

1 1 TOWNSHIP OF WEST ORANGE 2 DEPARTMENT OF PLANNING AND DEVELOPMENT 3 WEDNESDAY, DECEMBER 10, 2025 4 6:30 P.M. 5 6 RE; PB-24-01 WEST ESSEX HIGHLANDS, INC. 7 8 BOARD MEMBERS: 9 ROBERT BAGOFF, Chairman 10 JERRY GUARINO, Vice Chairman 11 SUSAN McCARTNEY, Mayor 12 LORI KAPFERER 13 WILLIAM B. WILKES 14 KEN ALPER 15 JOHN CARDOZA 16 SUSAN SCARPA, Councilwoman 17 18 WITNESS: 19 SAMUEL N. KLEINBERG, Engineer 20 21 22 23 FISHMAN COURT REPORTING AGENCY 24 89 HEADQUARTERS PLAZA NORTH 25 4 SPEEDWELL AVENUE, SUITE 1440 MORRISTOWN, NEW JERSEY 07960 (973) 285-5331 - FAX - (732) 605-9391	3 1 2 I N D E X O F E X H I B I T S 3 <u>EXHIBIT</u> <u>DESCRIPTION</u> 4 O-38 E-MAIL NOVEMBER 13, 2025 - DECEMBER 9,2025 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
2 1 A P P E A R A N C E S: 2 3 HUTT, SHIMANOWITZ & PLOCKER, ESQS. 4 BY BRYAN D. PLOCKER, ESQ. 5 Bplocker@huttshim.com 6 459 AMBOY AVENUE 7 WOODBIDGE, NEW JERSEY 07095 8 Appearing on behalf of the Applicant 9 10 GACCIONE & POMACO, ESQS. 11 BY DIANA P. McGOVERN, ESQ. 12 ONE BOLAND DRIVE, SUITE 102 13 WEST ORANGE, NEW JERSEY 07952 14 Appearing on behalf of the Board 15 16 BRUCE I. AFRAN, ESQ. 17 10 BREABURN DRIVE 18 PRINCETON, NEW JERSEY 08540 19 Appearing on behalf of the Objector, We Care NJ 20 Corp. 21 22 23 24 25	4 1 CHAIRMAN BAGOFF: The applicant is proposing 2 to develop a 496 unit inclusionary multifamily 3 residential development on a vacant 120-acre property in 4 the northwest corner of the Township of New Jersey. 5 We are in the middle of testimony by Mr. Kleinberg. 6 Mr. Kleinberg, you realize you are still under 7 oath, sir? 8 THE WITNESS: I understand. 9 CHAIRMAN BAGOFF: Good. Thank you. 10 MS. McGOVERN: Mr. Afran, I don't know 11 whether you were done or if we are ready for public 12 questions? 13 MR. AFRAN: No, we still have a little more 14 to do. 15 CHAIRMAN BAGOFF: Mr. Afran. 16 MR. AFRAN: Thank you. 17 Good evening. 18 CHAIRMAN BAGOFF: Good evening. 19 Q. Mr. Kleinberg, good evening. We are continuing. 20 A. Good evening, Mr. Afran. 21 Q. Thank you. 22 If you recall we left off talking about Section 23 8-13 of the Army Manual. You indicated you wanted to 24 identify at least the category description of that part 25 of the manual. Did you have a chance to do any further

5 1 examination? 2 A. I did. The name of the manual is, which is, I 3 think, the question I couldn't recall when we were 4 discussing it, is Rock Foundations. And, and so it's, 5 in reading a little bit further in preparation for the 6 meeting I maintain my opinion that the manual doesn't 7 apply for the particular case that we are discussing 8 here. 9 Q. And you're referring to the section of the manual 10 headed, Rock Foundations, which also includes the 11 Chapter 7 references to a 1.5 safety factor and the 2.0 12 factor in Section 8-13A, which I directed you to and 13 also began that "rock foundation" section? 14 A. It is. I have them in front of me. 15 Q. Great. Thank you. 16 Now, there doesn't seem to be a definition, to my 17 reading in the manual, as to what would be a rock slope 18 versus a soil slope. So in your mind any way is there a 19 definition you're relying on to categorize this one way 20 or the other? 21 A. Well, I think in comparison a rock slope, and I 22 think it's described in the ordinance, it would be a 23 cliff face and you don't have a cliff face here. 24 There's another situation in West Orange that I am aware 25 of where there is a cliff face, might be 40-feet of rock	7 1 with analyzing the strength of the basalt rock and the 2 fractures of the rock, is that correct? 3 A. No, that's not correct. 4 Q. Well, substantial parts of your report deal with 5 that? 6 A. And the reason I did that is because that was 7 the, the substantial part of the debate between the 8 applicants and the opposers engineer. 9 Q. Because they were debating the strengths and 10 merits to the rock slopes, isn't that correct? 11 A. Correct. 12 Q. Now, in your report do you anywhere say this is a 13 soil slope and not a rock slope? 14 A. I am not, I am not sure that I could find that, 15 but I did not make a distinction in the report from soil 16 and rock soil. 17 Q. Thank you very much. 18 Now, in looking at the Army Manual, you don't see 19 a definition of rock slope versus soil slope, do you? 20 A. I don't know that has a specific definition but 21 it's pretty, it would be pretty clear in my mind when I 22 am dealing with rock or soil. 23 Q. Well, your mind, I don't mean to be 24 disrespectfully, doesn't set the standard of caring of 25 professional engineering, but rather the various
