier to  
22           build if you put it here, easier to install,  
23           takes a shorter period of time if you move it  
24           to here. Is that some of the advantages of

1           this type of contract?

2       A.    (Bascom) In a classic EPC-type contract, that  
3           entire package is usually identified and  
4           presented to a customer.  So, for example, if  
5           I wanted to buy a cable system, I might  
6           request an EPC bid, in which case different  
7           groups would assemble a team that do all  
8           those activities and then present me  
9           comparative bids that I would evaluate and  
10          select one.  This is sort of a private  
11          development activity, so this developer has  
12          assembled all those components themselves and  
13          are now just trying to get approval within,  
14          you know, the community and the agencies that  
15          regulate that activity.

16       Q.   Okay.  The company doing the final design  
17          plans, PAR Electric, is a subsidiary of  
18          Quanta, the contractor; correct?  So,  
19          basically, the contractor, PAR Electric, is  
20          doing the design, and I have to believe that  
21          some of these design changes have to do with  
22          their construction knowledge.  Or not?

23       A.    (Bascom) It generally would.  In a very  
24          high-level example, let's say the State of

1 New Hampshire wanted to buy a high-voltage DC  
2 cable system and was soliciting a bid for  
3 that package. It would normally include all  
4 the activities up to commissioning so that  
5 you then could evaluate that package and  
6 maybe compare it to others. So, in essence,  
7 I think the Site Evaluation Committee is sort  
8 of the customer evaluating the proposed  
9 package.

10 Q. Okay. Now, next up on the screen is a slide  
11 from basically the Applicant's presentation  
12 to the DOT. I think you've seen this before.  
13 This is the page on what Quanta services are.  
14 And I would just point out the reference to  
15 The Engineering News Record. So, I mean, if  
16 you're a financial person, you would read The  
17 Wall Street Times. If you're an engineering  
18 groupie, you read The Engineering News  
19 Record.

20 A. (Zysk) Correct.

21 Q. So the fact that they're a number one-rated  
22 firm, that means, you know, by money, by  
23 income, by ratings, they're the number one  
24 firm in the country when it comes to overall

1 specialty contractors, utility specialty  
2 contractors and electrical specialty  
3 contractor. This is what they do is build  
4 these lines; right? This is basically right  
5 in their wheelhouse. This is their forte.  
6 So they know exactly what they're doing. Is  
7 that fair statement?

8 A. (Zysk) I would think so, being No. 1, yes.

9 Q. Okay. So, down a few bullets is the Top Five  
10 in horizontal directional drilling. I'm not  
11 sure in what "Top Five" is, but they also  
12 have directional drilling capabilities. So  
13 one of their subsidiaries I have to believe  
14 does the HDD drilling.

15 A. (Bascom) Quanta as a company has acquired  
16 various companies throughout the years, one  
17 of which is this company, Mears. And they  
18 are the directional drilling contractor that  
19 have been involved with some of the larger  
20 high-voltage transmission cable projects, in  
21 the United States at least.

22 Q. Okay. So one of the things we heard about  
23 the HDD drilling was testimony about the soil  
24 and the rock and everything else. These

1           drills go through anything; right? So if  
2           they hit muck, if they hit clay, if they hit  
3           solid granite, if they hit boulders, they  
4           drill through all of that; correct?

5       A.   (Bascom) Not necessarily. In particular,  
6           boulders or large cobbles are difficult for  
7           some of the drilling equipment to pass  
8           through. If you can kind of visualize  
9           drilling through marshmallow and you hit  
10          something very hard, the drilling equipment  
11          would tend to try to go around that rather  
12          than bite into it. And that presents a  
13          particular challenge for directional  
14          drilling. And it's not to say that even a  
15          very qualified contractor wouldn't also run  
16          into equipment failures or challenges,  
17          because in any engineering project there may  
18          not be a complete understanding of all the  
19          conditions. You know, we do make decisions  
20          on incomplete information.

21       Q.   So in the case of like a boulder, instead of  
22           going and drilling through the boulder, it  
23           might get deflected off to the side.

24       A.   (Zysk) That's correct.

1 A. (Bascom) That's correct. And if the drilling  
2 contractor has knowledge of that, that would  
3 translate to risk, and maybe translate to  
4 infeasibility if they were aware of it.

5 Q. So one of the questions -- or some of the  
6 questions you heard earlier was a change in  
7 production rate. Originally, several months  
8 ago when the construction panel was first up,  
9 we heard a production rate of somewhere  
10 between like 20 and 100 feet a day for the  
11 trenching operation, and now we're hearing  
12 more in the 300-foot-a-day range. You know,  
13 some of -- I think some of the questions Mr.  
14 Needleman just asked was the plating, the use  
15 of the plating in some of that production.

16 Does it make sense, from what you've  
17 heard, from you've seen since the original  
18 October date, that the production rate of  
19 300 feet per day is realistic?

20 A. (Bascom) In my opinion it can vary. And it  
21 really depends on how extensively they have  
22 knowledge of the geology along the route.  
23 You know, New Hampshire is known as the  
24 "Granite State," and there is prevalence of

1 ledge and rock and some very shallow areas.  
2 Like the town of Plymouth, I understand, many  
3 of the utilities are installed shallower than  
4 3-1/2 feet because of the difficulty  
5 excavating deeper than that. So I would just  
6 anticipate that in the course of doing  
7 construction, it's likely that they would  
8 encounter a higher incidence of rock. And I  
9 am aware of some projects where that has  
10 significantly slowed down the production  
11 rate. And so that was, in terms of my  
12 testimony, was anecdotal information, but my  
13 experience on cable projects.

14 Q. Because one of the statements that's been  
15 made is the project time line that's been  
16 laid out is they're going to build it in two  
17 years. So that's two seasons. And the  
18 production rate is the production rate, and  
19 that means how many crews are going to be  
20 required to do the trenching, splice vaults  
21 and everything within two years. And that  
22 number of crews directly relates to the  
23 number of work zones along the route and  
24 traffic impacts, et cetera. That's a fair

1 assessment; correct?

2 A. (Zysk) Yes, that's correct.

3 Q. So in your testimony, one of the issues you  
4 had with the Project was the traffic impacts  
5 that the Project would have. And this is  
6 just one of the exhibits you showed, which  
7 was the detour route in the North Country, in  
8 the Pittsburg, Clarksville, Stewartstown  
9 area. Is this the same detour route that's  
10 proposed by the Applicant?

11 A. (Taylor) It is. This is just a composite of  
12 what they had shown over many sheets to  
13 provide clarity.

14 Q. So you basically used their detour route,  
15 analyzed it. And you didn't improve upon it  
16 or come up with suggestions.

17 A. (Taylor) No. This was merely to convey to  
18 you specifically the data across many sheets  
19 in one.

20 Q. Okay. Would you agree that in reviewing the  
21 information you had, that the traffic volumes  
22 in this section of the state are pretty low?

23 A. (Zysk) They are.

24 Q. And the proposed road closure is going to be

1 an inconvenience, but it's not going to  
2 relatively cause huge traffic backups and  
3 congestion and things like that; correct?

4 A. (Zysk) I don't anticipate it causing huge  
5 backups. However, if you live on that road,  
6 you're going to be pretty upset.

7 Q. Very inconvenienced, yes.

8 A. (Zysk) Yes.

9 Q. Previously you were shown the DOT Traffic  
10 Control Committee determination memo. Looks  
11 something like this. It showed that the  
12 project was found to be significant. I don't  
13 know if you had the opportunity to read what  
14 the guidance and direction portion of that  
15 memo says, so this is a blow-up of it. And  
16 I'll give you a few minutes to actually read  
17 through it.

18 But what I'm looking for is, if you read  
19 this, do you see any show-stoppers that are  
20 going to cause a problem with the Applicant  
21 being able to meet any of these requirements  
22 from a traffic management plan development?  
23 I would just add, forgive the engineer's  
24 misspellings and poor grammar.

1 (Witness reviews document.)

2 A. (Zysk) "Show stoppers," as you call them, I  
3 would say no. To add in, potentially  
4 pedestrians, bicycles, in addition to  
5 maintain those on roads where there are no  
6 sidewalks, narrow lanes, in addition to  
7 maintaining vehicle traffic, could pose a bit  
8 of a burden for the Applicant.

9 Q. Well, I think pedestrians are mentioned,  
10 because in Franconia there are sidewalks  
11 along the side of the road.

12 A. (Zysk) Okay.

13 Q. And if there's -- by ADA requirements, if you  
14 close a sidewalk, you have to find an  
15 alternate pedestrian route.

16 A. (Zysk) Understood. I was thinking more of  
17 116, of when I traveled along there, there  
18 are numerous bicyclists in addition to the  
19 vehicles. Seems to be a pretty popular bike  
20 route.

21 Q. Okay. All right. Now, a lot of -- there's  
22 been a lot of discussion about traffic  
23 management plans and the DOT requirements.  
24 And I would just -- this is the policy that

1 the DOT has, sort of the cover. I don't know  
2 if you've read it or not. But right in the  
3 very beginning, in the introduction, it talks  
4 about that this isn't really a DOT  
5 requirement. This is part of the federal law  
6 that requires us, requires the DOT to have  
7 this policy. And, you know, halfway through  
8 it says the rule, which is this federal rule  
9 that applies to all states and local  
10 governments that receive federal aid, highway  
11 funds -- so have you run across this? It  
12 might be called something different, but I'm  
13 sure, working in other states, you've run  
14 across requirements to have traffic  
15 management plans and traffic control plans.

16 A. (Zysk) Every state has at least one of these.  
17 Some have them broken up into multiple  
18 documents.

19 Q. So this isn't unique to New Hampshire.

20 A. (Zysk) No.

21 Q. Concerning traffic control, have you -- did  
22 you discuss any of the traffic control  
23 requirements with anybody at the DOT of what  
24 would be required? Any discussions with the

1 DOT on what their thoughts were with traffic  
2 control?

3 A. (Zysk) Not for traffic, no.

4 Q. With concerns about the Utility Accommodation  
5 Manual and the exception requests, you've  
6 reviewed them; correct?

7 A. (Zysk) A fair number of them, sure.

8 Q. So on the screen is one. Just as an example,  
9 is it safe to say that there's been a  
10 contention that -- and there's a number of  
11 them, and I know that they've been submitted.  
12 They're all listed on the web site. There's  
13 like -- the numbers go up to 180, but there's  
14 not 180 of them because numbers are skipped.  
15 But there's a huge number. But aren't some  
16 of them truly, I don't want to -- no-brainers  
17 type of -- this one is an example. It's HDD  
18 drilling. The exemption type that they're  
19 requesting, there's three of them. One is  
20 that the pit's was in the pavement and that  
21 the other is the HDD drill alignment passing  
22 under the pavement. So, even though there's  
23 no disruption to the pavement, because the  
24 line is being drilled under the pavement,

1           they have to get an exception request for  
2           that.

3       A.     (Zysk) Correct.

4       Q.     Correct?

5       A.     (Zysk) Yes.

6       Q.     So, isn't it a fair assumption that if  
7           there's 40 -- and I can't remember the exact  
8           number -- 45 HDD drilling sites, that most of  
9           them pass under the pavement, so they're  
10          going to need an exemption request just  
11          because they're drilling under the pavement?

12      A.     (Zysk) Based on the requirements of the  
13          Utility Accommodation Manual, yes. Yes.

14      Q.     Okay. So some of these exception requests  
15          are more complicated or complex than others.  
16          Is that a fair assessment?

17      A.     (Zysk) Sure. Yeah.

18      Q.     This was just another example of the same  
19          type of exemption request. I won't belabor  
20          the issue.

21                 Mr. Thompson, when he questioned you,  
22          showed you this picture he had, which is CS  
23          129. It's his truck sitting on a bridge,  
24          which I think, if I have it right, is

1 Creampoke Road over Bishop Brook. He talked  
2 a lot about cranes and heavy equipment and  
3 how you're going to actually build the  
4 project or detour traffic around in this  
5 area.

6 The thing I'd point out is you see the  
7 sign at the end of the guard rail, the E-2?  
8 Do you know what that means?

9 A. (Zysk) That has to do with the capacity of  
10 the bridge. Brenden Alexander, who was here  
11 yesterday, is more knowledgeable about that  
12 than I am.

13 Q. So that bridge is weight-restricted; correct?

14 A. (Zysk) Correct.

15 Q. There's information sheets out there that an  
16 E-2 designation excludes all combination and  
17 single-unit certified vehicles from crossing  
18 a specific bridge. So it's basically  
19 weight-restricted; correct?

20 A. (Zysk) Yes.

21 Q. I don't know if you can speak for Mr.  
22 Alexander or not. But was a review done of  
23 the weight-restricted bridges or the  
24 "red-listed" bridges along the entire route

1 to see where they were?

2 A. (Zysk) Yes.

3 Q. So would any of those -- I don't know if this  
4 one does. But do any of the others restrict  
5 the Applicant's use of those roads and some  
6 of the equipment?

7 A. (Zysk) Potentially. If I recall correctly,  
8 we found one red-listed bridge directly on  
9 the route as proposed. There were numerous  
10 ones adjacent to the route, which, depending  
11 how they choose to access the work zones and  
12 how they manage or how they propose to get  
13 equipment there, could come into play.

14 Q. All right. Okay. I'm going to jump around a  
15 little bit.

16 A. (Zysk) Jump around.

17 Q. So I think it was Mr. Pappas who showed you  
18 this copy of Applicant's Exhibit 223, and  
19 specifically in the area of the barn. And if  
20 I heard you correct, when Mr. Pappas asked  
21 you about going across the road to avoid the  
22 barn and the impacts, you said that this  
23 would require construction to take longer and  
24 would impact traffic more; correct?

1 A. (Taylor) That was the assessment. Correct.

2 Q. But you weren't implying that the Applicant  
3 should go straight, impact the barn, to  
4 lessen traffic impact and construction time,  
5 were you?

6 A. (Taylor) No. Our response to that was merely  
7 to point out that it would take longer for a  
8 number of reasons: One, it's a longer route  
9 by default than just going straight. Going  
10 around the barn certainly makes sense. But  
11 also from a traffic control standpoint,  
12 instead of there being a closure, a one-lane  
13 closure in, say, a static area in front of  
14 the barn, you would now need it on both sides  
15 of the road in an alternating fashion. That  
16 was really what we were trying to get across.

17 Q. But isn't it a fair assessment to say that to  
18 do this line and to avoid things like the  
19 barn on one side of the road -- and I think  
20 you saw pictures of up near the Gale River  
21 Motel -- that there's issues on both sides of  
22 the road, that the line inevitably is going  
23 to have to cross from one side of the road to  
24 the other to avoid some of those impacts?

1 A. (Zysk) Oh, I fully expect it will, yes. Or  
2 maybe less deviations in areas of ledge or  
3 trees as identified in other areas.

4 Q. So it's really how they manage the traffic  
5 control during those road -- from crossing  
6 from one side of the road to the other.

7 A. (Bascom) I think part of the issue, in  
8 regards to this diagram, was that it was  
9 offered as a means to address where there  
10 might be structures or, you know, trees,  
11 anything that might be close to the edge of  
12 the right-of-way and not being able to  
13 excavate and create a trench immediately  
14 adjacent to that edge of the right-of-way.  
15 And the Applicant proposed this as a means of  
16 avoiding some of those constrained areas.  
17 And in response to that, I think Dewberry was  
18 responding to the fact that, you know, what  
19 would that do in terms of comparing a  
20 straight route versus one where you need to  
21 alternate additional travel lanes in the  
22 construction process.

23 Q. I don't really remember it being presented  
24 that way, but I'm not going to testify for

1 the Applicant. So I will move on.

2 CMSR. BAILEY: Can I ask a  
3 follow-up?

4 MR. OLDENBURG: Sure.

5 QUESTIONS BY CMSR. BAILEY:

6 Q. I heard you say this yesterday and again  
7 today, I believe you. But you said they  
8 would have to close -- to go around the barn,  
9 they would have to close the lane on the  
10 left-hand side of the picture for a while,  
11 and then they'd have to close the lane on the  
12 right and then close the lane on the left  
13 again just to do that one piece around the  
14 barn. Couldn't they do both trenches to the  
15 center line on the left-hand side at the same  
16 time and only close it once?

17 A. (Taylor) They could. In this example where  
18 it's graphically they're close together, that  
19 would certainly make sense. If this  
20 situation were a crossing, let's say 2,000  
21 feet apart, then it probably wouldn't make  
22 sense to run the scenario that you just  
23 mentioned. But it's certainly an option.

24 Q. And do you think there are locations where

1 the crossing is going to be 2,000 feet?

2 A. (Taylor) That was just an example. I'd have  
3 to go back and look at the -- I don't recall  
4 from all the exemption requests.

5 But to go back to your original  
6 question, if they're close together, say  
7 within the 1600-foot zone that they indicated  
8 would be their maximum, then it probably  
9 would make sense to do both at one time.

10 Q. Okay. Thank you.

11 A. (Zysk) I would note, too, that if it was a  
12 short, longitudinal direction crossing, when  
13 they get to the point of installing the  
14 cables in the trench, crossing both lanes of  
15 traffic would indicate to me that it would  
16 require a road closure for some length of  
17 time to lay them in the trench. I don't  
18 think they'd be pulling them through the  
19 trench. This is just a --

20 A. (Bascom) The installation process would  
21 involve installing the conduits, backfilling,  
22 and at least temporarily restoring the road  
23 surface condition. The cable pulling would  
24 occur at manholes probably remote from these

1 areas, or at least not shown on the diagram.

2 So the impact during cable pulling would

3 be --

4 A. (Zysk) Then the conduit installation --

5 Q. (Bascom) Yeah. It's the civil part that

6 would involve the lane closures, not the

7 cable pulling.

8 QUESTIONS BY MR. OLDENBURG (CONT'D):

9 Q. So that sort of leads me into my next  
10 question. Some of these operations I think  
11 are inherently going to require a road  
12 closure of some sort. Could be short-term  
13 off-loading of equipment. So you're bringing  
14 in an excavator on a flatbed. You got to get  
15 the flatbed off -- there's not enough room on  
16 the side of the road.

17 So another example we've seen pictures  
18 of is the cranes lifting the splice vaults.  
19 If that's -- would you envision that being  
20 lifted right next to moving traffic? Or  
21 would you envision that, while that was being  
22 picked off the flatbed and put into place,  
23 that you would close traffic, just in case?

24 A. (Bascom) It would depend. But if the swing

1 was above a travel lane, I think definitely  
2 the lane would be closed during that process.  
3 And that's something that's not necessarily  
4 illustrated on some of the diagrams. If, for  
5 example, they were to swing the splice vault  
6 over the shoulder, if there were space to do  
7 that, it's possible that they could set it  
8 without closing a traffic lane. So it could  
9 happen either way, depending on the size of  
10 the equipment and the footprint of the  
11 equipment that might be required.

12 Q. Okay. All right. From the information you  
13 reviewed pertaining to the HDD drilling, can  
14 you estimate how much one of the typical HDD  
15 drilling operations might cost, ballpark?

16 A. (Bascom) This is something that -- I'm not an  
17 estimator. But on the order of \$500 to  
18 \$1,000 per linear foot is a typical,  
19 potential cost. And it could be higher  
20 depending on the soil conditions.

21 Q. And some of these could be in the millions?  
22 Million dollars maybe?

23 A. (Bascom) Probably on the upper end. I would  
24 think below that, but in the hundred thousand

1           dollar range, and several hundred thousand  
2           dollar range for some of the longer  
3           directional drills.

4    Q.    So this is Counsel for the Public 550, which  
5           is a copy of an exemption request.  And I  
6           realize this one might have been withdrawn.  
7           But just for -- it was there.  I think it was  
8           presented in another part of the testimony.

9                    But the real question is:  In this part,  
10                   this is a section up north.  Let me go back  
11                   to the previous slide.

12                   So it's in Stewartstown on Bear Rock  
13                   Road.  It's one of the very narrow roads that  
14                   was in question.  This is an HDD drilling  
15                   site, and the sole purpose is to avoid a  
16                   36-inch culvert.  Does it seem reasonable to  
17                   spend that much money to -- and I'm not  
18                   really sure the reason why an HDD drilling  
19                   site is required to avoid or to go simply  
20                   under a 36-inch pipe.  That pipe just doesn't  
21                   seem very large to me to require that  
22                   operation.  Is there anything you could offer  
23                   to help me understand why this would be  
24                   required?

1 A. (Bascom) The only thing I could potentially  
2 see is that perhaps the surface conditions  
3 are such that conventional trenching or more  
4 conventional trenching might be undesirable  
5 from the standpoint of the type of soil or  
6 some aspect of the construction, or  
7 interference with features along that section  
8 of the route where directional drilling would  
9 avoid disturbing those areas. But I can't  
10 speak to the nature of why the Applicant  
11 selected certain areas for directional  
12 drilling and not in others except for some  
13 select location where there's an obvious  
14 obstacle.

15 Q. So your thought is it might not be the  
16 36-inch pipe, it might be something else?

17 A. (Zysk) It could be a combination of factors.

18 Q. All right. That's fair enough. So, based on  
19 that answer, I will skip my next question.

20 So, one of the concerns that you had was  
21 damage to the roadways. And Mr. Needleman  
22 covered that. But to sort of piggyback on  
23 that, did you see it stated anywhere, or have  
24 you seen any requests for the Northern Pass

1 Project to request the use of oversize or  
2 overweight vehicles?

3 A. (Zysk) Not to my recollection.

4 Q. So, in this state, if you're transporting an  
5 oversize or overweight vehicle, you need a  
6 permit to do that. You haven't seen anywhere  
7 that they're going to request that. So your  
8 assumption is that all the loads -- all the  
9 vehicles being used would be legal loads?

10 A. (Zysk) Yes.

11 Q. So if they're legal loads, technically they  
12 shouldn't impact -- just driving on roads  
13 shouldn't impact or damage the roadway system  
14 for all --

15 A. (Zysk) Just getting to and from a location, I  
16 would expect not.

17 Q. Okay. I think it was Mr. Needleman and their  
18 testimony -- I think the construction panel's  
19 testimony said that any road that was damaged  
20 due to construction would be fixed. So  
21 you're aware of that as well?

22 A. (Zysk) Yes.

23 Q. Okay. So one of the other issues you brought  
24 up was concerns with construction activities

1 related to the soil erosion and sediment  
2 control for the Project; correct?

3 A. (Zysk) In the overhead areas primarily.

4 Q. So when I asked during my questioning of the  
5 construction panel originally, I had brought  
6 up this sort of assumption that you see on  
7 the screen. And it dealt with the length of  
8 the access roads required, the number of  
9 towers, the time frame involved, and then an  
10 assumption of if you just simply do the math,  
11 it says that they have to do 1100 feet of  
12 access roads. You see all the rest of the  
13 calculations.

14 So at the time this might have been the  
15 case, it might have switched around a little  
16 bit based upon plans, but I haven't -- or  
17 changes in the plans, but I haven't seen it.  
18 So if they have to build 1100 feet of access  
19 road per day, and there's multiple crews  
20 doing that, the idea, from what I've heard,  
21 is that there's going to be environmental  
22 monitors. There's going to be BMP crews sent  
23 out ahead of the construction to put in, you  
24 know, erosion and sediment control. There's

1 a whole series of things that are going to  
2 happen to avoid soil erosion and sediment  
3 issues.

4 So is your concern that you haven't seen  
5 enough details or some of the BMPs are  
6 lacking? Could you sort of -- I've read the  
7 report, but I sort of don't have a clear  
8 handle on your concern and how they could  
9 address your concerns.

10 A. (Zysk) It was primarily due to the incomplete  
11 nature of the plans, as I think I described  
12 this morning. There were locations where  
13 they used a line style that was a generic BMP  
14 type of thing. But as to the type of BMP  
15 proposed, or types in any given location,  
16 there was no detail of that. They listed a  
17 number of potential applications, all of  
18 which have their pluses and minuses and  
19 appropriate application points. But as to  
20 what was being proposed where, there was no  
21 detail of that. And there were a lot of  
22 locations where there will be BMPs required  
23 where there was none shown. And I assume  
24 that was partly due to the preliminary nature

1 of the plans, but that's what we had to work  
2 with.

3 Q. And the plans you were reviewing were the --

4 A. (Zysk) Very first iteration, yes.

5 Q. We talked about the Karner blue butterfly, so  
6 I won't cover that again.

7 This was Counsel for the Public's  
8 Exhibit 555, which is the Gale River  
9 Crossing. And this was shown as a  
10 microtunneling operation. Did you review  
11 this as a microtunneling operation?

12 A. (Zysk) Yes.

13 Q. Okay. Were you aware that in the latest  
14 construction panel, as Mr. Thompson called  
15 it, "the reunion," bringing back the  
16 construction panel recently, that the  
17 location was being revisited as a possible  
18 HDD site?

19 A. (Zysk) I did note that in some of the later  
20 testimony, that there was just consideration  
21 to do some more investigation, detailed  
22 investigation at this location.

23 Q. But you don't have any information to offer  
24 an opinion whether that's a good idea or bad

1 idea?

2 A. (Bascom) I would just offer that  
3 microtunneling or pipe-jacking generally  
4 would permit being shallow or below the  
5 stream, or, you know, the river that's here,  
6 from the standpoint of managing that  
7 construction area. With directional  
8 drilling, the setback, the amount of distance  
9 you need to be back from where you start and  
10 end the directional drill, is a greater  
11 challenge because there's a limit on how  
12 quickly you can change elevation vertically.  
13 Particularly in your diagram, the left side,  
14 to get back up to street level for the normal  
15 trench would potentially be a greater  
16 challenge from projects that I've seen using  
17 directional drilling. And so pipe-jacking or  
18 microtunneling might be a more logical  
19 approach to compress the work areas on either  
20 side of the project, or this particular  
21 location.

22 Q. So, with HDD drilling, the further down you  
23 go, that is the further out the drill rig and  
24 the receiving pit have to be; right?

1 A. (Zysk) In general, yes.

2 Q. Simple math.

3 A. (Bascom) My understanding is the entry and  
4 exit angle for most directional drills is on  
5 the order of 8 to 25 degrees. And  
6 conservatively, they would want to be a  
7 certain distance below the bottom of the  
8 river to minimize the possibility of  
9 unintended returns or sometimes "frack-out."  
10 So to be down 20 or potentially 30 feet below  
11 that water bottom, the setback for  
12 directional drilling would have to be  
13 greater. And in particular, to get back on  
14 their main route on the left side of your  
15 diagram that's on display, they're going to  
16 need that same amount of space to come back  
17 up; so the setback would be greater. And,  
18 you know, in looking at this, it seems like a  
19 more logical application for either  
20 pipe-jacking or microtunneling.

21 Q. All right. This you've seen obviously before  
22 as part of your report. I had some questions  
23 with regard to the red cross-hatched areas.  
24 Those are the work limits; correct? But

1           that's -- and this is identified as a jack  
2           and bore location. Is that still the case?

3    A.    (Taylor) That's correct. And the red areas  
4           are the work areas the Applicant had shown  
5           associated with each side of the jack and  
6           bore.

7    Q.    So if it's a jack and bore, there's a jacking  
8           pit and a receiving pit; correct?

9    A.    (Zysk) Yes.

10   Q.    That's typically how that works. So in the  
11          photo simulation that's shown here, I'm  
12          assuming the excavator and dump truck are --  
13          this shows digging the jacking pit. And then  
14          is the sheet piling that you see there,  
15          that's usually driven in and formed for walls  
16          of the pit; correct?

17   A.    (Zysk) Yes.

18   Q.    So that the hydraulic ram that pushes the  
19          pipe is up against that sheet piling; is that  
20          correct?

21   A.    (Zysk) Sometimes. Other times they drive  
22          additional sheeting into the base of the pit  
23          and anchor it to those -- or not sheeting,  
24          but H piles they would anchor to the bottom

1 of the pit and use the H piles as the  
2 resistance.

3 Q. So when they drive the piles in, they don't  
4 use an excavator. They use basically a pile  
5 driver; correct?

6 A. (Zysk) Whatever. Vibrator or some method.

7 Q. Or a vibrator. So is there vibration  
8 concerns being so close to, like, that house?

9 A. (Zysk) I would expect so, yes. This would  
10 require like a pre-construction survey of the  
11 condition of the property.

12 Q. So they do vibration monitoring, in effect --

13 A. Right.

14 Q. -- prior to construction?

15 A. Right.

16 Q. So this is the photo simulation that Dewberry  
17 did for Downtown Plymouth; correct?

18 A. (Taylor) Correct.

19 Q. And we've heard a great deal about impacts  
20 with the businesses and everything else that  
21 could come about because of the construction.  
22 But one of the things that Mr. Bowes had  
23 testified on, on Day 3, which was during the  
24 route selection testimony, was that going

1 down Main Street wasn't Northern Pass's first  
2 choice, that they had actually identified  
3 three other alternatives. And so this is Mr.  
4 Bowes's testimony where I asked him about,  
5 you know, why are you going down Main Street  
6 in Plymouth, basically. And he said, "We  
7 looked at three other alternative routes with  
8 Downtown Plymouth and towards the river."  
9 And basically, if you read on to the end, he  
10 basically says the talks broke down with the  
11 Town of Plymouth, so they basically were  
12 forced to go down Route 3 because it's under  
13 state jurisdiction and not the town.

14 So, to avoid impacts to the Downtown  
15 Plymouth area, it seems like their first  
16 choice, which was to avoid going Downtown  
17 Plymouth, was the better option; wouldn't you  
18 agree? I mean, if you had to go down one  
19 place you wouldn't want to be, it'd be  
20 Downtown Plymouth, down Main Street, wouldn't  
21 you think?

22 A. (Bascom) I mean, there's a lot of factors  
23 that could play into that. One certainly  
24 would be perhaps a simpler traffic control

1           plan or disturbances to residences as opposed  
2           to commercial businesses, which may or may  
3           not have greater benefit. And so those were  
4           probably all factors that they evaluated.  
5           And I don't think any of us can speak to why  
6           Plymouth decided not to agree or, you know,  
7           allow other alternatives. So the Applicant  
8           was required to stay within the confines of  
9           where an approval process was available to  
10          them, which would have been on a state road,  
11          as I understand it.

12    Q.    All right. You talked previously about this  
13          in-line trenching, the "train," the exhibit  
14          that you see. Actually, I think we covered  
15          this already, so I'm going to skip that one  
16          because it dealt with the plating.

17                    But in the same presentation you saw the  
18          splice pitting -- or the splice box enclosure  
19          installation. This is the whole set of  
20          pictures that were submitted in that  
21          presentation. None of those are directly in  
22          or adjacent to a roadway, are they?

23    A.    (Bascom) It doesn't appear to be that way.  
24          Although, if you can go back, on the left

1 side there, they're showing a shoring box.  
2 It's possible that has the pavement removed  
3 and the pavement cut on the left and perhaps  
4 a sidewalk or pavement on the right. So that  
5 could be in the travel lane. It's not clear.

6 Q. Doesn't look like the road is open, though;  
7 right?

8 A. (Bascom) That's correct.

9 Q. So in the original construction panel  
10 testimony, when asked about digging a  
11 10-foot-deep hole directly adjacent to a  
12 travel lane, Ms. Farrington stated that a  
13 concrete barrier would be needed. Have you  
14 seen any details that would represent the use  
15 of concrete barriers to protect the traveling  
16 public from falling in or driving into an  
17 open pit like that?

18 A. (Zysk) Not to this date I have not.

19 Q. If that was required, would that  
20 complicate -- if a jersey barrier was needed  
21 to protect the traffic, wouldn't that  
22 complicate the traffic control plans?

23 A. (Bascom) It would certainly occupy some of  
24 the space available for the traffic control

1 plan, as well as I guess the time to set it  
2 in place.

3 A. (Zysk) Yeah, you would have to account for  
4 the footprint of the barrier in the available  
5 space to maintain your lane of traffic if you  
6 were to do that, in addition to the width  
7 required for the excavation.

8 Q. All right. So they'd have to -- things that  
9 would have to be considered would be like  
10 delivering the concrete barrier, which  
11 usually comes on like a flatbed. You need a  
12 crane or some sort of small excavator to  
13 place it. You'd need traffic impact  
14 attenuators, correct, to protect the ends?

15 A. (Zysk) Yes.

16 Q. And if it's left at night, you would need --

17 A. (Bascom) Temporary lighting.

18 Q. -- temporary lighting. And then if it's  
19 one-way alternating traffic, we'd need  
20 temporary signals; correct?

21 A. (Zysk) Yes, or at least someone there, call  
22 it a flagger, around the clock, yes.

23 Q. So this is sort of my last series of  
24 questions. A great deal's been made about

1 the completeness of the Application and the  
2 plans that were submitted. And it was stated  
3 that the plans that were submitted were about  
4 a 30-percent stage. Is that your assessment,  
5 a fair assessment of the plan completeness  
6 that you've seen as part of the Application?

7 A. (Taylor) Sure. The initial plans we reviewed  
8 I would say were around 30 percent. What we  
9 typically see at 30 percent is generally the  
10 horizontal location, property rights and  
11 survey taken into account, things of that  
12 nature. And then between 30 and 60 percent  
13 is where you get into horizontal and vertical  
14 alignment. In this particular case, the  
15 30-percent plants did have a vertical  
16 component to it, but as we have seen as more  
17 information has become available, the  
18 vertical and the horizontal being considered  
19 together, I think that's what's causing some  
20 of the changes that we've seen.

21 Q. So in your experience on other projects, it's  
22 not uncommon for an Applicant to submit  
23 30-percent plans with an application?

24 A. (Taylor) I can't speak for what the SEC

1 typically sees. But for entitlement-level  
2 documents, somewhere between 30 and 60 is  
3 what I have typically seen; so, some level of  
4 horizontal and vertical. And I would say  
5 that in areas where there's what I would  
6 consider heavier existing underground  
7 utilities, more in the way of utility  
8 designating, which is the painting of the  
9 utilities that we called out in our report I  
10 would expect to see, so that the horizontal  
11 and at least consideration to how the  
12 vertical is done, is done with a little bit  
13 more information.

14 Q. Okay. But it wouldn't be uncommon for you to  
15 see changes. I mean, if you're only at  
16 50-percent complete and you have 50 percent  
17 more to go, it wouldn't be uncommon or  
18 unheard of to see changes made in the design.

19 A. (Taylor) That's correct. Also what we see  
20 is, typically at 60 percent, the full  
21 60-percent plans would have horizontal and  
22 vertical. It would have Level D, C, B, and A  
23 surveying, which gets into test pitting and  
24 the utility designating. And particularly

1 for underground routes where you have  
2 existing infrastructure, that oftentimes  
3 becomes a very key factor in that.

4 Q. So as a project works towards final design  
5 plans, it isn't unheard of to see changes  
6 like in the right-of-way that's shown. I  
7 mean, we've heard a lot of testimony about  
8 the incompleteness of the right-of-way. I'm  
9 trying to judge whether or not that's a  
10 problem.

11 A. (Zysk) I would offer not to the extent that  
12 the changes are being required here. There  
13 may be one or two locations where the  
14 right-of-way may need to be adjusted based on  
15 later information that comes forward. But I  
16 think the amount of right-of-way that is  
17 still undetermined or not satisfactory to the  
18 DOT's outlook is more than I would expect.

19 A. (Bascom) It's probably fair to say that in  
20 alignment selection, where it's  
21 space-constrained or space-critical, the  
22 level of detail is usually greater.

23 A. (Zysk) Yes, I would agree.

24 A. (Bascom) And I think my experience is

1 normally more in an urban setting where that  
2 is important. But there's usually a much  
3 higher detail of utilities. Having said  
4 that, in many areas along the route, it's  
5 generally a rural area, so the extent of  
6 underground utilities is probably more  
7 limited. So the extent that that would be  
8 necessary for the bulk of the route is  
9 probably less, with some exceptions like, for  
10 example, Downtown Plymouth as an example.

11 Q. Originally the plan was to put the line under  
12 the pavement, so the right-of-way location  
13 might not have been such a great concern.  
14 Now the idea is to move it out towards the  
15 right-of-way, and towards the right-of-way  
16 location is a big concern; correct?

17 A. (Bascom) Yes, definitely, because it impacts,  
18 you know, private property, potentially. One  
19 example we heard today was somebody's septic  
20 tank might be close to the boundary or in an  
21 area where reasonably the Applicant might  
22 have thought they could put the alignment.  
23 And until some of those designations and  
24 call-outs and soft digs have been done to

1 explore the critical areas, that remains  
2 uncertain as to where that's -- if that's a  
3 viable alignment.

4 Q. So with the plans the way they are and your  
5 experience on other projects, is it uncommon  
6 to see like the splice box changes, locations  
7 being changed on a project?

8 A. (Zysk) I wouldn't expect that to be uncommon,  
9 no.

10 Q. What about --

11 A. (Bascom) I was just going to offer, in some  
12 cases there might be an effort to eliminate  
13 some splice boxes if there was perceived the  
14 ability to maybe pull cable a longer  
15 distance -- for example, a different location  
16 to site a splice box. It would be prudent to  
17 maybe try and do that. It would both make  
18 the construction simpler and also probably  
19 less cost for that immediate area. And I  
20 don't know if there's an effort or plan to do  
21 that. In some cases, that would involve  
22 getting an additional approval because it's a  
23 change. So the initial design might go  
24 forward even though there could be some

1 optimization that otherwise could occur.

2 Q. So is it a fair assessment to say that if you  
3 don't know exactly where the splice boxes are  
4 and you don't know exactly where the line is,  
5 it's hard to develop traffic control plans?

6 A. (Zysk) I would say yes.

7 Q. So it's not uncommon that the final traffic  
8 control plans haven't been developed yet  
9 because the line design hasn't been done? Or  
10 would you typically expect to see more  
11 information?

12 A. (Taylor) We'd prepare similar type plans.  
13 It's really at the 60-percent level that full  
14 traffic control plans and sequencing is --  
15 "pen is put to paper," so to speak.  
16 Consideration is given heavily to the traffic  
17 control between 30 and 60 percent is my  
18 experience, even though it might not be  
19 shown.

20 Q. All right. So, given the plans the way they  
21 are, or the way they were submitted, it isn't  
22 unheard of to have like the exception  
23 requests through the Utility Accommodation  
24 Manual being requested at this time; correct?

1 A. (Zysk) That doesn't -- no, I don't think  
2 that's unreasonable. Now that they've given  
3 a first cut on where their line is going to  
4 be and made some adjustments, they realize  
5 that they need waivers. So, yeah, now would  
6 be an appropriate time to apply for that.

7 MR. OLDENBURG: I think that's  
8 all the questions I had.

9 CHAIRMAN HONIGBERG: Commissioner  
10 Bailey.

11 QUESTIONS BY CMSR. BAILEY:

12 Q. Good afternoon. I think I just have one area  
13 of follow-up that I would like to ask you  
14 about.

15 Do you remember, and I don't know who  
16 said this yesterday, but when you were  
17 talking about the plates, you said that  
18 generally the plates were 4 feet by 8 feet,  
19 but that they come in larger sizes if  
20 available and if they can get them to the  
21 site.

22 A. (Zysk) Yes.

23 Q. Was that you, Mr. Zysk?

24 A. (Zysk) Yes.

1 Q. Okay.

2 A. (Zysk) They come in many sizes for  
3 applications for covering trenches. Four by  
4 eight is a common size.

5 Q. But the splice box pits are 12 by 24; right?

6 A. (Zysk) They're 12 by 34.

7 Q. Okay. Four-by-eight plates aren't going to  
8 fit --

9 A. (Zysk) I don't believe they plan to cover the  
10 splice pits with steel plates. This is for  
11 just the regular trench.

12 Q. Okay. So what will they do when the splice  
13 pits are open?

14 A. (Zysk) Those will have the barriers around  
15 them that Mr. Oldenburg referred to, and they  
16 will remain a work zone until both pieces of  
17 the splice pit -- the splice box are put in  
18 place and then the pit is backfilled.

19 CMSR. BAILEY: Okay. Thank you.

20 CHAIRMAN HONIGBERG: Ms.

21 Weathersby.

22 QUESTIONS BY MS. WEATHERSBY:

23 Q. Good afternoon, gentlemen. A few follow-up  
24 questions.

1           In response to a question from Mr.  
2           Oldenburg, you indicated there was a red-list  
3           bridge along the route. Could you tell me  
4           where that's located?

5    A.    (Zysk) I don't have that information with me.  
6           If Mr. Alexander were here, he could answer  
7           that. I do not have that.

8    Q.    Am I correct that a red-list bridge typically  
9           would have certain weight limit, a reduced  
10          weight limit?