6 1 and there was recently a failure in that slope. 2 Q. Well, you're relying on what you think is a 3 definition in the ordinance of a rock slope? 4 A. No, but that was, I was trying to give an example 5 of, description of the difference. We don't -- this 6 slope is soil with some minor protuberances of rock at 7 the top of the slope. 8 Q. Well, underneath all that soil is rock, correct? 9 A. Right. But the actual slope that you see on the 10 surface is, is an earth slope. 11 Q. Well, most places you'll see some level of earth 12 above bedrock, correct? 13 A. In most places, yes. But it's a soil slope 14 because it's, the stability issues indicate that the 15 material controlling the stability is soil and not the 16 rock. 17 Q. You yourself refer repeatedly in your report to 18 the need to be able to evaluate the disturbance of the 19 slope, correct? 20 A. Correct. 21 Q. And you don't categorize that as referring to a 22 soil slope in particular, do you, in your report? 23 A. I don't think I categorize it as soil. The slope 24 as it's shown on the plans. 25 Q. And in fact your report, almost all of it, deals	8 1 treatises and manuals that address these issues. So I'm 2 asking you, were the treatises and manuals that you 3 relied on in your profession is there this distinction 4 between the so-called soil slope and the rock slope, are 5 you able to show me that? 6 A. No, I can't show it to you here and now, and I 7 don't know that, that exists either. 8 Q. Okay. Thank you. 9 Now, I would like to, we're going to return to 10 that but I have some other questions to ask you. 11 I think I recall you saying, and I admit we are 12 on the third time doing this, so if I am repeating, I 13 apologize. If anything you don't recall and you need me 14 to repeat it, please let me know as well. 15 I think I recall you testifying you did a site 16 inspection of some sort, is that correct? 17 A. I did a site visual. 18 Q. Yes. 19 A. I did not do anything that would qualify as a 20 detailed investigation. 21 Q. Okay. I didn't mean a test, I meant you went to 22 observe the site in some way? 23 A. I went to become familiar with conditions, to 24 look at it to see if there's any obvious symptoms of 25 slope instability on the slope which I didn't see. And

9 1 that was the purpose. It could be necessary to write 2 our report to at least visit the site. 3 Q. Well, the issues you write in the report are 4 things you couldn't see on the surface. And both 5 engineers speak of fracturing and internal fracturing, 6 so no matter what you wouldn't see that on the surface, 7 would you? 8 A. Correct. 9 Q. Now, what part of the site did you actually do 10 this visual, I will use the word inspection, for lack of 11 better word, but I understand how you described it? 12 A. Walked along across the ridge in the area of the 13 building. There were representatives of Anderson 14 Consulting firm with us and so I walked across the ridge 15 adjacent to the proposed Building D and about halfway 16 down the slope and looked at the rock outcrops that are 17 at the top of the slope. 18 Q. And you went down the slope part way yourself you 19 said? 20 A. Just 100-feet, maybe. 21 Q. Well, that's a distance. I'm asking, so you went 22 down about 100-feet on the slope? 23 A. On the slope, yeah. 24 Q. Below the ridge, so to speak. 100-feet on the 25 hypothesis?	11 1 A. Correct. 2 Q. And were you in fact told or does your contract 3 say you have to do an "independent" evaluation? 4 A. I'm sorry, could you repeat that. 5 Q. At what time were you told by the board that you 6 had to do and the independent evaluation? 7 A. I didn't receive any specific instructions from 8 the board. 9 Q. Now, do you understand that your -- strike that. 10 Do you have an understanding that your evaluation 11 was to be as an "independent expert?" 12 A. I believe that's the way I performed it. 13 Q. By only consulting with the applicants engineers 14 and not -- 15 MR. PLOCKER: I am going to object. I don't 16 believe he testified he consulted with them. I believe 17 he testified he asked for permission to visit the site 18 and that he was directed to Mr. Anderson because Mr. 19 Anderson is familiar with the walkable egress and 20 ingress of the site. Otherwise Mr. Afran can ask him 21 what he wants, but I don't think that's what Mr. 22 Kleinberg testified to, respectfully. 23 MR. AFRAN: Well, I think walking the site 24 with the applicants engineering staff does constitute 25 consulting with them during the inspection might be a