11   A.    (Zysk) Correct.

12   Q.    And do you know if the vehicles proposed to  
13          be used exceed that weight limit?

14   A.    (Zysk) Potentially.

15   Q.    Do you know if the Applicant has any plans to  
16          address the red-list bridge issue?

17   A.    (Zysk) I'm unaware of any plans at this time.

18   Q.    When you were just discussing microtunneling  
19          versus HDD, it just occurred to me, and I'm  
20          just wondering: Would microtunneling in  
21          general be a better option for the places  
22          where HDD is proposed for this project,  
23          particularly in areas where the space  
24          constraints -- it sounded like if it's a

1 smaller work area, there's less disturbance,  
2 et cetera. So I'm wondering about your  
3 opinion whether more microtunneling would be  
4 beneficial instead of HDD.

5 A. (Bascom) It really depends on the locations  
6 and the construction methods that would be  
7 permissible in a certain area. There are  
8 advantages to both techniques. And there are  
9 some situations where perhaps the length of  
10 the horizontal directional drilling could be  
11 reduced, and that might be a design element  
12 that would be pursued later. The size of the  
13 conduit that's being installed is relatively  
14 small, with individual cables in each  
15 conduit, as opposed to larger casing where  
16 both cables would be in the same casing. By  
17 having it be smaller, the size of the  
18 equipment and the length that might be  
19 necessary to traverse an obstacle could be  
20 reduced potentially. So those are factors  
21 that I would think would be evaluated. Given  
22 that the Applicants have submitted between a  
23 30- and 60-percent design, but not a  
24 hundred-percent design, I would anticipate

1           that there might be some changes potentially  
2           in the civil design that could include  
3           alternative methods in some of those areas.  
4           So it is possible, to answer your question.

5    Q.    So you would anticipate the Applicant sort of  
6           analyzing that choice as part of maybe a  
7           mitigation method or an alternative approach?

8    A.    (Bascom) Yes, I would. It would affect, for  
9           example, the footprint of the equipment  
10           that's being used in areas where maybe some  
11           of these bridges are constrained by weight  
12           limits. It might involve bringing smaller  
13           equipment to the site. And I don't know to  
14           what extent all these locations have been  
15           evaluated. And that could be part of their  
16           ongoing process which at this point I'm not  
17           aware of. But those are factors that  
18           typically would be associated with the design  
19           of an underground alignment.

20   A.    (Zysk) I would offer two things. One is the  
21           space requirement. The microtunnel that is  
22           currently shown on the plans, the sending  
23           pit, the launching pit, as it were, is some  
24           30 feet in diameter, and then they would

1 require some additional workspace around  
2 that. So their work zone goes from 30 feet  
3 by 300 to maybe 35-plus by 300 as one. And  
4 then the microtunnel duration, if you'll  
5 recall, was projected to be 8 to 12 weeks,  
6 with an additional several weeks at either  
7 end to make the connection from the regular  
8 surface trench down to the pit depth. So it  
9 would be longer at each location versus a 4-  
10 to 6- to 7-week HDD process.

11 Q. Okay. Thank you.

12 When you were discussing with Mr.  
13 Oldenburg about the HDD drill going in and  
14 hitting the boulder and it kind of deflecting  
15 a bit, what happens? What does the Project  
16 do then when it doesn't seem to want to go  
17 through the boulder or the ledge but instead  
18 deflect?

19 A. (Bascom) Sometimes, in some cases, they may  
20 have to seek an alternate drill path, a  
21 variance on their plan. The process during  
22 the drilling is the equipment can be  
23 essentially reversed, and then they can try  
24 and steer in a different direction to avoid

1 an obstacle like that if it's an unknown  
2 obstacle. So there are techniques that can  
3 be done in the field. But that adds time  
4 because it's an unplanned event and, you  
5 know, it's something that might be addressed  
6 in the field. But there are construction  
7 strategies during construction that would  
8 seek to do that. In advance, the number of  
9 borings and the locations of the borings  
10 helps to identify those potential obstacles.

11 One of the difficulties with directional  
12 drilling is that, by doing borings themselves  
13 to understand the conditions, it also  
14 introduces channels through which unintended  
15 returns can occur. So the strategy when  
16 you're doing geotechnical borings is to  
17 offset by a certain distance so that you're  
18 not along your expected drill path. And by  
19 virtue of that, you could miss the obstacle  
20 or identifying the obstacle that you're  
21 trying to avoid. So there is some  
22 uncertainty associated with that work, and  
23 that's part of the due diligence of the  
24 design process.

1 Q. So if it hit, you know, a sizable piece of  
2 ledge, for example, that it couldn't just  
3 take a 2-foot detour and go around, do they  
4 have to change the route considerably, or are  
5 there different drill bits that could perhaps  
6 penetrate through? What would happen if  
7 something was very sizable?

8 A. (Bascom) It depends. If it's ledge, which is  
9 just a solid mass of rock, from a drilling  
10 standpoint, that's actually somewhat  
11 desirable because it's a very stable,  
12 consistent drilling medium. Where the  
13 directional drilling runs into more  
14 challenges is where there's more variable  
15 conditions; so, soil to rock, back to soil  
16 and so forth. And the types of drilling  
17 heads like you describe are tailored to  
18 certain types of conditions. The boulders  
19 are suggested to be a large mass of rock and  
20 another type of material. So if you're  
21 drilling through a granular backfill  
22 material, a soil, and you encounter the rock,  
23 the drill head might not be the appropriate  
24 tool for getting through that boulder. And

1            simply the nature of the roundness of a  
2            boulder, actually having the equipment bite  
3            into the boulder and be able to penetrate it  
4            can be a challenge.

5            QUESTIONS BY MR. WAY:

6            Q.     And just one follow-up on that. With regards  
7            to boulders and trenches, the intent would be  
8            to take care of the boulder right in the  
9            trench and break it up at that point. Do you  
10           envision boulders being brought out of the  
11           trench?

12           A.     (Bascom) If the nature of that installation  
13           section is to use directional drilling, the  
14           intent is not to create an excavation from  
15           the surface. You're trying to go through the  
16           obstacle. So if a boulder is encountered  
17           with directional drilling, the intent would  
18           be to try and steer around it by either going  
19           to either side, above or below. And the  
20           drilling contractor would attempt to do that  
21           I think in the process.

22                      If a boulder was encountered in an  
23           open-cut trench, the intent would probably be  
24           to cut it, blast it or some other way of

1           demolishing it and then removing it from the  
2           active trench so that the conduits could be  
3           laid and the backfill material could be  
4           introduced.

5    Q.    Doing it right in the active trench.

6    A.    (Bascom) Right in the active trench for  
7           open-cut trenching, yes.

8    Q.    Thank you.

9    BY MS. WEATHERSBY (CONT'D):

10   Q.    You also expressed concern regarding heat in  
11          the Tier 5 and 6 roads because of the trench  
12          not being deep. Sounded like because it was  
13          not deep enough. Is there a depth at which  
14          that problem would go away?

15   A.    (Bascom) Generally speaking, there will be  
16          some elevation in the temperature around the  
17          cables at any depth. But as the cables are  
18          installed deeper, the likelihood of that  
19          occurring is diminished. In the typical  
20          installation depth offered by the Applicant  
21          for the open-cut trenching, it appears as  
22          though there could be some increase in  
23          temperature directly above the cables. And  
24          the impact on that, particularly under a soil

1 or gravel road, is something that I think  
2 Adam evaluated.

3 A. (Zysk) Yeah. Based on the reports that we've  
4 seen, I couldn't tell you a set depth at  
5 which it would not be a concern. However,  
6 the deeper the cable is, the more distance it  
7 has to dissipate heat before it reaches the  
8 surface, the road surface.

9 Q. Right. But you're not able to say the magic  
10 number is 6 feet or --

11 A. (Zysk) Not at this point, no.

12 Q. Okay.

13 A. (Bascom) We weren't tasked with evaluating a  
14 design on behalf of the Applicant that would  
15 alleviate that concern. Our main goal is to  
16 assess the configuration that they evaluated.  
17 And we confirmed that and generally agree  
18 with what they've prepared. And it does show  
19 a minor, but measurable increase in  
20 temperature if the cables are operated for an  
21 extended period of time at their full  
22 capacity.

23 Q. All right. Yesterday we were talking about  
24 McAllaster Road and where Northern Pass

1 proposes work areas of 25 feet and  
2 27-foot-wide work zones by 300 feet. And we  
3 kind of talked around it but never got the  
4 conclusion. I'm wondering if, in your  
5 opinion, the 25-foot and 27-foot-width work  
6 zones by 300 feet long, are those  
7 realistic-sized work zones?

8 A. (Zysk) I think they're possible. More room  
9 is better. But if the Applicant has  
10 indicated that a 25-foot zone is acceptable  
11 for that work area, I will accept that.

12 QUESTIONS BY MR. WAY:

13 Q. And so on that roadway, that proposed work  
14 zone, when you make that statement, are you  
15 taking into account the activity that we're  
16 talking about that would come down McAllaster  
17 Road -- so, in other words, the type of  
18 trucks that would be using that road? Or is  
19 it generally that 25 feet is a good space?

20 A. (Zysk) The 25-foot space is tight based on  
21 the typical work zones that they have shown.  
22 And they may have to reorient some of their  
23 machinery and their equipment a little bit  
24 differently to make that zone work. And how

1 the zone is configured in relation to the  
2 available roadway would determine whether the  
3 road could still accommodate the vehicles  
4 that are on the road, that use that road.

5 Q. All right. Thank you.

6 BY MS. WEATHERSBY (CONT'D):

7 Q. Just a few kind of general questions about  
8 your experience with other projects.

9 Is it safe for me to assume that you  
10 presently or formerly have been involved with  
11 transmission line projects which are  
12 presently under construction?

13 A. (Taylor) That's correct.

14 A. (Zysk) Yes.

15 Q. And do you know if on any of those projects  
16 whether they've experienced a shortage of  
17 qualified workers to work the Project?

18 A. (Taylor) I can speak from the civil side. I  
19 wouldn't be able to say whether they're  
20 qualified or not, but the general word I hear  
21 in the market is that there are not enough.  
22 There's a shortage of help is what I have  
23 been hearing for quite some time.

24 A. (Bascom) And for the electrical component,

1 the personnel that do the splicing and  
2 termination of the cable and the general  
3 handling of the cable are fairly specialized  
4 contractors, and there is a constraint on  
5 that resource in general as well in the  
6 industry.

7 Q. Do you think the shortage of those types of  
8 workers which you've just described is  
9 exacerbated at all by the hurricanes we've  
10 experienced lately and increased  
11 infrastructure projects that are necessary?  
12 Or is that just --

13 A. (Bascom) It would depend. As an example,  
14 unrelated to this project, I have done some  
15 transmission cable design work on projects in  
16 Puerto Rico. And obviously there's a strong  
17 effort right now to do restoration work  
18 there. So the personnel that might be  
19 involved, you know, potentially would be in  
20 that type of activity. The type of cable  
21 that's being offered, the high-voltage DC  
22 cable, the splicers that would do the  
23 assembly of the splices and the terminations  
24 are likely to come from the manufacturer.

1           And given the volume of cable that's  
2           associated with this project, there might be  
3           an effort to train additional personnel to  
4           support that. But that's an unknown as far  
5           as I'm concerned at this point. But it is  
6           possible.

7       Q.    And do you have any similar concerns  
8           concerning the availability of materials, you  
9           know, conductors, cables, towers? Are those,  
10          in your experience, plentiful? Are there any  
11          problems with shortages?

12       A.   (Bascom) I can't speak to the overhead  
13           components because that's not my area of  
14           expertise.

15                   The cable itself would be manufactured  
16           in stages and batches, essentially. From the  
17           standpoint of the installation contractor,  
18           they would not want all that material  
19           arriving at one time because it wouldn't all  
20           be installed at one time. So they would  
21           stage the construction and then stagger  
22           presumably the installation of electrical  
23           components. And that includes the supply of  
24           those materials in a staggered fashion as

1 well, at least that's what I would  
2 anticipate. That is common to most large  
3 projects where the materials are arriving as  
4 they can be installed. And from the  
5 standpoint of the developer or the installer,  
6 it minimizes the laydown area for the  
7 electrical components at least.

8 Q. Mr. Zysk or Mr. Taylor, do you have anything  
9 to add?

10 A. (Taylor) I haven't noticed anything relative  
11 to the civil materials for a job like this.

12 A. (Zysk) Yeah, and as far as the tower  
13 components, typically if you had very large  
14 structural members, there are only certain  
15 times of the year when the mills produce  
16 those. But for the components that make up  
17 these towers, it's a much smaller stock in  
18 general. Unless they were to order them all  
19 at once, as Rusty described, they would  
20 spread them out, the delivery. So I would  
21 assume that, based on the information I have,  
22 they could accommodate the supply.

23 Q. Okay. Thanks.

24 Mr. Bascom, you had spoken in your

1           prefiled testimony concerning I think what  
2           you termed "unrealistic rates of  
3           construction." So I'm just going to try to  
4           pin you gentlemen down on what might be more  
5           realistic.

6                       For the HDD drilling, what would you  
7           consider a more realistic time estimate for  
8           HDD?

9    A.    (Bascom) From my experience on some projects,  
10   if the construction activity does not happen  
11   without delays, which can be associated with  
12   weather, equipment failure, equipment  
13   unavailability, the duration can be much  
14   longer than planned. I am aware of a project  
15   in a different state, entirely different  
16   conditions, but the planning time for the  
17   construction was on the order of 45 days for  
18   the directional drilling, and it took 4-1/2  
19   months because of some equipment issues and  
20   difficulty in the process. Given the volume  
21   of the number of directional drill  
22   applications that the Applicant has  
23   suggested, it seems unrealistic that all of  
24   them will go flawlessly. And given the

1 duration and time that I've typically seen  
2 with mobilization and demobilization at each  
3 site, and the actual drilling process itself,  
4 I think in some cases the three to five weeks  
5 or four to six weeks may be too short a  
6 duration.

7 I didn't quite answer your question in  
8 terms of what would be more realistic. But  
9 as an example, the bridge where they might do  
10 pipe-jacking, and they've estimated maybe up  
11 to 12 weeks, that might be realistic for some  
12 of the longer drills. On the other side,  
13 there could be a possibly of optimizing and  
14 shortening some of the directional drills.  
15 As we described earlier, there was a  
16 relatively small obstacle with a long  
17 directional drill associated with it. That  
18 could also reduce the amount of time involved  
19 and also maybe reduce the footprint and the  
20 equipment. And some of the smaller drills  
21 are commonly applied for gas lines, water  
22 lines and other types of installations, and  
23 they're more plentiful in the industry. So  
24 there's a possibility that some of those

1           could be happening in parallel or happening  
2           more quickly. That's my general experience.  
3           I didn't really answer your question.

4    Q.    Okay. Do you feel as though -- I believe the  
5           Applicant has said that the trenchless --  
6           sorry -- the open trenching would proceed at  
7           a rate of 300 feet a day. And did I hear you  
8           say that you think between 10 feet and  
9           100 feet a day per crew is more realistic?

10   A.   (Bascom) I'm aware of one project where there  
11           was a lot of rock encountered. It was a  
12           project that was constructed in Connecticut.  
13           And I heard anecdotally that the construction  
14           rate was taking -- well, the construction  
15           duration was taking three to four times  
16           longer than anticipated because they  
17           encountered a lot of rock.

18                    I understand that the Applicant has  
19           identified that there's minimal rock at the  
20           typical cable depth, and I have not formed an  
21           opinion if that is an accurate  
22           representation. But I am aware that New  
23           Hampshire is the "Granite State," so there is  
24           rock in some areas. And I would anticipate

1           that that would slow down some of the  
2           production in certain areas, both from the  
3           standpoint of maybe the time that they were  
4           allowed to do work, because excavating  
5           through rock tends to be audibly more noisy,  
6           and the equipment involved is larger. So  
7           that could put constraints on how quickly  
8           they could construct and maybe the duration  
9           of their construction hours. So those  
10          factors together influence my statement that  
11          I thought they might be unrealistically  
12          suggesting the construction rate at 300 feet  
13          per day.

14    Q.    So it sounds like, at this point in time with  
15          what we know about the geotechnical  
16          conditions, it's really difficult to make an  
17          estimate. Is that fair to say?

18    A.    (Bascom) That's true, and so my comments are  
19          somewhat speculative. But based on a general  
20          knowledge of the route and the location, if  
21          the excavation was in another area that I  
22          knew was all sand or granular material, I  
23          probably wouldn't challenge 300 feet per day  
24          on a given crew.

1 Q. Okay. I believe the Applicants also  
2 estimated cable pulling takes about four days  
3 per enclosure. Does that sound correct to  
4 you?

5 A. (Bascom) Yes, I thought that was a fair  
6 representation. Perhaps slightly more time  
7 for mobilization, demobilization at each  
8 site. But yes, I think that was fair.

9 Q. And cable splicing taking approximately five  
10 days per enclosure?

11 A. (Bascom) I believe probably for the act of  
12 splicing activity, that's a fair  
13 representation. Perhaps a day on either end  
14 of that, so up to seven days just setting up  
15 equipment and maybe removing some of the  
16 equipment that's specialized for each splice  
17 location.

18 Q. And the actual splice enclosure itself can be  
19 installed in roughly a week? Would that be  
20 accurate?

21 A. (Bascom) I think that's fair, including all  
22 the activities associated with it.

23 I will add that the excavation for a  
24 splice enclosure obviously requires digging.

1           So if they encounter rock or some hard  
2           materials where they're going to install the  
3           splice enclosure, that could also extend the  
4           amount of time that they're working in a  
5           given area.

6    Q.    Do you have an estimate for the underground  
7           portions, of the total time to construct the  
8           Project?

9    A.    (Bascom) I haven't assessed that.  No, I'm  
10          sorry.

11   Q.    Have any of you been involved in projects  
12          where the area studied for a federal permit,  
13          such as an EIS, is different than the width  
14          of the right-of-way that's available for the  
15          construction of a utility, that you can  
16          recall?

17   A.    (Taylor) I don't believe I've been involved  
18          in one.

19   A.    (Zysk) Can't say that I have, no.

20   Q.    Mr. Bascom, in your opinion, is it better  
21          engineering to install an underground  
22          transmission line above or below municipal  
23          facilities such as water lines, sewer lines,  
24          et cetera?

1 A. (Bascom) "Better" is a relative term. The  
2 underground line, if it's installed in  
3 conduits, it's unlikely that an operator of  
4 that line would need to get back to the cable  
5 at a given location other than at the splice  
6 vaults. So if the cables are located below  
7 other utilities that direct access is  
8 necessary or might be necessary, I think it  
9 would be advantageous from a planning  
10 standpoint to put the high-voltage cables  
11 below the other utilities.

12 Q. A few questions about weather, the effects of  
13 days of heavy rains. There was testimony  
14 concerning the soils adhering to the vehicles  
15 and getting onto the roads. But what other  
16 effects might heavy rains have on underground  
17 construction?

18 A. (Bascom) The excavation process, especially  
19 for open-cut trenching, involves creating a  
20 channel in the ground. And the extent to  
21 which you can work in that channel and be  
22 productive requires removing the water and  
23 keeping it dry. So if it's raining or  
24 there's consistent rain, there's a dewatering

1 effort to remove water from the trench. And  
2 depending on local requirements, that can be  
3 such that you're just discharging water onto  
4 the surface remotely, or if there's a  
5 constraint or perceived contaminant, it might  
6 require storing it in the frac tanks and  
7 hauling it away. But it adds time because  
8 the dewatering has to be configured. Well  
9 points might have to be installed to keep the  
10 trench dry for that work. Or work could be  
11 suspended for a period of time until the rain  
12 passes, possibly.

13 Q. And are you able to put in the slurry mix  
14 when it's raining, or would that affect  
15 its --

16 A. (Bascom) Properties?

17 Q. -- structural integrity?

18 A. (Bascom) I think in general it can be  
19 installed. It would depend on a case-by-case  
20 basis and if the structural components of  
21 that material were a factor in maybe  
22 satisfying DOT requirements.

23 Q. How about for the above-ground portion?

24 Heavy rains have an effect that you can think

1 of?

2 A. (Zysk) Well, similarly, installing the  
3 foundations for the overhead towers are  
4 similar to -- you're digging a hole. So the  
5 placing of the reinforcing and the concrete  
6 would probably not be -- would not be  
7 advanced during a heavy rainstorm.  
8 Delivering materials to the site, stockpiling  
9 them, moving them, maybe some ground  
10 installation or some ground assembly under  
11 some temporary cover or something like that  
12 may be allowed to proceed. I doubt they'd  
13 want to bring a crane in and start hoisting  
14 up big pieces of metal if it was a lightning  
15 storm or something along those lines.

16 A. (Bascom) And to the extent they might use  
17 helicopters to set towers or also string  
18 conductor, weather, just like with any kind  
19 of craft, would limit the opportunities with  
20 that type of equipment.

21 Q. Sure. Moving into winter.

22 Mr. Zysk, I think you testified about  
23 snow removal, needing extra personnel for  
24 traffic control. But I'm wondering for the

1 above-ground portion, if there's heavy snows,  
2 what about the construction? I mean, are  
3 they able to plow the access roads, or are  
4 the cranes and the concrete trucks and all of  
5 that able to maneuver the access roads?

6 A. (Zysk) They wouldn't plow the roads, per se.  
7 They may run a plow vehicle with a blade up  
8 an inch or two or three so they don't disrupt  
9 all the gravel. They can do some clearing of  
10 the road. And then it's up to the  
11 contractor, whether his vehicles are -- or  
12 whether the conditions are safe to allow  
13 passage of the larger vehicles.

14 Q. So we heard testimony that --

15 A. (Bascom) I was just going to offer the extent  
16 to which the ground freezes also can make  
17 construction easier sometimes in colder  
18 weather because the vehicles can travel over  
19 the frozen ground.

20 Q. Right. And that's where I was going.  
21 Because we talked about maybe having a lot of  
22 wetland work, work that may impact a wetland,  
23 be done in winter under frozen conditions.  
24 But if there's 4 feet of snow on top, I'm

1           just wondering if that -- I guess what I'm  
2           hearing is it's possible. It just might take  
3           a longer time to get the road --

4    A.    (Zysk) Correct.

5    Q.    -- in such a condition that the vehicles can  
6           get down.

7    A.    (Zysk) Correct.

8    Q.    And can concrete set? Or the mix, I guess  
9           it's concrete, that you'd use for the pads,  
10          can that set in subzero or below zero  
11          conditions?

12   A.    (Zysk) Yes. They could add what they call  
13          "add mixtures" to the concrete to allow it to  
14          cure in colder weather. They can provide  
15          temporary cover with heaters. There's a  
16          number of things they can do to allow that to  
17          happen.

18   A.    (Bascom) And concrete, when it cures, it's an  
19          exothermic reaction, so it actually generates  
20          some degree of heat on its own. And then, as  
21          Mr. Zysk said, you can introduce materials  
22          that either artificially make it warm or  
23          artificially accelerate or increase the  
24          heating so that it can still successfully set

1 in cold climates.

2 Q. And so for the underground, you don't  
3 anticipate -- that wouldn't be a problem with  
4 the fluidized thermal backfill either then?

5 A. (Bascom) I generally wouldn't anticipate.

6 One factor that could be considered in  
7 the winter months with underground  
8 construction is the use of steel plates and  
9 snow plows. That's usually a difficult  
10 combination. So that would be a factor in  
11 terms of the extent the trench is left open,  
12 the extent to which work might be done during  
13 winter months for the underground portions.

14 Q. And I'm guessing with today's technology, the  
15 vehicles, the excavation vehicles are able to  
16 dig through frozen ground to dig the trench?

17 A. (Bascom) It's possible. It's not a  
18 technology issue necessarily. But certainly  
19 digging through frozen soil is more difficult  
20 than unfrozen soil. Digging through rock in  
21 colder temperatures, from the standpoint of  
22 the workers, is probably less convenient.  
23 But I don't know that that would be impacted  
24 by temperature.

1 Q. Okay. What about, does temperature affect,  
2 say, the flexibility of the cable and it's  
3 ability to maneuver through these splice pits  
4 and HDD tunnels and --

5 A. (Bascom) Generally speaking, most  
6 high-voltage cable suppliers would discourage  
7 installation of the cable when the cable  
8 itself is below about 40 degrees Fahrenheit,  
9 but below freezing, you know, 32. They would  
10 prefer that the cable be above that  
11 temperature to ensure that there's good  
12 flexibility. There are some strategies for  
13 installing cable below freezing temperatures,  
14 preheating the cable reels themselves in an  
15 enclosure, for example, that would allow that  
16 to continue potentially during winter months  
17 if they needed to do that.

18 Q. Okay.

19 QUESTIONS BY MS. DANDENEAU:

20 Q. What do you think the likelihood of winter  
21 construction for the underground portions of  
22 the Project would be?

23 A. (Bascom) It's difficult to say. Obviously,  
24 just normal vehicle traffic is impeded by

1 snow and cold weather. So that exacerbates  
2 normal vehicle traffic, which would probably  
3 increase the difficulties in areas where  
4 traffic control is configured, regardless of  
5 the type of traffic control. I can't speak  
6 to specifically how it would impact it. But  
7 they potentially would suspend portions of  
8 the work during the winter, especially the  
9 more severe winter months, if that was a  
10 factor.

11 Q. All right. Thank you.

12 A. (Zysk) You and I are probably going to say  
13 the same thing. Many DOTs, especially in New  
14 England, the ones I'm familiar with, have  
15 moratoriums on winter work, usually from  
16 beginning mid-December through the middle of  
17 March, beginning of April, depending on  
18 location, that you just can't do it unless  
19 it's a emergency anyway. And I don't know  
20 how DOT would treat this project as opposed  
21 to a bridge project or a road reconstruction  
22 project. But there's a good chance that the  
23 same moratorium would be applied to this  
24 work.

1 Q. And are you talking about a road ban in that  
2 case, the moratorium?

3 A. (Zysk) Underground work in a state roadway.

4 Q. Oh, all right. Thank you.

5 A. (Zysk) And Bill could probably --

6 MR. OLDENBURG: If I could, I  
7 think the requirement by the DOT was April 15th  
8 through November 15th was the -- nothing beyond  
9 that.

10 A. (Zysk) There you go.

11 MS. DANDENEAU: Thank you. I did  
12 have the April to November time frame in mind,  
13 so I was curious about the questioning for  
14 working in colder temperatures.

15 BY MS. WEATHERSBY (CONT'D):

16 Q. Thank you. That's helpful.

17 Couple more questions as we move into  
18 mud season. So, say it's May up north, still  
19 occasional freezing, the roads are a little  
20 bit muddy. I'm picturing a splice pit -- a  
21 splice vault with a manhole cover and soils  
22 are changing around it. Does that present an  
23 area of concern, or is that something that  
24 can be worked with?

1 A. (Bascom) Generally speaking, if the splice  
2 vault is underneath pavement, at that point  
3 there might be full restoration of the road  
4 in the vicinity; the stability of the area  
5 around the vault is probably not a factor.  
6 In the north country where there are dirt  
7 roads and gravel roads, it's just like any  
8 other activity along those types of roads; if  
9 it's muddy or slippery, navigating in a  
10 vehicle is a challenge. And this equipment,  
11 some of it's fairly heavy, would need to be  
12 transported to the site for installation.  
13 So, to the extent that any normal  
14 construction activity would be complicated by  
15 muddy or dirty roads, it would apply equally  
16 to the construction of the trench, as well as  
17 the installation of the power cables.

18 Q. Okay. But the manhole cover at the  
19 surface -- the cover down below on the splice  
20 vault, and if someone wanted to access it,  
21 they would then dig? Or does the manhole --  
22 we talked about chimneys and different  
23 techniques.

24 A. (Bascom) Right. Normally the chimney is

1           accessible all the time. I think there's  
2           some discussion of perhaps covering the  
3           chimneys or making them relatively shallow  
4           below, you know, a cover of soil of some  
5           type. But they would be at known locations.  
6           And during the work, they would be exposed  
7           and really intentionally prevented from  
8           having dirt and soil and materials get into  
9           the vault, because the splicing process  
10          requires a very clean environment, low  
11          humidity environment, low dust and dirt  
12          environment. So there would be an effort by  
13          the installation contractor to configure that  
14          in such a way that it would be suitable for  
15          installing the splices.

16    Q.    Sure. But after construction's done, years  
17          from now, that entry to the splice vault is  
18          not at the surface; is that correct?

19    A.    (Bascom) It may not be.

20    A.    (Zysk) That's our understanding. There's  
21          going to be no surface.

22    Q.    In the projects that you said -- backing up  
23          now. In the projects that you said you were  
24          aware of that you worked on, that are being

1 constructed presently, do you know if any of  
2 those are using non-specular conductors,  
3 obviously above ground, or is it more typical  
4 in projects you're used to, to use reflective  
5 conductors?

6 A. (Bascom) I would say the members of this  
7 panel probably cannot address that question.  
8 Just the nature of our technical backgrounds.

9 Q. Fair enough.

10 I think you've made at least two  
11 suggestions to the Committee, directly or  
12 indirectly: One, that the Applicant provide  
13 specified lead times for information to be  
14 submitted to DOT and DES, kicked around I  
15 think not less than 90 days; and the second  
16 was that an independent monitor be appointed  
17 to follow construction activity. Am I  
18 correct that those are two suggestions you  
19 might have for the Committee?

20 A. (Taylor) I think that's a fair assessment.

21 Q. Do you have any other suggestions for us that  
22 could help ensure, if this project is built,  
23 it's done properly?

24 A. (Bascom) I guess I would offer a detailed

1 remediation for stakeholders that are  
2 impacted along the route to apply for  
3 restitution or, you know, address any issues  
4 that happen that affect some aspect of their  
5 activities, whether it's employment, personal  
6 property, you know, land rights, that those  
7 types of activities, accessibility, and have  
8 that addressed in a way that, you know, it's  
9 fair to the developers, but also to the  
10 people applying for that restitution,  
11 whatever that may be, and to have that  
12 structured in such a way that it's not too  
13 onerous for the people involved, because  
14 they're generally going to be individuals as  
15 opposed to a large corporation.

16 QUESTIONS BY MR. WAY:

17 Q. And on that point, the restitution that you  
18 might suggest, are you familiar with some of  
19 the restitution ideas that have been put  
20 forth already?

21 A. (Bascom) I haven't been involved with some of  
22 the, I guess economic consideration. That's  
23 not my area of expertise. But I was just  
24 responding to the question about a suggestion

1 to make the Project more --

2 Q. All right. And my question after that would  
3 be, if there was any improvements that you  
4 would make to the process that has already  
5 been proposed, but --

6 A. (Bascom) Not to the process, no.

7 Q. Thank you.

8 BY MS. WEATHERSBY (CONT'D):

9 Q. Mr. Taylor, any further suggestions you might  
10 have for the Committee?

11 A. (Taylor) I don't have any as I sit here, but  
12 I'd be happy to give that some further  
13 thought after today's panel meeting.

14 A. (Zysk) I guess one of the things that has  
15 come up over and over again is the  
16 right-of-way issue. And I would like to  
17 suggest that you'd want to see a complete,  
18 accepted right-of-way plan set with  
19 associated documentation and that the design  
20 works within those parameters going forward.

21 Q. Speaking of a survey?

22 A. (Zysk) Yes. And as required by New Hampshire  
23 DOT, that they want to see something that  
24 meets all the requirements and states the

1 rights-of-way to the best of everyone's  
2 knowledge.

3 Q. Thank you, gentlemen. I have nothing  
4 further.

5 CHAIRMAN HONIGBERG: Mr. Way.

6 QUESTIONS BY MR. WAY:

7 Q. Good afternoon.

8 A. Good afternoon.

9 Q. The good news is just about every one of my  
10 questions have been answered, so this is  
11 good. There are just a few things where I'm  
12 a little rough around the edge, maybe need  
13 some clarification, just make sure that I'm  
14 hearing what I'm hearing.

15 Mr. Bascom, when you were talking about  
16 eliminating, the potential of eliminating the  
17 splice vault, at what point does that occur?  
18 It almost sounded like you were saying that  
19 could be something during the operation that  
20 might be realized?

21 A. (Bascom) Generally, no, because the location  
22 of the splice vaults would be part of the, I  
23 guess, approval and permitting process. But  
24 in the Applicant's efforts to move from, say

1           30-percent to 60-, 90-percent design, it  
2           seemed as though it would be prudent to  
3           consider where they might be able to make  
4           pulling sections longer, which would probably  
5           make the Project less expensive to construct  
6           and perhaps easier to permit. And from a  
7           standpoint of reliability, generally the  
8           accessories, the splices and the terminations  
9           associated with power cables are the less  
10          reliable component. The cable itself tends  
11          to be more reliable.

12                 By virtue of eliminating splices, in  
13          theory you can make the cable system more  
14          reliable. The factor that weighs against  
15          doing an optimization is that there's  
16          obviously been a lengthy application process,  
17          and assuming there is approval at some point,  
18          to make deviations or changes to the  
19          application process would extend the time to  
20          get approval or maybe go forward with the  
21          construction. So that would weigh against  
22          making changes once they reach a certain  
23          point in the design.

24          Q.     And if you put all that aside for the moment,

1 looking at the Project as proposed, do you  
2 see the opportunity for extending or  
3 eliminating splice vaults?

4 A. (Bascom) My general impression is, yes, I  
5 think that there's been some conservative  
6 approach to the number of splice vaults  
7 involved, the typical length being around  
8 2,000 feet, which is conservative, but it  
9 allows for unknowns and variable conditions  
10 that maybe aren't fully developed or  
11 evaluated. It would not be uncommon to pull  
12 a transmission cable 3,000 feet, for example.  
13 So, perhaps a third of the splice vaults  
14 might be eliminated in some cases. There are  
15 multiple locations where there's directional  
16 drilling, and because of some changes in the  
17 types of conduits used for a directional  
18 drilled section versus an open-cut trench,  
19 that could also impact wanting to have a  
20 splice and a vault at that location to make  
21 the transition. So there is some  
22 optimization I think possible, but the  
23 process may not permit that going forward.

24 Q. If the process was able to, it probably would

1           be easier to eliminate a splice vault than to  
2           add one; would you agree?

3   A.    (Bascom) I would agree.

4   Q.    In terms of plating, and we've gone over the  
5           plating quite a bit. But the idea being the  
6           Applicant had said that no business or home  
7           will not have access to their property. I  
8           think the point that you were trying to make  
9           when we were looking at that picture was  
10          that, if there is a plate going into a  
11          driveway or a parking lot, at some point you  
12          have to do something that causes the plate to  
13          be in that location.

14   A.    (Bascom) That was my point, yes.

15   Q.    All right. So, considering what we're  
16          talking about in these locations, how much of  
17          a disturbance is that? Is that a day? Is  
18          that two days?

19   A.    (Bascom) My anticipation would be, in the  
20          normal process, if they were doing  
21          construction on a street, for example, where  
22          there's houses, there would be a  
23          notification, you know, we'll be working in  
24          your area for a few hours, and probably the

1 specific time that they're working in front  
2 of that driveway is going to be relatively  
3 limited. And I have seen situations where,  
4 you know, the homeowner or the business has  
5 to gain access and a plate is put into place  
6 to let them pass, and then once they're out  
7 of that driveway or back in the driveway, the  
8 work resumes. So there are functional ways  
9 to address that. It might be more of a  
10 challenge in business locations where  
11 consistent access is necessary to keep the  
12 business open.

13 Q. Okay. Ms. Pastoriza raised the issue of a  
14 septic system, I think it was nine feet off  
15 the right-of-way in the vicinity of the Gale  
16 River Motel. Did you see any information as  
17 you were doing your research that gave you  
18 any indications of septic systems near the  
19 right-of-way, some where leach fields may  
20 have encroached on the right-of-way? Do you  
21 have any idea of systems that might be  
22 impacted?

23 A. (Bascom) I personally haven't. I think folks  
24 from Dewberry maybe made a greater assessment

1 of the surveying and the drawings, so they  
2 can speak to that.

3 A. (Taylor) Yeah, I don't recall seeing those  
4 items called out along the underground route  
5 on the plans.

6 A. (Zysk) I don't either.

7 Q. See that as a potential?

8 A. (Taylor) It certainly could be. I mean,  
9 that's one example. But it wouldn't surprise  
10 me, if there were a long underground route,  
11 given how long it is, a well or a septic  
12 field that was built sometime ago is close to  
13 the right-of-way. Certainly a possibly.

14 Q. Possibly even encroaching upon it?

15 A. (Taylor) From what we have seen, yes, that's  
16 certainly possible.

17 Q. When the work zone ends at 7:00, I would  
18 imagine then everything's put away. I think  
19 we've talked about this before. Underground  
20 portion. What's left there? In the staging  
21 area, laydown area, what is physically left  
22 at the site?

23 A. (Bascom) It would depend on the circumstance.  
24 But, for example, during trenching, there

1           might be an excavator left at the site.  
2           There might be an air compressor for some of  
3           the types of tools that could be used, other  
4           equipment. There would probably be some form  
5           of barricade. And if requirements were such  
6           that it had to be illuminated in some way,  
7           you know, lighting equipment. And probably  
8           safety fencing. And it would depend on the  
9           extent to which the area is actively being  
10          constructed. There might be a small crane,  
11          forklift, skid-steer, numerous types of  
12          equipment that could be available. There  
13          might be a truck that stores steel plating.  
14          If not the entire length of trench that could  
15          be open is actually open, they would normally  
16          store that nearby because it would eventually  
17          be needed or they would be taking plates off  
18          to resume work the next day. There might  
19          also be some material stored nearby, for  
20          example, conduit or conduit spacers,  
21          depending on the proximity to a staging area,  
22          that could be nearby or not nearby. So,  
23          material and equipment certainly.

24        Q.    I have to imagine one of the questions that

1 will come up is in terms of lighting. You  
2 mentioned there could be lighting at the  
3 site. I'm assuming that's for security  
4 reasons?

5 A. (Bascom) It could be for security reasons.  
6 Certainly I think it would be addressed with  
7 traffic issues, just to make sure the area is  
8 illuminated. Maybe you'd have reflectors. I  
9 think that would depend on the DOT  
10 requirements, which I'm not immediately  
11 familiar with. If there's valuable material  
12 there, there is potential for security  
13 lighting. And they might even have law  
14 enforcement or a security service that has  
15 active personnel at the site if it's a  
16 critical operation or if there's need to have  
17 certain equipment there that can't be taken  
18 off site immediately.

19 Q. You answered my next question, and that was:  
20 In your past experience, what has had to be  
21 done for security purposes? Do you see  
22 security issues here?

23 A. (Bascom) You know, I would say generally  
24 throughout the state of New Hampshire

1 security is probably not the same level of  
2 concern that it might be in some of the areas  
3 I've worked with, for example, like  
4 Washington, D.C., with the folks from  
5 Dewberry. But, you know, there's material  
6 there that's valuable. There's tools that  
7 are both valuable and potentially could be  
8 vandalized in certain circumstances. So  
9 security might be needed for any of those  
10 aspects. I wouldn't normally anticipate a  
11 significant issue. The presence of a police  
12 car on site is usually a fairly good  
13 deterrent for most of what I consider safety  
14 issues.

15 Q. I'm thinking more after hours, though, not  
16 during the day. And with such a --

17 MR. WAY: One second, Bill.

18 Q. -- with such a high-profile project or  
19 emotional project, are there security  
20 concerns?

21 A. (Bascom) I would say it's possible.

22 A. (Taylor) I would say, just as a matter of  
23 course, whether it's the emotional aspect of  
24 the Project as Rusty mentioned, there's

1           valuable equipment and materials there. For  
2           projects that we have where the staging areas  
3           are housing a fair amount of value, it's not  
4           uncommon for there to be a security officer,  
5           not a police officer, but a private firm,  
6           someone who's just in the area, be staged  
7           there for some period during the nighttime  
8           hours.

9                           MR. WAY: Bill, did you want to  
10           follow up?

11           QUESTIONS BY MR. OLDENBURG:

12           Q.    Yeah, just a clarification. In the original  
13           question talking about the equipment to be  
14           left on site, were you talking that would be  
15           at the staging areas or left like adjacent to  
16           the trench or the splice vault?

17           A.    (Bascom) Potentially both. But I was  
18           thinking more of the simple construction  
19           activity. For example, as the Applicants  
20           have offered, they have a linear  
21           configuration for some of the equipment. It  
22           would be more practical perhaps to just leave  
23           that in place rather than reconfigure each  
24           day, if practical and if permissible, so they

1           that they could resume work more  
2           expeditiously the next morning or the next  
3           work shift. So I would anticipate that once  
4           the equipment is configured in a manner  
5           that's productive, to the extent possible  
6           they would try to leave it in that  
7           configuration during work interruptions.

8    Q.    So, adjacent to the roadway under traffic?

9    A.    (Bascom) Potentially. I mean, the  
10           construction activity suggests that at a  
11           minimum a lane of traffic may be closed. I  
12           don't know that it's been presented that it  
13           would be closed only during work hours. So,  
14           in other words, it might remain closed during  
15           non-work hours in some cases.

16   Q.    Okay. Thank you.

17   QUESTIONS BY MR. WAY (CONT'D):

18   Q.    And last question, so I'm clear. End work at  
19           7:00. And is that -- that's not counting  
20           what has to be done to basically lock down  
21           for the day, my understanding. Is that your  
22           understanding or --

23   A.    (Bascom) Not necessarily. Depending on the  
24           work requirements, if work is to end at 7:00,

1           and the requirements are, for example, no  
2           activity after 7:00 --

3    Q.    You're gone.

4    A.    (Bascom) -- then they would potentially be  
5           gone or close to being finished for the day.

6    Q.    So if you had to button up your site at the  
7           end of the day, how much time are we talking  
8           to do that? I was thinking about the fencing  
9           and the lighting that you mentioned as well.  
10          How much time are you talking?

11   A.    (Bascom) I would generally estimate an hour  
12          to an hour and a half. For example, setting  
13          steel plating after you've removed the  
14          excavation equipment above the trench to  
15          secure it if the site is going to be closed  
16          and made a travel lane again, the steel  
17          plating would be set in place prior to  
18          removing equipment from the site. If there's  
19          jersey barriers in place, they would probably  
20          be left or configured in a way to protect the  
21          site from vehicle access, you know, people  
22          potentially crashing into the area. So all  
23          that would be factored into the amount of  
24          time and preparation required before work

1 ends for the day.

2 Q. Okay. Thank you very much.

3 CHAIRMAN HONIGBERG: Ms.

4 Dandeneau.

5 MS. DANDENEAU: I don't have any  
6 further questions.

7 CHAIRMAN HONIGBERG: I don't have  
8 any questions for the panel. Anybody else? Mr.  
9 Oldenburg?

10 MR. OLDENBURG: Couple follow-up  
11 questions.

12 QUESTIONS BY MR. OLDENBURG (CONT'D):

13 Q. I asked a -- I got a really good answer to a  
14 very poor question. I made an assumption  
15 that you knew that the plan was to put plates  
16 over the splice vaults. So as part of the  
17 detail that was supplied with the  
18 presentation of the DOT that we've seen, they  
19 plan to, or at least they show using welded  
20 plates supported by I-beams over the splice  
21 vaults at the end of the day. So when I  
22 talked about jersey barriers, that sort of  
23 changes the dynamic of you don't have a hole  
24 that's open after the day is done, but during

1 traffic, during the day when, you know, you  
2 have the operation, there's a hole right next  
3 to traffic. Would you envision that being  
4 protected with jersey barriers, knowing that  
5 at night it would be plated and there's no  
6 hole to protect, but you wouldn't necessarily  
7 take the jersey barrier away because it takes  
8 too long?

9 A. (Bascom) Just one characterization I think  
10 you should appreciate is when the vault is  
11 set in place, the lower half and the upper  
12 half would more than likely be set in one  
13 workday or one work shift, so there wouldn't  
14 necessarily be an open pit left once the  
15 vault is set in place. To the extent the  
16 excavation takes more than a work day or  
17 multiple work days, then the situation you're  
18 describing, where there's a partial pit under  
19 construction, that would be steel plating.  
20 I'm not familiar that they'd have to remove  
21 the jersey barriers, or the intent is to  
22 remove the jersey barriers. That would be  
23 partially described I think by the traffic  
24 control.

1 Q. But from a roadway standpoint, I mean, you've  
2 worked on roadway projects. Would you  
3 typically see a jersey barrier used to  
4 separate traffic from a hole that size?

5 A. (Zysk) No.

6 Q. I mean, in the original construction panel,  
7 the separation was just a few feet.

8 A. (Zysk) I guess it would depend on the vehicle  
9 volume and the speed of the roadway. A  
10 low-volume, low-speed roadway, you'd probably  
11 get away with barrels. But in the higher,  
12 busier roadway, maybe even Route 3, it might  
13 be pertinent to use a barrier to separate.  
14 And at the end of the day they may grab the  
15 barrier and move it to the side of the road  
16 if they reopen the roadway in both direction.

17 Q. And one question, and this is a final  
18 question. This is new. So, the HDD drilling  
19 sites. Now there's two conduits, so there's  
20 two entries pits; correct? Two entries and  
21 two exits? Is that two drill rigs working  
22 simultaneously, or one drill rig drilling two  
23 holes, so it takes twice as long?

24 A. (Bascom) More than likely it would be one

1 drill rig for a couple reasons. But one is  
2 just in terms of staging the equipment and  
3 positioning it. The space that's available  
4 is constrained, so you'd want to use one  
5 drill rig. The other reason is that the  
6 tracking mechanisms that are used to know the  
7 position of the directional drill while it's  
8 happening can interfere with one another --  
9 or they would interfere with one another,  
10 depending on the type of system that's used.  
11 So they wouldn't want to drill simultaneously  
12 unless there was a real reason to do that.

13 Q. So that could explain why there's a longer  
14 time to do the drilling. Because originally  
15 it was one 30-inch pole with two conduits in  
16 it, and now it's two separate operations.

17 A. (Bascom) That's correct. Yes.

18 Q. All right. Thank you very much. That's all.

19 CHAIRMAN HONIGBERG: Mr. Pappas,  
20 I assume you have some redirect for your panel?

21 MR. PAPPAS: I do.

22 REDIRECT EXAMINATION

23 BY MR. PAPPAS:

24 Q. Good afternoon, gentlemen. I'm going to skip

1 around a Little bit just to --

2 CHAIRMAN HONIGBERG: You know  
3 what, Mr. Pappas? I'm going to stop you because  
4 I see some people getting ready to leave, and I  
5 need to remind people of something before others  
6 go.

7 I'm going to ask folks who are  
8 spokespeople for their groups to remind  
9 members of their intervenor groups that it's  
10 not appropriate to call or try to speak to  
11 members of the Subcommittee personally.  
12 There's been a couple of Subcommittee members  
13 who have received calls at home from  
14 intervenors, not people I can see in the room  
15 right here, but members of various groups.  
16 And I will tell you it's people who have  
17 called who are in favor of the Project and  
18 who are against the Project. So I would just  
19 ask folks to remind the people in their  
20 groups that it's not appropriate to make what  
21 are called ex parte communications to members  
22 of the Committee.

23 I apologize for interrupting,  
24 Mr. Pappas. You may proceed.

1 MR. PAPPAS: Thank you, Mr.  
2 Chairman.

3 BY MR. PAPPAS:

4 Q. Mr. Taylor, let me start with you. Earlier  
5 this afternoon, Attorney Needleman asked you  
6 about Condition 22 for the DES approval of  
7 laydown areas. Do you recall that?

8 A. (Taylor) I do.

9 Q. And that DES approval is approval of the  
10 laydown area site itself, whether the actual  
11 laydown area site is appropriate; correct?

12 A. (Taylor) That's correct.

13 Q. You wouldn't expect the DES to assess the  
14 impact on traffic from the vehicles entering  
15 and exiting that laydown area; correct?

16 A. (Taylor) No, I would not.

17 Q. And he then asked you some questions about  
18 the DOT and a Traffic Management Plan. Do  
19 you recall that?

20 A. (Taylor) I do.

21 Q. And Mr. Oldenburg showed during his  
22 questioning a portion of the recent  
23 October 13, 2017 memorandum from the DOT  
24 that's requiring a Traffic Management Plan.

1 Do you recall that?

2 A. (Taylor) I do.

3 Q. Okay. Now, the Traffic Management Plan would  
4 handle things such as safety on the roads and  
5 traffic conditions and other things listed in  
6 this memo; correct?

7 A. (Taylor) That's correct.

8 Q. You wouldn't expect the Traffic Management  
9 Plan to assess, for instance, impact on  
10 business, would you?

11 A. (Taylor) No.

12 Q. And you wouldn't expect the Traffic  
13 Management Plan to assess impact to tourism,  
14 for instance, would you?

15 A. (Taylor) No.

16 Q. So, even if this Committee would defer to DES  
17 to identify specific laydown areas, or refer  
18 to DOT to deal with a Traffic Management  
19 Plan, that doesn't provide the Committee with  
20 information to assess impact from traffic  
21 going in and out of the laydown areas and how  
22 that would impact, for instance, businesses  
23 or tourism and so forth; correct?

24 A. (Taylor) That's correct.

1 Q. Now, Mr. Zysk, earlier you were asked by  
2 Attorney Needleman about heat damage to  
3 roads, Tiers 1 through 4. Do you recall  
4 that?

5 A. (Zysk) I do.

6 Q. You were asked about damage from heat from  
7 the cables to Tiers 5 and 6. So let me ask  
8 you, first of all, roads in the North  
9 Country, the 7-1/2-mile underground, those  
10 are Tiers 5 and 6; are they not?

11 A. (Taylor) They are.

12 Q. And do you have concern about damage to those  
13 roads from heat from the cables?

14 MR. NEEDLEMAN: Mr. Chair, was  
15 this the subject of direct examination or  
16 examination?

17 MR. PAPPAS: Yes. He was asked  
18 about roads, Tiers 1 through 4, and I'm just  
19 completing and asking about 5 and 6, because he  
20 asked about his direct -- or I think it was  
21 supplemental testimony about damage to roads  
22 from heat.

23 MR. NEEDLEMAN: I thought it was  
24 already in their testimony.

1 CHAIRMAN HONIGBERG: Yeah, I  
2 think Ms. Weathersby may have asked about 5 and  
3 6.

4 MR. PAPPAS: Well, I apologize.  
5 I might not have been paying attention then. If  
6 you've asked about it, I'll move on.

7 BY MR. PAPPAS:

8 Q. Mr. Taylor, let me ask you this: You were  
9 asked this afternoon about the Applicant's  
10 position about closing Bear Rock Road. Do  
11 you recall that?

12 A. (Taylor) I do.

13 Q. And have you had the opportunity to review  
14 the Applicant's traffic control plans for  
15 Bear Rock Road?

16 A. (Taylor) I have.

17 Q. And do the Applicant's traffic control plans  
18 show Bear Rock Road being closed?

19 A. (Taylor) They do.

20 Q. And recently the Applicant produced some plan  
21 sets, plan sheets dated August 2017; correct?

22 A. (Taylor) Correct.

23 Q. And they produced some new alteration of  
24 terrain plans, also dated August 2017;

1 correct?

2 A. (Taylor) that's correct.

3 Q. But the Applicants haven't produce any new  
4 traffic control plans other than the ones  
5 that show Bear Rock Road being closed;  
6 correct?

7 A. (Taylor) That's my understanding.

8 Q. Okay. Mr. Taylor, what's on the screen in  
9 front of you -- is something on the screen in  
10 front of you?

11 A. (Zysk) Yes.

12 A. (Taylor) Yes.

13 Q. What's on the screen is Counsel for the  
14 Public's Exhibit 230, which is a  
15 December 2016 letter to the selectmen. Do  
16 you see that?

17 A. (Taylor) I do.

18 Q. And the highlighted portion of the letter  
19 indicates, "During construction, we  
20 anticipate the need for temporary road  
21 closures on Old County Road, North Hill Road  
22 and Bear Rock Road in Stewartstown." Do you  
23 see that?

24 A. (Taylor) I do.

1 Q. What's on the screen in front of you now is  
2 Counsel for the Public's Exhibit 231, which  
3 is a December 2, 2016 letter from the Project  
4 to the landowner. Do you see that?

5 A. (Taylor) I do.

6 Q. And to the landowners they indicated, "During  
7 construction, we anticipate the need for  
8 temporary road closures on Bear Rock Road."  
9 Do you see that?

10 A. (Taylor) I do.

11 Q. Okay. Mr. Taylor, let me ask you briefly a  
12 question about Transition Station 4. You  
13 were asked about the amount of material that  
14 needs to be removed and the number of trucks  
15 that would be needed to remove that material.  
16 Do you recall that?

17 A. (Taylor) I do.

18 Q. And you were asked whether or not the  
19 Applicant could store some of that material  
20 or deposit some of the material on property  
21 they owned around Transition Station 4. Do  
22 you recall that?

23 A. (Taylor) I do.

24 Q. Now, have you had the opportunity to visit

1           that Transition Station 4 location?

2    A.     (Taylor) I have.

3    Q.     And could you tell us, is that area forested?

4    A.     (Taylor) A good bit of the area is forested.

5           Correct.

6    Q.     And how is the topography?

7    A.     (Taylor) There is a considerable amount of

8           topography, steep in some cases.

9    Q.     And in order for the Applicant to remove  
10           material from the Transition Station 4 area  
11           and deposit it in their adjacent property,  
12           would they need to clear trees?

13   A.     (Taylor) In all likelihood, yes.

14   Q.     Would they need to build some roads in order  
15           for dump trucks to drive over?

16   A.     (Taylor) It's highly likely, yes.

17   Q.     And do you believe that at certain levels,  
18           that itself would require permitting?

19   A.     (Taylor) Given the volume, yes.

20   Q.     Now, Mr Bascom, let me ask you. You were  
21           shown Applicant's Exhibit 227 and asked a few  
22           questions about splice vaults. Do you recall  
23           there was a picture of the crane dropping a  
24           splice vault into a hole?

1 A. (Bascom) I do recall.

2 Q. On the screen now is Applicant's Exhibit 227.  
3 Do you see that?

4 A. (Bascom) I do.

5 Q. And this is the document where you were shown  
6 the crane dropping the splice vault into the  
7 hole; correct?

8 A. (Bascom) Yes.

9 Q. And this is a document from the Project  
10 itself; correct?

11 A. (Bascom) That's my understanding, yes.

12 Q. And it's in fact titled "Northern Pass  
13 Transmission Underground Construction Work  
14 Plan, dated May 16, 2017"; correct?

15 A. (Bascom) Yes, I see that.

16 Q. And it indicates Quanta Services on one side  
17 and PAR Electric on the other?

18 A. (Bascom) Yes.

19 Q. And this document -- and we went through it  
20 earlier, so I won't do it again. But it  
21 demonstrates manners in which Quanta and PAR  
22 would proceed and do the construction;  
23 correct?

24 A. (Bascom) Yes, I understood these to be the

1 construction practices they intended to use  
2 on the Project.

3 Q. Now, Mr. Taylor, let me move back to you.  
4 You were asked some questions earlier about  
5 the Applicant's intent to stay within the  
6 right-of-way. Do you recall that?

7 A. (Taylor) I do.

8 Q. Now, would you agree with me that, until the  
9 right-of-way is firmly established, you don't  
10 know if the Applicant can always stay within  
11 the right-of-way in certain designated areas?

12 A. (Taylor) That's correct.

13 Q. Okay. Mr. Bascom or Mr. Zysk, let me ask you  
14 this: You were asked earlier about reducing  
15 the work zone for the entry pits for HDD  
16 drilling down to 27 or 25 feet. Do you  
17 recall that?

18 A. (Bascom) Yes.

19 A. (Zysk) Yes.

20 Q. And you indicated a number of items that  
21 would have to be done for HDD drilling  
22 activities. Do you remember discussing  
23 those?

24 A. (Bascom) Yes.

1 A. (Zysk) Yes.

2 Q. And I believe you indicated that the picture  
3 showed static, but when the activity's going  
4 on there would be a lot of activity moving  
5 within that work zone; correct?

6 A. (Bascom) That's correct --

7 Q. So if the work zone were reduced from the  
8 30-foot which we saw -- 3 feet wide, which we  
9 saw in most places, down to 27 or 25 feet,  
10 would that impact the movement of vehicles  
11 and equipment within that work zone and  
12 therefore slow down the HDD work?

13 A. (Bascom) I would anticipate that it would,  
14 yes.

15 Q. Okay. Mr. Zysk, let me ask you just a few  
16 questions about the splice vaults and the  
17 cranes for them that you were asked about  
18 earlier this afternoon. I'm going to borrow  
19 Mr. Thompson's sketches in order to ask you  
20 these questions.

21 On the screen now is CS Exhibit 136,  
22 Page 1, which is Mr. Thompson's sketch of a  
23 crane with the flatbed truck on the left-hand  
24 side and the splice pit vault area on the

1 right-hand side. Do you see that?

2 A. (Zysk) I do.

3 Q. And I don't want to repeat everything Mr.  
4 Thompson went through, but I want to draw  
5 your attention to the 47-foot length that Mr.  
6 Thompson estimated from essentially the  
7 center of the crane to the center of the  
8 splice pit hole area. Do you see that?

9 A. (Zysk) I do.

10 Q. Okay. And can we -- on the screen now is  
11 Page 2 of Exhibit CS 137, and it shows the  
12 crane picking up the splice vault from the  
13 flatbed truck. Do you see that?

14 A. (Zysk) I do.

15 Q. Okay. Then go to the third page. And on CS  
16 138, Mr. Thompson has depicted that crane  
17 swinging the splice vault around in order to  
18 drop it into the hole. Do you see that?

19 A. (Zysk) I do.

20 Q. Now, based on what you know in terms of the  
21 size of the splice vault -- and we had  
22 testimony that they were going to come in two  
23 pieces, and each piece is about 25 ton in  
24 weight -- the distance, if they're going to

1 use the method shown on the work plan to pick  
2 up the splice vault on the flatbed and swing  
3 it around and drop it in the hole, and  
4 information on these sketches, what size  
5 crane would be needed to perform this  
6 activity?

7 A. (Zysk) Given the reach of the boom that would  
8 be necessary to pick up both up the vault  
9 piece and extend it out to center it over the  
10 pit, and the weight that's required to be  
11 picked up, I would estimate that the range of  
12 weight needed by the crane is the capacity of  
13 about a 50- to 80-ton crane.

14 Q. Okay. And Mr. Needleman asked about an  
15 alternative way in which to pick up the  
16 splice vault, if you will, and drop it in the  
17 crane. Do you recall that?

18 A. (Zysk) Yes.

19 Q. Okay.

20 MR. PAPPAS: Dawn, could we have  
21 the ELMO?

22 BY MR. PAPPAS:

23 Q. What's on the screen now is Counsel for the  
24 Public's next exhibit number, which will be

1           596. And all I want to use this for is the  
2           depiction of the method that Mr. Needleman  
3           described for you, where you see the crane,  
4           you see the splice vault hole, and then you  
5           see the flatbed truck on the other side of  
6           the hole. Do you see that?

7           A.     (Zysk) I do.

8           Q.     And am I correct in saying that what Mr.  
9           Needleman suggested was that you pick up the  
10          splice vault from the flatbed, which is on  
11          the opposite side of the hole, and you pick  
12          it up and you maneuver it to drop it in the  
13          hole?

14          A.     (Zysk) I see that.

15          Q.     Okay. And that would require a crane to do  
16          that; correct?

17          A.     (Zysk) Yes.

18          Q.     And does that -- do you think that the  
19          distance or the outreach of the crane itself  
20          would be greater in this method of dropping  
21          it in, greater than the prior method we just  
22          talked about earlier -- in other words, the  
23          span from the center of the crane to the  
24          flatbed truck in order to pick up the splice

1 vault?

2 A. (Zysk) It would be substantially longer.

3 Q. Yeah. Would I be correct in saying that if  
4 you have a substantially longer crane going  
5 out, you need the counterweight in the back  
6 of that crane in order to balance, if you  
7 will?

8 A. (Zysk) Well, there's only so far -- despite  
9 the sketch that's shown, there's only so far  
10 from a vertical orientation that a crane boom  
11 can effectively operate. So I think what is  
12 shown may be exaggerated. I would expect  
13 that you'd want to maintain that maximum  
14 deviation from vertical. You need a crane  
15 with a much longer boom so it could make that  
16 reach while still maintaining the same angle,  
17 and then it would be able to pick that up.  
18 And I don't know if, given the crane size  
19 we've already talked about, you would need a  
20 much larger crane mostly for the boom  
21 distance. The capacity of the crane wouldn't  
22 need to necessarily increase, but you'd need  
23 a much, much longer boom that would extend  
24 much higher up to make the same movement.

1 Q. Okay.

2 MR. PAPPAS: Dawn, could we  
3 switch back, please?

4 BY MR. PAPPAS:

5 Q. Now, Mr. Zysk, yesterday when Mr. Ahern was  
6 asking you some questions, he was inquiring  
7 about Exception Request No. 3, south of  
8 Plymouth. Do you recall that?

9 A. (Zysk) Generally, yes.

10 Q. Okay. And he described for you some sloped  
11 terrain in that area. Do you recall that?

12 A. (Zysk) Yes.

13 Q. He also described and showed you that the  
14 road had sloped a little bit in that area as  
15 well; correct?

16 A. (Zysk) Yes.

17 Q. And you had testified about the HDD drilling  
18 on a sloped area. Do you recall that?

19 A. (Zysk) Yes.

20 Q. Okay. Now, we saw where the exception  
21 requests that the Applicant has submitted  
22 have all indicated that the HDD drill site,  
23 the entry pit, generally needs a 30-foot area  
24 that is level, clear and stable; is that

1 right?

2 A. (Zysk) Yes.

3 Q. Okay. Now, yesterday you had testified that  
4 the HDD drill can actually drill in a sloped  
5 area. Do you recall that?

6 A. (Zysk) Some slope, yes.

7 Q. Some slope. Now, would I be correct in  
8 saying that the drilling equipment itself  
9 needs to be on this 30-foot level, stable  
10 area? Correct?

11 A. (Zysk) In general, yes.

12 Q. Yeah. And once you have a stable, level area  
13 for the drilling equipment, it can drill down  
14 to some slope; correct?

15 A. (Zysk) Yes.

16 Q. But the equipment itself, the HDD equipment  
17 itself, can't be on a sloped area. That  
18 equipment requires a level area in which to  
19 set in order to do the drilling; correct?

20 A. (Zysk) I think as I described it, level in  
21 the sense of transverse to the direction of  
22 the drill. If there was some slight -- like  
23 a roadway at a 2- or 3-percent grade would  
24 not affect the ability of the drill to do its

1 work.

2 Q. Right, right. But the equipment itself, as  
3 indicated in the exception request, that has  
4 to sit on a relatively stable, level area  
5 order to be able to drill; correct?

6 A. (Zysk) Correct. And again, if it was on a  
7 roadway with a standard 2-percent cross-  
8 slope, that would be acceptable.

9 Q. Mr. Taylor, earlier today Mr. Van Houten was  
10 asking you some questions about access at  
11 Transition Station No. 5. Do you recall  
12 that?

13 A. (Taylor) I do.

14 Q. And what's on the screen now is a page from  
15 Applicant's Exhibit 200, Bates stamp 67511.  
16 And do you see Transition Station 5 on the  
17 screen?

18 A. (Taylor) I do.

19 Q. And did you have opportunity to visit this  
20 area?

21 A. (Taylor) Yes, I've been there several times.

22 Q. Okay. Now, you testified this morning that  
23 the Project could be constructed in this area  
24 from this access point. Do you recall that?

1 A. (Taylor) I do.

2 Q. And if you look at the screen, in the middle  
3 of the right-of-way do you see the red  
4 triangle symbol, right where it shows the  
5 yellow which is the underground portion?

6 A. (Taylor) I do.

7 Q. Okay. And that is right adjacent to Route  
8 302; correct?

9 A. (Taylor) It is.

10 Q. And that denotes how the Project is going to  
11 access the right-of-way in order to construct  
12 the overhead portion in this area of the  
13 right-of-way; correct?

14 A. (Taylor) That's correct.

15 Q. Okay. And would I be correct in saying, if  
16 you look at the map, it shows in the yellow  
17 squares the location of proposed structures?  
18 Correct?

19 A. (Taylor) That's correct.

20 Q. And you see the red double line going from  
21 structure to structure; correct?

22 A. (Taylor) I do.

23 Q. And am I also correct that that red double  
24 line is the access road that the Applicant

1 needs to build in order to construct each of  
2 the towers? Correct?

3 A. (Taylor) Correct. It's called out as  
4 "proposed access route."

5 Q. Okay. Now, that access route does not  
6 currently exist; correct? That's proposed to  
7 be built?

8 A. (Taylor) That's what it's indicating.  
9 Correct.

10 Q. And would I be correct in saying that that  
11 access road is going to be different than  
12 what the Applicant currently uses to maintain  
13 the right-of-way as it currently exists?

14 MR. NEEDLEMAN: Objection, Mr.  
15 Chair. This is testimony that Mr. Van Houten  
16 was not allowed to elicit from this panel, but  
17 it could have and should have been included. So  
18 I'm not sure now how it's appropriate for Mr.  
19 Pappas to be doing that.

20 CHAIRMAN HONIGBERG: Mr. Pappas.

21 MR. PAPPAS: Well, I disagree. I  
22 think that he, Mr. Van Houten, asked about being  
23 able to construct from this access point. And  
24 all I'm doing is clarifying. And Van Houten

1           also had shown between Route 302 and Route 116,  
2           and he didn't have access to these maps. And  
3           I'm just trying to clarify the areas that he  
4           went over. And I'm maybe a minute or two, and  
5           this is my last area, or second to last area,  
6           just to make sure it's clear in the Committee's  
7           mind. I think he was able to ask about this --

8                           CHAIRMAN HONIGBERG: Overruled.  
9           You can answer.

10                           MR. PAPPAS: Thank you.

11 BY MR. PAPPAS:

12 Q.    Mr. Taylor, what's on the screen now is  
13        another page from Applicant's Exhibit 200,  
14        Bates Stamp 67504. Do you see Route 116?

15 A.    (Taylor) I do.

16 Q.    See the right-of-way where it intersects  
17        Route 116?

18 A.    (Taylor) Yes.

19 Q.    And I'll represent to you that, as you saw  
20        earlier today on Mr. Van Houten's map, the  
21        access for this part of the right-of-way is  
22        between Route 302 and Route 116. Do you  
23        recall that?

24 A.    (Taylor) I do.

1 Q. Okay. And so would I be correct in saying  
2 that from structure to structure, tower to  
3 tower, what the Applicant is going to do is  
4 build an access road in order to construct  
5 the Project?

6 A. (Taylor) That's correct.

7 Q. And that's going to be an access road that's  
8 going to include gravel in order to allow the  
9 flatbed trucks and the cranes and the  
10 concrete mixers and so forth to travel from  
11 structure to structure to build the  
12 structures; correct?

13 A. (Taylor) That's correct.

14 Q. Okay. So the Applicant, in your opinion, can  
15 construct the right-of-way -- the Project in  
16 this area from those two access points, but  
17 what it also has to do is build the road in  
18 order to do that; correct?

19 A. (Taylor) That's correct.

20 Q. Okay. And finally, Mr. Zysk, let me ask you  
21 this: You had indicated earlier in response  
22 to a Committee question that there was one  
23 red-listed bridge along the route. Do you  
24 recall that?

1 A. (Zysk) Yes.

2 Q. And you couldn't recall where it was. But  
3 Mr. Alexander had looked at this and Dewberry  
4 looked at this, this red-listed bridge issue;  
5 correct?

6 A. (Zysk) Correct.

7 Q. On the screen now is Counsel for the Public's  
8 Exhibit 595. Do you see that?

9 A. (Zysk) I do.

10 Q. And this is a Google Earth picture of the  
11 proposed route on Route 18 in Sugar Hill  
12 running parallel to I-93. Do you see that?

13 A. (Zysk) Yes.

14 Q. And it's a little hard to read, but would I  
15 correct in saying that what this picture  
16 shows is the location of the red-listed  
17 bridge that is along the route?

18 A. (Zysk) Yes.

19 Q. And that is in Sugar Hill on Route 18;  
20 correct?

21 A. (Zysk) Yes.

22 MR. PAPPAS: And for the  
23 Committee's benefit, that portion of the route  
24 is in the SHEB drawings at Page 106 and 107.

1 Q. Thank you, gentlemen. I have no other  
2 questions.

3 CHAIRMAN HONIGBERG: All right.  
4 I think we are done with the panel. Thank you  
5 very much for your testimony.

6 We will be back on Thursday  
7 morning. And we'll be hearing from the  
8 Brattle Group; correct, Mr. Pappas?

9 MR. PAPPAS: Correct.

10 CHAIRMAN HONIGBERG: All right.  
11 We are adjourned.

12  
13 (Whereupon the Day 51 Afternoon  
14 Session was adjourned at 5:20  
15 p.m., with the Day 52 hearing to resume  
16 on October 25, 2017  
17 commencing at 9:00 a.m.)  
18  
19  
20  
21  
22  
23  
24

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24

C E R T I F I C A T E

I, Susan J. Robidas, a Licensed  
Shorthand Court Reporter and Notary Public  
of the State of New Hampshire, do hereby  
certify that the foregoing is a true and  
accurate transcript of my stenographic  
notes of these proceedings taken at the  
place and on the date hereinbefore set  
forth, to the best of my skill and ability  
under the conditions present at the time.

I further certify that I am neither  
attorney or counsel for, nor related to or  
employed by any of the parties to the  
action; 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.

---

Susan J. Robidas, LCR/RPR  
Licensed Shorthand Court Reporter  
Registered Professional Reporter  
N.H. LCR No. 44 (RSA 310-A:173)

	<b>206:4,7,16</b>	<b>activity's (1)</b>	<b>155:9</b>	<b>103:21;127:14;</b>
<b>\$</b>	<b>accessibility (1)</b>	195:3	<b>advantages (3)</b>	<b>129:20;130:22;</b>
<b>\$1,000 (1)</b>	167:7	<b>actual (6)</b>	92:16,24;136:8	<b>131:3;137:19</b>
112:18	<b>accessible (1)</b>	8:21;65:11;91:21;	<b>adverse (1)</b>	<b>alleviate (1)</b>
<b>\$500 (1)</b>	165:1	150:3;153:18;186:10	18:24	143:15
112:17	<b>accessories (1)</b>	<b>actually (20)</b>	<b>advise (1)</b>	<b>allow (10)</b>
	170:8	8:4;23:22;31:1;	26:23	49:6;51:2;53:9;
<b>[</b>	<b>accommodate (5)</b>	32:4;52:23;63:8;	<b>affect (6)</b>	80:21;124:7;158:12;
	44:21;45:17;75:2;	64:17;65:18;72:5;	63:12;137:8;	159:13,16;161:15;
	145:3;148:22	87:12;92:17;100:16;	156:14;161:1;167:4;	206:8
<b>[sic] (2)</b>	<b>accommodated (1)</b>	105:3;123:2;124:14;	201:24	<b>allowed (5)</b>
17:12;64:5	83:20	140:10;141:2;	<b>affects (1)</b>	52:14;81:7;152:4;
	<b>Accommodation (3)</b>	159:19;175:15;201:4	86:16	157:12;204:16
<b>A</b>	103:4;104:13;	<b>ADA (1)</b>	<b>afternoon (11)</b>	<b>allows (2)</b>
	132:23	101:13	86:8;89:11;133:12;	53:12;171:9
<b>ABB (2)</b>	<b>accomplish (1)</b>	<b>Adam (1)</b>	134:23;169:7,8;	<b>alluding (1)</b>
80:12,16	35:23	143:2	184:24;186:5;189:9;	87:21
<b>ability (15)</b>	<b>accomplishing (2)</b>	<b>add (7)</b>	195:18;208:13	<b>almost (2)</b>
17:5,16;27:1,2,3;	40:13,17	100:23;101:3;	<b>afterward (1)</b>	87:16;169:18
44:15;56:19;60:19;	<b>according (1)</b>	148:9;153:23;	30:12	<b>along (22)</b>
69:19,23;73:6;85:19;	6:2	159:12,13;172:2	<b>again (17)</b>	23:9;40:5,9;67:20;
88:5;131:14;161:3;	<b>account (3)</b>	<b>addition (4)</b>	17:20;27:13;40:24;	68:17;70:14;80:6;
201:24	126:3;127:11;	101:4,6,18;126:6	48:16;57:13;71:16;	97:22;98:23;101:11,
<b>able (21)</b>	144:15	<b>additional (8)</b>	72:14;74:24;78:14;	17;105:24;114:7;
17:12;26:22;45:1;	<b>accounting (1)</b>	24:14;25:22;	81:16;109:6,13;	130:4;135:3;139:18;
47:20;55:6;77:22;	54:4	108:21;121:22;	118:6;168:15;	157:15;164:8;167:2;
100:21;108:12;	<b>accurate (3)</b>	131:22;138:1,6;	180:16;193:20;202:6	174:4;206:23;207:17
141:3;143:9;145:19;	47:17;151:21;	147:3	<b>against (4)</b>	<b>alteration (5)</b>
156:13;158:3,5;	153:20	<b>address (12)</b>	121:19;170:14,21;	12:14;15:5;20:17;
160:15;170:3;	<b>achieve (1)</b>	17:3,4;22:22;25:1;	185:18	24:3;189:23
171:24;199:17;	58:19	26:15;34:13;108:9;	<b>agencies (4)</b>	<b>alternate (3)</b>
202:5;204:23;205:7	<b>acquired (1)</b>	117:9;135:16;166:7;	16:7;20:1;21:3;	101:15;108:21;
<b>above (10)</b>	95:15	167:3;173:9	93:14	138:20
39:21;75:3;81:9;	<b>acres (3)</b>	<b>addressed (7)</b>	<b>agency (1)</b>	<b>alternating (2)</b>
112:1;141:19;	55:9,13,17	10:20;28:18,23;	15:14	107:15;126:19
142:23;154:22;	<b>across (5)</b>	62:4;139:5;167:8;	<b>ago (3)</b>	<b>alternative (4)</b>
161:10;166:3;180:14	99:18;102:11,14;	176:6	47:2;97:8;174:12	123:7;137:3,7;
<b>above-ground (2)</b>	106:21;107:16	<b>adds (2)</b>	<b>agree (28)</b>	197:15
156:23;158:1	<b>across-the-board (1)</b>	139:3;156:7	13:9,20,24;17:21;	<b>alternatives (2)</b>
<b>absent (1)</b>	16:11	<b>adequate (1)</b>	18:15;19:1;22:9;	123:3;124:7
18:24	<b>act (1)</b>	75:1	23:15;32:2;40:4;	<b>Although (1)</b>
<b>Absolutely (1)</b>	153:11	<b>adequately (5)</b>	42:2;45:12,19;53:3;	124:24
59:14	<b>action (1)</b>	16:23;22:10;27:3;	61:9;66:19,23;69:10;	<b>always (1)</b>
<b>accelerate (2)</b>	13:23	28:18,23	76:9,17;99:20;	194:10
53:15;159:23	<b>actions (1)</b>	<b>adhering (1)</b>	123:18;124:6;	<b>ambient (1)</b>
<b>accept (4)</b>	15:21	155:14	129:23;143:17;	91:15
36:17;54:23;57:1;	<b>active (5)</b>	<b>adjacent (12)</b>	172:2,3;194:8	<b>American (1)</b>
144:11	50:22;142:2,5,6;	55:17,21;56:8;	<b>agreement (1)</b>	41:17
<b>acceptable (3)</b>	176:15	87:15;106:10;	61:11	<b>amount (16)</b>
15:9;144:10;202:8	<b>actively (1)</b>	108:14;124:22;	<b>agreements (2)</b>	54:11;55:2;56:1,
<b>accepted (1)</b>	175:9	125:11;178:15;	59:8,12	20;65:5;82:1;84:20;
168:18	<b>activities (9)</b>	179:8;192:11;203:7	<b>ahead (1)</b>	119:8;120:16;
<b>access (44)</b>	31:6;90:6;93:8;	<b>adjoined (2)</b>	116:23	129:16;150:18;
22:12,16,22;23:2,	94:4;115:24;153:22;	208:11,14	<b>Ahern (1)</b>	154:4;178:3;180:23;
8;24:5,14;25:3;	167:5,7;194:22	<b>adjusted (2)</b>	200:5	191:13;192:7
49:16;50:7,12,14;	<b>activity (17)</b>	80:21;129:14	<b>aid (1)</b>	<b>ampacity (1)</b>
51:2,3,12,18;69:5,19;	48:6;90:21;91:17;	<b>adjustments (1)</b>	102:10	91:11
71:21;106:11;116:8,	93:11,15;144:15;	133:4	<b>air (2)</b>	<b>analysis (7)</b>
12,18;155:7;158:3,5;	146:20;149:10;	<b>advance (1)</b>	84:14;175:2	8:6,15;12:1;32:11;
164:20;172:7;173:5,	153:12;164:8,14;	139:8	<b>Alexander (4)</b>	51:9;71:12;80:16
11;180:21;202:10,	166:17;178:19;	<b>advanced (1)</b>	105:10,22;135:6;	<b>analyzed (1)</b>
24;203:11,24;204:4,	179:10;180:2;195:4;	157:7	207:3	99:15
5,11,23;205:2,21;	197:6	<b>advantageous (1)</b>	<b>alignment (6)</b>	<b>analyzing (1)</b>