10 1 A. Right. 2 Q. Now, how did it come about that you were with the 3 Anderson people? 4 A. We called the town engineer and asked if a 5 meeting, if we could get permission to access the site 6 and we were directed to Mr. Anderson to arrange for the 7 visit to the site and he was there with a couple of his 8 associates. 9 Q. I see. And you didn't speak with Mr. Goll in 10 that connection, did you? 11 A. No. 12 Q. You didn't speak -- 13 A. I don't know Mr. Goll and I did not speak -- I do 14 not know who he is. 15 Q. Well, he's the gentleman who wrote the report you 16 were evaluating from Princeton Hydro, isn't he? 17 A. Right. Okay. No, he was not present. 18 Q. And you didn't call him to say, I am going with 19 the Anderson people and would you want to come? 20 A. No, I did not. 21 Q. Why not? 22 A. I didn't, I didn't think of it. 23 Q. You were retained, as Dr. Bagoff said, to produce 24 an independent -- "independent" evaluation between the 25 two sets of engineers reports, isn't that correct?	12 1 reasonable standard. Mr. Plocker just indicated they 2 had a discussion about being directed to various parts 3 of the site. I think the question is valid. 4 MR. PLOCKER: If I need to use the restroom, 5 do I consult over to the restroom? 6 MR. AFRAN: If you're talking to your 7 engineer in the restroom, yes. 8 MR. PLOCKER: I don't understand. 9 MR. AFRAN: I think the engineer here on the 10 stand is quite experienced and can take care of himself, 11 if he feels he can't answer the question. 12 CHAIRMAN BAGOFF: I think he answered the 13 question if had he consulted, he said, no, he didn't. 14 He's the expert. 15 Q. You were doing an independent evaluation as you 16 said, correct? 17 A. Correct. 18 Q. Why did you think it's appropriate in doing an 19 independent evaluation to only have the applicants 20 engineers present and not the objectors engineer? 21 A. I didn't think that broadly. I just wanted to 22 see the site and get -- and then do the technical 23 evaluation. 24 Q. What did the applicants engineer do in connection 25 with your visit when you were there?

13 1 A. At that point they showed, they showed me, I was 2 with one of my colleagues. Showed us the mark outs of 3 the area of the building, the locations of some of the 4 explorations, which were on the surface. They just 5 walked along and I, I didn't feel influenced at all one 6 way or the other. 7 Q. Well, whether you felt influenced or not is one 8 thing, but the facts were you were there with only one 9 side, is that correct? 10 A. That's correct. 11 Q. Do you normally do independent evaluations only 12 in the presence of one team of experts and not those 13 from the other party? 14 A. I'm basically a drawing board engineer. I don't 15 do a lot of these investigations. 16 Q. What do you mean, a drawing board engineer? 17 A. I'm a designer and an analyst. 18 Q. What are you a designer of? 19 A. Foundations, earth slopes, dams, bridge 20 foundations, retaining walls, pipe line installations 21 and I do evaluations of slope stability too. 22 Q. In connection with that type of municipal civic 23 work? 24 A. In connection -- 25 Q. I'll repeat the question. Usually that's public	15 1 MR. AFRAN: Come on. 2 MR. PLOCKER: Look, I don't want to get into 3 it, but clearly he's trying to insinuate that Mr. 4 Kleinberg's evaluation was influenced or not 5 independent. I believe he said it was. Let him ask him 6 again, he needed to have him on-site with someone who 7 knew the site. Mr. Anderson is the consulting engineer 8 to the applicant who knows the site. I was not present, 9 a client representative was not present, he walked the 10 site. So far we haven't heard one thing that was 11 allegedly said or consulted with Mr. Kleinberg. So 12 either there was stuff that was said or there wasn't. 13 He can be asked that. 14 MR. AFRAN: With great respect, repeatedly 15 Mr. Kleinberg has stepped back and walked back in stages 16 in his report when I challenged him on that and that's 17 why I'm asking these questions. 18 MR. PLOCKER: I disagree with the 19 characterization. 20 MR. AFRAN: That's really lovely, we're an 21 adversary system, I'm sure Mr. Plocker would disagree 22 with many things. 23 CHAIRMAN BAGOFF: And the board will it take 24 under advisement from both sides. Move on, please. 25 MR. AFRAN: Thank you.