<p>137:6  <b>anchor (2)</b>                  121:23,24  <b>anchored (2)</b>                  82:13,21  <b>and/or (1)</b>                  87:2  <b>anecdotal (2)</b>                  70:10;98:12  <b>anecdotally (1)</b>                  151:13  <b>angle (2)</b>                  120:4;199:16  <b>answered (3)</b>                  17:19;169:10;                  176:19  <b>anticipate (13)</b>                  98:6;100:4;136:24;                  137:5;148:2;151:24;                  160:3,5;177:10;                  179:3;190:20;191:7;                  195:13  <b>anticipated (3)</b>                  74:18;75:1;151:16  <b>anticipation (1)</b>                  172:19  <b>Antrim (2)</b>                  14:22;15:4  <b>apart (1)</b>                  109:21  <b>APMs (1)</b>                  31:16  <b>apologize (2)</b>                  185:23;189:4  <b>appear (8)</b>                  46:12,15;49:4;                  64:6;68:22;69:22;                  73:6;124:23  <b>appeared (1)</b>                  85:12  <b>appears (3)</b>                  64:3;74:8;142:21  <b>Applicant (59)</b>                  4:13;7:4;17:16;                  21:6,11,16;22:7;                  23:22;28:11,14;30:3;                  40:16;41:8;45:20;                  47:11;48:11;50:6,13;                  51:17;55:12,16;                  63:17;65:15,17;66:7;                  73:18;77:2;84:1;                  87:6;99:10;100:20;                  101:8;107:2;108:15;                  109:1;114:10;121:4;                  124:7;127:22;                  130:21;135:15;                  137:5;142:20;                  143:14;144:9;                  149:22;151:5,18;                  166:12;172:6;                  189:20;191:19;                  192:9;194:10;                  200:21;203:24;</p>	<p>204:12;206:3,14  <b>Applicant-proposed (2)</b>                  31:7,17  <b>Applicants (31)</b>                  7:15;10:15;13:20;                  14:2;20:16;22:3;                  24:12,19;26:2,8;                  29:14,19;35:5;36:15;                  19,21;41:9;42:24;                  44:19,24;53:23;                  57:19;69:3,7;73:11,                  15;74:12;136:22;                  153:1;178:19;190:3  <b>Applicant's (28)</b>                  17:17,21;33:13;                  35:22;37:16;44:9,15;                  45:6,23;46:2;47:19;                  48:16;57:23;74:19;                  76:22;81:3;94:11;                  106:5,18;169:24;                  189:9,14,17;192:21;                  193:2;194:5;202:15;                  205:13  <b>Application (14)</b>                  7:10;8:6;24:10;                  26:19;31:16;43:16;                  74:1;117:19;120:19;                  127:1,6,23;170:16,19  <b>applications (5)</b>                  16:12;37:10;                  117:17;134:3;149:22  <b>applied (3)</b>                  91:19;150:21;                  162:23  <b>applies (2)</b>                  27:14;102:9  <b>apply (3)</b>                  133:6;164:15;                  167:2  <b>applying (1)</b>                  167:10  <b>appointed (1)</b>                  166:16  <b>appreciate (1)</b>                  182:10  <b>appreciated (1)</b>                  11:15  <b>approach (11)</b>                  45:11;47:20;64:14,                  17,21;65:14,19;                  75:20;119:19;137:7;                  171:6  <b>approaches (1)</b>                  20:1  <b>appropriate (10)</b>                  65:15;75:6;76:18;                  117:19;133:6;                  140:23;185:10,20;                  186:11;204:18  <b>approval (17)</b>                  15:7,14;24:14,20;                  26:3,20;28:3;36:8;                  93:13;124:9;131:22;</p>	<p>169:23;170:17,20;                  186:6,9,9  <b>approvals (1)</b>                  22:21  <b>approve (2)</b>                  25:22;27:23  <b>approved (9)</b>                  26:14;27:10,17,18;                  43:10;77:2,7,15,20  <b>approving (1)</b>                  53:2  <b>approximately (3)</b>                  53:23;54:15;153:9  <b>April (4)</b>                  11:2;162:17;163:7,                  12  <b>archeological (1)</b>                  26:13  <b>architecture (1)</b>                  5:2  <b>area (56)</b>                  45:17;54:1,55:8;                  99:9;105:5;106:19;                  107:13;119:7;                  123:15;130:5,21;                  131:19;133:12;                  136:1,7;144:11;                  147:13;148:6;                  152:21;154:5,12;                  163:23;164:4;                  167:23;172:24;                  174:21,21;175:9,21;                  176:7;178:6;180:22;                  186:10,11,15;192:3,                  4,10;195:24;196:8;                  200:11,14,18,23;                  201:5,10,12,17,18;                  202:4,20,23;203:12;                  205:5,5;206:16  <b>areas (51)</b>                  16:15;23:11;24:24;                  25:4,8,16,22;26:12,                  16;27:8,9;43:20;                  48:10;51:10;67:20;                  69:5,21;71:8;73:3,                  10;82:16;98:1;108:2,                  3,16;111:1;114:9,11;                  116:3;119:19;                  120:23;121:3,4;                  128:5;130:4;131:1;                  135:23;137:3,10;                  144:1;151:24;152:2;                  162:3;177:2;178:2,                  15;186:7;187:17,21;                  194:11;205:3  <b>arise (1)</b>                  71:17  <b>around (35)</b>                  50:24;51:1;57:14;                  63:2;64:19;65:21;                  80:20;81:7;86:15;                  90:17;96:11;105:4;                  106:14,16;107:10;</p>	<p>109:8,13;116:15;                  126:22;127:8;                  134:14;138:1;140:3;                  141:18;142:16;                  144:3;163:22;164:5;                  166:14;169:12;                  171:7;185:1;191:21;                  196:17;197:3  <b>arriving (2)</b>                  147:19;148:3  <b>article (3)</b>                  37:17,19;40:8  <b>artificially (2)</b>                  159:22,23  <b>ascertain (1)</b>                  60:24  <b>ash (2)</b>                  41:19,22  <b>aside (1)</b>                  170:24  <b>aspect (3)</b>                  114:6;167:4;                  177:23  <b>aspects (2)</b>                  75:24;177:10  <b>asphalt (4)</b>                  82:17,18,21;83:3  <b>assemble (1)</b>                  93:7  <b>assembled (1)</b>                  93:12  <b>assembly (2)</b>                  146:23;157:10  <b>assertion (1)</b>                  70:9  <b>assess (12)</b>                  19:22;25:4;27:23;                  59:24;60:19,20;71:9;                  143:16;186:13;                  187:9,13,20  <b>assessed (1)</b>                  154:9  <b>assessing (1)</b>                  64:14  <b>assessment (13)</b>                  8:21;10:14;57:15;                  67:2;99:1;104:16;                  107:1,17;127:4,5;                  132:2;166:20;173:24  <b>associated (15)</b>                  7:24;9:13;20:3;                  27:8;44:2;62:17;                  121:5;137:18;                  139:22;147:2;                  149:11;150:17;                  153:22;168:19;170:9  <b>Association (1)</b>                  41:17  <b>assume (11)</b>                  11:24;18:4;26:15;                  42:9;54:13;60:4;                  61:23;117:23;145:9;                  148:21;184:20</p>	<p><b>assumed (3)</b>                  56:14;65:14;87:23  <b>assuming (5)</b>                  69:3;85:3;121:12;                  170:17;176:3  <b>assumption (6)</b>                  79:7;104:6;115:8;                  116:6,10;181:14  <b>attempt (1)</b>                  141:20  <b>attention (5)</b>                  23:6;24:2;25:19;                  189:5;196:5  <b>attenuators (1)</b>                  126:14  <b>Attorney (3)</b>                  57:17;186:5;188:2  <b>atypical (1)</b>                  14:19  <b>audibly (1)</b>                  152:5  <b>August (2)</b>                  189:21,24  <b>authority (2)</b>                  17:24;24:13  <b>authorized (2)</b>                  23:10,17  <b>availability (1)</b>                  147:8  <b>available (13)</b>                  27:21;40:7;51:3;                  74:9;124:9;125:24;                  126:4;127:17;                  133:20;145:2;                  154:14;175:12;184:3  <b>average (4)</b>                  54:16;56:14;57:15;                  83:18  <b>avoid (13)</b>                  58:12;80:22;                  106:21;107:18,24;                  113:15,19;114:9;                  117:2;123:14,16;                  138:24;139:21  <b>avoiding (1)</b>                  108:16  <b>aware (56)</b>                  23:21;24:11;26:6,                  11;28:2,6;29:13,18,                  22;30:2;32:21;33:7,                  9,13;35:21;36:15;                  40:5;42:24;43:8,12;                  44:19,23,24;45:20;                  46:1;47:18,24;48:14;                  50:5,9,12,16;52:16,                  20;53:22;54:20;55:8,                  11,14,16;63:6;65:17;                  72:5,7,8;77:1,4;97:4;                  98:9;115:21;118:13;                  137:17;149:14;                  151:10,22;165:24  <b>away (9)</b>                  79:3;85:2;90:14;</p>
---	---	---	--	--

91:13;142:14;156:7; 174:18;182:7;183:11	13,17,22;66:5,12,23; 67:1,4,8,13,22;68:3, 9,15,20;69:2,10,12, 14;70:2,9,15,18,24; 71:3,7,11,15,19,23; 72:4,7,11,18,20,24; 73:9,13,17,21;74:3,6, 13,16,20,23;75:10, 16,21,24;76:6,13,16, 21,24;77:4,9,14,19; 78:13,16,19;79:9,11, 21,24;80:17;81:3,15, 19;82:15;83:10;84:6; 88:7;89:24;90:4,10; 91:2,10;92:10;93:2, 23;95:15;96:5;97:1, 20;108:7;110:20; 111:5,24;112:16,23; 114:1;119:2;120:3; 123:22;124:23; 125:8,23;126:17; 129:19,24;130:17; 131:11;136:5;137:8; 138:19;140:8; 141:12;142:6,15; 143:13;145:24; 146:13;147:12; 148:24;149:9; 151:10;152:18; 153:5,11,21;154:9, 20;155:1,18;156:16, 18;157:16;158:15; 159:18;160:5,17; 161:5,23;164:1,24; 165:19;166:6,24; 167:21;168:6; 169:15,21;171:4; 172:3,14,19;173:23; 174:23;176:5,23; 177:21;178:17; 179:9,23;180:4,11; 182:9;183:24; 184:17;192:20; 193:1,4,8,11,15,18, 24;194:13,18,24; 195:6,13	<b>batches (1)</b> 147:16 <b>Bates (2)</b> 202:15;205:14 <b>Bear (11)</b> 44:5,22;45:22; 47:20;113:12; 189:10,15,18;190:5, 22;191:8 <b>bearing (1)</b> 17:8 <b>become (1)</b> 127:17 <b>becomes (1)</b> 129:3 <b>bedding (1)</b> 82:9 <b>beginning (4)</b> 84:3;102:3;162:16, 17 <b>behalf (1)</b> 143:14 <b>behind (2)</b> 64:7;87:9 <b>belabor (1)</b> 104:19 <b>believes (1)</b> 16:22 <b>Bell's (1)</b> 32:7 <b>below (20)</b> 31:8,23;37:23; 38:4,12;80:9;112:24; 119:4;120:7,10; 141:19;154:22; 155:6,11;159:10; 161:8,9,13;164:19; 165:4 <b>bending (1)</b> 75:7 <b>beneficial (2)</b> 59:16;136:4 <b>benefit (3)</b> 10:9;124:3;207:23 <b> Bentonite (9)</b> 36:22;37:13;38:17, 24;39:6;40:1,14; 75:12;79:1 <b>besides (1)</b> 87:10 <b>Best (6)</b> 20:12,22;21:1; 58:16;59:20;169:1 <b>better (11)</b> 29:16;31:1;76:7,8; 77:21;83:5;123:17; 135:21;144:9; 154:20;155:1 <b>bevel (1)</b> 83:2 <b>beyond (3)</b> 46:20;47:15;163:8 <b>bicycles (1)</b>	101:4 <b>bicyclists (1)</b> 101:18 <b>bid (2)</b> 93:6;94:2 <b>bids (1)</b> 93:9 <b>big (2)</b> 130:16;157:14 <b>bike (1)</b> 101:19 <b>Bill (4)</b> 89:12;163:5; 177:17;178:9 <b>Bishop (1)</b> 105:1 <b>bit (18)</b> 4:16;13:6;29:23; 52:3;53:9;83:5; 84:22;101:7;106:15; 116:16;128:12; 138:15;144:23; 163:20;172:5;185:1; 192:4;200:14 <b>bite (2)</b> 96:12;141:2 <b>bits (1)</b> 140:5 <b>blade (1)</b> 158:7 <b>blast (1)</b> 141:24 <b>blasting (1)</b> 31:18 <b>block (3)</b> 51:11;66:6,9 <b>blocked (2)</b> 49:2,4 <b>blow (1)</b> 58:6 <b>blow-up (1)</b> 100:15 <b>blue (3)</b> 19:16;20:3;118:5 <b>BMP (3)</b> 116:22;117:13,14 <b>BMPs (6)</b> 18:22;21:12;22:2, 5;117:5,22 <b>Board (1)</b> 61:23 <b>bodies (1)</b> 18:24 <b>boom (5)</b> 197:7;199:10,15, 20,23 <b>bore (3)</b> 121:2,6,7 <b>borings (4)</b> 139:9,9,12,16 <b>borrow (1)</b> 195:18 <b>both (15)</b>	59:17;107:14,21; 109:14;110:9,14; 131:17;134:16; 136:8,16;152:2; 177:7;178:17; 183:16;197:8 <b>bottom (5)</b> 86:22;87:2;120:7, 11;121:24 <b>boulder (10)</b> 96:21,22;138:14, 17;140:24;141:2,3,8, 16,22 <b>boulders (5)</b> 96:3,6;140:18; 141:7,10 <b>boundary (1)</b> 130:20 <b>Bowes (2)</b> 33:14;122:22 <b>Bowes's (2)</b> 33:21;123:4 <b>box (7)</b> 61:21;124:18; 125:1;131:6,16; 134:5,17 <b>boxes (2)</b> 131:13;132:3 <b>Brattle (1)</b> 208:8 <b>break (2)</b> 89:3;141:9 <b>Brenden (1)</b> 105:10 <b>bridge (16)</b> 3:5;91:22,23; 104:23;105:10,13,18; 106:8;135:3,8,16; 150:9;162:21; 206:23;207:4,17 <b>bridges (4)</b> 67:19;105:23,24; 137:11 <b>briefly (1)</b> 191:11 <b>bring (2)</b> 81:12;157:13 <b>bringing (3)</b> 111:13;118:15; 137:12 <b>broke (1)</b> 123:10 <b>broken (1)</b> 102:17 <b>Brook (1)</b> 105:1 <b>brought (5)</b> 51:6;92:5;115:23; 116:5;141:10 <b>build (13)</b> 92:2,4,17,22;95:3; 98:16;105:3;116:18; 192:14;204:1;206:4,
--	--	---	---	--

11,17 <b>building (1)</b> 92:15 <b>built (4)</b> 20:22;166:22; 174:12;204:7 <b>bulk (1)</b> 130:8 <b>bullets (1)</b> 95:9 <b>bump (1)</b> 83:3 <b>burden (1)</b> 101:8 <b>buried (1)</b> 87:22 <b>bury (1)</b> 88:5 <b>busier (1)</b> 183:12 <b>business (6)</b> 69:20;172:6;173:4, 10,12;187:10 <b>businesses (6)</b> 50:12,14;72:12; 122:20;124:2;187:22 <b>butterfly (2)</b> 19:16;118:5 <b>button (1)</b> 180:6 <b>buy (2)</b> 93:5;94:1 <b>byproducts (1)</b> 78:24	<b>calculated (3)</b> 53:23;55:24;57:13 <b>calculations (2)</b> 70:8;116:13 <b>call (12)</b> 23:6;24:2;25:19; 37:16;41:9;45:5; 48:15;92:9;101:2; 126:21;159:12; 185:10 <b>called (9)</b> 12:4;46:22;102:12; 118:14;128:9;174:4; 185:17,21;204:3 <b>call-outs (1)</b> 130:24 <b>Calls (3)</b> 40:19;60:3;185:13 <b>came (1)</b> 57:13 <b>can (75)</b> 18:3,5;21:5;22:9; 28:18;29:3;31:3; 39:9;41:5,6;44:20; 49:10,22;56:4,16; 60:16;61:18;63:18; 66:14;76:3;77:14; 78:19,22,23;79:2,16; 82:20;86:11;92:20; 96:8;97:20;105:21; 109:2;112:13; 119:12;124:5,24; 133:20;138:22,23; 139:2,15;141:4; 145:18;148:4; 149:11,13;153:18; 154:15;155:21; 156:2,18,24;158:9, 16,18;159:5,8,10,14, 16,21,24;163:24; 170:13;174:2;184:8; 185:14;194:10; 196:10;199:11; 201:4,13;205:9; 206:14 <b>Canada (1)</b> 88:13 <b>capabilities (2)</b> 60:17;95:12 <b>capability (4)</b> 6:24;7:5,16;35:6 <b>cables (4)</b> 40:12,16;41:2; 60:13 <b>capacity (8)</b> 16:16;56:11,12; 67:14;105:9;143:22; 197:12;199:21 <b>caption (1)</b> 49:5 <b>car (1)</b> 177:12 <b>care (1)</b>	141:8 <b>career (1)</b> 86:6 <b>carefully (1)</b> 69:3 <b>carry (1)</b> 56:19 <b>carrying (1)</b> 54:14 <b>case (19)</b> 12:10;14:22;24:4; 25:12;26:9;36:18; 48:14;55:1;57:5; 76:19;86:3;88:10; 93:6;96:21;111:23; 116:15;121:2; 127:14;163:2 <b>case-by-case (1)</b> 156:19 <b>cases (9)</b> 6:23;15:23;131:12, 21;138:19;150:4; 171:14;179:15;192:8 <b>casing (2)</b> 136:15,16 <b>category (3)</b> 70:19;72:12;73:3 <b>cause (5)</b> 20:11;75:21,23; 100:2,20 <b>causes (1)</b> 172:12 <b>causing (3)</b> 18:24;100:4; 127:19 <b>cement (1)</b> 81:22 <b>center (5)</b> 109:15;196:7,7; 197:9;198:23 <b>certain (16)</b> 14:10;43:11;68:12; 114:11;120:7;135:9; 136:7;139:17; 140:18;148:14; 152:2;170:22; 176:17;177:8; 192:17;194:11 <b>certainly (19)</b> 17:21;55:19;60:22; 61:3;64:17;85:21; 86:11;88:15;107:10; 109:19,23;123:23; 125:23;160:18; 174:8,13,16;175:23; 176:6 <b>Certificate (1)</b> 24:10 <b>certification (1)</b> 75:8 <b>certified (1)</b> 105:17 <b>cetera (5)</b>	6:5;91:5;98:24; 136:2;154:24 <b>CFP (4)</b> 3:3,5;34:11;67:9 <b>chair (6)</b> 61:22,23;78:1; 89:1;188:14;204:15 <b>CHAIRMAN (27)</b> 4:4,7;38:14,21; 39:8;40:21;41:4; 60:8,15;78:2,6;89:2, 6,9;133:9;134:20; 169:5;181:3,7; 184:19;185:2;186:2; 189:1;204:20;205:8; 208:3,10 <b>challenge (7)</b> 96:13;119:11,16; 141:4;152:23; 164:10;173:10 <b>challenges (2)</b> 96:16;140:14 <b>chance (4)</b> 38:10;39:11;51:3; 162:22 <b>change (4)</b> 97:6;119:12; 131:23;140:4 <b>changed (1)</b> 131:7 <b>changes (16)</b> 85:19;86:23;92:20; 93:21;116:17; 127:20;128:15,18; 129:5,12;131:6; 137:1;170:18,22; 171:16;181:23 <b>changing (1)</b> 163:22 <b>channel (2)</b> 155:20,21 <b>channels (1)</b> 139:14 <b>characterization (1)</b> 182:9 <b>characterize (1)</b> 86:22 <b>characterized (2)</b> 86:10;92:10 <b>charge (2)</b> 26:17;27:14 <b>charged (1)</b> 27:4 <b>chime (1)</b> 37:3 <b>chimney (1)</b> 164:24 <b>chimneys (2)</b> 164:22;165:3 <b>choice (4)</b> 61:6;123:2,16; 137:6 <b>choose (2)</b>	60:23;106:11 <b>circumstance (1)</b> 174:23 <b>circumstances (5)</b> 15:20;30:3;51:17; 52:22;177:8 <b>citizens (1)</b> 59:21 <b>civil (11)</b> 6:4;69:24;73:8; 76:14;90:20;91:6,24; 111:5;137:2;145:18; 148:11 <b>clarification (3)</b> 89:24;169:13; 178:12 <b>clarify (1)</b> 205:3 <b>clarifying (1)</b> 204:24 <b>clarity (1)</b> 99:13 <b>Clarksville (1)</b> 99:8 <b>classic (2)</b> 92:4;93:2 <b>classify (1)</b> 92:1 <b>clause (3)</b> 58:10,15,23 <b>clauses (1)</b> 58:7 <b>clay (2)</b> 37:6;96:2 <b>clean (2)</b> 79:18;165:10 <b>clear (8)</b> 62:5;65:9;117:7; 125:5;179:18; 192:12;200:24;205:6 <b>clearing (3)</b> 18:14,16;158:9 <b>clearly (1)</b> 41:2 <b>clients (1)</b> 59:7 <b>climate (3)</b> 87:24;88:3,9 <b>climates (3)</b> 84:7,19;160:1 <b>clock (1)</b> 126:22 <b>close (18)</b> 20:13;36:12;45:24; 47:22;101:14; 108:11;109:8,9,11, 12,16,18;110:6; 111:23;122:8; 130:20;174:12;180:5 <b>closed (7)</b> 112:2;179:11,13, 14;180:15;189:18; 190:5
<b>C</b>				
<b>cable (51)</b> 68:24;74:5,9,14, 18;75:7;80:19,24; 81:4;87:22;88:6,9,11, 15;90:11,13,19,23, 24;91:11,14;93:5; 94:2;95:20;98:13; 110:23;111:2,7; 131:14;143:6;146:2, 3,15,20,22;147:1,15; 151:20;153:2,9; 155:4;161:2,6,7,10, 13,14;170:10,13; 171:12 <b>cables (23)</b> 42:19;75:3;80:22, 22;88:11,17,20; 90:17;91:3;110:14; 136:14,16;142:17,17, 23;143:20;147:9; 155:6,10;164:17; 170:9;188:7,13 <b>cable's (1)</b> 90:14 <b>calculate (1)</b> 70:12				

<p><b>closing (2)</b> 112:8;189:10</p> <p><b>closure (5)</b> 99:24;107:12,13; 110:16;111:12</p> <p><b>closures (4)</b> 44:2;111:6;190:21; 191:8</p> <p><b>CMSR (4)</b> 109:2,5;133:11; 134:19</p> <p><b>cobbles (1)</b> 96:6</p> <p><b>codes (1)</b> 8:19</p> <p><b>cold (5)</b> 87:24;88:3,8; 160:1;162:1</p> <p><b>colder (6)</b> 84:7,19;158:17; 159:14;160:21; 163:14</p> <p><b>collapse (2)</b> 9:9,14</p> <p><b>combination (3)</b> 105:16;114:17; 160:10</p> <p><b>combines (1)</b> 90:22</p> <p><b>coming (2)</b> 75:11;87:10</p> <p><b>commencement (1)</b> 21:8</p> <p><b>commencing (2)</b> 77:3;208:17</p> <p><b>comments (2)</b> 88:8;152:18</p> <p><b>commercial (1)</b> 124:2</p> <p><b>Commissioner (1)</b> 133:9</p> <p><b>commissioning (1)</b> 94:4</p> <p><b>commitment (2)</b> 29:19;50:13</p> <p><b>commitments (1)</b> 30:4</p> <p><b>committed (4)</b> 21:6;23:23;29:14; 50:6</p> <p><b>Committee (11)</b> 78:3;85:18;94:7; 100:10;166:11,19; 168:10;185:22; 187:16,19;206:22</p> <p><b>Committee's (2)</b> 205:6;207:23</p> <p><b>common (5)</b> 19:2;42:7;58:19; 134:4;148:2</p> <p><b>commonly (2)</b> 37:9;150:21</p> <p><b>communications (2)</b></p>	<p>58:17;185:21</p> <p><b>communities (6)</b> 8:9;18:10;34:15; 57:20;59:9;60:24</p> <p><b>community (2)</b> 31:19;93:14</p> <p><b>companies (1)</b> 95:16</p> <p><b>company (4)</b> 53:13;93:16;95:15, 17</p> <p><b>comparative (1)</b> 93:9</p> <p><b>compare (1)</b> 94:6</p> <p><b>comparing (1)</b> 108:19</p> <p><b>comparison (1)</b> 10:15</p> <p><b>competent (1)</b> 59:23</p> <p><b>complete (3)</b> 96:18;128:16; 168:17</p> <p><b>completely (2)</b> 11:20;87:7</p> <p><b>completeness (2)</b> 127:1,5</p> <p><b>completing (1)</b> 188:19</p> <p><b>completion (1)</b> 23:12</p> <p><b>complex (1)</b> 104:15</p> <p><b>compliance (1)</b> 75:7</p> <p><b>complicate (2)</b> 125:20,22</p> <p><b>complicated (2)</b> 104:15;164:14</p> <p><b>complied (2)</b> 18:2,5</p> <p><b>complies (2)</b> 21:11;22:8</p> <p><b>comply (7)</b> 13:17,21;14:3; 21:16;22:4;36:19; 58:24</p> <p><b>component (9)</b> 78:21;90:5,12; 91:1,2,10;127:16; 145:24;170:10</p> <p><b>components (9)</b> 78:17;79:16;93:12; 147:13,23;148:7,13, 16;156:20</p> <p><b>composite (1)</b> 99:11</p> <p><b>compress (1)</b> 119:19</p> <p><b>compression (1)</b> 81:23</p> <p><b>compressor (1)</b></p>	<p>175:2</p> <p><b>concern (16)</b> 14:14;16:13,19,20; 17:4;76:14;117:4,8; 130:13,16;142:10; 143:5,15;163:23; 177:2;188:12</p> <p><b>concerned (1)</b> 147:5</p> <p><b>Concerning (4)</b> 102:21;147:8; 149:1;155:14</p> <p><b>concerns (24)</b> 10:21;12:8;17:3,6; 18:19;26:15;27:1,12, 22;28:16,22;29:6; 43:15;62:4;71:20; 85:2,5;103:4;114:20; 115:24;117:9;122:8; 147:7;177:20</p> <p><b>conclude (4)</b> 40:11;55:19;68:21; 69:7</p> <p><b>concluded (1)</b> 31:15</p> <p><b>conclusion (4)</b> 31:10,24;70:2; 144:4</p> <p><b>conclusions (1)</b> 32:7</p> <p><b>Concord (1)</b> 19:15</p> <p><b>concrete (12)</b> 81:20;84:9;125:13, 15;126:10;157:5; 158:4;159:8,9,13,18; 206:10</p> <p><b>condition (18)</b> 13:4,8;15:3,4,9,12; 23:7,12,13;24:3,8; 25:20,20;36:7; 110:23;122:11; 159:5;186:6</p> <p><b>conditions (49)</b> 10:5,10,14,20;11:7, 19;12:3,7,23;13:1,9, 11,18,21;14:3;17:11, 13,14,18,22;18:1,3; 19:1;21:17;22:21; 23:1,4;26:21;38:6; 43:11;51:15;85:1,6,8, 11,14;96:19;112:20; 114:2;139:13; 140:15,18;149:16; 152:16;158:12,23; 159:11;171:9;187:5</p> <p><b>conduct (1)</b> 76:10</p> <p><b>conducted (1)</b> 43:1</p> <p><b>conduction (1)</b> 91:13</p> <p><b>conductor (2)</b></p>	<p>91:13;157:18</p> <p><b>conductors (3)</b> 147:9;166:2,5</p> <p><b>conduit (10)</b> 49:10;74:21,24; 75:5,6;111:4;136:13, 15;175:20,20</p> <p><b>conduits (13)</b> 75:8;80:20;81:7,9; 82:4;91:3,4;110:21; 142:2;155:3;171:17; 183:19;184:15</p> <p><b>confident (1)</b> 17:12</p> <p><b>configuration (11)</b> 46:4,12,16;51:20; 56:20;65:23;66:1,14; 143:16;178:21;179:7</p> <p><b>configure (1)</b> 165:13</p> <p><b>configured (6)</b> 90:19;145:1;156:8; 162:4;179:4;180:20</p> <p><b>confines (1)</b> 124:8</p> <p><b>confirm (1)</b> 25:11</p> <p><b>confirmed (2)</b> 70:5;143:17</p> <p><b>congestion (1)</b> 100:3</p> <p><b>Connecticut (1)</b> 151:12</p> <p><b>connection (1)</b> 138:7</p> <p><b>connections (1)</b> 75:6</p> <p><b>consequence (2)</b> 9:16;10:18</p> <p><b>conservative (2)</b> 171:5,8</p> <p><b>conservatively (1)</b> 120:6</p> <p><b>consider (6)</b> 15:20,23;128:6; 149:7;170:3;177:13</p> <p><b>considerable (1)</b> 192:7</p> <p><b>considerably (1)</b> 140:4</p> <p><b>consideration (6)</b> 17:15;81:6;118:20; 128:11;132:16; 167:22</p> <p><b>considered (4)</b> 33:1;126:9;127:18; 160:6</p> <p><b>considering (1)</b> 172:15</p> <p><b>consistent (9)</b> 8:18;35:14;58:19; 64:4;77:10,16; 140:12;155:24;</p>	<p>173:11</p> <p><b>consolidated (1)</b> 56:23</p> <p><b>constantly (1)</b> 39:18</p> <p><b>constrained (3)</b> 108:16;137:11; 184:4</p> <p><b>constraint (2)</b> 146:4;156:5</p> <p><b>constraints (5)</b> 68:12,16;85:2; 135:24;152:7</p> <p><b>construct (13)</b> 7:6,17;35:6;58:11; 69:8;152:8;154:7; 170:5;203:11;204:1, 23;206:4,15</p> <p><b>constructed (6)</b> 5:17;56:4;151:12; 166:1;175:10;202:23</p> <p><b>constructing (1)</b> 92:15</p> <p><b>construction (111)</b> 6:22;7:11;8:8; 13:12;14:15;15:1,8, 15;18:23;19:4,14; 20:10;21:7,8;22:1; 24:7;29:10;30:7,10, 22;31:6,20;32:7,15, 17;34:16;35:12,13, 24;42:3,6,7;44:10; 45:2,21;48:10;53:4, 13,15;58:18;59:1; 67:24;68:1;69:4,5,13, 16,18;70:4,7,13,20, 22;76:15;77:3;79:5; 82:6;84:4;92:11,14; 93:22;97:8;98:7; 106:23;107:4; 108:22;114:6; 115:18,20,24;116:5, 23;118:14,16;119:7; 122:14,21;125:9; 131:18;136:6;139:6, 7;145:12;147:21; 149:3,10,17;151:13, 14;152:9,12;154:15; 155:17;158:2,17; 160:8;161:21; 164:14,16;166:17; 170:21;172:21; 178:18;179:10; 182:19;183:6; 190:19;191:7; 193:13,22;194:1</p> <p><b>construction's (1)</b> 165:16</p> <p><b>consult (1)</b> 60:23</p> <p><b>contaminant (1)</b> 156:5</p> <p><b>CONT'D (9)</b></p>
--	---	--	---	--

<p>3:1;83:22;111:8;                  142:9;145:6;163:15;                  168:8;179:17;181:22  <b>content (1)</b>                  13:4  <b>contention (3)</b>                  12:24;14:18;                  103:10  <b>continue (1)</b>                  161:16  <b>continuous (1)</b>                  45:16  <b>contract (4)</b>                  92:1,2;93:1,2  <b>contractor (14)</b>                  83:2;92:5,17,21;                  93:18,19;95:3,18;                  96:15;97:2;141:20;                  147:17;158:11;                  165:13  <b>contractors (5)</b>                  14:2;77:7;95:1,2;                  146:4  <b>control (27)</b>                  28:7;69:18;71:6,9;                  100:10;102:15,21,22;                  103:2;107:11;108:5;                  116:2,24;123:24;                  125:22,24;132:5,8,                  14,17;157:24;162:4,                  5;182:24;189:14,17;                  190:4  <b>controlled (1)</b>                  22:10  <b>controls (1)</b>                  81:23  <b>convenient (1)</b>                  160:22  <b>conventional (2)</b>                  114:3,4  <b>convey (1)</b>                  99:17  <b>coordination (1)</b>                  31:19  <b>copy (2)</b>                  106:18;113:5  <b>corporation (1)</b>                  167:15  <b>correctly (2)</b>                  46:14;106:7  <b>cost (3)</b>                  112:15,19;131:19  <b>Counsel (12)</b>                  4:19;7:9;32:21;                  33:4;60:23;78:9;                  113:4;118:7;190:13;                  191:2;197:23;207:7  <b>counterweight (1)</b>                  199:5  <b>counting (1)</b>                  179:19  <b>country (4)</b>                  94:24;99:7;164:6;</p>	<p>188:9  <b>counts (1)</b>                  71:9  <b>County (1)</b>                  190:21  <b>couple (6)</b>                  4:21;12:14;163:17;                  181:10;184:1;185:12  <b>course (5)</b>                  11:5;29:20;59:5;                  98:6;177:23  <b>cover (9)</b>                  102:1;118:6;134:9;                  157:11;159:15;                  163:21;164:18,19;                  165:4  <b>covered (4)</b>                  89:15,16;114:22;                  124:14  <b>covering (2)</b>                  134:3;165:2  <b>craft (1)</b>                  157:19  <b>Craig (1)</b>                  78:11  <b>crane (36)</b>                  62:21;63:1;64:4,8,                  22;65:4,6,21,24;                  86:16;87:12,15;                  126:12;157:13;                  175:10;192:23;                  193:6;195:23;196:7,                  12,16;197:5,12,13,                  17;198:3,15,19,23;                  199:4,6,10,14,18,20,                  21  <b>cranes (8)</b>                  46:17;62:16;63:13;                  105:2;111:18;158:4;                  195:17;206:9  <b>crashing (1)</b>                  180:22  <b>Creampoke (1)</b>                  105:1  <b>create (3)</b>                  42:20;108:13;                  141:14  <b>creating (1)</b>                  155:19  <b>creation (1)</b>                  71:5  <b>crew (2)</b>                  151:9;152:24  <b>crews (4)</b>                  98:19,22;116:19,                  22  <b>criteria (1)</b>                  74:15  <b>critical (2)</b>                  131:1;176:16  <b>cross (2)</b>                  38:20;107:23  <b>cross- (1)</b></p>	<p>202:7  <b>CROSS-EXAMINATION (2)</b>                  4:10;29:20  <b>cross-hatched (1)</b>                  120:23  <b>crossing (7)</b>                  105:17;108:5;                  109:20;110:1,12,14;                  118:9  <b>CS (4)</b>                  104:22;195:21;                  196:11,15  <b>cubic (9)</b>                  53:19,24;54:3,15,                  17;56:12,14,16;57:16  <b>culvert (1)</b>                  113:16  <b>cure (1)</b>                  159:14  <b>cures (1)</b>                  159:18  <b>curious (1)</b>                  163:13  <b>currently (5)</b>                  24:6;137:22;204:6,                  12,13  <b>customer (2)</b>                  93:4;94:8  <b>customize (1)</b>                  44:15  <b>customized (2)</b>                  47:1,4  <b>cut (3)</b>                  125:3;133:3;                  141:24</p>	<p>152:13,23;153:13;                  172:17;175:18;                  177:16;178:24;                  179:21;180:5,7;                  181:1,21,24;182:1,                  16;183:14;208:13,15  <b>days (12)</b>                  14:15;15:1,7,15;                  149:17;153:2,10,14;                  155:13;166:15;                  172:18;182:17  <b>days' (1)</b>                  85:3  <b>DC (5)</b>                  5:18;6:8;94:1;                  146:21;177:4  <b>deal (2)</b>                  122:19;187:18  <b>dealing (1)</b>                  71:5  <b>deal's (1)</b>                  126:24  <b>dealt (2)</b>                  116:7;124:16  <b>December (4)</b>                  9:24;34:7;190:15;                  191:3  <b>decided (2)</b>                  61:15;124:6  <b>decision (1)</b>                  10:4  <b>decisions (2)</b>                  6:21;96:19  <b>deep (2)</b>                  142:12,13  <b>deeper (3)</b>                  98:5;142:18;143:6  <b>default (3)</b>                  26:19;52:17;107:9  <b>defer (1)</b>                  187:16  <b>deferred (1)</b>                  26:20  <b>define (1)</b>                  21:21  <b>definitely (2)</b>                  112:1;130:17  <b>deflect (1)</b>                  138:18  <b>deflected (1)</b>                  96:23  <b>deflecting (1)</b>                  138:14  <b>degree (2)</b>                  5:2;159:20  <b>degrees (3)</b>                  63:3;120:5;161:8  <b>delays (1)</b>                  149:11  <b>delegate (2)</b>                  24:13;26:3  <b>delegation (2)</b>                  24:20;26:10</p>	<p><b>deliver (2)</b>                  64:9;84:11  <b>delivering (2)</b>                  126:10;157:8  <b>delivery (2)</b>                  69:6;148:20  <b>demobilization (2)</b>                  150:2;153:7  <b>demolishing (1)</b>                  142:1  <b>demonstrated (1)</b>                  65:23  <b>demonstrates (1)</b>                  193:21  <b>denied (1)</b>                  51:16  <b>denotes (1)</b>                  203:10  <b>Department (10)</b>                  10:3;14:23;27:2,                  11;31:8;36:10;43:9;                  78:11;82:10;89:13  <b>depend (7)</b>                  111:24;146:13;                  156:19;174:23;                  175:8;176:9;183:8  <b>dependent (1)</b>                  86:14  <b>depending (9)</b>                  82:24;106:10;                  112:9,20;156:2;                  162:17;175:21;                  179:23;184:10  <b>depends (6)</b>                  56:20;79:11;80:2;                  97:21;136:5;140:8  <b>depicted (1)</b>                  196:16  <b>depiction (2)</b>                  47:17;198:2  <b>deposit (2)</b>                  191:20;192:11  <b>depth (7)</b>                  68:17;138:8;                  142:13,17,20;143:4;                  151:20  <b>DES (36)</b>                  10:14,20;11:6;                  12:1,12,19;13:1;                  15:21;16:12,15,20,                  22;17:10,14,24;                  22:20;23:10;24:4,7,                  13,20;25:19,21;26:4,                  14;77:2;85:1,3,5,6,                  20;166:14;186:6,9,                  13;187:16  <b>describe (1)</b>                  140:17  <b>described (15)</b>                  34:12;40:8;50:10;                  64:18;65:19;66:20;                  117:11;146:8;                  148:19;150:15;</p>
<b>D</b>				
		<p><b>damage (12)</b>                  18:21;29:7,11;                  42:20;74:17;80:24;                  114:21;115:13;                  188:2,6,12,21  <b>damaged (1)</b>                  115:19  <b>DANDENEAU (4)</b>                  161:19;163:11;                  181:4,5  <b>data (1)</b>                  99:18  <b>date (3)</b>                  27:18;97:18;                  125:18  <b>dated (3)</b>                  189:21,24;193:14  <b>Dawn (9)</b>                  39:15;45:6;46:10;                  48:16;58:5;61:18;                  63:20;197:20;200:2  <b>day (28)</b>                  52:9,19,19;84:4;                  97:10,19;116:19;                  122:23;151:7,9;</p>		

<p>182:23;198:3; 200:10,13;201:20 <b>describing (1)</b> 182:18 <b>description (1)</b> 38:1 <b>design (34)</b> 6:5;8:7,22;9:1; 67:13,16;72:24;76:7; 80:18;90:20,23;92:2, 4,12,18,20;93:16,20, 21;128:18;129:4; 131:23;132:9; 136:11,23,24;137:2, 18;139:24;143:14; 146:15;168:19; 170:1,23 <b>designated (1)</b> 194:11 <b>designating (2)</b> 128:8,24 <b>designation (1)</b> 105:16 <b>designations (1)</b> 130:23 <b>designed (1)</b> 67:6 <b>designing (1)</b> 72:21 <b>desirable (1)</b> 140:11 <b>desires (1)</b> 58:24 <b>desiring (1)</b> 58:11 <b>despite (1)</b> 199:8 <b>detail (5)</b> 117:16,21;129:22; 130:3;181:17 <b>detailed (2)</b> 118:21;166:24 <b>details (4)</b> 63:14;80:2;117:5; 125:14 <b>determination (1)</b> 100:10 <b>determinations (1)</b> 8:17 <b>determine (7)</b> 6:21;8:7,8;51:10; 74:1;76:11;145:2 <b>determined (2)</b> 52:2;80:4 <b>deterrent (1)</b> 177:13 <b>detour (5)</b> 99:7,9,14;105:4; 140:3 <b>develop (2)</b> 92:6;132:5 <b>developed (2)</b> 132:8;171:10</p>	<p><b>developer (2)</b> 93:11;148:5 <b>developers (1)</b> 167:9 <b>development (2)</b> 93:11;100:22 <b>deviation (1)</b> 199:14 <b>deviations (3)</b> 75:19;108:2; 170:18 <b>devices (1)</b> 31:21 <b>dewater (1)</b> 79:14 <b>dewatering (2)</b> 155:24;156:8 <b>Dewberry (10)</b> 5:5;37:13,17; 40:12;41:6;108:17; 122:16;173:24; 177:5;207:3 <b>diagram (5)</b> 44:9;108:8;111:1; 119:13;120:15 <b>diagrams (1)</b> 112:4 <b>dialogue (1)</b> 86:8 <b>diameter (1)</b> 137:24 <b>diesel (1)</b> 84:6 <b>different (13)</b> 51:8;86:4;92:7; 93:6;102:12;131:15; 138:24;140:5; 149:15,15;154:13; 164:22;204:11 <b>differently (1)</b> 144:24 <b>difficult (9)</b> 11:20;13:5;41:3; 85:13;96:6;152:16; 160:9,19;161:23 <b>difficulties (2)</b> 139:11;162:3 <b>difficulty (2)</b> 98:4;149:20 <b>dig (4)</b> 53:5;160:16,16; 164:21 <b>digging (6)</b> 121:13;125:10; 153:24;157:4; 160:19,20 <b>digs (1)</b> 130:24 <b>diligence (2)</b> 75:4;139:23 <b>diminished (1)</b> 142:19 <b>DIR (3)</b></p>	<p>78:10;83:22;88:24 <b>direct (4)</b> 38:19;155:7; 188:15,20 <b>direction (5)</b> 100:14;110:12; 138:24;183:16; 201:21 <b>directional (30)</b> 40:2,13;41:1; 46:19;78:21;79:1; 95:10,12,18;96:13; 113:3;114:8,11; 119:7,10,17;120:4, 12;136:10;139:11; 140:13;141:13,17; 149:18,21;150:14,17; 171:15,17;184:7 <b>directly (7)</b> 22:21;98:22;106:8; 124:21;125:11; 142:23;166:11 <b>director (1)</b> 5:7 <b>dirt (5)</b> 18:20;88:21;164:6; 165:8,11 <b>dirty (1)</b> 164:15 <b>disagree (3)</b> 31:12;60:22; 204:21 <b>discharging (1)</b> 156:3 <b>discipline (1)</b> 90:15 <b>disciplines (1)</b> 90:22 <b>discourage (1)</b> 161:6 <b>discuss (6)</b> 35:10;42:13;67:16; 68:12;92:18;102:22 <b>discussed (3)</b> 41:12;68:16;73:24 <b>discussing (4)</b> 72:16;135:18; 138:12;194:22 <b>Discussion (6)</b> 78:5;83:23;84:24; 85:22;101:22;165:2 <b>discussions (1)</b> 102:24 <b>display (1)</b> 120:15 <b>dispose (1)</b> 55:20 <b>disposed (3)</b> 79:4,8,17 <b>disrupt (1)</b> 158:8 <b>disrupting (1)</b> 49:7</p>	<p><b>disruption (1)</b> 103:23 <b>dissipate (2)</b> 80:13;143:7 <b>dissipation (1)</b> 42:14 <b>distance (9)</b> 48:21;119:8;120:7; 131:15;139:17; 143:6;196:24; 198:19;199:21 <b>distinguish (2)</b> 54:6,8 <b>disturbance (4)</b> 55:5,8;136:1; 172:17 <b>disturbances (1)</b> 124:1 <b>disturbed (2)</b> 25:8;26:12 <b>disturbing (1)</b> 114:9 <b>docket (2)</b> 14:22;15:4 <b>document (9)</b> 36:6;41:18,19; 61:19;68:14;101:1; 193:5,9,19 <b>documentation (2)</b> 33:3;168:19 <b>documents (8)</b> 16:17;23:3;30:18; 55:6;74:11;92:7; 102:18;128:2 <b>dollar (2)</b> 113:1,2 <b>dollars (1)</b> 112:22 <b>done (27)</b> 10:14;32:10;36:9; 43:6;51:9;65:2; 66:22;71:12;86:1,11, 24;105:22;128:12, 12;130:24;132:9; 139:3;146:14; 158:23;160:12; 165:16;166:23; 176:21;179:20; 181:24;194:21;208:4 <b>DOT (35)</b> 27:18;28:4,10,19, 24;31:23;36:3,3,8,10; 44:11;51:14;52:13; 53:2;63:22;73:15; 80:3;94:12;100:9; 101:23;102:1,4,6,23; 103:1;156:22; 162:20;163:7; 166:14;168:23; 176:9;181:18; 186:18,23;187:18 <b>DOTs (2)</b> 41:22;162:13</p>	<p><b>DOT's (3)</b> 27:23;52:17; 129:18 <b>double (2)</b> 203:20,23 <b>doubt (1)</b> 157:12 <b>Doug (1)</b> 32:6 <b>down (23)</b> 39:15;52:8;95:9; 98:10;119:22; 120:10;123:1,5,10, 12,18,20;138:8; 144:16;149:4;152:1; 159:6;164:19; 179:20;194:16; 195:9,12;201:13 <b>Downtown (6)</b> 122:17;123:8,14, 16,20;130:10 <b>draft (2)</b> 30:12;36:3 <b>drafted (1)</b> 10:8 <b>dramatically (2)</b> 53:4,8 <b>Draper (1)</b> 14:8 <b>draw (1)</b> 196:4 <b>drawing (1)</b> 62:20 <b>drawings (3)</b> 74:19;174:1; 207:24 <b>dried (1)</b> 79:17 <b>drill (28)</b> 40:2,14;46:18; 51:10;96:4;103:21; 119:10,23;138:13,20; 139:18;140:5,23; 149:21;150:17; 183:21,22;184:1,5,7, 11;200:22;201:4,4, 13,22,24;202:5 <b>drilled (2)</b> 103:24;171:18 <b>drilling (57)</b> 37:10,22;39:1; 45:9,15;46:19;51:4; 78:22;79:1;95:10,12, 14,18,23;96:7,9,10, 14,22;97:1;103:18; 104:8,11;112:13,15; 113:14,18;114:8,12; 119:8,17,22;120:12; 136:10;138:22; 139:12;140:9,12,13, 16,21;141:13,17,20; 149:6,18;150:3; 171:16;183:18,22;</p>
--	---	--	--	--

<p>184:14;194:16,21; 200:17;201:8,13,19 <b>drills (8)</b> 40:17;41:1;96:1; 113:3;120:4;150:12, 14,20 <b>drive (3)</b> 121:21;122:3; 192:15 <b>driven (1)</b> 121:15 <b>driver (1)</b> 122:5 <b>driveway (7)</b> 48:23;49:2,14; 172:11;173:2,7,7 <b>Driveways (3)</b> 49:5;50:7;83:16 <b>driving (2)</b> 115:12;125:16 <b>drop (5)</b> 63:3;196:18;197:3, 16;198:12 <b>dropping (3)</b> 192:23;193:6; 198:20 <b>dry (2)</b> 155:23;156:10 <b>due (9)</b> 69:16,18;70:20,22; 75:4;115:20;117:10, 24;139:23 <b>dug (1)</b> 52:19 <b>dump (2)</b> 121:12;192:15 <b>duration (7)</b> 50:4;138:4;149:13; 150:1,6;151:15; 152:8 <b>during (28)</b> 29:20;68:3,4;75:4; 108:5;111:2;112:2; 116:4;122:23; 138:21;139:7;157:7; 160:12;161:16; 162:8;165:6;169:19; 174:24;177:16; 178:7;179:7,13,14; 181:24;182:1; 186:21;190:19;191:6 <b>dust (2)</b> 18:20;165:11 <b>dynamic (1)</b> 181:23</p>	<p>150:15;186:4;188:1; 193:20;194:4,14; 195:18;198:22; 202:9;205:20;206:21 <b>early (1)</b> 92:5 <b>Earth (1)</b> 207:10 <b>easements (2)</b> 35:19,23 <b>easier (5)</b> 92:21,22;158:17; 170:6;172:1 <b>easily (1)</b> 79:17 <b>economic (1)</b> 167:22 <b>edge (3)</b> 108:11,14;169:12 <b>effect (3)</b> 25:9;122:12; 156:24 <b>effectively (2)</b> 71:18;199:11 <b>effects (3)</b> 18:24;155:12,16 <b>effort (6)</b> 131:12,20;146:17; 147:3;156:1;165:12 <b>efforts (1)</b> 169:24 <b>eight (2)</b> 82:3;134:4 <b>EIS (1)</b> 154:13 <b>either (14)</b> 31:3;33:8,24; 37:18;112:9;119:19; 120:19;138:6; 141:18,19;153:13; 159:22;160:4;174:6 <b>electric (7)</b> 5:9,14;8:18;18:16; 93:17,19;193:17 <b>electrical (11)</b> 67:2,13;74:2;90:3, 5,12,13;95:2;145:24; 147:22;148:7 <b>electrically (3)</b> 9:3;67:7;68:22 <b>element (3)</b> 76:2,4;136:11 <b>elevation (2)</b> 119:12;142:16 <b>elicit (1)</b> 204:16 <b>eliminate (2)</b> 131:12;172:1 <b>eliminated (1)</b> 171:14 <b>eliminating (4)</b> 169:16,16;170:12; 171:3</p>	<p><b>ELMO (1)</b> 197:21 <b>else (4)</b> 95:24;114:16; 122:20;181:8 <b>elsewhere (3)</b> 25:15;77:11,18 <b>emergency (2)</b> 71:21;162:19 <b>emotional (2)</b> 177:19,23 <b>employment (1)</b> 167:5 <b>enclosure (7)</b> 124:18;153:3,10, 18,24;154:3;161:15 <b>encompassing (1)</b> 13:7 <b>encounter (3)</b> 98:8;140:22;154:1 <b>encountered (6)</b> 51:16;59:6;141:16, 22;151:11,17 <b>encroached (1)</b> 173:20 <b>encroaching (1)</b> 174:14 <b>end (14)</b> 38:3;52:8;79:19; 105:7;112:23; 119:10;123:9;138:7; 153:13;179:18,24; 180:7;181:21;183:14 <b>ends (3)</b> 126:14;174:17; 181:1 <b>enforce (4)</b> 11:20;13:5;17:13; 85:13 <b>enforceable (3)</b> 17:7,7,8 <b>enforcement (2)</b> 13:23;176:14 <b>engineer (3)</b> 4:24;5:21;71:1 <b>engineered (1)</b> 81:20 <b>engineering (18)</b> 6:5;90:13,16,20, 22;91:6,8,10,17,18, 24;92:11,12;94:15, 17,18;96:17;154:21 <b>engineer's (1)</b> 100:23 <b>engines (1)</b> 84:7 <b>England (1)</b> 162:14 <b>enough (6)</b> 111:15;114:18; 117:5;142:13; 145:21;166:9 <b>ensure (4)</b></p>	<p>50:14;51:18; 161:11;166:22 <b>enter (2)</b> 36:11;61:5 <b>entering (1)</b> 186:14 <b>entire (5)</b> 40:9;48:4;93:3; 105:24;175:14 <b>entirely (2)</b> 61:6;149:15 <b>entities (1)</b> 63:8 <b>entitlement-level (1)</b> 128:1 <b>entity (1)</b> 62:11 <b>entrance (1)</b> 83:15 <b>entries (2)</b> 183:20,20 <b>entry (5)</b> 51:21;120:3; 165:17;194:15; 200:23 <b>environment (9)</b> 40:3,8,15;41:3; 88:23;91:16;165:10, 11,12 <b>Environmental (11)</b> 10:3,20;14:23; 19:20;27:2;30:13,21; 31:4,14;78:12; 116:21 <b>environments (3)</b> 40:5,18;88:18 <b>envision (5)</b> 52:6;111:19,21; 141:10;182:3 <b>envisioned (2)</b> 52:9;63:1 <b>EPC (1)</b> 93:6 <b>EPC-type (1)</b> 93:2 <b>equally (1)</b> 164:15 <b>equipment (54)</b> 31:20;32:15,17; 45:16;46:15;47:14; 50:21,24;69:5;76:1; 84:6;96:7,10,16; 105:2;106:6,13; 111:13;112:10,11; 136:18;137:9,13; 138:22;141:2; 144:23;149:12,12,19; 150:20;152:6; 153:15,16;157:20; 164:10;175:4,7,12, 23;176:17;178:1,13, 21;179:4;180:14,18; 184:2;195:11;201:8,</p>	<p>13,16,16,18;202:2 <b>erosion (10)</b> 18:21;20:8,11; 21:13,18,23;22:9; 116:1,24;117:2 <b>escape (1)</b> 80:21 <b>especially (4)</b> 84:7;155:18;162:8, 13 <b>essence (1)</b> 94:6 <b>essentially (3)</b> 138:23;147:16; 196:6 <b>establish (1)</b> 58:19 <b>established (1)</b> 194:9 <b>estate (1)</b> 5:3 <b>estimate (7)</b> 57:10;112:14; 149:7;152:17;154:6; 180:11;197:11 <b>estimated (4)</b> 53:18;150:10; 153:2;196:6 <b>estimator (1)</b> 112:17 <b>et (5)</b> 6:5;91:4;98:24; 136:2;154:24 <b>evaluate (6)</b> 22:15,15;27:3; 85:4;93:9;94:5 <b>evaluated (8)</b> 74:4,14;124:4; 136:21;137:15; 143:2,16;171:11 <b>evaluating (3)</b> 91:12;94:8;143:13 <b>evaluation (2)</b> 74:8;94:7 <b>even (11)</b> 26:20;27:18;48:13; 96:14;103:22; 131:24;132:18; 174:14;176:13; 183:12;187:16 <b>event (1)</b> 139:4 <b>events (3)</b> 81:11,17;82:4 <b>eventually (2)</b> 79:7;175:16 <b>everyone's (1)</b> 169:1 <b>everything's (1)</b> 174:18 <b>evidence (1)</b> 65:13 <b>ex (1)</b></p>
<b>E</b>				
<p><b>E-2 (2)</b> 105:7,16 <b>earlier (17)</b> 41:16;43:13;73:14, 24;86:21;97:6;</p>				

<p>185:21  <b>exacerbated (1)</b>                  146:9  <b>exacerbates (1)</b>                  162:1  <b>exact (1)</b>                  104:7  <b>exactly (3)</b>                  95:6;132:3,4  <b>exaggerated (1)</b>                  199:12  <b>EXAMINATION (3)</b>                  184:22;188:15,16  <b>examine (1)</b>                  11:6  <b>example (38)</b>                  18:14;22:2;44:5;                  46:18,24;47:4,6;                  65:10;76:1;78:23;                  79:15;93:4,24;103:8,                  17;104:18;109:17;                  110:2;111:17;112:5;                  130:10,10,19;131:15;                  137:9;140:2;146:13;                  150:9;161:15;                  171:12;172:21;                  174:9,24;175:20;                  177:3;178:19;180:1,                  12  <b>examples (2)</b>                  87:11;88:1  <b>excavate (1)</b>                  108:13  <b>excavated (2)</b>                  49:22;90:18  <b>excavating (2)</b>                  98:5;152:4  <b>excavation (9)</b>                  38:7;126:7;141:14;                  152:21;153:23;                  155:18;160:15;                  180:14;182:16  <b>excavator (5)</b>                  111:14;121:12;                  122:4;126:12;175:1  <b>exceed (2)</b>                  80:23;135:13  <b>except (2)</b>                  23:16;114:12  <b>exception (9)</b>                  36:16;44:3;103:5;                  104:1,14;132:22;                  200:7,20;202:3  <b>exceptions (5)</b>                  51:16,24;73:19,21;                  130:9  <b>excludes (1)</b>                  105:16  <b>executed (3)</b>                  30:2;57:19;58:1  <b>exemption (5)</b>                  103:18;104:10,19;                  110:4;113:5</p>	<p><b>exercise (2)</b>                  52:6,10  <b>exerted (1)</b>                  39:20  <b>Exhibit (23)</b>                  4:20;34:12;41:13,                  16;44:9,13,14,17;                  48:16;67:9;106:18;                  118:8;124:13;                  190:14;191:2;                  192:21;193:2;                  195:21;196:11;                  197:24;202:15;                  205:13;207:8  <b>EXHIBITS (4)</b>                  3:2;34:11;86:20;                  99:6  <b>exist (1)</b>                  204:6  <b>existing (2)</b>                  128:6;129:2  <b>exists (1)</b>                  204:13  <b>exit (2)</b>                  51:21;120:4  <b>exiting (1)</b>                  186:15  <b>exits (1)</b>                  183:21  <b>exothermic (1)</b>                  159:19  <b>expect (16)</b>                  15:2;16:14;18:4;                  22:11;77:6;108:1;                  115:16;122:9;                  128:10;129:18;                  131:8;132:10;                  186:13;187:8,12;                  199:12  <b>expected (5)</b>                  31:8,22;57:7;75:2;                  139:18  <b>expeditiously (1)</b>                  179:2  <b>expensive (1)</b>                  170:5  <b>experience (26)</b>                  12:12,19;33:24;                  42:8;60:12;66:12;                  70:17;71:5;72:21;                  75:14,18;86:12;                  88:22;91:9,24,24;                  98:13;127:21;                  129:24;131:5;                  132:18;145:8;                  147:10;149:9;151:2;                  176:20  <b>experienced (4)</b>                  19:10;86:5;145:16;                  146:10  <b>expert (1)</b>                  19:20  <b>expertise (2)</b></p>	<p>147:14;167:23  <b>experts (1)</b>                  71:8  <b>explain (2)</b>                  90:9;184:13  <b>explore (1)</b>                  131:1  <b>exposed (1)</b>                  165:6  <b>expressed (1)</b>                  142:10  <b>extend (6)</b>                  46:20;47:15;154:3;                  170:19;197:9;199:23  <b>extended (2)</b>                  84:8;143:21  <b>extending (1)</b>                  171:2  <b>extensive (1)</b>                  60:13  <b>extensively (3)</b>                  38:24;39:2;97:21  <b>extent (19)</b>                  24:15;26:1;59:15;                  63:11;81:22;86:7;                  129:11;130:5,7;                  137:14;155:20;                  157:16;158:15;                  160:11,12;164:13;                  175:9;179:5;182:15  <b>extra (1)</b>                  157:23  <b>extremely (2)</b>                  38:6;88:3</p>	<p>96:16  <b>fair (25)</b>                  19:22;21:4,13;                  36:18;37:9;40:11;                  95:7;98:24;103:7;                  104:6,16;107:17;                  114:18;127:5;                  129:19;132:2;                  152:17;153:5,8,12,                  21;166:9,20;167:9;                  178:3  <b>fairly (5)</b>                  13:10;32:17;146:3;                  164:11;177:12  <b>fall (2)</b>                  9:13;31:22  <b>falling (1)</b>                  125:16  <b>familiar (18)</b>                  7:3;8:10;15:10;                  31:10,24;34:3;36:14,                  22;37:18;49:9;51:14;                  60:17;64:21;79:13;                  162:14;167:18;                  176:11;182:20  <b>familiarize (1)</b>                  68:9  <b>far (4)</b>                  147:4;148:12;                  199:8,9  <b>Farrington (1)</b>                  125:12  <b>Farrington's (1)</b>                  72:1  <b>fashion (2)</b>                  107:15;147:24  <b>faster (1)</b>                  53:9  <b>favor (1)</b>                  185:17  <b>feasibility (1)</b>                  74:2  <b>feasible (2)</b>                  67:7,12  <b>features (1)</b>                  114:7  <b>federal (4)</b>                  102:5,8,10;154:12  <b>feel (2)</b>                  4:17;151:4  <b>feet (36)</b>                  37:23;38:4;43:22,                  22;48:3,3;97:10,19;                  98:4;109:21;110:1;                  116:11,18;120:10;                  133:18,18;137:24;                  138:2;143:10;144:1,                  2,6,19;151:7,8,9;                  152:12,23;158:24;                  171:8,12;173:14;                  183:7;194:16;195:8,                  9  <b>fencing (2)</b></p>	<p>175:8;180:8  <b>few (12)</b>                  59:10;92:8;95:9;                  100:16;134:23;                  145:7;155:12;                  169:11;172:24;                  183:7;192:21;195:15  <b>field (5)</b>                  22:1;43:1;139:3,6;                  174:12  <b>fields (1)</b>                  173:19  <b>fifth (1)</b>                  58:6  <b>figure (1)</b>                  46:16  <b>filed (5)</b>                  9:19,22;10:24;                  22:14;34:6  <b>filing (1)</b>                  85:3  <b>fill (4)</b>                  53:5;79:18,18;81:8  <b>filled (3)</b>                  52:18;56:24;80:5  <b>final (13)</b>                  10:4;17:11;30:13,                  21;31:4,14;61:19;                  73:3;92:6;93:16;                  129:4;132:7;183:17  <b>finalize (1)</b>                  28:11  <b>finally (1)</b>                  206:20  <b>financial (1)</b>                  94:16  <b>find (1)</b>                  101:14  <b>fine (1)</b>                  32:5  <b>finish (4)</b>                  33:8,16,22;34:1  <b>finished (1)</b>                  180:5  <b>firm (5)</b>                  39:24;40:12;94:22,                  24;178:5  <b>firmly (1)</b>                  194:9  <b>first (10)</b>                  38:3;50:18;51:1;                  58:10;97:8;118:4;                  123:1,15;133:3;                  188:8  <b>fit (1)</b>                  134:8  <b>Five (4)</b>                  95:9,11;150:4;                  153:9  <b>fixed (1)</b>                  115:20  <b>flagger (1)</b>                  126:22</p>
		<b>F</b>		
		<p><b>facilities (2)</b>                  59:2;154:23  <b>Facility (2)</b>                  24:11;78:24  <b>fact (17)</b>                  14:21;22:7;29:13;                  37:13;48:9;49:9,19;                  50:5;51:14;52:16;                  53:3,22;87:13;90:16;                  94:21;108:18;193:12  <b>factor (7)</b>                  129:3;156:21;                  160:6,10;162:10;                  164:5;170:14  <b>factored (1)</b>                  180:23  <b>factors (7)</b>                  57:6;114:17;                  123:22;124:4;                  136:20;137:17;                  152:10  <b>Fahrenheit (1)</b>                  161:8  <b>failure (2)</b>                  76:1;149:12  <b>failures (1)</b></p>		

<p><b>flatbed (11)</b>                  111:14,15,22;                  126:11;195:23;                  196:13;197:2;198:5,                  10,24;206:9</p> <p><b>flawlessly (1)</b>                  149:24</p> <p><b>flexibility (2)</b>                  161:2,12</p> <p><b>flip (1)</b>                  39:14</p> <p><b>fluidized (6)</b>                  41:10,23;80:9;                  81:12,19;160:4</p> <p><b>fly (2)</b>                  41:19,22</p> <p><b>folks (4)</b>                  173:23;177:4;                  185:7,19</p> <p><b>follow (5)</b>                  21:22;77:7,19;                  166:17;178:10</p> <p><b>followed (1)</b>                  77:15</p> <p><b>following (2)</b>                  59:1;76:3</p> <p><b>follow-up (5)</b>                  109:3;133:13;                  134:23;141:6;181:10</p> <p><b>foot (1)</b>                  112:18</p> <p><b>footprint (4)</b>                  112:10;126:4;                  137:9;150:19</p> <p><b>forced (1)</b>                  123:12</p> <p><b>forested (2)</b>                  192:3,4</p> <p><b>forgive (2)</b>                  89:17;100:23</p> <p><b>forklift (1)</b>                  175:11</p> <p><b>form (1)</b>                  175:4</p> <p><b>formed (2)</b>                  121:15;151:20</p> <p><b>formerly (1)</b>                  145:10</p> <p><b>forte (1)</b>                  95:5</p> <p><b>forth (5)</b>                  82:11;140:16;                  167:20;187:23;                  206:10</p> <p><b>forward (5)</b>                  129:15;131:24;                  168:20;170:20;                  171:23</p> <p><b>found (4)</b>                  31:5;42:17;100:12;                  106:8</p> <p><b>foundations (1)</b>                  157:3</p>	<p><b>four (7)</b>                  49:15;55:9;69:12;                  134:3;150:5;151:15;                  153:2</p> <p><b>Four-by-eight (1)</b>                  134:7</p> <p><b>fourth (2)</b>                  58:6;69:22</p> <p><b>frac (2)</b>                  78:17;156:6</p> <p><b>frack-out (1)</b>                  120:9</p> <p><b>frame (3)</b>                  14:18;116:9;                  163:12</p> <p><b>Franconia (1)</b>                  101:10</p> <p><b>Frazier (1)</b>                  71:10</p> <p><b>Frazier's (1)</b>                  72:1</p> <p><b>free (2)</b>                  4:17;61:4</p> <p><b>free-floating (1)</b>                  82:13</p> <p><b>freezes (1)</b>                  158:16</p> <p><b>freezing (3)</b>                  161:9,13;163:19</p> <p><b>friction (1)</b>                  82:18</p> <p><b>front (9)</b>                  11:12;48:24;49:14;                  51:11;107:13;173:1;                  190:9,10;191:1</p> <p><b>frozen (4)</b>                  158:19,23;160:16,                  19</p> <p><b>FTB (8)</b>                  42:2,10,14,18;43:1,                  10,15;82:5</p> <p><b>full (5)</b>                  66:14;128:20;                  132:13;143:21;164:3</p> <p><b>fully (6)</b>                  16:16;22:15;25:4;                  36:19;108:1;171:10</p> <p><b>functional (1)</b>                  173:8</p> <p><b>funds (1)</b>                  102:11</p> <p><b>further (6)</b>                  119:22,23;168:9,                  12;169:4;181:6</p> <p><b>furtherance (1)</b>                  58:20</p>	<p><b>G</b></p> <p><b>GAGNON (1)</b>                  63:21</p> <p><b>gain (1)</b>                  173:5</p>	<p><b>Gale (3)</b>                  107:20;118:8;                  173:15</p> <p><b>gas (1)</b>                  150:21</p> <p><b>gave (1)</b>                  173:17</p> <p><b>general (24)</b>                  15:22;19:4,19;                  21:7;25:24;31:13;                  32:20;33:5;67:16;                  70:17;71:16;74:10;                  120:1;135:21;145:7,                  20;146:2,5;148:18;                  151:2;152:19;                  156:18;171:4;201:11</p> <p><b>generally (42)</b>                  6:3,7;7:2;18:18;                  19:5;23:14;24:9;                  31:11;32:1;36:24;                  67:5,11;75:19;76:8,                  14;82:3,16;83:10;                  86:9,13;87:1;90:15,                  20;91:16;93:23;                  119:3;127:9;130:5;                  133:18;142:15;                  143:17;144:19;                  160:5;161:5;164:1;                  167:14;169:21;                  170:7;176:23;                  180:11;200:9,23</p> <p><b>generates (1)</b>                  159:19</p> <p><b>generic (3)</b>                  13:7;43:21;117:13</p> <p><b>Gentlemen (7)</b>                  4:12;89:11;134:23;                  149:4;169:3;184:24;                  208:1</p> <p><b>geology (1)</b>                  97:22</p> <p><b>geotechnical (3)</b>                  38:6;139:16;                  152:15</p> <p><b>gets (1)</b>                  128:23</p> <p><b>given (18)</b>                  53:14;57:6;83:19;                  117:15;132:16,20;                  133:2;136:21;147:1;                  149:20,24;152:24;                  154:5;155:5;174:11;                  192:19;197:7;199:18</p> <p><b>giving (1)</b>                  50:6</p> <p><b>glance (1)</b>                  38:10</p> <p><b>goal (1)</b>                  143:15</p> <p><b>goals (2)</b>                  58:19,20</p> <p><b>goes (1)</b>                  138:2</p>	<p><b>good (19)</b>                  51:2;59:12;76:10;                  81:21;89:11;118:24;                  133:12;134:23;                  144:19;161:11;                  162:22;169:7,8,9,11;                  177:12;181:13;                  184:24;192:4</p> <p><b>Google (1)</b>                  207:10</p> <p><b>governments (1)</b>                  102:10</p> <p><b>grab (1)</b>                  183:14</p> <p><b>grade (1)</b>                  201:23</p> <p><b>grammar (1)</b>                  100:24</p> <p><b>granite (3)</b>                  96:3;97:24;151:23</p> <p><b>grant (1)</b>                  36:11</p> <p><b>granted (1)</b>                  36:8</p> <p><b>granular (2)</b>                  140:21;152:22</p> <p><b>graphically (1)</b>                  109:18</p> <p><b>gravel (7)</b>                  80:5;82:11;88:21;                  143:1;158:9;164:7;                  206:8</p> <p><b>great (4)</b>                  17:2;122:19;                  126:24;130:13</p> <p><b>greater (9)</b>                  119:10,15;120:13,                  17;124:3;129:22;                  173:24;198:20,21</p> <p><b>gross (2)</b>                  54:9;57:14</p> <p><b>ground (9)</b>                  69:16;88:10;                  155:20;157:9,10;                  158:16,19;160:16;                  166:3</p> <p><b>group (2)</b>                  78:4;208:8</p> <p><b>groupie (1)</b>                  94:18</p> <p><b>groups (5)</b>                  93:7;185:8,9,15,20</p> <p><b>guard (1)</b>                  105:7</p> <p><b>guess (13)</b>                  72:8;76:5,9;82:21;                  84:14;126:1;159:1,8;                  166:24;167:22;                  168:14;169:23;183:8</p> <p><b>guessing (1)</b>                  160:14</p> <p><b>guidance (1)</b>                  100:14</p>	<p><b>guidelines (2)</b>                  31:9,23</p> <hr/> <p><b>H</b></p> <hr/> <p><b>half (7)</b>                  64:7;86:22,22;                  87:2;180:12;182:11,                  12</p> <p><b>halfway (1)</b>                  102:7</p> <p><b>Hampshire (16)</b>                  5:23;6:15;8:9;                  10:2;12:19;14:23;                  27:11;44:11;88:4,14;                  94:1;97:23;102:19;                  151:23;168:22;                  176:24</p> <p><b>Hampshire's (1)</b>                  34:15</p> <p><b>handle (2)</b>                  117:8;187:4</p> <p><b>handled (4)</b>                  6:22;16:7;22:1;                  79:10</p> <p><b>handling (1)</b>                  146:3</p> <p><b>happen (7)</b>                  66:8;112:9;117:2;                  140:6;149:10;                  159:17;167:4</p> <p><b>happening (3)</b>                  151:1,1;184:8</p> <p><b>happens (2)</b>                  79:5;138:15</p> <p><b>happy (1)</b>                  168:12</p> <p><b>hard (4)</b>                  96:10;132:5;154:1;                  207:14</p> <p><b>hardness (1)</b>                  81:24</p> <p><b>hauling (1)</b>                  156:7</p> <p><b>HDD (40)</b>                  39:4;43:20;44:10,                  16,21;45:9;46:23;                  47:12;50:20;51:10;                  76:18;77:6;78:15;                  95:14,23;103:17,21;                  104:8;112:13,14;                  113:14,18;118:18;                  119:22;135:19,22;                  136:4;138:10,13;                  149:6,8;161:4;                  183:18;194:15,21;                  195:12;200:17,22;                  201:4,16</p> <p><b>HDDs (3)</b>                  37:11;39:2,3</p> <p><b>head (2)</b>                  39:19;140:23</p> <p><b>heads (1)</b></p>
--	---	---	---	--	---

140:17 <b>hear (2)</b> 145:20;151:7 <b>heard (19)</b> 33:8;37:11;38:23; 39:1,4;41:10;73:14; 95:22;97:6,9,17; 106:20;109:6; 116:20;122:19; 129:7;130:19; 151:13;158:14 <b>hearing (8)</b> 89:5;97:11;145:23; 159:2;169:14,14; 208:7,15 <b>heat (13)</b> 42:13,19;80:13,21; 88:21;91:13;142:10; 143:7;159:20;188:2, 6,13,22 <b>heaters (1)</b> 159:15 <b>heating (1)</b> 159:24 <b>heat-producing (1)</b> 88:9 <b>heat-transfer (2)</b> 81:21;90:14 <b>heavier (1)</b> 128:6 <b>heavily (1)</b> 132:16 <b>heavy (8)</b> 82:15;105:2; 155:13,16;156:24; 157:7;158:1;164:11 <b>helicopters (1)</b> 157:17 <b>help (4)</b> 92:6;113:23; 145:22;166:22 <b>helped (1)</b> 16:8 <b>helpful (2)</b> 64:16;163:16 <b>helps (1)</b> 139:10 <b>high (2)</b> 36:24;38:5 <b>higher (5)</b> 98:8;112:19;130:3; 183:11;199:24 <b>high-level (1)</b> 93:24 <b>highlighted (1)</b> 190:18 <b>highly (2)</b> 23:19;192:16 <b>high-profile (1)</b> 177:18 <b>high-voltage (5)</b> 94:1;95:20;146:21; 155:10;161:6	<b>highway (8)</b> 37:24;41:17;42:3, 6;91:21,22,23;102:10 <b>highways (1)</b> 42:22 <b>Hill (4)</b> 3:5;190:21;207:11, 19 <b>Hilliard (2)</b> 61:22;62:7 <b>hired (1)</b> 90:1 <b>history (1)</b> 88:17 <b>hit (6)</b> 96:2,2,2,3,9;140:1 <b>hitting (1)</b> 138:14 <b>Hmm-hmm (1)</b> 46:6 <b>hoisting (1)</b> 157:13 <b>hole (23)</b> 62:22;63:4;64:23; 65:2,20;66:2,4,11; 125:11;157:4; 181:23;182:2,6; 183:4;192:24;193:7; 196:8,18;197:3; 198:4,6,11,13 <b>holes (1)</b> 183:23 <b>home (2)</b> 172:6;185:13 <b>homeowner (2)</b> 49:16;173:4 <b>homeowners (1)</b> 50:7 <b>honestly (1)</b> 79:12 <b>HONIGBERG (24)</b> 4:4,7;38:21;39:8; 40:21;41:4;60:8,15; 78:2,6;89:2,6;133:9; 134:20;169:5;181:3, 7;184:19;185:2; 189:1;204:20;205:8; 208:3,10 <b>horizontal (8)</b> 95:10;127:10,13, 18;128:4,10,21; 136:10 <b>host (1)</b> 57:19 <b>hour (2)</b> 180:11,12 <b>hours (7)</b> 82:3;152:9;172:24; 177:15;178:8; 179:13,15 <b>house (1)</b> 122:8 <b>houses (1)</b>	172:22 <b>housing (1)</b> 178:3 <b>Houten (4)</b> 202:9;204:15,22, 24 <b>Houten's (1)</b> 205:20 <b>huge (3)</b> 100:2,4;103:15 <b>humidity (1)</b> 165:11 <b>hundred (2)</b> 112:24;113:1 <b>hundred-percent (1)</b> 136:24 <b>hurricanes (1)</b> 146:9 <b>hydraulic (1)</b> 121:18	131:19 <b>immediately (4)</b> 80:20;108:13; 176:10,18 <b>impact (26)</b> 19:13;30:13,16,21; 31:4,14;80:16,17; 88:4;106:24;107:3,4; 111:2;115:12,13; 126:13;142:24; 158:22;162:6; 171:19;186:14; 187:9,13,20,22; 195:10 <b>impacted (3)</b> 160:23;167:2; 173:22 <b>impacts (35)</b> 7:12;8:8;11:21; 18:9,13;19:6,9,15; 23:18;25:4;26:16,18, 23;27:3,7,15,20,24; 34:14,23;35:11,14; 58:13;69:20;72:12, 16,23;90:19;98:24; 99:4;106:22;107:24; 122:19;123:14; 130:17 <b>impeded (1)</b> 161:24 <b>implementation (1)</b> 31:18 <b>implementing (1)</b> 72:22 <b>implying (1)</b> 107:2 <b>important (2)</b> 59:24;130:2 <b>impression (1)</b> 171:4 <b>improve (1)</b> 99:15 <b>improvements (1)</b> 168:3 <b>inadvertent (9)</b> 75:12,14,18,21; 76:2,12,19,23;77:12 <b>inch (1)</b> 158:8 <b>inches (2)</b> 80:4,15 <b>inch-thick (1)</b> 83:17 <b>incidence (1)</b> 98:8 <b>include (4)</b> 21:12;94:3;137:2; 206:8 <b>included (5)</b> 17:10;18:1;27:9; 44:14;204:17 <b>includes (1)</b> 147:23	<b>including (3)</b> 67:17;69:4;153:21 <b>income (1)</b> 94:23 <b>incomplete (2)</b> 96:20;117:10 <b>incompleteness (1)</b> 129:8 <b>inconvenience (1)</b> 100:1 <b>inconvenienced (1)</b> 100:7 <b>incorporated (1)</b> 32:4 <b>increase (6)</b> 53:8;142:22; 143:19;159:23; 162:3;199:22 <b>increased (3)</b> 18:19,20;146:10 <b>independent (1)</b> 166:16 <b>indicate (1)</b> 110:15 <b>indicated (12)</b> 19:6;66:7;85:24; 110:7;135:2;144:10; 191:6;194:20;195:2; 200:22;202:3;206:21 <b>indicates (3)</b> 84:2;190:19; 193:16 <b>indicating (2)</b> 27:20;204:8 <b>indications (1)</b> 173:18 <b>indirectly (1)</b> 166:12 <b>individual (2)</b> 60:18;136:14 <b>individuals (1)</b> 167:14 <b>industry (4)</b> 77:11,17;146:6; 150:23 <b>inevitably (1)</b> 107:22 <b>infeasibility (1)</b> 97:4 <b>influence (1)</b> 152:10 <b>information (22)</b> 4:18;30:8;40:6; 68:5;70:10;89:20; 96:20;98:12;99:21; 105:15;112:12; 118:23;127:17; 128:13;129:15; 132:11;135:5; 148:21;166:13; 173:16;187:20;197:4 <b>informative (1)</b> 16:3
---	--	---	---	---

**I**

<b>I-93 (1)</b> 207:12 <b>I-beams (1)</b> 181:20 <b>idea (8)</b> 59:22;60:1;116:20; 118:24;119:1; 130:14;172:5;173:21 <b>ideas (1)</b> 167:19 <b>identified (10)</b> 23:21;24:6;26:2; 28:16;73:10;93:3; 108:3;121:1;123:2; 151:19 <b>identify (5)</b> 7:11;24:5;27:14; 139:10;187:17 <b>identifying (2)</b> 7:23;139:20 <b>idle (3)</b> 84:2,8,21 <b>idling (2)</b> 83:24;84:10 <b>ifs (1)</b> 32:3 <b>illuminated (2)</b> 175:6;176:8 <b>illustrate (2)</b> 47:4;64:4 <b>illustrated (2)</b> 62:21;112:4 <b>illustrates (1)</b> 47:6 <b>illustration (2)</b> 46:3;65:22 <b>imagine (3)</b> 39:6;174:18; 175:24 <b>immediate (1)</b>
---

<p><b>infrastructure (2)</b> 129:2;146:11</p> <p><b>inherently (1)</b> 111:11</p> <p><b>initial (3)</b> 49:21;127:7; 131:23</p> <p><b>in-line (11)</b> 3:3;45:2,9,21;46:4; 47:8,12;65:1,18; 78:15;124:13</p> <p><b>input (3)</b> 71:7;72:24;92:21</p> <p><b>inquiring (1)</b> 200:6</p> <p><b>install (4)</b> 67:18;92:22;154:2, 21</p> <p><b>installation (17)</b> 3:4;68:24;74:15; 75:5;88:23;110:20; 111:4;124:19; 141:12;142:20; 147:17,22;157:10; 161:7;164:12,17; 165:13</p> <p><b>installations (1)</b> 150:22</p> <p><b>installed (13)</b> 23:9;49:23;88:17; 91:3;98:3;136:13; 142:18;147:20; 148:4;153:19;155:2; 156:9,19</p> <p><b>installer (1)</b> 148:5</p> <p><b>installing (6)</b> 88:20;110:13,21; 157:2;161:13;165:15</p> <p><b>instance (3)</b> 187:9,14,22</p> <p><b>instead (4)</b> 96:21;107:12; 136:4;138:17</p> <p><b>integrity (1)</b> 156:17</p> <p><b>intend (1)</b> 36:19</p> <p><b>intended (1)</b> 194:1</p> <p><b>intending (4)</b> 63:7;64:13;65:16, 18</p> <p><b>intent (6)</b> 141:7,14,17,23; 182:21;194:5</p> <p><b>intentionally (1)</b> 165:7</p> <p><b>interest (2)</b> 58:16;59:20</p> <p><b>interests (1)</b> 61:1</p> <p><b>interfere (2)</b></p>	<p>184:8,9</p> <p><b>interference (1)</b> 114:7</p> <p><b>interpreting (1)</b> 46:14</p> <p><b>interrupting (1)</b> 185:23</p> <p><b>interruption (1)</b> 50:3</p> <p><b>interruptions (3)</b> 49:21,23;179:7</p> <p><b>intersects (1)</b> 205:16</p> <p><b>interstate (2)</b> 37:24;39:18</p> <p><b>intervenor (1)</b> 185:9</p> <p><b>intervenor (1)</b> 185:14</p> <p><b>into (34)</b> 20:22;61:5;63:3; 66:3,11;82:5;87:18, 21;89:21;96:12,16; 102:17;106:13; 111:9,22;121:22; 123:23;125:16; 127:11,13;128:23; 140:13;141:3; 144:15;157:21; 163:17;165:8; 172:10;173:5; 180:22,23;192:24; 193:6;196:18</p> <p><b>introduce (1)</b> 159:21</p> <p><b>introduced (2)</b> 41:16;142:4</p> <p><b>introduces (1)</b> 139:14</p> <p><b>introduction (1)</b> 102:3</p> <p><b>investigation (2)</b> 118:21,22</p> <p><b>investigations (1)</b> 76:11</p> <p><b>involve (5)</b> 82:7;110:21;111:6; 131:21;137:12</p> <p><b>involved (13)</b> 42:9;70:11;95:19; 116:9;145:10; 146:19;150:18; 152:6;154:11,17; 167:13,21;171:7</p> <p><b>involves (2)</b> 91:12;155:19</p> <p><b>issue (17)</b> 18:3,4;19:22; 33:16;50:11;71:17; 77:18;81:2;88:19; 104:20;108:7; 135:16;160:18; 168:16;173:13;</p>	<p>177:11;207:4</p> <p><b>issued (4)</b> 10:3;17:14;22:20; 36:4</p> <p><b>issues (21)</b> 7:24;9:5,17;59:16; 62:7;68:23;69:12; 70:23;71:14;72:3,6, 10;99:3;107:21; 115:23;117:3; 149:19;167:3;176:7, 22;177:14</p> <p><b>items (2)</b> 174:4;194:20</p> <p><b>iteration (1)</b> 118:4</p> <p><b>iterative (1)</b> 21:2</p>	<p>166:14</p> <p><b>kind (5)</b> 96:8;138:14;144:3; 145:7;157:18</p> <p><b>kinds (1)</b> 69:19</p> <p><b>knew (2)</b> 152:22;181:15</p> <p><b>knowing (2)</b> 26:21;182:4</p> <p><b>knowledge (5)</b> 93:22;97:2,22; 152:20;169:2</p> <p><b>knowledgeable (1)</b> 105:11</p> <p><b>known (2)</b> 97:23;165:5</p> <p><b>kV (3)</b> 5:10,15;6:9</p>	<p>118:19;129:15; 136:12</p> <p><b>latest (1)</b> 118:13</p> <p><b>launching (1)</b> 137:23</p> <p><b>law (2)</b> 102:5;176:13</p> <p><b>lay (1)</b> 110:17</p> <p><b>laydown (12)</b> 24:24;25:16,22; 69:5;148:6;174:21; 186:7,10,11,15; 187:17,21</p> <p><b>layers (2)</b> 82:9;91:14</p> <p><b>leach (1)</b> 173:19</p> <p><b>lead (3)</b> 11:21;76:8;166:13</p> <p><b>leads (1)</b> 111:9</p> <p><b>lead-up (1)</b> 89:18</p> <p><b>learn (2)</b> 14:21;61:14</p> <p><b>least (11)</b> 15:7;95:21;102:16; 110:22;111:1; 126:21;128:11; 148:1,7;166:10; 181:19</p> <p><b>leave (3)</b> 178:22;179:6; 185:4</p> <p><b>ledge (7)</b> 53:24;54:5;98:1; 108:2;138:17;140:2, 8</p> <p><b>left (15)</b> 56:22;109:12; 119:13;120:14; 124:24;125:3; 126:16;160:11; 174:20,21;175:1; 178:14,15;180:20; 182:14</p> <p><b>left-hand (3)</b> 109:10,15;195:23</p> <p><b>legal (2)</b> 115:9,11</p> <p><b>length (7)</b> 110:16;116:7; 136:9,18;171:7; 175:14;196:5</p> <p><b>lengthy (1)</b> 170:16</p> <p><b>less (9)</b> 45:15;108:2;130:9; 131:19;136:1; 160:22;166:15; 170:5,9</p>
		<b>J</b>		
		<p><b>jack (3)</b> 121:1,5,7</p> <p><b>jacking (2)</b> 121:7,13</p> <p><b>jersey (8)</b> 125:20;180:19; 181:22;182:4,7,21, 22;183:3</p> <p><b>job (3)</b> 8:5;16:23;148:11</p> <p><b>John (1)</b> 61:22</p> <p><b>Johnson (3)</b> 54:20;57:6;64:5</p> <p><b>joints (1)</b> 75:6</p> <p><b>judge (1)</b> 129:9</p> <p><b>judgment (3)</b> 62:6,6,11</p> <p><b>jump (4)</b> 4:17;89:21;106:14, 16</p> <p><b>June (1)</b> 43:8</p> <p><b>jurisdiction (2)</b> 80:2;123:13</p>	<b>L</b>	
		<b>K</b>		
		<p><b>Karner (3)</b> 19:15;20:3;118:5</p> <p><b>keep (4)</b> 31:8;64:16;156:9; 173:11</p> <p><b>keeping (1)</b> 155:23</p> <p><b>Ken (1)</b> 33:14</p> <p><b>key (1)</b> 129:3</p> <p><b>kicked (1)</b></p>	<p><b>large (9)</b> 19:3,10;65:24; 96:6;113:21;140:19; 148:2,13;167:15</p> <p><b>larger (7)</b> 57:4;95:19;133:19; 136:15;152:6; 158:13;199:20</p> <p><b>last (5)</b> 92:8;126:23; 179:18;205:5,5</p> <p><b>lately (1)</b> 146:10</p> <p><b>later (6)</b> 4:17;27:17;37:5;</p>	