14 1 works you just described, right? 2 A. For the last 20 years it's been mostly public 3 works. 4 Q. Now, have you ever done an independent evaluation 5 before? 6 A. Well, I -- yes. I feel I have been independent. 7 I don't usually get sued one way or another by anybody. 8 Q. Well, let me ask you this, if you're only in the 9 presence of the experts from one side and not the other 10 and you're having a conversation with those experts as 11 you go along, how do you know you're not being 12 influenced in some way that would be countered if the 13 other side were also present? 14 A. I don't know. I lived a long time, I can tell 15 when I'm being pushed one way or another. I wasn't 16 pushed. 17 Q. Well, I have been doing this 40 years and usually 18 a witness says, well, I lived a long time and says, I 19 don't think I was pushed one any or another. The point 20 is, you didn't give yourself a chance to be exposed to 21 the other side? 22 MR. PLOCKER: Objection. 23 MR. AFRAN: Why? 24 MR. PLOCKER: What he said was he was walked 25 around the site.	16 1 Q. What conversations did you have with the 2 applicants engineer, beyond what you testified to? I'm 3 asking you to think that through. 4 A. I, I have been, I gave a minute -- I gave a 5 summary of an e-mail conversation with Langan 6 Engineering about the issues that were discussed here at 7 the meeting. 8 MR. PLOCKER: Mr. Afran, are you talking 9 about the site at the site visit? 10 Mr. AFRAN: Yeah, I understand your point. 11 MR. PLOCKER: I just want to make sure we 12 have a clear record. 13 MR. AFRAN: I think Mr. Kleinberg may have 14 misunderstood the question. 15 Q. I was referring to the site visit? 16 A. There were really no conversations, just here's 17 the building, here's that. I -- there was no discussion 18 that, wherein we discussed the details of the site. Of 19 the issue. 20 Q. You feel it's proper practice to have both sides 21 present if you are doing an independent inspection? 22 A. I only viewed this -- do I feel -- if I had, you 23 know, thought ahead to this moment, I might have done it 24 differently, but I am not directing anything in this 25 thing. I'm on the staff with the municipal engineer

17 1 company and I went to see the site so I could prepare my 2 report and I contacted, not Mr. Anderson directly, we 3 contacted the Borough engineer and the Borough engineer 4 declined to accompany us. And so that's what -- I don't 5 believe I was compromised by anything that took place on 6 the visit. 7 Q. Well, one of the problems, we only have your word 8 for that and your viewpoint. Had my representative been 9 present I would have an observant noting what went on 10 and what was discussed between all this. 11 MS. McGOVERN: That's his testimony under 12 oath. 13 MR. AFRAN: I don't care whether his 14 testimony is under oath. 15 MS. McGOVERN: His testimony's under oath. 16 MR. AFRAN: The point is, you have no 17 business interfering that way, Ms. McGovern. It is 18 obvious the witness is under oath. 19 CHAIRMAN BAGOFF: Lower your voice. We're 20 trying to -- Mr. Afran, we're are trying to get -- 21 MR. AFRAN: Now, just at moment. 22 CHAIRMAN BAGOFF: We want to hear you. 23 MR. AFRAN: Fine. 24 CHAIRMAN BAGOFF: Please. 25 MR. AFRAN: I will reduce my anger at that	19 1 that term in light of Mr. Kleinberg previously offering 2 testimony. 3 MR. AFRAN: Who's discussion? I'm sorry, I 4 didn't hear your objection. 5 MR. PLOCKER: You referenced his discussion 6 with people at the site during the visit and I believe 7 he didn't say he did not have any discussions. 8 MR. AFRAN: No, he did say he had discussed 9 various places of interest in the applicants engineers 10 viewpoint. 11 MR. PLOCKER: My objection is stated for the 12 record. 13 CHAIRMAN BAGOFF: Thank you. 14 Mr. Afran, go right ahead. 15 MR. AFRAN: Thank you. 16 Q. The point is, Mr. Kleinberg, no one else was 17 present to evaluate your interaction with the applicants 18 engineer, were they? 19 A. Well, there was one staff member with me and two 20 staff members of Mr. Anderson. 21 Q. So aside from your staff member from CME and 22 aside from the applicants engineering staff, there was 23 no one else present to evaluate the nature of the 24 interaction between you and the Anderson engineers, is 25 that correct?