<p><b>lessen (1)</b> 107:4</p> <p><b>letter (3)</b> 190:15,18;191:3</p> <p><b>level (13)</b> 36:24;119:14; 128:3,22;129:22; 132:13;177:1; 200:24;201:9,12,18, 20;202:4</p> <p><b>levels (2)</b> 31:22;192:17</p> <p><b>licensed (2)</b> 4:23;5:23</p> <p><b>lid (1)</b> 87:3</p> <p><b>lift (2)</b> 63:2;66:3</p> <p><b>lifted (2)</b> 65:20;111:20</p> <p><b>lifting (3)</b> 52:7;87:9;111:18</p> <p><b>lifts (2)</b> 62:17;63:12</p> <p><b>lighting (7)</b> 126:17,18;175:7; 176:1,2,13;180:9</p> <p><b>lightning (1)</b> 157:14</p> <p><b>likelihood (3)</b> 142:18;161:20; 192:13</p> <p><b>likely (7)</b> 23:19;50:22;98:7; 146:24;182:12; 183:24;192:16</p> <p><b>limit (8)</b> 55:5,23;67:14; 119:11;135:9,10,13; 157:19</p> <p><b>limited (6)</b> 69:21,23;73:6; 88:22;130:7;173:3</p> <p><b>limits (4)</b> 46:20;83:14; 120:24;137:12</p> <p><b>line (37)</b> 5:10,16;6:9;7:22; 8:16;18:17;19:3; 20:9;26:7;39:15; 42:17;45:17;58:17; 62:22;67:15,19; 68:11;69:11;70:21; 73:4;87:18;98:15; 103:24;107:18,22; 109:15;117:13; 130:11;132:4,9; 133:3;145:11; 154:22;155:2,4; 203:20,24</p> <p><b>linear (6)</b> 86:9;87:4,7,18; 112:18;178:20</p>	<p><b>Lines (15)</b> 11:11,16;14:7; 18:8;22:13;35:9; 67:10;72:13;80:6; 95:4;150:21,22; 154:23,23;157:15</p> <p><b>list (3)</b> 18:9;20:6;35:18</p> <p><b>listed (6)</b> 12:4;74:11;75:3; 103:12;117:16;187:5</p> <p><b>little (16)</b> 4:16;29:23;52:3; 53:9;83:2,4;92:3; 106:15;116:15; 128:12;144:23; 163:19;169:12; 185:1;200:14;207:14</p> <p><b>live (1)</b> 100:5</p> <p><b>loads (3)</b> 115:8,9,11</p> <p><b>local (5)</b> 56:9;78:20;79:11; 102:9;156:2</p> <p><b>located (6)</b> 26:22;64:22,23; 65:1;135:4;155:6</p> <p><b>location (26)</b> 55:7;56:8;76:11; 79:5;114:13;115:15; 117:15;118:17,22; 119:21;121:2; 127:10;130:12,16; 131:15;138:9; 152:20;153:17; 155:5;162:18; 169:21;171:20; 172:13;192:1; 203:17;207:16</p> <p><b>limited (17)</b> 25:10;33:1;51:11, 21;70:13;109:24; 117:12,22;129:13; 131:6;136:5;137:14; 139:9;165:5;171:15; 172:16;173:10</p> <p><b>lock (1)</b> 179:20</p> <p><b>LOD (1)</b> 56:3</p> <p><b>logical (3)</b> 77:5;119:18; 120:19</p> <p><b>long (12)</b> 40:1;43:22;48:3; 81:16,18;89:17; 144:6;150:16; 174:10,11;182:8; 183:23</p> <p><b>longer (17)</b> 66:15;106:23; 107:7,8;113:2;</p>	<p>131:14;138:9; 149:14;150:12; 151:16;159:3;170:4; 184:13;199:2,4,15,23</p> <p><b>longest (1)</b> 5:13</p> <p><b>longitudinal (1)</b> 110:12</p> <p><b>long-term (4)</b> 7:11;11:21;34:14; 42:20</p> <p><b>look (13)</b> 11:9;30:1;39:11; 46:8;48:19;58:3,10; 63:16;70:3;110:3; 125:6;203:2,16</p> <p><b>looked (7)</b> 48:1;74:21;81:2; 90:4;123:7;207:3,4</p> <p><b>looking (8)</b> 9:11;11:11;86:24; 88:1;100:18;120:18; 171:1;172:9</p> <p><b>looks (2)</b> 64:8;100:10</p> <p><b>loose (1)</b> 56:21</p> <p><b>lot (20)</b> 13:13;32:3;59:10; 82:22;86:14;88:12; 89:14,18;91:23; 101:21,22;105:2; 117:21;123:22; 129:7;151:11,17; 158:21;172:11;195:4</p> <p><b>low (3)</b> 99:22;165:10,11</p> <p><b>lower (1)</b> 182:11</p> <p><b>low-speed (1)</b> 183:10</p> <p><b>low-volume (1)</b> 183:10</p> <p><b>lubricant (1)</b> 39:5</p> <p><b>Lynn (2)</b> 72:1,1</p>	<p>204:12</p> <p><b>maintained (1)</b> 22:2</p> <p><b>maintaining (2)</b> 101:7;199:16</p> <p><b>maintenance (2)</b> 7:22;34:17</p> <p><b>makes (1)</b> 107:10</p> <p><b>making (3)</b> 8:17;165:3;170:22</p> <p><b>manage (3)</b> 69:3;106:12;108:4</p> <p><b>managed (4)</b> 21:14;71:18;76:3; 77:18</p> <p><b>management (18)</b> 6:4;20:12,22;21:1; 27:9,16;28:3,16; 77:12;100:22; 101:23;102:15; 186:18,24;187:3,8, 13,18</p> <p><b>manager (1)</b> 5:6</p> <p><b>managerial (4)</b> 6:24;7:5,16;35:5</p> <p><b>managing (2)</b> 20:2;119:6</p> <p><b>mandrel (1)</b> 75:9</p> <p><b>maneuver (3)</b> 158:5;161:3; 198:12</p> <p><b>manhole (3)</b> 163:21;164:18,21</p> <p><b>manholes (1)</b> 110:24</p> <p><b>manipulating (1)</b> 46:18</p> <p><b>manner (5)</b> 50:15;51:12;54:7; 58:12;179:4</p> <p><b>manners (1)</b> 193:21</p> <p><b>Manual (3)</b> 103:5;104:13; 132:24</p> <p><b>manufactured (1)</b> 147:15</p> <p><b>manufacturer (2)</b> 31:21;146:24</p> <p><b>many (9)</b> 35:13;86:17;98:2, 19;99:12,18;130:4; 134:2;162:13</p> <p><b>Manzelli (1)</b> 9:8</p> <p><b>map (2)</b> 203:16;205:20</p> <p><b>maps (1)</b> 205:2</p> <p><b>March (3)</b></p>	<p>10:2,13;162:17</p> <p><b>market (1)</b> 145:21</p> <p><b>marshmallow (1)</b> 96:9</p> <p><b>mass (2)</b> 140:9,19</p> <p><b>master's (1)</b> 5:3</p> <p><b>match (1)</b> 39:19</p> <p><b>material (37)</b> 8:12;43:3;44:14; 53:19;54:4,9,14,16, 17;55:2;56:21;69:6, 17;79:15,18;80:6,12, 19;81:6,8,23,24; 140:20,22;142:3; 147:18;152:22; 156:21;175:19,23; 176:11;177:5; 191:13,15,19,20; 192:10</p> <p><b>materials (14)</b> 55:20;70:5;84:11; 90:16;92:13;147:8, 24;148:3,11;154:2; 157:8;159:21;165:8; 178:1</p> <p><b>math (2)</b> 116:10;120:2</p> <p><b>matter (4)</b> 4:13;36:4;71:10; 177:22</p> <p><b>matters (1)</b> 16:7</p> <p><b>maximum (3)</b> 80:23;110:8; 199:13</p> <p><b>may (38)</b> 4:7;11:19;17:7; 18:9;29:1;31:1;37:3; 47:16;48:13;56:21; 70:21;83:1,2;84:2,8; 86:15;96:17;124:2,2; 129:13,14;138:19; 144:22;150:5; 157:12;158:7,22; 163:18;165:19; 167:11;171:23; 173:19;179:11; 183:14;185:24; 189:2;193:14;199:12</p> <p><b>maybe (28)</b> 45:14;46:7;84:16; 92:2;94:6;97:3; 108:2;112:22; 131:14,17;137:6,10; 138:3;150:10,19; 152:3,8;153:15; 156:21;157:9; 158:21;169:12; 170:20;171:10;</p>	
		<b>M</b>			
		<p><b>machine (1)</b> 39:17</p> <p><b>machinery (1)</b> 144:23</p> <p><b>magic (1)</b> 143:9</p> <p><b>main (8)</b> 37:23;53:11;73:24; 120:14;123:1,5,20; 143:15</p> <p><b>maintain (7)</b> 58:16;65:6;69:19; 101:5;126:5;199:13;</p>			

173:24;176:8; 183:12;205:4 <b>McAllaster (2)</b> 143:24;144:16 <b>mean (17)</b> 11:24;21:23;49:15; 85:18,20;88:16; 90:24;94:15;123:18, 22;128:15;129:7; 158:2;174:8;179:9; 183:1,6 <b>means (5)</b> 94:22;98:19;105:8; 108:9,15 <b>meant (1)</b> 65:10 <b>Mears (1)</b> 95:17 <b>measurable (1)</b> 143:19 <b>measures (2)</b> 31:7,17 <b>mechanical (4)</b> 90:15;91:7,10,17 <b>mechanism (2)</b> 87:9;90:14 <b>mechanisms (1)</b> 184:6 <b>medium (1)</b> 140:12 <b>meet (6)</b> 17:16,18,22;74:9; 81:5;100:21 <b>meeting (1)</b> 168:13 <b>meets (1)</b> 168:24 <b>members (9)</b> 60:24;78:9;148:14; 166:6;185:9,11,12, 15,21 <b>memo (3)</b> 100:10,15;187:6 <b>memorandum (1)</b> 186:23 <b>mention (1)</b> 14:7 <b>mentioned (12)</b> 18:19;20:6;24:17; 47:21;82:12;85:14; 89:24;101:9;109:23; 176:2;177:24;180:9 <b>merely (2)</b> 99:17;107:6 <b>Merrimack (2)</b> 26:7;27:4 <b>met (2)</b> 4:14;26:21 <b>metal (1)</b> 157:14 <b>method (6)</b> 122:6;137:7;197:1; 198:2,20,21	<b>methods (6)</b> 44:10;45:2;67:18; 72:22;136:6;137:3 <b>Michigan (1)</b> 88:16 <b>microtunnel (2)</b> 137:21;138:4 <b>microtunneling (8)</b> 118:10,11;119:3, 18;120:20;135:18, 20;136:3 <b>mid-December (1)</b> 162:16 <b>middle (3)</b> 89:21;162:16; 203:2 <b>might (68)</b> 16:2;44:4;54:21; 64:15;65:14,15;81:8; 85:12;86:24;93:5; 96:23;102:12; 108:10,11;112:11,15; 113:6;114:4,15,16; 116:14,15;119:18; 130:13,20,21;131:12, 23;132:18;136:11, 18;137:1,12;139:5; 140:23;146:18; 147:2;149:4;150:9, 11;152:11;155:8,16; 156:5,9;157:16; 159:2;160:12;164:3; 166:19;167:18; 168:9;169:20;170:3; 171:14;173:9,21; 175:1,2,10,13,18; 176:13;177:2,9; 179:14;183:12;189:5 <b>miles (1)</b> 5:15 <b>Million (1)</b> 112:22 <b>millions (1)</b> 112:21 <b>mills (1)</b> 148:15 <b>mind (3)</b> 59:21;163:12; 205:7 <b>minimal (1)</b> 151:19 <b>minimize (2)</b> 58:13;120:8 <b>minimizes (1)</b> 148:6 <b>minimum (3)</b> 75:7;83:10;179:11 <b>Minnesota (1)</b> 88:16 <b>minor (1)</b> 143:19 <b>minuses (1)</b> 117:18	<b>minute (3)</b> 25:1;48:20;205:4 <b>minutes (6)</b> 52:10;84:3,17,19, 23;100:16 <b>miss (2)</b> 85:6;139:19 <b>misspellings (1)</b> 100:24 <b>mitigate (2)</b> 58:13;72:22 <b>mitigation (2)</b> 20:3;137:7 <b>mix (2)</b> 156:13;159:8 <b>mixers (1)</b> 206:10 <b>mixtures (1)</b> 159:13 <b>mobilization (2)</b> 150:2;153:7 <b>modification (1)</b> 53:11 <b>moment (3)</b> 47:2;58:9;170:24 <b>money (2)</b> 94:22;113:17 <b>monitor (1)</b> 166:16 <b>monitored (1)</b> 20:13 <b>monitoring (1)</b> 122:12 <b>monitors (1)</b> 116:22 <b>months (6)</b> 97:7;149:19;160:7, 13;161:16;162:9 <b>moratorium (2)</b> 162:23;163:2 <b>moratoriums (1)</b> 162:15 <b>more (56)</b> 40:17;42:7;46:13; 52:3;53:13;56:21; 57:8;68:17;76:7; 79:17;84:15;97:12; 101:16;104:15; 105:11;106:24; 114:3;118:21; 119:18;120:19; 127:16;128:7,13,17; 129:18;130:1,6; 132:10;136:3; 140:13,14;143:6; 144:8;149:4,7;150:8, 23;151:2,9;152:5; 153:6;160:19;162:9; 163:17;166:3;168:1; 170:11,13;173:9; 177:15;178:18,22; 179:1;182:12,16; 183:24	<b>morning (6)</b> 14:8;52:8;117:12; 179:2;202:22;208:7 <b>most (6)</b> 104:8;120:4;148:2; 161:5;177:13;195:9 <b>mostly (1)</b> 199:20 <b>Motel (2)</b> 107:21;173:16 <b>MOU (4)</b> 58:1;61:5,21;62:12 <b>MOUs (9)</b> 29:24;30:2;57:18; 59:20;60:14;61:15; 62:4;83:24;84:1 <b>move (14)</b> 38:11;50:23;63:7; 65:6;66:11;82:20; 92:23;109:1;130:14; 163:17;169:24; 183:15;189:6;194:3 <b>moved (5)</b> 50:21;54:21;57:9; 66:21,24 <b>movement (4)</b> 46:15;47:14; 195:10;199:24 <b>moving (6)</b> 56:7;91:20;111:20; 157:9,21;195:4 <b>much (20)</b> 37:11;82:20;84:22; 88:13;112:14; 113:17;130:2; 148:17;149:13; 172:16;180:7,10; 181:2;184:18; 199:15,20,23,23,24; 208:5 <b>muck (1)</b> 96:2 <b>mud (2)</b> 79:1;163:18 <b>muddy (3)</b> 163:20;164:9,15 <b>muds (1)</b> 39:1 <b>multiple (4)</b> 102:17;116:19; 171:15;182:17 <b>municipal (1)</b> 154:22 <b>municipalities (1)</b> 60:18 <b>mutual (1)</b> 59:17 <b>myself (1)</b> 68:9	4:12 <b>name's (1)</b> 89:12 <b>narrow (3)</b> 45:17;101:6; 113:13 <b>Natina (5)</b> 32:24;33:8,16,22; 34:1 <b>national (1)</b> 8:18 <b>natural (3)</b> 8:9;18:10;34:15 <b>naturally-occurring (1)</b> 37:6 <b>nature (8)</b> 32:18;114:10; 117:11,24;127:12; 141:1,12;166:8 <b>navigating (1)</b> 164:9 <b>near (2)</b> 107:20;173:18 <b>nearby (4)</b> 175:16,19,22,22 <b>necessarily (15)</b> 21:15,23;25:15; 26:17;48:5,6;53:14; 63:7;96:5;112:3; 160:18;179:23; 182:6,14;199:22 <b>necessary (14)</b> 8:7;16:6;24:16; 26:14;44:4;78:21; 82:9;130:8;136:19; 146:11;155:8,8; 173:11;197:8 <b>need (33)</b> 21:22;35:18,22; 52:18;53:19;57:9; 84:20;104:10; 107:14;108:20; 115:5;119:9;120:16; 126:11,13,16,19; 129:14;133:5;155:4; 164:11;169:12; 176:16;185:5; 190:20;191:7; 192:12,14;199:5,14, 19,22,22 <b>needed (11)</b> 55:2;57:14;86:13; 125:13,20;161:17; 175:17;177:9; 191:15;197:5,12 <b>needing (1)</b> 157:23 <b>Needleman (44)</b> 4:5,6,9,11,12; 38:22,23;39:10,14, 16;40:22,23;45:5,8; 46:10;48:15,18; 57:22,24;58:5,8;60:9,
			<b>N</b>	
				<b>name (1)</b>

<p>10,21;61:18,20;                  63:16,20,22;64:1;                  77:24;89:15,20;                  97:14;114:21;                  115:17;186:5;188:2,                  14,23;197:14;198:2,                  9;204:14  <b>needs (8)</b>                  56:2;79:8;80:5;                  81:13;191:14;                  200:23;201:9;204:1  <b>negotiating (1)</b>                  59:20  <b>neighborhood (2)</b>                  55:12;57:8  <b>New (22)</b>                  5:23;6:14;8:8;                  10:2;12:19;14:23;                  27:10;34:15;44:11;                  88:3,13,15;94:1;                  97:23;102:19;                  151:22;162:13;                  168:22;176:24;                  183:18;189:23;190:3  <b>News (3)</b>                  94:15,18;169:9  <b>next (15)</b>                  39:15;52:19;58:23;                  66:2;82:7;94:10;                  111:9,20;114:19;                  175:18;176:19;                  179:2,2;182:2;                  197:24  <b>night (2)</b>                  126:16;182:5  <b>nighttime (1)</b>                  178:7  <b>nine (1)</b>                  173:14  <b>no-brainers (1)</b>                  103:16  <b>noise (10)</b>                  18:20;30:7,10,16,                  22;31:3,8,22;32:8,16  <b>noisy (1)</b>                  152:5  <b>none (2)</b>                  117:23;124:21  <b>non-specular (1)</b>                  166:2  <b>non-work (1)</b>                  179:15  <b>normal (5)</b>                  119:14;161:24;                  162:2;164:13;172:20  <b>normally (14)</b>                  79:4,10;80:18,24;                  81:20;82:1,15;84:10;                  92:10;94:3;130:1;                  164:24;175:15;                  177:10  <b>North (6)</b>                  99:7;113:10;</p>	<p>163:18;164:6;188:8;                  190:21  <b>northeast (1)</b>                  34:1  <b>Northern (12)</b>                  30:15;34:18;40:6;                  61:5;64:12;67:24;                  87:24;88:3;114:24;                  123:1;143:24;193:12  <b>note (4)</b>                  35:17;48:20;                  110:11;118:19  <b>noted (4)</b>                  13:5;19:18;51:13;                  86:17  <b>noticed (1)</b>                  148:10  <b>notification (1)</b>                  172:23  <b>November (5)</b>                  9:20;19:7;22:18;                  163:8,12  <b>NPT (5)</b>                  7:10;8:6;58:11,16,                  24  <b>nuance (1)</b>                  21:19  <b>number (23)</b>                  23:3;41:24;55:23;                  63:21;94:21,23;                  98:22,23;103:7,10,                  15;104:8;107:8;                  116:8;117:17;139:8;                  143:10;149:21;                  159:16;171:6;                  191:14;194:20;                  197:24  <b>numbers (3)</b>                  57:12;103:13,14  <b>numerous (3)</b>                  101:18;106:9;                  175:11</p>	<p>141:16;150:16  <b>obstacles (1)</b>                  139:10  <b>Obtaining (1)</b>                  21:20  <b>obvious (1)</b>                  114:13  <b>obviously (10)</b>                  46:17;76:7;85:20;                  88:13;120:21;                  146:16;153:24;                  161:23;166:3;170:16  <b>occasional (1)</b>                  163:19  <b>occupied (1)</b>                  48:5  <b>occupy (1)</b>                  125:23  <b>occupying (1)</b>                  47:12  <b>occur (7)</b>                  21:24;51:2;75:19;                  110:24;132:1;                  139:15;169:17  <b>occurred (2)</b>                  10:12;135:19  <b>occurring (2)</b>                  48:6;142:19  <b>occurs (2)</b>                  51:7;76:20  <b>October (3)</b>                  97:18;186:23;                  208:16  <b>off (10)</b>                  37:17;55:3;66:3;                  78:5;96:23;111:15,                  22;173:14;175:17;                  176:18  <b>offer (13)</b>                  9:10;10:19;12:22;                  69:23;73:6;113:22;                  118:23;119:2;                  129:11;131:11;                  137:20;158:15;                  166:24  <b>offered (8)</b>                  39:3;64:5,11;67:5;                  108:9;142:20;                  146:21;178:20  <b>offering (8)</b>                  7:14,21;9:2,4,16;                  19:24;34:22;35:3  <b>officer (2)</b>                  178:4,5  <b>officials (4)</b>                  31:19;41:18;59:19;                  60:4  <b>off-loading (1)</b>                  111:13  <b>off-right-of-way (1)</b>                  24:5  <b>offset (1)</b>                  139:17</p>	<p><b>offsite (1)</b>                  57:10  <b>often (3)</b>                  5:6;21:1;42:6  <b>oftentimes (1)</b>                  129:2  <b>Old (1)</b>                  190:21  <b>Oldenburg (18)</b>                  78:4,7;89:7,8,10,                  12;109:4;111:8;                  133:7;134:15;135:2;                  138:13;163:6;                  178:11;181:9,10,12;                  186:21  <b>once (9)</b>                  50:20;82:4;109:16;                  148:19;170:22;                  173:6;179:3;182:14;                  201:12  <b>one (84)</b>                  6:8;31:3;32:21;                  33:20;35:17;46:13;                  47:6;48:1;50:17;                  64:4,17;69:15;75:21;                  78:17,19;83:11;                  86:10,12;87:11;                  92:16;93:10;94:23;                  95:13,16,22;97:5;                  98:14;99:3,6,19;                  102:16;103:8,17,19;                  106:4,8;107:8,19,23;                  108:6,20;109:13;                  110:9;112:14;113:6,                  13;114:20;115:23;                  122:22;123:18,23;                  124:15;129:13;                  130:18;133:12;                  137:20;138:3;                  139:11;141:6;                  147:19,20;151:10;                  154:18;160:6;                  166:12;168:14;                  169:9;172:2;174:9;                  175:24;177:17;                  182:9,12,13;183:17,                  22,24;184:1,4,8,9,15;                  193:16;206:22  <b>one-lane (1)</b>                  107:12  <b>one-rated (1)</b>                  94:21  <b>onerous (1)</b>                  167:13  <b>ones (3)</b>                  106:10;162:14;                  190:4  <b>one-way (1)</b>                  126:19  <b>ongoing (1)</b>                  137:16  <b>only (18)</b>                  12:8;14:15;23:18;</p>	<p>36:8;41:6;65:11;                  66:21,23;86:7;90:2,                  4;109:16;114:1;                  128:15;148:14;                  179:13;199:8,9  <b>onto (3)</b>                  83:4;155:15;156:3  <b>open (13)</b>                  53:13;58:17;81:12;                  125:6,17;134:13;                  151:6;160:11;                  173:12;175:15,15;                  181:24;182:14  <b>open-cut (5)</b>                  141:23;142:7,21;                  155:19;171:18  <b>opening (1)</b>                  83:9  <b>operate (5)</b>                  7:6,17;35:6;88:5;                  199:11  <b>operated (1)</b>                  143:20  <b>operation (10)</b>                  7:22;59:2;78:15;                  97:11;113:22;                  118:10,11;169:19;                  176:16;182:2  <b>operations (3)</b>                  111:10;112:15;                  184:16  <b>operator (1)</b>                  155:3  <b>opine (2)</b>                  33:20;60:6  <b>opinion (15)</b>                  7:14;10:19;11:18;                  34:22;67:5,10;84:5;                  85:7;97:20;118:24;                  136:3;144:5;151:21;                  154:20;206:14  <b>opinions (7)</b>                  7:21;9:4,17;12:22;                  19:24;33:21;35:4  <b>opportunities (1)</b>                  157:19  <b>opportunity (14)</b>                  11:5;22:24;30:1,                  20;32:6;36:2;58:3;                  68:6;71:24;100:13;                  171:2;189:13;                  191:24;202:19  <b>opposed (4)</b>                  124:1;136:15;                  162:20;167:15  <b>opposite (1)</b>                  198:11  <b>optimization (3)</b>                  132:1;170:15;                  171:22  <b>optimizing (1)</b>                  150:13  <b>option (3)</b></p>
	<b>O</b>			
	<p><b>object (1)</b>                  60:2  <b>objection (3)</b>                  38:15;40:19;                  204:14  <b>objections (1)</b>                  43:17  <b>objective (1)</b>                  73:24  <b>obligation (1)</b>                  17:22  <b>observation (2)</b>                  19:19;71:16  <b>observations (1)</b>                  72:15  <b>obstacle (8)</b>                  114:14;136:19;                  139:1,2,19,20;</p>			

<p>109:23;123:17; 135:21 <b>options (2)</b> 69:22;73:5 <b>order (20)</b> 39:19;58:18;82:2; 112:17;120:5; 148:18;149:17; 192:9,14;195:19; 196:17;198:24; 199:6;201:19;202:5; 203:11;204:1;206:4, 8,18 <b>orientation (2)</b> 45:15;199:10 <b>original (7)</b> 9:19;10:7;97:17; 110:5;125:9;178:12; 183:6 <b>Originally (4)</b> 97:7;116:5;130:11; 184:14 <b>originates (1)</b> 51:5 <b>others (6)</b> 27:19;94:6;104:15; 106:4;114:12;185:5 <b>otherwise (5)</b> 23:10,17;61:13; 80:24;132:1 <b>out (28)</b> 12:4,7;52:19;53:6; 55:4;59:8;79:15; 84:23;87:17;90:21; 91:15;94:14;98:16; 105:6,15;107:7; 116:23;119:23; 128:9;130:14; 141:10;148:20; 173:6;174:4;187:21; 197:9;199:5;204:3 <b>outcome (1)</b> 52:1 <b>outlook (1)</b> 129:18 <b>output (1)</b> 42:19 <b>outreach (1)</b> 198:19 <b>outriggers (1)</b> 65:5 <b>outside (2)</b> 38:18,19 <b>over (17)</b> 5:10;56:9;60:3; 67:15;82:23;99:12; 105:1;112:6;158:18; 168:15,15;172:4; 181:16,20;192:15; 197:9;205:4 <b>overall (1)</b> 94:24 <b>overburden (3)</b></p>	<p>54:6,21;56:23 <b>overhead (12)</b> 4:21;8:4,16,22,24; 35:3;48:10;90:3; 116:3;147:12;157:3; 203:12 <b>overly (1)</b> 34:3 <b>over-permitted (1)</b> 48:12 <b>Overruled (4)</b> 39:8;41:4;60:15; 205:8 <b>oversize (2)</b> 115:1,5 <b>overweight (2)</b> 115:2,5 <b>own (3)</b> 32:10;55:15; 159:20 <b>owned (1)</b> 191:21 <b>owns (2)</b> 55:12,16</p>	<p><b>panel's (1)</b> 115:18 <b>paper (1)</b> 132:15 <b>PAPPAS (29)</b> 38:14;40:19;43:18; 44:8;53:16;106:17, 20;184:19,21,23; 185:3,24;186:1,3; 188:17;189:4,7; 197:20,22;200:2,4; 204:19,20,21;205:10, 11;207:22;208:8,9 <b>PAR (4)</b> 93:17,19;193:17, 21 <b>paragraph (2)</b> 38:4,12 <b>parallel (2)</b> 151:1;207:12 <b>parameters (1)</b> 168:20 <b>parking (2)</b> 69:21;172:11 <b>part (16)</b> 24:10;32:13;41:23; 102:5;108:7;111:5; 113:8,9;120:22; 127:6;137:6,15; 139:23;169:22; 181:16;205:21 <b>parte (1)</b> 185:21 <b>partial (1)</b> 182:18 <b>partially (2)</b> 17:7;182:23 <b>particular (13)</b> 12:3;14:13;44:3; 48:2;58:12;70:13; 71:13;86:3;96:5,13; 119:20;120:13; 127:14 <b>particularly (5)</b> 86:8;119:13; 128:24;135:23; 142:24 <b>parties (1)</b> 59:17 <b>partly (1)</b> 117:24 <b>parts (1)</b> 88:12 <b>Pass (12)</b> 30:15;34:18;40:6; 61:5;64:12;67:24; 96:7;104:9;114:24; 143:24;173:6;193:12 <b>passage (1)</b> 158:13 <b>passes (1)</b> 156:12 <b>passing (2)</b></p>	<p>75:9;103:21 <b>Pass's (1)</b> 123:1 <b>past (2)</b> 72:15;176:20 <b>Pastoriza (1)</b> 173:13 <b>path (3)</b> 87:18;138:20; 139:18 <b>Paul (2)</b> 61:22;62:7 <b>pause (2)</b> 89:16,18 <b>pavement (12)</b> 42:21;103:20,22, 23,24;104:9,11; 125:2,3,4;130:12; 164:2 <b>paying (1)</b> 189:5 <b>pedestrian (1)</b> 101:15 <b>pedestrians (2)</b> 101:4,9 <b>pen (1)</b> 132:15 <b>penetrate (2)</b> 140:6;141:3 <b>people (8)</b> 167:10,13;180:21; 185:4,5,14,16,19 <b>per (11)</b> 57:2,16;97:19; 112:18;116:19; 151:9;152:13,23; 153:3,10;158:6 <b>perceived (2)</b> 131:13;156:5 <b>percent (6)</b> 127:8,9,12;128:16, 20;132:17 <b>perform (3)</b> 69:24;73:7;197:5 <b>performed (1)</b> 67:1 <b>perhaps (13)</b> 64:9;65:8;114:2; 123:24;125:3;136:9; 140:5;153:6,13; 165:2;170:6;171:13; 178:22 <b>period (12)</b> 16:18;50:2;66:10, 15,17;81:14;84:5,8; 92:23;143:21; 156:11;178:7 <b>permanent (2)</b> 23:22;24:20 <b>permissible (2)</b> 136:7;178:24 <b>permission (1)</b> 36:11</p>	<p><b>permit (32)</b> 10:4;11:6,19;12:1, 7,15,23;13:10;14:3; 15:4,5;18:1;20:18,18, 19;21:7,17,21;22:20; 23:7;24:3,7;25:20; 36:3,8;73:15;85:1; 115:6;119:4;154:12; 170:6;171:23 <b>permits (8)</b> 12:14,20;13:22; 17:11;20:21;21:12; 22:4,9 <b>permitted (2)</b> 9:10;26:14 <b>permittee (2)</b> 21:3;24:4 <b>permitting (7)</b> 16:6;17:24;21:3; 28:19,24;169:23; 192:18 <b>perpendicular (2)</b> 87:13,16 <b>person (2)</b> 4:14;94:16 <b>personal (1)</b> 167:5 <b>personally (3)</b> 86:5;173:23; 185:11 <b>personnel (5)</b> 146:1,18;147:3; 157:23;176:15 <b>pertaining (1)</b> 112:13 <b>pertinent (1)</b> 183:13 <b>phone (1)</b> 4:14 <b>photo (4)</b> 64:3;87:14;121:11; 122:16 <b>photographs (2)</b> 45:10,14 <b>physical (1)</b> 74:14 <b>physically (1)</b> 174:21 <b>pick (7)</b> 197:1,8,15;198:9, 11,24;199:17 <b>picked (2)</b> 111:22;197:11 <b>picking (1)</b> 196:12 <b>picture (11)</b> 48:19;51:6;64:23; 78:13;104:22; 109:10;172:9; 192:23;195:2; 207:10,15 <b>pictures (4)</b> 86:20;107:20;</p>
	<b>P</b>			
	<p><b>Pacik (3)</b> 57:17;60:2;62:3 <b>package (4)</b> 93:3;94:3,5,9 <b>pad (1)</b> 48:10 <b>pads (1)</b> 159:9 <b>PAGE (42)</b> 3:2;8:3;11:11,16; 14:6;18:8,8;20:9; 22:13;30:10;31:5,15; 35:9;37:18;42:17; 45:7;46:3,21;48:17; 61:19;63:17,21; 67:10,15,15;68:11, 18,21;69:11;70:21; 72:13;73:4;74:7,17, 24;94:13;195:22; 196:11,15;202:14; 205:13;207:24 <b>Pages (1)</b> 25:2 <b>paint (2)</b> 32:23;33:10 <b>painting (1)</b> 128:8 <b>panel (16)</b> 38:18;39:2;67:24; 68:1;97:8;116:5; 118:14,16;125:9; 166:7;168:13;181:8; 183:6;184:20; 204:16;208:4 <b>panels (1)</b> 6:22</p>			

<p>111:17;124:20  <b>picturing (1)</b>                  163:20  <b>piece (4)</b>                  109:13;140:1;                  196:23;197:9  <b>pieces (6)</b>                  63:9;86:17,23;                  134:16;157:14;                  196:23  <b>piggyback (1)</b>                  114:22  <b>pile (1)</b>                  122:4  <b>piles (3)</b>                  121:24;122:1,3  <b>piling (2)</b>                  121:14,19  <b>pin (1)</b>                  149:4  <b>pine (1)</b>                  19:14  <b>pipe (6)</b>                  49:6,9;113:20,20;                  114:16;121:19  <b>pipe-jacking (4)</b>                  119:3,17;120:20;                  150:10  <b>pit (23)</b>                  86:15,18;87:15;                  119:24;121:8,8,13,                  16,22;122:1;125:17;                  134:17,18;137:23,23;                  138:8;163:20;                  182:14,18;195:24;                  196:8;197:10;200:23  <b>pits (7)</b>                  51:22;134:5,10,13;                  161:3;183:20;194:15  <b>pit's (1)</b>                  103:20  <b>pitting (2)</b>                  124:18;128:23  <b>Pittsburg (1)</b>                  99:8  <b>place (16)</b>                  37:3;49:11;50:21;                  82:22,22;111:22;                  123:19;126:2,13;                  134:18;173:5;                  178:23;180:17,19;                  182:11,15  <b>placed (3)</b>                  82:4,23;87:19  <b>placement (1)</b>                  64:7  <b>places (6)</b>                  44:4;45:2,22;                  71:22;135:21;195:9  <b>placing (1)</b>                  157:5  <b>plan (30)</b>                  15:6,13;27:10,16;</p>	<p>28:3;31:18;49:13;                  76:4,8;100:22;124:1;                  126:1;127:5;130:11;                  131:20;134:9;                  138:21;168:18;                  181:15,19;186:18,24;                  187:3,9,13,19;                  189:20,21;193:14;                  197:1  <b>planned (2)</b>                  75:20;149:14  <b>planning (2)</b>                  149:16;155:9  <b>plans (36)</b>                  14:14;28:7,12;                  56:5;71:6;85:4;                  93:17;101:23;                  102:15,15;116:16,17;                  117:11;118:1,3;                  125:22;127:2,3,7,23;                  128:21;129:5;131:4;                  132:5,8,12,14,20;                  135:15,17;137:22;                  174:5;189:14,17,24;                  190:4  <b>plants (1)</b>                  127:15  <b>plate (6)</b>                  82:18;83:4,20;                  172:10,12;173:5  <b>plated (1)</b>                  182:5  <b>plates (16)</b>                  49:6,22;82:12,19;                  83:6,14,15,17;                  133:17,18;134:7,10;                  160:8;175:17;                  181:15,20  <b>plating (21)</b>                  48:20,22,24;49:11;                  52:4,7,14,17;53:2,12;                  82:7,12;97:14,15;                  124:16;172:4,5;                  175:13;180:13,17;                  182:19  <b>play (2)</b>                  106:13;123:23  <b>please (3)</b>                  57:23;89:17;200:3  <b>plentiful (2)</b>                  147:10;150:23  <b>plow (3)</b>                  158:3,6,7  <b>plows (1)</b>                  160:9  <b>pluses (1)</b>                  117:18  <b>Plymouth (11)</b>                  98:2;122:17;123:6,                  8,11,15,17,20;124:6;                  130:10;200:8  <b>pm (4)</b>                  4:3;89:4,5;208:15</p>	<p><b>point (31)</b>                  8:12;25:17;26:18;                  27:15;50:17;55:4;                  68:1;79:23;81:1;                  86:13;88:14;89:11;                  94:14;105:6;107:7;                  110:13;137:16;                  141:9;143:11;147:5;                  152:14;164:2;                  167:17;169:17;                  170:17,23;172:8,11,                  14;202:24;204:23  <b>pointing (1)</b>                  90:21  <b>points (3)</b>                  117:19;156:9;                  206:16  <b>pole (1)</b>                  184:15  <b>police (2)</b>                  177:11;178:5  <b>policy (5)</b>                  76:19,23;77:1;                  101:24;102:7  <b>poor (2)</b>                  100:24;181:14  <b>popular (1)</b>                  101:19  <b>portion (16)</b>                  8:16;10:21;34:8,                  17;35:2,3;91:6;                  100:14;156:23;                  158:1;174:20;                  186:22;190:18;                  203:5,12;207:23  <b>portions (4)</b>                  154:7;160:13;                  161:21;162:7  <b>pose (1)</b>                  101:7  <b>position (7)</b>                  35:22;45:23;47:19,                  24;52:17;184:7;                  189:10  <b>positioning (1)</b>                  184:3  <b>possibility (3)</b>                  63:10;120:8;                  150:24  <b>possible (19)</b>                  35:18;39:4;47:11;                  48:8;55:22;59:15;                  65:3;112:7;118:17;                  125:2;137:4;144:8;                  147:6;159:2;160:17;                  171:22;174:16;                  177:21;179:5  <b>possibly (5)</b>                  79:20;150:13;                  156:12;174:13,14  <b>potential (17)</b>                  11:21;18:9,21;                  19:15;26:23;27:20;</p>	<p>29:6,11;49:20;69:20;                  76:12;112:19;                  117:17;139:10;                  169:16;174:7;176:12  <b>potentially (22)</b>                  27:17;46:19;79:21;                  80:17;82:24;101:3;                  106:7;114:1;119:15;                  120:10;130:18;                  135:14;136:20;                  137:1;146:19;                  161:16;162:7;177:7;                  178:17;179:9;180:4,                  22  <b>poured (1)</b>                  82:5  <b>power (7)</b>                  74:10;75:2;80:18,                  22;90:11;164:17;                  170:9  <b>practical (2)</b>                  178:22,24  <b>practice (1)</b>                  76:10  <b>Practices (6)</b>                  20:12,22;21:1,21;                  58:20;194:1  <b>preapproved (1)</b>                  76:4  <b>preclude (1)</b>                  27:19  <b>pre-construction (3)</b>                  23:12;29:15;                  122:10  <b>pre-drilling (1)</b>                  76:10  <b>prefer (1)</b>                  161:10  <b>prefiled (21)</b>                  4:20;6:2;9:19,22;                  10:7;11:1,9;14:6;                  18:7;19:8;25:2;29:5,                  16;30:9;33:15;34:7;                  35:10;41:12;42:13;                  72:2;149:1  <b>preheating (1)</b>                  161:14  <b>preliminary (2)</b>                  4:22;117:24  <b>premise (1)</b>                  54:18  <b>promised (2)</b>                  43:21;54:13  <b>preparation (2)</b>                  84:10;180:24  <b>prepare (2)</b>                  70:7;132:12  <b>prepared (2)</b>                  84:1;143:18  <b>preparing (1)</b>                  11:5  <b>presence (1)</b>                  177:11</p>	<p><b>present (5)</b>                  67:23;68:3,4;93:8;                  163:22  <b>presentation (4)</b>                  94:11;124:17,21;                  181:18  <b>presented (6)</b>                  44:11;65:13;93:4;                  108:23;113:8;179:12  <b>presently (3)</b>                  145:10,12;166:1  <b>presents (1)</b>                  96:12  <b>pressure (1)</b>                  39:20  <b>presumably (1)</b>                  147:22  <b>pretty (4)</b>                  39:23;99:22;100:6;                  101:19  <b>prevalence (1)</b>                  97:24  <b>prevent (1)</b>                  15:13  <b>prevented (1)</b>                  165:7  <b>previous (4)</b>                  25:14;86:1,18;                  113:11  <b>previously (4)</b>                  25:8;26:12;100:9;                  124:12  <b>primarily (2)</b>                  116:3;117:10  <b>prior (15)</b>                  6:13,21;12:12;                  14:15;15:1,7,15;                  21:7;24:6;52:16;                  75:14;77:2;122:14;                  180:17;198:21  <b>private (4)</b>                  73:4;93:10;130:18;                  178:5  <b>privately-owned (1)</b>                  36:12  <b>Probably (34)</b>                  4:16;13:16;28:6;                  50:22;72:8;82:6;                  88:22;109:21;110:8,                  24;112:23;124:4;                  129:19;130:6,9;                  131:18;141:23;                  152:23;153:11;                  157:6;160:22;162:2,                  12;163:5;164:5;                  166:7;170:4;171:24;                  172:24;175:4,7;                  177:1;180:19;183:10  <b>problem (5)</b>                  21:18;100:20;                  129:10;142:14;160:3  <b>problems (1)</b>                  147:11</p>
---	--	---	--	--

<p><b>proceed (6)</b> 4:8;77:22;151:6; 157:12;185:24; 193:22</p> <p><b>proceedings (1)</b> 29:21</p> <p><b>process (30)</b> 17:6;21:2;25:17; 28:19,24;53:15; 77:23;80:18;92:6; 108:22;110:20; 112:2;124:9;137:16; 138:10,21;139:24; 141:21;149:20; 150:3;155:18;165:9; 168:4,6;169:23; 170:16,19;171:23,24; 172:20</p> <p><b>processes (1)</b> 50:20</p> <p><b>processing (1)</b> 79:14</p> <p><b>procuring (2)</b> 92:11,13</p> <p><b>produce (2)</b> 148:15;190:3</p> <p><b>produced (3)</b> 32:16;189:20,23</p> <p><b>producing (1)</b> 88:21</p> <p><b>product (3)</b> 32:24;42:5;79:8</p> <p><b>production (8)</b> 97:7,9,15,18;98:10, 18,18;152:2</p> <p><b>productive (2)</b> 155:22;179:5</p> <p><b>productivity (1)</b> 53:9</p> <p><b>professional (1)</b> 86:5</p> <p><b>prohibit (1)</b> 68:23</p> <p><b>project (96)</b> 5:6,7;6:3,8;7:6,17; 10:22;13:14;15:10; 16:10;18:9,17;21:14; 23:9;26:7,8;27:5; 28:2,17;29:10;30:11; 32:11;34:9,18;35:11; 37:23,24;39:1;41:7; 43:4,10,14;48:11; 58:12,18;59:2,11; 61:8,16;62:12;63:6; 67:2,6,11,17;68:17; 69:4,8;70:14;71:13; 75:24;81:5;85:11; 91:21;92:15,18; 96:17;98:15;99:4,5; 100:12;105:4;115:1; 116:2;119:20;129:4; 131:7;135:22; 138:15;145:17;</p>	<p>146:14;147:2; 149:14;151:10,12; 154:8;161:22; 162:20,21,22;166:22; 168:1;170:5;171:1; 177:18,19,24;185:17, 18;191:3;193:9; 194:2;202:23; 203:10;206:5,15</p> <p><b>projected (1)</b> 138:5</p> <p><b>projects (35)</b> 5:10,19;12:15; 13:12,16;16:13;19:3, 4,10;25:14;32:18; 35:15;37:14;42:3,10; 70:10;95:20;98:9,13; 119:16;127:21; 131:5;145:8,11,15; 146:11,15;148:3; 149:9;154:11; 165:22,23;166:4; 178:2;183:2</p> <p><b>proof (1)</b> 9:11</p> <p><b>proper (1)</b> 18:24</p> <p><b>properly (4)</b> 18:22;20:12;21:14; 166:23</p> <p><b>properties (2)</b> 81:21;156:16</p> <p><b>property (8)</b> 73:4;122:11; 127:10;130:18; 167:6;172:7;191:20; 192:11</p> <p><b>propose (1)</b> 106:12</p> <p><b>proposed (24)</b> 10:4,16;34:18; 43:17;67:11;69:8; 74:4;76:22;94:8; 99:10,24;106:9; 108:15;117:15,20; 135:12,22;144:13; 168:5;171:1;203:17; 204:4,6;207:11</p> <p><b>proposes (1)</b> 144:1</p> <p><b>protect (5)</b> 125:15,21;126:14; 180:20;182:6</p> <p><b>protected (2)</b> 61:2;182:4</p> <p><b>protocol (3)</b> 77:8,16,19</p> <p><b>provide (4)</b> 99:13;159:14; 166:12;187:19</p> <p><b>provided (4)</b> 72:24;74:11;75:3; 80:12</p>	<p><b>providing (1)</b> 90:10</p> <p><b>provision (1)</b> 63:23</p> <p><b>provisions (1)</b> 59:1</p> <p><b>proximity (1)</b> 175:21</p> <p><b>prudent (2)</b> 131:16;170:2</p> <p><b>Public (6)</b> 7:10;33:4;69:23; 73:7;113:4;125:16</p> <p><b>Public's (7)</b> 4:19;32:22;118:7; 190:14;191:2; 197:24;207:7</p> <p><b>Puerto (1)</b> 146:16</p> <p><b>pull (4)</b> 63:18;66:2;131:14; 171:11</p> <p><b>pull-back (1)</b> 51:7</p> <p><b>pulled (2)</b> 49:6,10</p> <p><b>pulling (6)</b> 110:18,23;111:2,7; 153:2;170:4</p> <p><b>pumped (1)</b> 39:19</p> <p><b>purely (1)</b> 76:5</p> <p><b>purpose (4)</b> 6:11;34:13;78:18; 113:15</p> <p><b>purposes (2)</b> 78:19;176:21</p> <p><b>pursue (1)</b> 61:15</p> <p><b>pursued (1)</b> 136:12</p> <p><b>pushes (1)</b> 121:18</p> <p><b>put (26)</b> 8:14;11:14;29:1; 33:14;45:6;57:22; 65:21;66:3;81:7; 83:2;90:8;92:22; 111:22;116:23; 130:11,22;132:15; 134:17;152:7; 155:10;156:13; 167:19;170:24; 173:5;174:18;181:15</p> <p><b>putting (2)</b> 52:7,8</p>	<p>93:18;94:13;95:15; 193:16,21</p> <p><b>quick (1)</b> 83:11</p> <p><b>quickly (5)</b> 69:15;70:3;119:12; 151:2;152:7</p> <p><b>quite (5)</b> 17:19;87:12; 145:23;150:7;172:5</p> <p><b>quote (13)</b> 8:5;20:9,13;31:15; 32:23;34:14;36:10, 12;42:18;45:1;68:22; 73:5;74:17</p> <p><b>quoting (1)</b> 8:12</p>	<p><b>reaching (1)</b> 87:17</p> <p><b>reaction (1)</b> 159:19</p> <p><b>read (13)</b> 23:3;30:20;68:6; 85:9;94:16,18; 100:13,16,18;102:2; 117:6;123:9;207:14</p> <p><b>reading (2)</b> 38:15;90:7</p> <p><b>ready (6)</b> 4:5;38:13;78:3; 84:12,17;185:4</p> <p><b>reaffirmed (1)</b> 29:19</p> <p><b>real (3)</b> 5:3;113:9;184:12</p> <p><b>realistic (6)</b> 97:19;149:5,7; 150:8,11;151:9</p> <p><b>realistic-sized (1)</b> 144:7</p> <p><b>realize (2)</b> 113:6;133:4</p> <p><b>realized (1)</b> 169:20</p> <p><b>really (14)</b> 16:19;88:12;97:21; 102:4;107:16;108:4, 23;113:18;132:13; 136:5;151:3;152:16; 165:7;181:13</p> <p><b>realm (1)</b> 84:23</p> <p><b>reason (7)</b> 13:22;14:1,4;69:7; 113:18;184:5,12</p> <p><b>reasonable (7)</b> 15:11;55:19;57:10; 77:21;84:5,20; 113:16</p> <p><b>reasonably (2)</b> 42:18;130:21</p> <p><b>reasons (4)</b> 107:8;176:4,5; 184:1</p> <p><b>recall (67)</b> 7:23;10:16;14:10, 16;18:11;19:16; 20:14;22:16;23:4,13; 24:8;25:9,10,23; 29:7;30:6,18,23; 31:2;33:17;34:9; 35:19;43:23;44:6,12, 13,16;52:10;54:2,23; 55:18;57:20;62:18, 23;63:4;68:13,15,18; 69:13;71:22;73:8; 106:7;110:3;138:5; 154:16;174:3;186:7, 19;187:1;188:3; 189:11;191:16,22;</p>
<b>R</b>				
<p><b>radii (1)</b> 75:7</p> <p><b>rail (1)</b> 105:7</p> <p><b>rain (2)</b> 155:24;156:11</p> <p><b>raining (2)</b> 155:23;156:14</p> <p><b>rains (3)</b> 155:13,16;156:24</p> <p><b>rainstorm (1)</b> 157:7</p> <p><b>raised (4)</b> 50:11;69:12;71:20; 173:13</p> <p><b>raising (1)</b> 88:20</p> <p><b>ram (1)</b> 121:18</p> <p><b>random (2)</b> 76:5,6</p> <p><b>range (4)</b> 97:12;113:1,2; 197:11</p> <p><b>rate (10)</b> 70:7;97:7,9,18; 98:11,18,18;151:7, 14;152:12</p> <p><b>rates (7)</b> 69:15,17;70:4,13, 20,22;149:2</p> <p><b>rather (2)</b> 96:11;178:23</p> <p><b>rating (4)</b> 74:4;90:13,19; 91:12</p> <p><b>ratings (1)</b> 94:23</p> <p><b>reach (4)</b> 59:12;170:22; 197:7;199:16</p> <p><b>reaches (1)</b> 143:7</p>				
<b>Q</b>				
<p><b>qualified (3)</b> 96:15;145:17,20</p> <p><b>Quanta (5)</b></p>				

192:22;193:1;194:6, 17;197:17;200:8,11, 18;201:5;202:11,24; 205:23;206:24;207:2	<b>reflective (1)</b> 166:4	<b>remember (5)</b> 36:13;104:7; 108:23;133:15; 194:22	<b>require (9)</b> 106:23;110:16; 111:11;113:21; 122:10;138:1;156:6; 192:18;198:15	17:17;81:4
<b>recalled (1)</b> 33:19	<b>reflectors (1)</b> 176:8	<b>remind (4)</b> 36:7;185:5,8,19	<b>required (23)</b> 13:16;14:24;15:6, 12;24:4;51:17;65:6; 79:13;81:8;98:20; 102:24;112:11; 113:19,24;116:8; 117:22;124:8; 125:19;126:7; 129:12;168:22; 180:24;197:10	<b>responsible (1)</b> 6:3
<b>receive (1)</b> 102:10	<b>regard (1)</b> 120:23	<b>remote (2)</b> 56:8;110:24	<b>rest (3)</b> 38:10;39:11; 116:12	<b>rest (3)</b> 38:10;39:11; 116:12
<b>received (3)</b> 20:17;26:9;185:13	<b>regarding (11)</b> 7:21;12:24;32:7; 33:22;51:19,21; 58:17;59:1;77:12; 83:23;142:10	<b>remotely (1)</b> 156:4	<b>restitution (4)</b> 167:3,10,17,19	<b>restoration (3)</b> 30:5;146:17;164:3
<b>receiving (3)</b> 63:4;119:24;121:8	<b>regardless (1)</b> 162:4	<b>removal (1)</b> 157:23	<b>restored (2)</b> 23:11,16	<b>restoring (3)</b> 23:23;29:14; 110:22
<b>recent (3)</b> 14:22;26:6;186:22	<b>regards (4)</b> 43:2,3;108:8;141:6	<b>remove (6)</b> 54:11;156:1; 182:20,22;191:15; 192:9	<b>restrict (1)</b> 106:4	<b>result (1)</b> 21:2
<b>recently (2)</b> 118:16;189:20	<b>regular (2)</b> 134:11;138:7	<b>removed (8)</b> 23:10;53:20;54:1; 56:3;57:15;125:2; 180:13;191:14	<b>results (2)</b> 43:7;76:8	<b>results (2)</b> 43:7;76:8
<b>Recess (1)</b> 89:4	<b>regularly (1)</b> 42:5	<b>removing (4)</b> 142:1;153:15; 155:22;180:18	<b>resume (4)</b> 89:20;175:18; 179:1;208:15	<b>resume (4)</b> 89:20;175:18; 179:1;208:15
<b>recollection (1)</b> 115:3	<b>regulate (1)</b> 93:15	<b>reopen (1)</b> 183:16	<b>Resumed (2)</b> 4:3;89:5	<b>Resumes (1)</b> 173:8
<b>recommendations (1)</b> 85:18	<b>regulated (2)</b> 79:22;80:1	<b>reorient (1)</b> 144:22	<b>requires (10)</b> 23:8;25:21;73:15; 90:12;102:6,6; 153:24;155:22; 165:10;201:18	<b>retained (2)</b> 7:9;19:21
<b>reconfigure (2)</b> 51:18;178:23	<b>regulatory (1)</b> 20:1	<b>repair (1)</b> 30:4	<b>requiring (1)</b> 186:24	<b>retained (2)</b> 7:9;19:21
<b>reconstruction (1)</b> 162:21	<b>reinforcing (1)</b> 157:5	<b>repeat (1)</b> 196:3	<b>research (1)</b> 173:17	<b>retrospect (1)</b> 16:2
<b>record (3)</b> 78:5;94:15,19	<b>rejected (1)</b> 51:24	<b>rephrase (1)</b> 77:14	<b>residences (1)</b> 124:1	<b>return (2)</b> 76:19,23
<b>recovered (1)</b> 79:2	<b>relate (2)</b> 23:1;43:20	<b>report (14)</b> 4:21;8:4;9:11; 10:7;24:18;68:18; 71:22;74:7;87:14; 90:7;91:8;117:7; 120:22;128:9	<b>residents (2)</b> 69:21;72:13	<b>returns (8)</b> 75:14,18,22;76:2, 12;77:13;120:9; 139:15
<b>red (5)</b> 120:23;121:3; 203:3,20,23	<b>related (9)</b> 29:6;30:18;34:8; 69:13;71:20;85:5; 88:8;90:6;116:1	<b>reports (2)</b> 43:6;143:3	<b>resistance (1)</b> 122:2	<b>reunion (1)</b> 118:15
<b>redirect (2)</b> 184:20,22	<b>relates (4)</b> 11:24;30:14,16; 98:22	<b>represent (5)</b> 4:13;45:14;47:16; 125:14;205:19	<b>resolve (1)</b> 59:16	<b>reversed (1)</b> 138:23
<b>red-list (4)</b> 3:5;135:2,8,16	<b>relation (2)</b> 71:13;145:1	<b>representation (3)</b> 151:22;153:6,13	<b>resolved (1)</b> 73:22	<b>review (32)</b> 6:14,17,20;7:10; 8:5,24;11:8;15:7,14; 16:17;17:5,9;23:1; 24:6,13;25:21;26:3, 18;30:12;32:6;36:2; 44:8;55:6;71:24; 85:8,13;90:1,2;91:8; 105:22;118:10; 189:13
<b>red-listed (5)</b> 105:24;106:8; 206:23;207:4,16	<b>relative (2)</b> 148:10;155:1	<b>representative (3)</b> 45:10;64:12;65:10	<b>resource (2)</b> 16:19;146:5	<b>reviewed (9)</b> 33:3;36:5;44:17; 56:5;71:10;76:22; 103:6;112:13;127:7
<b>reduce (6)</b> 44:20;55:2,23; 83:3;150:18,19	<b>relatively (6)</b> 100:2;136:13; 150:16;165:3;173:2; 202:4	<b>represents (1)</b> 65:4	<b>resources (6)</b> 8:9;16:22;17:1; 18:10;34:16;85:4	<b>reviewing (5)</b> 10:9;13:3;74:1; 99:20;118:3
<b>reduced (4)</b> 135:9;136:11,20; 195:7	<b>releases (1)</b> 75:12	<b>request (9)</b> 93:6;104:1,10,19; 113:5;115:1,7;200:7; 202:3	<b>respect (17)</b> 6:11,23;8:16; 12:11;20:2,21;21:13; 27:7;42:14,18;43:14; 50:11;66:19;68:7; 70:4,19;77:17	<b>reviews (2)</b> 68:14;101:1
<b>reducing (1)</b> 194:14	<b>Reliability (2)</b> 26:8;170:7	<b>requesting (1)</b> 103:19	<b>responding (2)</b> 108:18;167:24	<b>revisited (1)</b> 118:17
<b>reels (1)</b> 161:14	<b>reliable (3)</b> 170:10,11,14	<b>requests (7)</b> 44:3;103:5;104:14; 110:4;114:24; 132:23;200:21	<b>response (4)</b> 107:6;108:17; 135:1;206:21	
<b>refer (2)</b> 11:10;187:17	<b>relying (2)</b> 70:16;72:15		<b>responsibility (2)</b>	
<b>reference (5)</b> 70:21;88:7;89:12; 92:3;94:14	<b>remain (4)</b> 69:23;73:6;134:16; 179:14			
<b>referenced (1)</b> 47:5	<b>remaining (1)</b> 49:11			
<b>referencing (3)</b> 46:5;66:17;73:2	<b>remains (2)</b> 47:18;131:1			
<b>referred (1)</b> 134:15	<b>remediation (1)</b> 167:1			
<b>referring (1)</b> 87:23				

<p><b>Rico (1)</b> 146:16</p> <p><b>rig (4)</b> 119:23;183:22; 184:1,5</p> <p><b>right (120)</b> 4:24;5:11,12,21; 6:9,24;7:7,18,8;23; 9:14,20;10:5;11:2, 22;12:5,16,20;13:18; 19:11;20:19;21:9; 22:22;23:24;24:21; 28:19;29:11;33:19; 34:11,19;35:15;37:7, 14;42:11,15,22; 43:15;45:11,18; 46:24;47:6;49:7; 53:20;55:3,10;56:13, 17,24;57:3;58:5; 61:10;63:6;64:3,18; 66:22;67:3,7,21; 68:2;69:9;70:8,14, 23;71:6,14,18;72:23; 73:20;74:2,15;75:20; 76:15;83:21;89:2,23; 90:2;91:20;95:4,4; 96:1;101:21;102:2; 104:24;106:14; 109:12;111:20; 112:12;114:18; 119:24;120:21; 122:13,15;124:12; 125:4,7;126:8; 132:20;134:5;141:8; 142:5,6;143:9,23; 145:5;146:17; 158:20;162:11; 163:4;164:24;168:2; 172:15;182:2; 184:18;185:15; 201:1;202:2,2;203:4, 7;208:3,10</p> <p><b>right-hand (1)</b> 196:1</p> <p><b>right-of-way (31)</b> 18:14,15;36:9; 73:12,16;108:12,14; 129:6,8,14,16; 130:12,15,15;154:14; 168:16,18;173:15,19, 20;174:13;194:6,9, 11;203:3,11,13; 204:13;205:16,21; 206:15</p> <p><b>rights (2)</b> 127:10;167:6</p> <p><b>rights-of-way (4)</b> 24:15;69:24;73:7; 169:1</p> <p><b>rigs (1)</b> 183:21</p> <p><b>risk (3)</b> 83:6,10;97:3</p>	<p><b>risks (1)</b> 9:13</p> <p><b>River (6)</b> 107:20;118:8; 119:5;120:8;123:8; 173:16</p> <p><b>rivers (1)</b> 67:19</p> <p><b>road (61)</b> 29:6;30:4;44:2,5, 22;45:22,24;47:20; 82:17;83:1,19;99:24; 100:5;101:11;105:1; 106:21;107:15,19,22, 23;108:5,6;110:16, 22;111:11,16; 113:13;115:19; 116:19;124:10; 125:6;143:1,8,24; 144:17,18;145:3,4,4; 158:10;159:3; 162:21;163:1;164:3; 183:15;189:10,15,18; 190:5,20,21,21,22; 191:8,8;200:14; 203:24;204:11; 206:4,7,17</p> <p><b>roads (39)</b> 18:21;22:12,16,22; 23:2,8,16,24;24:5,21; 25:3;29:11,15;47:21, 23;56:9;101:5;106:5; 113:13;115:12; 116:8,12;142:11; 155:15;158:3,5,6; 163:19;164:7,7,8,15; 187:4;188:3,8,13,18, 21;192:14</p> <p><b>roadway (16)</b> 42:21;82:14; 115:13;124:22; 144:13;145:2;163:3; 179:8;183:1,2,9,10, 12,16;201:23;202:7</p> <p><b>roadways (2)</b> 88:21;114:21</p> <p><b>Rock (27)</b> 44:5,22;45:22; 47:20;56:21;78:3; 95:24;98:1,8;113:12; 140:9,15,19,22; 151:11,17,19,24; 152:5;154:1;160:20; 189:10,15,18;190:5, 22;191:8</p> <p><b>role (1)</b> 5:5</p> <p><b>roll (1)</b> 78:3</p> <p><b>room (3)</b> 111:15;144:8; 185:14</p> <p><b>rough (1)</b> 169:12</p>	<p><b>roughly (1)</b> 153:19</p> <p><b>roundness (1)</b> 141:1</p> <p><b>route (46)</b> 40:6,10;67:20; 68:12,17;70:14; 97:22;98:23;99:7,9, 14;101:15,20; 105:24;106:9,10; 107:8;108:20;114:8; 120:14;122:24; 123:12;130:4,8; 135:3;140:4;152:20; 167:2;174:4,10; 183:12;203:7;204:4, 5;205:1,1,14,17,22, 22;206:23;207:11,11, 17,19,23</p> <p><b>routes (2)</b> 123:7;129:1</p> <p><b>routing (2)</b> 69:22;73:5</p> <p><b>RSA (1)</b> 6:14</p> <p><b>rule (2)</b> 102:8,8</p> <p><b>rules (1)</b> 6:17</p> <p><b>run (6)</b> 87:21;96:15; 102:11,13;109:22; 158:7</p> <p><b>running (1)</b> 207:12</p> <p><b>runoff (2)</b> 18:22;20:11</p> <p><b>runs (1)</b> 140:13</p> <p><b>rural (1)</b> 130:5</p> <p><b>Rusty (2)</b> 148:19;177:24</p>	<p><b>sample (1)</b> 48:2</p> <p><b>sand (1)</b> 152:22</p> <p><b>satisfaction (1)</b> 59:17</p> <p><b>satisfactory (1)</b> 129:17</p> <p><b>satisfy (2)</b> 27:12;82:10</p> <p><b>satisfying (1)</b> 156:22</p> <p><b>saw (9)</b> 13:10;78:14;86:21; 107:20;124:17; 195:8,9;200:20; 205:19</p> <p><b>sawcut (1)</b> 82:17</p> <p><b>saying (11)</b> 20:14;76:5;92:21; 169:18;198:8;199:3; 201:8;203:15; 204:10;206:1;207:15</p> <p><b>scenario (2)</b> 56:10;109:22</p> <p><b>scope (4)</b> 32:13;38:19,19; 85:10</p> <p><b>screen (17)</b> 90:9;94:10;103:8; 116:7;190:8,9,13; 191:1;193:2;195:21; 196:10;197:23; 202:14,17;203:2; 205:12;207:7</p> <p><b>se (1)</b> 158:6</p> <p><b>season (1)</b> 163:18</p> <p><b>seasons (1)</b> 98:17</p> <p><b>SEC (12)</b> 6:17,21;7:4;14:22; 15:23;16:7,10;24:12; 26:3,23;78:9;127:24</p> <p><b>Second (6)</b> 58:15;69:17;70:19; 166:15;177:17;205:5</p> <p><b>second-guess (1)</b> 16:24</p> <p><b>section (8)</b> 48:11;67:17;68:13; 99:22;113:10;114:7; 141:13;171:18</p> <p><b>sections (2)</b> 11:11;170:4</p> <p><b>secure (1)</b> 180:15</p> <p><b>security (10)</b> 176:3,5,12,14,21, 22;177:1,9,19;178:4</p> <p><b>sediment (6)</b> 18:22;20:11;21:23; 116:1,24;117:2</p>	<p><b>seeing (4)</b> 25:10;44:16;63:14; 174:3</p> <p><b>seek (3)</b> 36:16;138:20; 139:8</p> <p><b>seeking (1)</b> 73:19</p> <p><b>seem (4)</b> 77:20;113:16,21; 138:16</p> <p><b>seemed (2)</b> 13:4;170:2</p> <p><b>seems (6)</b> 77:5;84:22;101:19; 120:18;123:15; 149:23</p> <p><b>sees (1)</b> 128:1</p> <p><b>segment (1)</b> 5:13</p> <p><b>select (3)</b> 81:4;93:10;114:13</p> <p><b>selected (1)</b> 114:11</p> <p><b>selection (2)</b> 122:24;129:20</p> <p><b>Selectmen (2)</b> 61:24;190:15</p> <p><b>sending (1)</b> 137:22</p> <p><b>sense (6)</b> 97:16;107:10; 109:19,22;110:9; 201:21</p> <p><b>sensitivity (1)</b> 26:13</p> <p><b>sent (1)</b> 116:22</p> <p><b>separate (5)</b> 34:6;79:15;183:4, 13;184:16</p> <p><b>separation (1)</b> 183:7</p> <p><b>septic (4)</b> 130:19;173:14,18; 174:11</p> <p><b>sequence (3)</b> 81:11,17;82:3</p> <p><b>sequencing (1)</b> 132:14</p> <p><b>series (2)</b> 117:1;126:23</p> <p><b>serve (2)</b> 5:6;78:19</p> <p><b>service (1)</b> 176:14</p> <p><b>Services (8)</b> 10:3;14:24;27:2; 71:21;78:12;92:14; 94:13;193:16</p>
--	--	--	---	---

<p><b>session (12)</b>                  7:20;10:12;19:8;                  25:13;29:10;34:21;                  35:12;68:5;70:6;                  75:13,17;208:14</p> <p><b>set (19)</b>                  34:6;51:1;78:1;                  82:1;89:1;112:7;                  124:19;126:1;143:4;                  157:17;159:8,10,24;                  168:18;180:17;                  182:11,12,15;201:19</p> <p><b>setback (3)</b>                  119:8;120:11,17</p> <p><b>sets (1)</b>                  189:21</p> <p><b>setting (7)</b>                  65:24;66:13;85:24;                  87:4;130:1;153:14;                  180:12</p> <p><b>setup (2)</b>                  66:13;81:13</p> <p><b>seven (2)</b>                  12:23;153:14</p> <p><b>several (9)</b>                  11:19;44:2;51:13;                  61:14;71:21;97:7;                  113:1;138:6;202:21</p> <p><b>severe (1)</b>                  162:9</p> <p><b>sewer (1)</b>                  154:23</p> <p><b>shall (2)</b>                  23:10,11</p> <p><b>shallow (3)</b>                  98:1;119:4;165:3</p> <p><b>shallower (1)</b>                  98:3</p> <p><b>SHEB (1)</b>                  207:24</p> <p><b>sheet (2)</b>                  121:14,19</p> <p><b>sheeting (2)</b>                  121:22,23</p> <p><b>sheets (4)</b>                  99:12,18;105:15;                  189:21</p> <p><b>shift (5)</b>                  66:14;82:2,8;                  179:3;182:13</p> <p><b>shoreland (1)</b>                  20:18</p> <p><b>shoring (1)</b>                  125:1</p> <p><b>short (5)</b>                  66:10,15,17;                  110:12;150:5</p> <p><b>short- (1)</b>                  7:11</p> <p><b>shortage (3)</b>                  145:16,22;146:7</p> <p><b>shortages (1)</b>                  147:11</p>	<p><b>shortening (1)</b>                  150:14</p> <p><b>shorter (1)</b>                  92:23</p> <p><b>short-term (4)</b>                  31:6;34:14;50:1;                  111:12</p> <p><b>shoulder (1)</b>                  112:6</p> <p><b>show (10)</b>                  7:4;46:15;55:7;                  64:6;87:14;101:2;                  143:18;181:19;                  189:18;190:5</p> <p><b>showed (8)</b>                  86:21;99:6;100:11;                  104:22;106:17;                  186:21;195:3;200:13</p> <p><b>showing (1)</b>                  125:1</p> <p><b>shown (18)</b>                  55:5;99:12;100:9;                  111:1;117:23;118:9;                  121:4,11;129:6;                  132:19;137:22;                  144:21;192:21;                  193:5;197:1;199:9,                  12;205:1</p> <p><b>shows (7)</b>                  41:2;49:14;121:13;                  196:11;203:4,16;                  207:16</p> <p><b>show-stoppers (1)</b>                  100:19</p> <p><b>side (26)</b>                  13:7;51:7;65:1,20;                  96:23;101:11;                  107:19,23;108:6;                  109:10,15;111:16;                  119:13,20;120:14;                  121:5;125:1;141:19;                  145:18;150:12;                  183:15;193:16;                  195:24;196:1;198:5,                  11</p> <p><b>sides (2)</b>                  107:14,21</p> <p><b>sidewalk (2)</b>                  101:14;125:4</p> <p><b>sidewalks (2)</b>                  101:6,10</p> <p><b>sign (2)</b>                  61:10;105:7</p> <p><b>signals (1)</b>                  126:20</p> <p><b>signature (1)</b>                  61:21</p> <p><b>signed (1)</b>                  61:22</p> <p><b>significant (2)</b>                  100:12;177:11</p> <p><b>significantly (1)</b>                  98:10</p>	<p><b>signs (1)</b>                  62:12</p> <p><b>similar (9)</b>                  13:11,13,17;14:24;                  16:14;59:8;132:12;                  147:7;157:4</p> <p><b>similarly (1)</b>                  157:2</p> <p><b>Simple (2)</b>                  120:2;178:18</p> <p><b>simpler (2)</b>                  123:24;131:18</p> <p><b>simply (6)</b>                  54:8;65:10;72:15;                  113:19;116:10;141:1</p> <p><b>simulation (2)</b>                  121:11;122:16</p> <p><b>simultaneously (2)</b>                  183:22;184:11</p> <p><b>single (3)</b>                  47:12,15;63:8</p> <p><b>single-unit (1)</b>                  105:17</p> <p><b>sit (7)</b>                  23:4;29:3,4;30:24;                  33:18;168:11;202:4</p> <p><b>site (42)</b>                  6:4;24:11;26:22;                  54:21,22;55:3,9,11,                  17,21,21;56:7,8;79:3;                  84:10,11;94:7;                  103:12;113:15,19;                  118:18;131:16;                  133:21;137:13;                  150:3;153:8;157:8;                  164:12;174:22;                  175:1;176:3,15,18;                  177:12;178:14;                  180:6,15,18,21;                  186:10,11;200:22</p> <p><b>sited (1)</b>                  10:8</p> <p><b>sites (3)</b>                  25:8;104:8;183:19</p> <p><b>siting (1)</b>                  6:15</p> <p><b>sitting (1)</b>                  104:23</p> <p><b>situation (5)</b>                  60:19;63:1;87:22;                  109:20;182:17</p> <p><b>situations (3)</b>                  59:6;136:9;173:3</p> <p><b>six (3)</b>                  49:15;82:2;150:5</p> <p><b>sixth (1)</b>                  58:6</p> <p><b>Sixty (1)</b>                  84:22</p> <p><b>sizable (2)</b>                  140:1,7</p> <p><b>size (19)</b>                  44:15;63:12;65:4;</p>	<p>66:13;74:21,24;75:1,                  2;81:4;85:10;86:16;                  112:9;134:4;136:12,                  17;183:4;196:21;                  197:4;199:18</p> <p><b>sizes (3)</b>                  74:9;133:19;134:2</p> <p><b>Sketch (3)</b>                  3:3;195:22;199:9</p> <p><b>sketches (2)</b>                  195:19;197:4</p> <p><b>skid-steer (1)</b>                  175:11</p> <p><b>skip (4)</b>                  89:16;114:19;                  124:15;184:24</p> <p><b>skipped (1)</b>                  103:14</p> <p><b>slide (2)</b>                  94:10;113:11</p> <p><b>sliding (1)</b>                  83:7</p> <p><b>slight (1)</b>                  201:22</p> <p><b>slightly (2)</b>                  45:14;153:6</p> <p><b>slippery (1)</b>                  164:9</p> <p><b>slope (4)</b>                  201:6,7,14;202:8</p> <p><b>sloped (5)</b>                  200:10,14,18;                  201:4,17</p> <p><b>slow (2)</b>                  152:1;195:12</p> <p><b>slowed (1)</b>                  98:10</p> <p><b>slurry (9)</b>                  36:23;37:13;38:24;                  39:6,18;40:1,14;                  79:2;156:13</p> <p><b>small (4)</b>                  126:12;136:14;                  150:16;175:10</p> <p><b>smaller (6)</b>                  12:15;136:1,17;                  137:12;148:17;                  150:20</p> <p><b>snow (4)</b>                  157:23;158:24;                  160:9;162:1</p> <p><b>snows (1)</b>                  158:1</p> <p><b>soft (1)</b>                  130:24</p> <p><b>soil (19)</b>                  18:21;20:8,11;                  39:20;91:15,15;                  95:23;112:20;114:5;                  116:1;117:2;140:15,                  15,22;142:24;160:19,                  20;165:4,8</p> <p><b>soils (2)</b>                  155:14;163:21</p>	<p><b>sole (1)</b>                  113:15</p> <p><b>soliciting (1)</b>                  94:2</p> <p><b>solid (3)</b>                  79:16;96:3;140:9</p> <p><b>somebody's (1)</b>                  130:19</p> <p><b>someone (4)</b>                  91:7;126:21;                  164:20;178:6</p> <p><b>sometime (1)</b>                  174:12</p> <p><b>sometimes (5)</b>                  76:1;120:9;121:21;                  138:19;158:17</p> <p><b>somewhat (2)</b>                  140:10;152:19</p> <p><b>somewhere (3)</b>                  57:2;97:9;128:2</p> <p><b>sorry (6)</b>                  6:1;9:4;54:17;                  60:3;151:6;154:10</p> <p><b>sort (16)</b>                  39:5;81:13;89:22;                  93:10;94:7;102:1;                  111:9,12;114:22;                  116:6;117:6,7;                  126:12,23;137:5;                  181:22</p> <p><b>sound (5)</b>                  8:10;10:5;15:11;                  34:18;153:3</p> <p><b>sounded (3)</b>                  135:24;142:12;                  169:18</p> <p><b>sound-muffling (1)</b>                  31:21</p> <p><b>soundness (2)</b>                  8:7,22</p> <p><b>sounds (7)</b>                  9:21;10:6;11:3;                  36:14;39:24;55:10;                  152:14</p> <p><b>sound-specific (1)</b>                  32:11</p> <p><b>source (2)</b>                  78:20,22</p> <p><b>south (1)</b>                  200:7</p> <p><b>space (12)</b>                  56:22,23;65:7;                  112:6;120:16;                  125:24;126:5;                  135:23;137:21;                  144:19,20;184:3</p> <p><b>space-constrained (1)</b>                  129:21</p> <p><b>space-critical (1)</b>                  129:21</p> <p><b>spacers (1)</b>                  175:20</p>
--	---	---	--	--