18 1 point. 2 CHAIRMAN BAGOFF: Go right ahead. 3 MR. AFRAN: Board counsel has no right to 4 interfere at all, number one. Until advice is sought 5 from the board. 6 Number two, that interjection was 7 inappropriate. We all know Mr. Kleinberg is under oath. 8 People are under oath all the time and often have their 9 own views of things that have to be challenged on 10 cross-examination. Ms. McGovern's interjection suggests 11 we don't need to challenge a witness because he's under 12 oath, that's not the way it works and it's not the way 13 it works. To have a witness say, I don't feel I was 14 compromised when my representative was not there to 15 observe whether in fact he could have been. This is the 16 point of my questions. 17 Dr. Bagoff, you made a point very vigorously 18 saying this would be an independent evaluation and it 19 wasn't. 20 CHAIRMAN BAGOFF: I understand what you're 21 saying. 22 Mr. Plocker. 23 MR. PLOCKER: Very briefly. I don't want to 24 keep objecting but to the extent that the question keeps 25 asking about your discussions with, I would object to	20 1 A. That's correct. 2 Q. Now, your firm does commercial/residential real 3 estate development, doesn't it? 4 A. I don't know that it does. I work in one 5 department doing mostly structural engineering work. 6 Q. Aren't there people in your firm who are 7 structural engineers with respect to nonpublic works 8 projects? 9 A. Very few. On occasion the company does work on, 10 for private clients, but it's just -- it's a very small 11 percentage of the amount of work the company does. 12 Q. So most of your work is done through 13 municipalities? 14 A. Municipalities, government agencies, sewage 15 authority, water commissions, and counties primarily. 16 Q. How many objectors does your firm ever represent? 17 A. Sorry. 18 Q. How many objectors does your firm ever represent? 19 A. I don't know. 20 Q. Have you ever heard it representing objectors? 21 A. It's not in my, in my realm to hear that kind of 22 a thing. 23 Q. Okay. 24 So you wouldn't know one way or the other? 25 A. Yeah, I never had it discussed across the

21 1 cubicles or anything. 2 Q. Okay. 3 Now, on December 2 you received an e-mail from 4 Mark Seel at Langan, correct? 5 A. Correct. 6 Q. And Mark Seel -- excuse me. Was the engineer who 7 spoke to structural engineering issues on behalf of the 8 applicant, is that correct? 9 A. Yes. 10 Q. Now, what prompted him to send that particular 11 e-mail? 12 Do you need a copy of it? 13 A. Yup. 14 Q. I can show you my copy. 15 A. Yeah, let me see the e-mail. 16 MR. PLOCKER: Is this what was marked -- 17 MR. AFRAN: O-36. 18 MR. PLOCKER: Thank you. 19 Q. I will need it back, but just take a look. 20 CHAIRMAN BAGOFF: Can you identify exactly 21 what that is? 22 MR. AFRAN: It's O-36. 23 CHAIRMAN BAGOFF: Okay. Thank you. 24 A. Yes. 25 Q. Thank you.	23 1 included in the report. So the discussions with Langan 2 began with the discussion of the items that we had 3 requested in order to complete the evaluation. And so 4 there was a series of discussions, I think they're all 5 summarized in the papers I gave last week, and there was 6 a discussion this week and, you know, I have further 7 summary if you need it. 8 Q. Well, we'll get to this weeks in a moment. That 9 was after the last meeting? 10 A. After the last meeting. 11 Q. Okay. Hold that, we'll get to it. 12 Now, O-36, I mean you say it's a summary but 13 really it's a one paragraph statement by you indicating 14 certain points and to which Mr. Seel then responded to 15 several points. Now, were there other e-mails that 16 comprised records of these discussions going back and 17 forth or is the only set, O-36? 18 A. I think that's the chain of e-mails. 19 Q. Yes, it's a set of e-mails from December 1 to 20 December 2 from you to Mark -- from Mark to you. Now my 21 question is different and I don't know why you don't 22 answer it straight. Were there other e-mails between 23 you and the Anderson people memorializing your 24 discussions after your site inspection? 25 A. Besides those pages there were.