<b>spaces (1)</b> 44:22	146:22	97:24;99:22;102:16;	<b>store (2)</b> 175:16;191:19	103:11;124:20;
<b>span (1)</b> 198:23	<b>splices (5)</b> 91:4;146:23;	115:4;123:13;	<b>stored (1)</b> 175:19	127:2,3;132:21;
<b>SPCC (1)</b> 15:6	165:15;170:8,12	124:10;149:15;	<b>stores (1)</b> 175:13	136:22;166:14;
<b>speak (14)</b> 33:15;36:21;39:7;	<b>splicing (4)</b> 146:1;153:9,12;	151:23;163:3;176:24	<b>storing (1)</b> 156:6	200:21
41:6;105:21;114:10;	165:9	<b>stated (7)</b> 35:13;44:20;53:18;	<b>storm (1)</b> 157:15	<b>subsidiaries (1)</b> 95:13
124:5;127:24;	<b>spoil (1)</b> 55:7	74:10;114:23;	<b>story (1)</b> 51:8	<b>subsidiary (1)</b> 93:17
132:15;145:18;	<b>spoke (1)</b> 72:5	125:12;127:2	<b>straight (4)</b> 45:17;107:3,9;	<b>substantial (1)</b> 42:20
147:12;162:5;174:2;	<b>spoken (1)</b> 148:24	<b>statement (12)</b> 21:22;28:21;30:13,	<b>straightforward (1)</b> 39:23	<b>substantially (2)</b> 199:2,4
185:10	<b>spokespeople (1)</b> 185:8	21:31:5,15;46:2;	<b>strategies (2)</b> 139:7;161:12	<b>substitute (2)</b> 62:6,10
<b>speaking (11)</b> 18:18;19:5;23:14;	<b>spread (1)</b> 148:20	90:8,9;95:7;144:14;	<b>strategy (1)</b> 139:15	<b>subsurface (2)</b> 69:16;70:5
24:9;25:24;31:2;	<b>squares (1)</b> 203:17	152:10	<b>stream (1)</b> 119:5	<b>subzero (1)</b> 159:10
87:1;142:15;161:5;	<b>stability (1)</b> 164:4	<b>statements (1)</b> 98:14	<b>Street (6)</b> 94:17;119:14;	<b>success (2)</b> 40:1;77:22
164:1;168:21	<b>stable (6)</b> 40:17;140:11;	<b>States (7)</b> 34:1;42:4;49:8;	123:1,5,20;172:21	<b>successful (2)</b> 41:7;75:8
<b>specialized (2)</b> 146:3;153:16	200:24;201:9,12;	95:21;102:9,13;	<b>strength (1)</b> 81:23	<b>successfully (4)</b> 40:13,16;88:5;
<b>specialty (3)</b> 95:1,1,2	202:4	168:24	<b>string (1)</b> 157:17	159:24
<b>specific (18)</b> 13:14;16:10;22:20;	<b>stage (2)</b> 127:4;147:21	<b>static (3)</b> 46:16;107:13;	<b>strong (1)</b> 146:16	<b>sufficient (1)</b> 82:19
33:1;68:16;70:7,12;	<b>staged (1)</b> 178:6	195:3	<b>structural (3)</b> 148:14;156:17,20	<b>sufficiently (1)</b> 61:2
71:12;72:6,19,21;	<b>stages (1)</b> 147:16	<b>Station (9)</b> 53:17,20;56:4;	<b>structure (7)</b> 42:21;203:21,21;	<b>Sugar (3)</b> 3:5;207:11,19
73:10;85:14,17;	<b>stagger (1)</b> 147:21	191:12,21;192:1,10;	206:2,2,11,11	<b>suggest (2)</b> 167:18;168:17
88:19;105:18;173:1;	<b>staggered (1)</b> 147:24	202:11,16	<b>structured (1)</b> 167:12	<b>suggested (5)</b> 32:23;87:5;140:19;
187:17	<b>staging (7)</b> 24:24;25:16;	<b>status (1)</b> 29:15	<b>structures (3)</b> 108:10;203:17;	149:23;198:9
<b>specifically (14)</b> 16:1;19:21;25:21;	174:20;175:21;	<b>statute (1)</b> 6:15	206:12	<b>suggesting (1)</b> 152:12
33:9,17;37:21;39:3;	178:2,15;184:2	<b>stay (7)</b> 56:1,6;73:11,15;	<b>studied (1)</b> 154:12	<b>suggestion (1)</b> 167:24
40:9;52:20;68:21;	<b>stakeholders (1)</b> 167:1	124:8;194:5,10	<b>studies (2)</b> 72:19;73:1	<b>suggestions (5)</b> 99:16;166:11,18,
77:4;99:18;106:19;	<b>stamp (2)</b> 202:15;205:14	<b>steel (11)</b> 32:24;49:5,11;	<b>study (1)</b> 80:12	21;168:9
162:6	<b>standard (5)</b> 13:11;15:2;18:16;	53:12;83:17;134:10;	<b>style (1)</b> 117:13	<b>suggests (1)</b> 179:10
<b>specified (1)</b> 166:13	42:3;202:7	160:8;175:13;	<b>SUBCOMMITTEE (3)</b> 78:9;185:11,12	<b>suitable (2)</b> 75:9;165:14
<b>speculation (2)</b> 40:20;60:3	<b>standards (2)</b> 77:12,17	180:13,16;182:19	<b>subject (3)</b> 13:22;43:11;	<b>summertime (1)</b> 84:16
<b>speculative (3)</b> 40:24;60:11;	<b>standpoint (14)</b> 91:18,22,22;	<b>steep (1)</b> 192:8	188:15	<b>supplemental (4)</b> 11:1;33:14;72:2;
152:19	107:11;114:5;119:6;	<b>steer (2)</b> 138:24;141:18	<b>submission (2)</b> 15:6,12	188:21
<b>speed (2)</b> 53:4;183:9	140:10;147:17;	<b>stem (1)</b> 46:18	<b>submit (2)</b> 28:3;127:22	<b>supplied (1)</b> 181:17
<b>spend (1)</b> 113:17	148:5;152:3;155:10;	<b>Stewartstown (3)</b> 99:8;113:12;	<b>submittals (2)</b> 14:10,24	<b>suppliers (1)</b> 161:6
<b>splice (56)</b> 62:17;63:7;64:24;	160:21;170:7;183:1	190:22	<b>submitted (11)</b> 14:14;16:14;28:8;	<b>supply (2)</b> 147:23;148:22
85:24;86:15,17;87:8;	<b>start (6)</b> 4:15;78:7,8;119:9;	<b>still (11)</b> 10:13;21:18;27:19;		<b>support (1)</b> 147:4
98:20;111:18;112:5;	157:13;186:4	69:24;73:7;121:2;		<b>supported (1)</b> 181:20
124:18,18;131:6,13,	<b>started (1)</b> 50:18	129:17;145:3;		<b>supposed (1)</b>
16;132:3;134:5,10,	<b>starting (1)</b> 68:18	159:24;163:18;		
12,17,17;153:16,18,	<b>State (13)</b> 41:17,22;93:24;	199:16		
24;154:3;155:5;		<b>stock (2)</b> 31:21;148:17		
161:3;163:20,21;		<b>stockpiling (1)</b> 157:8		
164:1,19;165:17;		<b>stop (1)</b> 185:3		
169:17,22;171:3,6,		<b>stoppers (1)</b> 101:2		
13,20;172:1;178:16;		<b>storage (1)</b> 78:24		
181:16,20;192:22,24;				
193:6;195:16,24;				
196:8,12,17,21;				
197:2,16;198:4,10,24				
<b>splicers (1)</b>				

22:8 <b>Sure (25)</b> 11:16;16:10;17:19; 30:23;32:5;40:23; 46:9;50:1,4;63:18; 66:16;85:22;95:11; 102:13;103:7; 104:17;109:4; 113:18;127:7; 157:21;165:16; 169:13;176:7; 204:18;205:6 <b>surface (12)</b> 82:14,17;110:23; 114:2;138:8;141:15; 143:8,8;156:4; 164:19;165:18,21 <b>surprise (4)</b> 14:21;41:24;61:14; 174:9 <b>surprised (1)</b> 61:17 <b>survey (3)</b> 122:10;127:11; 168:21 <b>surveying (2)</b> 128:23;174:1 <b>suspend (1)</b> 162:7 <b>suspended (1)</b> 156:11 <b>swing (5)</b> 63:2;65:5;111:24; 112:5;197:2 <b>swinging (5)</b> 46:17;64:18;65:21; 87:17;196:17 <b>switch (1)</b> 200:3 <b>switched (1)</b> 116:15 <b>symbol (1)</b> 203:4 <b>system (10)</b> 68:24;75:5;90:23, 24;93:5;94:2;115:13; 170:13;173:14; 184:10 <b>systems (2)</b> 173:18,21	144:3;158:21; 164:22;174:19; 181:22;198:22; 199:19 <b>talking (15)</b> 37:22;41:1;47:1; 51:5,12;133:17; 143:23;144:16; 163:1;169:15; 172:16;178:13,14; 180:7,10 <b>talks (5)</b> 9:12;41:22;58:10; 102:3;123:10 <b>tank (3)</b> 78:17,18;130:20 <b>tanker (1)</b> 78:23 <b>tanks (1)</b> 156:6 <b>tasked (1)</b> 143:13 <b>Taylor (226)</b> 4:15,19;5:1,4,8,12, 16;6:16,19;7:1,8,13, 19;8:2,3,11,20,24; 9:3,6,15,18,21;10:1, 6,11,17,23;12:18,21; 18:7,12,18;19:5,12, 17,23;20:5,15,20,24; 21:5,10,15,19;22:6, 11,13,17,19,23;23:3, 14,19;24:1,9,17,22; 25:6,9,18,24;26:5,11, 17;27:6,13;28:1,5,9, 13,20;29:1,4,8,12,17, 22;30:6,9,14,16,18, 23;32:19;33:6,7,11, 12,17,23;34:2,10,20; 35:1,8,10,16,20;36:1, 5,14,17,21,24;37:20; 43:24;44:1,7,13,18, 23;45:4,12,19;48:4,8, 14,22;49:1,4,8,12,18; 53:21;54:2,8,12,15, 19,23;55:4,10,14,18, 22;56:1,10,14,18; 57:1,4,12;85:23;86:2, 7;87:7;99:11,17; 107:1,6;109:17; 110:2;121:3;122:18; 127:7,24;128:19; 132:12;145:13,18; 148:8,10;154:17; 166:20;168:9,11; 174:3,8,15;177:22; 186:4,8,12,16,20; 187:2,7,11,15,24; 188:11;189:8,12,16, 19,22;190:2,7,8,12, 17,24;191:5,10,11, 17,23;192:2,4,7,13, 16,19;194:3,7,12;	202:9,13,18,21; 203:1,6,9,14,19,22; 204:3,8;205:12,15, 18,24;206:6,13,19 <b>team (2)</b> 76:15;93:7 <b>tech (7)</b> 7:20;10:12;19:8; 25:13;35:12;70:6; 75:17 <b>technical (10)</b> 6:23;7:5,16;8:6; 29:9;34:21;35:5; 68:23;75:13;166:8 <b>technically (1)</b> 115:11 <b>techniques (3)</b> 136:8;139:2; 164:23 <b>technology (2)</b> 160:14,18 <b>temperance (9)</b> 80:23;84:15,21; 142:16,23;143:20; 160:24;161:1,11 <b>temperatures (4)</b> 87:24;160:21; 161:13;163:14 <b>temporarily (1)</b> 110:22 <b>temporary (15)</b> 23:8,16,18,20,23; 24:14;35:18,23; 126:17,18,20;157:11; 159:15;190:20;191:8 <b>tend (1)</b> 96:11 <b>tends (2)</b> 152:5;170:10 <b>term (1)</b> 155:1 <b>termed (1)</b> 149:2 <b>termination (1)</b> 146:2 <b>terminations (2)</b> 146:23;170:8 <b>terminology (1)</b> 92:8 <b>terms (10)</b> 61:9;66:17;98:11; 108:19;150:8; 160:11;172:4;176:1; 184:2;196:20 <b>terrain (7)</b> 12:14;15:5;20:17; 24:3;86:14;189:24; 200:11 <b>test (1)</b> 128:23 <b>testified (11)</b> 28:14;45:1;54:20; 60:12;68:1;72:9;	122:23;157:22; 200:17;201:3;202:22 <b>testify (1)</b> 108:24 <b>testifying (1)</b> 68:4 <b>testimony (58)</b> 4:20;6:2,12;8:3; 9:19,23;10:8;11:1,6, 10,12;14:6;18:7; 19:8;22:14;25:2,9; 29:5,16;30:6,8,9; 33:15;34:6,7,13; 35:10;38:16;41:12; 42:13;47:10;54:2; 57:7;67:9;68:8,11; 69:12;72:2;86:19; 95:23;98:12;99:3; 113:8;115:18,19; 118:20;122:24; 123:4;125:10;129:7; 149:1;155:13; 158:14;188:21,24; 196:22;204:15;208:5 <b>tests (3)</b> 43:1,6,7 <b>Thanks (1)</b> 148:23 <b>theory (1)</b> 170:13 <b>therefore (2)</b> 38:19;195:12 <b>thermal (7)</b> 41:11,23;80:10; 81:12,19;91:12; 160:4 <b>thinking (5)</b> 60:5;101:16; 177:15;178:18;180:8 <b>third (4)</b> 69:20;72:12; 171:13;196:15 <b>Thompson (12)</b> 52:5;62:15,20; 64:18;66:20;87:20; 88:19;104:21; 118:14;196:4,6,16 <b>Thompson's (3)</b> 88:8;195:19,22 <b>Thornton (3)</b> 58:2;61:24;62:7 <b>thorough (1)</b> 76:7 <b>thoroughly (1)</b> 16:16 <b>though (11)</b> 27:18;66:6,19; 103:22;125:6; 131:24;132:18; 142:22;151:4;170:2; 177:15 <b>thought (8)</b> 44:2;85:15;114:15;	130:22;152:11; 153:5;168:13;188:23 <b>thoughts (1)</b> 103:1 <b>thousand (2)</b> 112:24;113:1 <b>three (11)</b> 12:13;55:9;86:23; 87:11;90:22;103:19; 123:3,7;150:4; 151:15;158:8 <b>throughout (2)</b> 95:16;176:24 <b>Thursday (1)</b> 208:6 <b>Tier (2)</b> 42:21;142:11 <b>Tiers (4)</b> 188:3,7,10,18 <b>tight (1)</b> 144:20 <b>tighter (1)</b> 44:21 <b>time-consuming (1)</b> 50:24 <b>timely (1)</b> 17:5 <b>time-of-year-dependent (1)</b> 84:13 <b>times (8)</b> 50:8;82:23;94:17; 121:21;148:15; 151:15;166:13; 202:21 <b>titled (1)</b> 193:12 <b>today (12)</b> 7:14;29:3;47:19; 78:14;84:24;85:16; 86:17,18;109:7; 130:19;202:9;205:20 <b>today's (2)</b> 160:14;168:13 <b>together (5)</b> 9:23;109:18;110:6; 127:19;152:10 <b>told (6)</b> 10:13;12:12;25:13; 29:9;34:21;75:13 <b>ton (1)</b> 196:23 <b>tons (1)</b> 54:14 <b>took (3)</b> 37:17;66:10; 149:18 <b>tool (1)</b> 140:24 <b>tools (2)</b> 175:3;177:6 <b>top (7)</b> 80:4,15;86:22; 87:2;95:9,11;158:24
<b>T</b>				
<b>table (2)</b> 38:5;75:3 <b>tailored (1)</b> 140:17 <b>talk (5)</b> 18:13;24:24;29:5; 39:3;45:9 <b>talked (13)</b> 19:13;20:7;38:16; 105:1;118:5;124:12;				

<p><b>topography (2)</b> 192:6,8</p> <p><b>tops (1)</b> 84:17</p> <p><b>total (2)</b> 55:11;154:7</p> <p><b>touch (1)</b> 50:17</p> <p><b>tourism (2)</b> 187:13,23</p> <p><b>touting (1)</b> 39:24</p> <p><b>towards (4)</b> 123:8;129:4; 130:14,15</p> <p><b>tower (5)</b> 9:9,14;148:12; 206:2,3</p> <p><b>towers (7)</b> 20:10;116:9;147:9; 148:17;157:3,17; 204:2</p> <p><b>Town (15)</b> 58:1,11,16,24; 59:19;60:23;61:4,8,9, 24;62:11;83:24;98:2; 123:11,13</p> <p><b>towns (3)</b> 59:12,23;61:15</p> <p><b>tracking (1)</b> 184:6</p> <p><b>traffic (81)</b> 6:5;18:20;27:7,8,9, 15;28:3,7,17,22; 46:20;49:7;66:6,9; 69:18;70:20,23;71:1, 6,9,17,20;83:19; 98:24;99:4,21;100:2, 9,22;101:7,22; 102:14,15,21,22; 103:1,3;105:4; 106:24;107:4,11; 108:4;110:15; 111:20,23;112:8; 123:24;125:21,22,24; 126:5,13,19;132:5,7, 14,16;157:24; 161:24;162:2,4,5; 176:7;179:8,11; 182:1,3,23;183:4; 186:14,18,24;187:3, 5,8,12,18,20;189:14, 17;190:4</p> <p><b>train (2)</b> 124:13;147:3</p> <p><b>transcripts (2)</b> 68:7,10</p> <p><b>transfer (1)</b> 74:10</p> <p><b>Transition (10)</b> 53:17;56:3;83:4; 171:21;191:12,21; 192:1,10;202:11,16</p>	<p><b>translate (2)</b> 97:3,3</p> <p><b>transmission (14)</b> 5:10,14;18:17; 19:3;20:10;26:7; 67:19;88:14;95:20; 145:11;146:15; 154:22;171:12; 193:13</p> <p><b>transportation (7)</b> 6:4;27:11;31:9; 41:18;43:9;82:10; 89:13</p> <p><b>transported (2)</b> 79:3;164:12</p> <p><b>transporting (1)</b> 115:4</p> <p><b>transverse (1)</b> 201:21</p> <p><b>travel (8)</b> 83:19;108:21; 112:1;125:5,12; 158:18;180:16; 206:10</p> <p><b>traveled (1)</b> 101:17</p> <p><b>traveling (1)</b> 125:15</p> <p><b>traverse (1)</b> 136:19</p> <p><b>treat (1)</b> 162:20</p> <p><b>trees (3)</b> 108:3,10;192:12</p> <p><b>trench (36)</b> 49:21;53:6,13; 81:11,18;82:5,6,7,23; 83:9;90:17,18;91:2; 108:13;110:14,17,19; 119:15;134:11; 138:8;141:9,11,23; 142:2,5,6,11;156:1, 10;160:11,16; 164:16;171:18; 175:14;178:16; 180:14</p> <p><b>trenches (4)</b> 80:5;109:14;134:3; 141:7</p> <p><b>trenching (11)</b> 52:18;97:11;98:20; 114:3,4;124:13; 142:7,21;151:6; 155:19;174:24</p> <p><b>trenchless (2)</b> 67:18;151:5</p> <p><b>triangle (1)</b> 203:4</p> <p><b>tried (2)</b> 9:8;59:7</p> <p><b>triggered (1)</b> 24:8</p> <p><b>truck (14)</b></p>	<p>54:14;56:19,22; 64:8;66:3;84:20; 87:10;104:23; 121:12;175:13; 195:23;196:13; 198:5,24</p> <p><b>trucked (1)</b> 55:3</p> <p><b>truckload (3)</b> 56:1;57:3,16</p> <p><b>truckloads (2)</b> 55:24;57:9</p> <p><b>trucks (13)</b> 54:11;56:7,12,16; 57:4;83:24;84:2,9; 144:18;158:4; 191:14;192:15;206:9</p> <p><b>true (4)</b> 36:17;48:9;73:13; 152:18</p> <p><b>truly (1)</b> 103:16</p> <p><b>try (9)</b> 17:20;89:16;96:11; 131:17;138:23; 141:18;149:3;179:6; 185:10</p> <p><b>trying (11)</b> 62:5,10;81:10,16; 93:13;107:16;129:9; 139:21;141:15; 172:8;205:3</p> <p><b>tunnels (1)</b> 161:4</p> <p><b>turn (1)</b> 34:5</p> <p><b>twice (1)</b> 183:23</p> <p><b>two (23)</b> 78:19;86:12,20; 98:16,17,21;129:13; 137:20;158:8; 166:10,18;172:18; 183:19,20,20,21,21, 22;184:15,16; 196:22;205:4;206:16</p> <p><b>type (25)</b> 13:23;26:10;45:21; 72:19;79:18;85:11; 88:23;91:18;92:1; 93:1;103:17,18; 104:19;114:5; 117:14,14;132:12; 140:20;144:17; 146:20,20;157:20; 162:5;165:5;184:10</p> <p><b>types (19)</b> 13:11,17;14:24; 15:20;19:9;51:15; 59:8;71:14;72:16; 117:15;140:16,18; 146:7;150:22;164:8; 167:7;171:17;175:3,</p>	<p>11</p> <p><b>typical (14)</b> 15:8,17;32:17; 45:15;46:23;47:7; 78:15;112:14,18; 142:19;144:21; 151:20;166:3;171:7</p> <p><b>typically (12)</b> 39:6;121:10;127:9; 128:1,3,20;132:10; 135:8;137:18; 148:13;150:1;183:3</p> <p style="text-align: center;"><b>U</b></p> <p><b>ultimate (1)</b> 52:1</p> <p><b>unable (1)</b> 25:3</p> <p><b>unavailability (1)</b> 149:13</p> <p><b>unaware (1)</b> 135:17</p> <p><b>uncertain (1)</b> 131:2</p> <p><b>uncertainty (1)</b> 139:22</p> <p><b>uncommon (9)</b> 52:23;127:22; 128:14,17;131:5,8; 132:7;171:11;178:4</p> <p><b>under (19)</b> 29:19;39:17;49:6, 10;56:10;88:21; 103:22,24;104:9,11; 113:20;123:12; 130:11;142:24; 145:12;157:10; 158:23;179:8;182:18</p> <p><b>underground (34)</b> 5:13;6:9;9:22; 10:21;34:5,8,17;35:2, 11;67:17;68:13;74:5; 90:1,5;91:1;128:6; 129:1;130:6;137:19; 154:6,21;155:2,16; 160:2,7,13;161:21; 163:3;174:4,10,19; 188:9;193:13;203:5</p> <p><b>underneath (2)</b> 67:19;164:2</p> <p><b>understood (6)</b> 21:20;56:6;63:10; 65:9;101:16;193:24</p> <p><b>undertook (1)</b> 6:13</p> <p><b>undesirable (1)</b> 114:4</p> <p><b>undetermined (1)</b> 129:17</p> <p><b>unexpected (1)</b> 76:20</p> <p><b>unfamiliar (1)</b></p>	<p>61:11</p> <p><b>unfrozen (1)</b> 160:20</p> <p><b>unheard (3)</b> 128:18;129:5; 132:22</p> <p><b>unintended (2)</b> 120:9;139:14</p> <p><b>unique (2)</b> 88:2;102:19</p> <p><b>United (3)</b> 34:1;42:4;95:21</p> <p><b>Unknown (3)</b> 75:24;139:1;147:4</p> <p><b>unknowns (1)</b> 171:9</p> <p><b>unless (5)</b> 23:21;51:1;148:18; 162:18;184:12</p> <p><b>unlikely (2)</b> 42:19;155:3</p> <p><b>unlimited (1)</b> 83:18</p> <p><b>unplanned (1)</b> 139:4</p> <p><b>unrealistic (5)</b> 69:15,17;70:22; 149:2,23</p> <p><b>unrealistically (1)</b> 152:11</p> <p><b>unreasonable (2)</b> 34:23;133:2</p> <p><b>unregulated (1)</b> 80:1</p> <p><b>unrelated (1)</b> 146:14</p> <p><b>unstable (4)</b> 38:6;40:2,7,15</p> <p><b>unusually (1)</b> 38:5</p> <p><b>up (67)</b> 8:14;11:14;15:1; 37:16;38:18;41:9; 45:6,7;48:15;51:1,6; 52:7;53:4;54:11; 56:16;57:13,22;58:6; 63:19;64:16;66:2; 78:13;79:19;82:1; 83:9;84:21;87:10; 90:8;92:8;94:4,10; 97:8;99:16;102:17; 103:13;107:20; 113:10;115:24; 116:6;119:14; 120:17;121:19; 141:9;148:16; 150:10;153:14,14; 157:14;158:7,10; 163:18;165:22; 168:15;176:1; 178:10;180:6; 196:12;197:2,8,8,11, 15;198:9,12,24;</p>
---	---	---	---	---

199:17,24 <b>uplands (1)</b> 54:22 <b>upon (7)</b> 23:12;36:11;70:10; 86:14;99:15;116:16; 174:14 <b>upper (2)</b> 112:23;182:11 <b>upset (1)</b> 100:6 <b>upstate (1)</b> 88:15 <b>urban (1)</b> 130:1 <b>use (40)</b> 32:23;36:12,22; 38:7,24;40:14;41:18; 42:2;43:3,10,14; 46:13;47:20;49:5; 50:22;52:14,17;53:2, 7;56:16;65:18;91:9; 97:14;106:5;115:1; 122:1,4,4;125:14; 141:13;145:4; 157:16;159:9;160:8; 166:4;183:13;184:4; 194:1;197:1;198:1 <b>used (26)</b> 32:16;37:9,13; 42:5,6,10;45:21; 48:13;64:9,15;65:14; 74:5;75:4;82:16; 88:11;99:14;115:9; 117:13;135:13; 137:10;166:4; 171:17;175:3;183:3; 184:6,10 <b>uses (1)</b> 204:12 <b>using (8)</b> 40:1;41:22;53:12; 57:4;119:16;144:18; 166:2;181:19 <b>usually (10)</b> 83:18;87:2;93:3; 121:15;126:11; 129:22;130:2;160:9; 162:15;177:12 <b>utilities (7)</b> 98:3;128:7,9; 130:3,6;155:7,11 <b>utility (8)</b> 42:7;95:1;103:4; 104:13;128:7,24; 132:23;154:15 <b>utilization (1)</b> 31:20 <b>utilize (2)</b> 45:1;47:11 <b>utilized (2)</b> 18:23;20:13	<b>V</b>	<b>vertical (8)</b> 127:13,15,18; 128:4,12,22;199:10, 14 <b>vertically (1)</b> 119:12 <b>viable (2)</b> 74:9;131:3 <b>vibration (2)</b> 122:7,12 <b>Vibrator (2)</b> 122:6,7 <b>vicinity (3)</b> 88:10;164:4; 173:15 <b>view (1)</b> 57:11 <b>viewpoint (1)</b> 91:8 <b>violations (1)</b> 15:13 <b>virtue (2)</b> 139:19;170:12 <b>visit (2)</b> 191:24;202:19 <b>visual (1)</b> 32:22 <b>visualize (1)</b> 96:8 <b>volume (10)</b> 16:13;54:9;56:2; 80:19;81:6;82:24; 147:1;149:20;183:9; 192:19 <b>volumes (1)</b> 99:21	65:11;66:20,22,23; 73:1;83:11,13,21; 90:18;108:24;112:9; 124:23;128:7;131:4; 132:20,21;141:5,24; 144:12;165:14; 167:8,12,16;169:5,6; 175:6;177:17;178:9; 179:17;180:20; 197:15 <b>ways (1)</b> 173:8 <b>weather (6)</b> 149:12;155:12; 157:18;158:18; 159:14;162:1 <b>Weathersby (7)</b> 134:21,22;142:9; 145:6;163:15;168:8; 189:2 <b>web (2)</b> 37:18;103:12 <b>week (1)</b> 153:19 <b>weeks (6)</b> 49:15;138:5,6; 150:4,5,11 <b>weigh (1)</b> 170:21 <b>weights (1)</b> 170:14 <b>weight (9)</b> 82:19;83:14;135:9, 10,13;137:11; 196:24;197:10,12 <b>weight-restricted (3)</b> 105:13,19,23 <b>welcome (1)</b> 85:21 <b>welded (1)</b> 181:19 <b>wells (1)</b> 37:10 <b>weren't (5)</b> 34:22;72:5,8; 107:2;143:13 <b>wetland (8)</b> 11:19;12:15,20; 20:18;23:7;25:19; 158:22,22 <b>wetlands (4)</b> 12:1;13:10;18:23; 20:6 <b>what's (15)</b> 28:13;46:21,22; 59:24;75:23;78:18; 86:15;127:19; 174:20;190:8,13; 191:1;197:23; 202:14;205:12 <b>wheelhouse (1)</b> 95:5 <b>whereas (4)</b>	56:22;58:7,15,23 <b>Whereupon (1)</b> 208:13 <b>whole (6)</b> 48:12;50:23;90:24; 91:2;117:1;124:19 <b>who's (2)</b> 92:17;178:6 <b>wide (2)</b> 43:22;195:8 <b>width (4)</b> 44:20;46:13;126:6; 154:13 <b>Wind (2)</b> 14:22;15:4 <b>winter (9)</b> 157:21;158:23; 160:7,13;161:16,20; 162:8,9,15 <b>withdrawn (3)</b> 52:1;73:23;113:6 <b>within (11)</b> 16:18;73:16;93:13; 98:21;110:7;124:8; 168:20;194:5,10; 195:5,11 <b>without (9)</b> 10:9;17:15;38:7; 39:5;49:7;63:14; 65:21;112:8;149:11 <b>witness (7)</b> 32:22;33:14;60:4, 6;63:24;68:14;101:1 <b>witnessed (2)</b> 85:24;87:4 <b>witnesses (2)</b> 32:22;33:4 <b>wonder (1)</b> 46:7 <b>wondering (5)</b> 135:20;136:2; 144:4;157:24;159:1 <b>word (2)</b> 53:7;145:20 <b>worded (1)</b> 85:11 <b>wording (2)</b> 51:19,21 <b>words (4)</b> 22:3;144:17; 179:14;198:22 <b>work (92)</b> 6:13;7:24;15:19; 16:15;28:11;30:11; 36:9;43:19,21;44:16, 21;46:23;47:1,4,8,12; 48:1,4,12;49:14; 50:18,20,21;51:4,18, 20;59:5,7,7;66:14; 70:1;73:3,8;82:1,8; 86:1;89:13;98:23; 106:11;118:1; 119:19;120:24;
	<b>W</b>	<b>waivers (1)</b> 133:5 <b>Wall (1)</b> 94:17 <b>walls (1)</b> 121:15 <b>warm (1)</b> 159:22 <b>warming (1)</b> 88:10 <b>Washington (1)</b> 177:4 <b>waste (2)</b> 79:8,22 <b>water (15)</b> 18:23;37:10,23; 38:5;39:20;78:20,22, 23;79:15;120:11; 150:21;154:23; 155:22;156:1,3 <b>water-quality (1)</b> 15:13 <b>way (34)</b> 33:20;39:17;50:20;		

121:4;134:16;136:1; 138:2;139:22;144:1; 2,5,7,11,13,21,24; 145:17;146:15,17; 152:4;155:21; 156:10,10;158:22,22; 160:12;162:8,15,24; 163:3;165:6;173:8; 174:17;175:18; 179:1,3,7,13,18,24, 24;180:24;182:13,16, 17;193:13;194:15; 195:5,7,11,12;197:1; 202:1 <b>workday (1)</b> 182:13 <b>worked (12)</b> 5:9,14,18;6:8; 12:13;13:17;19:11; 25:14;163:24; 165:24;177:3;183:2 <b>workers (3)</b> 145:17;146:8; 160:22 <b>working (9)</b> 12:19;59:9,11; 102:13;154:4; 163:14;172:23; 173:1;183:21 <b>works (3)</b> 121:10;129:4; 168:20 <b>workspace (1)</b> 138:1 <b>world (1)</b> 88:12 <b>Wright (7)</b> 78:8,10,11;83:11, 22;88:24;89:15 <b>written (1)</b> 61:12 <b>wrong (2)</b> 13:1,2	109:6;133:16; 143:23;200:5;201:3 <b>York (1)</b> 88:15 <b>Yup (1)</b> 64:10	135:5,11,14,17; 137:20;143:3,11; 144:8,20;145:14; 148:8,12;154:19; 157:2,22;158:6; 159:4,7,12,21; 162:12;163:3,5,10; 165:20;168:14,22; 174:6;183:5,8;188:1, 5;190:11;194:13,19; 195:1,15;196:2,9,14, 19;197:7,18;198:7, 14,17;199:2,8;200:5, 9,12,16,19;201:2,6, 11,15,20;202:6; 206:20;207:1,6,9,13, 18,21	195:21 <b>137 (1)</b> 196:11 <b>138 (1)</b> 196:16 <b>14 (2)</b> 11:12,16 <b>15 (6)</b> 9:20;14:7;56:12, 16;57:2;84:17 <b>159 (1)</b> 41:9 <b>15th (2)</b> 163:7,8 <b>16 (2)</b> 18:8;193:14 <b>1600-foot (1)</b> 110:7 <b>162-H (1)</b> 6:14 <b>170 (1)</b> 55:17 <b>17th (1)</b> 11:2 <b>18 (3)</b> 15:5;207:11,19 <b>180 (4)</b> 44:3;63:3;103:13, 14 <b>182 (1)</b> 44:4 <b>184 (1)</b> 44:4 <b>19 (2)</b> 15:12;70:21 <b>192-mile (1)</b> 23:9 <b>197 (1)</b> 3:3 <b>19th (1)</b> 43:8 <b>1st (1)</b> 10:2	<b>2016 (6)</b> 9:20,24;19:7; 22:18;190:15;191:3 <b>2017 (8)</b> 10:2,13;11:2; 186:23;189:21,24; 193:14;208:16 <b>207 (1)</b> 3:5 <b>208 (1)</b> 57:23 <b>21 (2)</b> 35:9;42:17 <b>22 (6)</b> 22:13;25:20;74:7, 17,24;186:6 <b>223 (1)</b> 106:18 <b>227 (6)</b> 44:9;45:6;48:16; 63:17;192:21;193:2 <b>23 (3)</b> 68:18,21;72:13 <b>230 (2)</b> 5:10;190:14 <b>231 (1)</b> 191:2 <b>24 (7)</b> 10:13;22:13;67:10; 72:14;80:4,15;134:5 <b>25 (8)</b> 73:5;120:5;144:1, 19;194:16;195:9; 196:23;208:16 <b>2500-foot (1)</b> 37:23 <b>25-feet (1)</b> 144:20 <b>25-foot (2)</b> 144:5,10 <b>2-67 (1)</b> 31:5 <b>27 (2)</b> 194:16;195:9 <b>27-foot-wide (1)</b> 144:2 <b>27-foot-width (1)</b> 144:5 <b>28 (2)</b> 6:9;67:15 <b>29 (1)</b> 67:10 <b>2-foot (1)</b> 140:3 <b>2-percent (1)</b> 202:7
<b>Y</b>	<b>Z</b>	<b>1</b>	<b>2</b>	<b>3</b>
<b>yards (13)</b> 53:19,24;54:3,5,5, 15,17;56:13,15,16; 57:2,14,16 <b>year (2)</b> 43:9;148:15 <b>years (5)</b> 92:9;95:16;98:17, 21;165:16 <b>yellow (2)</b> 203:5,16 <b>Yesterday (21)</b> 9:7;29:23;43:18; 47:22;51:13;52:5; 53:16;57:17;60:14; 62:3,15;64:6;78:12; 83:23;87:20;105:11;	<b>zero (1)</b> 159:10 <b>zone (26)</b> 9:13;43:22;46:23; 47:1,5,8,12;48:2,4, 13;49:14;50:19,21; 51:18;110:7;134:16; 138:2;144:10,14,24; 145:1;174:17; 194:15;195:5,7,11 <b>zones (13)</b> 43:19;44:16,21; 48:1,12;51:4,20; 98:23;106:11;144:2, 6,7,21 <b>Zysk (248)</b> 4:15;5:21,22;6:1,7, 10;9:23;10:24;11:3, 8,14,17,23;12:2,6,10, 11,17,22;13:2,13,19, 24;14:4,12,17,20; 15:2,10,16,18,22; 16:1,4,9,21;17:1,4, 14;18:3;31:2,11,13; 32:1,3,9,13,20;33:3, 9;34:3;37:1,2,8,12, 15,21;38:2,9;39:13, 22;40:4,9;41:6,10,14, 21;42:1,5,12,16,23; 43:2,5,12,16;50:17; 51:9,13,19;52:12,15, 20;53:1,7;57:17,21; 58:4,9,14,22;59:4,10, 14,18,22;60:1,17; 61:3,7,11,17;62:2,9, 14,19,24;63:5,10,14; 80:8,11,14;82:22; 83:8,17;84:13,16,22; 85:8,21,23;92:4; 94:20;95:8;96:24; 99:2,23;100:4,8; 101:2,12,16;102:16, 20;103:3,7;104:3,5, 12,17;105:9,14,20; 106:2,7,16;108:1; 110:11;111:4; 114:17;115:3,10,15, 22;116:3;117:10; 118:4,12,19;120:1; 121:9,17,21;122:6,9; 125:18;126:3,15,21; 129:11,23;131:8; 132:6;133:1,22,23, 24;134:2,6,9,14;	<b>1 (5)</b> 67:15;95:8;188:3, 18;195:22 <b>1:13 (1)</b> 4:3 <b>10 (10)</b> 36:7;54:14,15,17; 56:12,14;57:2,16; 84:16;151:8 <b>100 (2)</b> 97:10;151:9 <b>106 (1)</b> 207:24 <b>107 (1)</b> 207:24 <b>10-foot-deep (1)</b> 125:11 <b>10-minute (1)</b> 89:3 <b>11 (1)</b> 20:9 <b>1100 (2)</b> 116:11,18 <b>116 (5)</b> 101:17;205:1,14, 17,22 <b>12 (8)</b> 14:7;37:23;68:11; 69:11;134:5,6;138:5; 150:11 <b>129 (2)</b> 4:20;104:23 <b>13 (3)</b> 11:11,16;186:23 <b>130 (2)</b> 34:11,12 <b>132 (1)</b> 34:12 <b>133 (1)</b> 41:13 <b>135 (1)</b> 67:9 <b>136 (1)</b>	<b>2 (10)</b> 18:8;20:9;22:13; 35:9;42:17,21;67:10, 15;191:3;196:11 <b>2- (1)</b> 201:23 <b>2,000 (3)</b> 109:20;110:1; 171:8 <b>2:35 (2)</b> 89:3,4 <b>2:54 (1)</b> 89:5 <b>20 (2)</b> 97:10;120:10 <b>200 (2)</b> 202:15;205:13	<b>3 (14)</b> 8:3;18:8,8;42:21; 68:11;69:11;70:21; 72:13;73:4;122:23;

123:12;183:12; 195:8;200:7 <b>3,000 (1)</b> 171:12 <b>30 (13)</b> 9:24;43:22;48:3; 84:2,22;120:10; 127:8,9,12;128:2; 132:17;137:24;138:2 <b>30- (1)</b> 136:23 <b>30,000 (2)</b> 53:24;54:5 <b>300 (10)</b> 43:22;48:3;97:19; 138:3,3;144:2,6; 151:7;152:12,23 <b>300-foot (1)</b> 51:4 <b>300-foot-a-day (1)</b> 97:12 <b>302 (3)</b> 203:8;205:1,22 <b>30-by-300-foot (1)</b> 50:18 <b>30-foot (3)</b> 195:8;200:23; 201:9 <b>30-inch (1)</b> 184:15 <b>30-percent (4)</b> 127:4,15,23;170:1 <b>30th (1)</b> 34:7 <b>31 (1)</b> 12:4 <b>3-1/2 (2)</b> 5:15;98:4 <b>32 (1)</b> 161:9 <b>34 (1)</b> 134:6 <b>35-plus (1)</b> 138:3 <b>36 (2)</b> 80:4,15 <b>364 (1)</b> 37:16 <b>36-inch (3)</b> 113:16,20;114:16 <b>37 (2)</b> 12:4;23:7 <b>38 (1)</b> 12:4 <b>39 (1)</b> 12:5 <b>3-percent (1)</b> 201:23  <b>4</b>  <b>4 (12)</b> 25:2;35:9;42:22;	53:17;133:18; 158:24;188:3,18; 191:12,21;192:1,10 <b>4- (1)</b> 138:9 <b>40 (2)</b> 104:7;161:8 <b>4-1/2 (1)</b> 149:18 <b>45 (3)</b> 52:9;104:8;149:17 <b>45,000 (1)</b> 54:5 <b>4-56 (1)</b> 31:15 <b>46 (1)</b> 41:22 <b>47-foot (1)</b> 196:5  <b>5</b>  <b>5 (10)</b> 11:11,16;25:2; 142:11;188:7,10,19; 189:2;202:11,16 <b>5,000 (1)</b> 57:9 <b>5:20 (1)</b> 208:14 <b>50 (2)</b> 55:13;128:16 <b>50- (1)</b> 197:13 <b>50-percent (1)</b> 128:16 <b>51 (1)</b> 208:13 <b>52 (1)</b> 208:15 <b>54 (1)</b> 12:5 <b>55 (1)</b> 12:5 <b>550 (1)</b> 113:4 <b>555 (1)</b> 118:8 <b>595 (2)</b> 3:5;207:8 <b>596 (2)</b> 3:3;198:1  <b>6</b>  <b>6 (7)</b> 30:10;142:11; 143:10;188:7,10,19; 189:3 <b>6- (1)</b> 138:10 <b>60 (6)</b> 84:2,19;127:12;	128:2,20;132:17 <b>60- (1)</b> 170:1 <b>60-percent (3)</b> 128:21;132:13; 136:23 <b>67504 (1)</b> 205:14 <b>67511 (1)</b> 202:15 <b>69 (1)</b> 5:15 <b>6-lane (1)</b> 37:24  <b>7</b>  <b>7 (4)</b> 12:8;14:6;38:4; 84:4 <b>7:00 (4)</b> 174:17;179:19,24; 180:2 <b>70 (1)</b> 12:5 <b>7-1/2-mile (1)</b> 188:9 <b>75,000 (3)</b> 53:19;54:3;57:14 <b>7500 (1)</b> 54:11 <b>77 (1)</b> 12:7 <b>7-week (1)</b> 138:10  <b>8</b>  <b>8 (3)</b> 120:5;133:18; 138:5 <b>80-ton (1)</b> 197:13 <b>83361 (2)</b> 46:3,11 <b>83364 (1)</b> 45:7 <b>83369 (1)</b> 48:17 <b>83375 (2)</b> 63:17,24  <b>9</b>  <b>9 (1)</b> 24:3 <b>9:00 (1)</b> 208:17 <b>90 (6)</b> 14:15;15:1,7,14; 85:3;166:15 <b>90-day (3)</b> 14:9;16:9,18	<b>90-percent (1)</b> 170:1
---	---	---	--------------------------------