22 1 Now, this is an e-mail dated December 2, 2025, 2 from Mr. Seel to yourself as well as Anderson, Mr. 3 Anderson, and as well as to Mr. Hernandez at your 4 company. And Mr. MacNeill, Mr. Rizzo and Alejandra 5 Mazier at your company. Now, do you know what prompted 6 this particular e-mail to be sent to you? 7 A. We were approached by Langan Engineering to 8 discuss our report and so there was a series of voice 9 discussions, which are all summarized in the material I 10 gave you at the last meeting, and it was subsequent 11 discussion over, since the last meeting regarding the 12 technical issues that we had brought up to be addressed. 13 Q. Give me one second, please. 14 And actually Mr. Seel was responding to your 15 e-mail of December 1, which is attached to Exhibit O-36. 16 Now, aside from these two e-mails and your e-mail of 17 December 2 just acknowledging Mr. Seel's reply, were 18 these discussions memorialized in other e-mails or were 19 they phone calls or zoom discussions or personal 20 meetings? 21 A. I'm sorry, if I could drop back. There were a 22 couple of items that we indicated, this is before the 23 end of November, that we had indicated were needed for 24 us to complete our evaluation. And those items regarded 25 the analysis of high groundwater conditions that was not	24 1 Q. Well, where are they? 2 A. I thought, I thought what I had attached was, was 3 information that goes back to November -- to mid 4 November. 5 Q. Do you have those e-mails with you? 6 A. Yes. 7 Q. May I see them? 8 MR. PLOCKER: Can we all see them, please. 9 CHAIRMAN BAGOFF: Hang on. Mr. Afran, can 10 you bring it up here. 11 THE WITNESS: There's another copy you want 12 too? 13 MR. AFRAN: Let me take a look for one 14 second. 15 Q. Mr. Kleinberg, these are in chronological order, 16 right? 17 A. I believe they are. 18 Q. Okay. 19 MR. AFRAN: Okay. They're a set of 20 chronological e-mails going back roughly to November, I 21 think. 22 THE WITNESS: They're after the first 23 meeting. 24 Q. After the first meeting here that you testified 25 at?

25 1 A. Right. 2 Q. Okay. 3 Looks to me like the first e-mail is dated 4 November 13, would that make sense to you? 5 A. Something like that. 6 Q. Okay. 7 MR. AFRAN: Mr. Chairman, here's a copy of 8 what I was just given. 9 MS. McGOVERN: E-mail starting November 13, 10 2025 and they end when? 11 MR. AFRAN: There's an attachment also of a 12 technical nature and the first one appears to be 13 November 13 and they end Tuesday, December 9. 14 MS. McGOVERN: And this is between? 15 Q. Mr. Kleinberg, they're between you on your end 16 and the Anderson people on the other end? 17 A. Right. It was primarily an e-mail conversation 18 between myself and Mark Seel of Langan and Mr. Anderson 19 just copied on it. I didn't have any conversations with 20 Mr. Anderson. 21 MS. McGOVERN: So we're going to mark this 22 as our next exhibit which is O-38. Okay. It's O-38 -- 23 no, it's more than that. It's the first e-mail too, the 24 other ones, it's just piled on top. It's called e-mail 25 from November 13, 2025 to December 9, 2025 between Mr.	27 1 we had made for additional information. So it pretty 2 much follows the conversation between myself and Mr. 3 Seel and over the period since the first meeting that I 4 attended and today and yesterday, I believe it was. 5 And, and in it he had submitted a series -- attached to 6 it he had submitted his calculations addressing the 7 issues that we had raised about infinite slope stability 8 that -- we asked him to do additional calculations above 9 what he had already submitted and so he -- so those 10 calculations he submitted are attached at the back as a 11 series of calculations and a reference that contains the 12 equation that was used to perform the calculations. So 13 it's pretty much every -- details of the discussions I 14 had with him since I was on vacation around the 19th or 15 20th and so I think there's a representative, Alejandra 16 Mazier's names in there, she had been forwarding stuff 17 back and forth to Langan in my absence. 18 Q. Now, you testified, if I am correct, and the 19 board Chair can correct me, on November 10, I believe, 20 is that correct? 21 A. On November, I believe that's when it was, yes. 22 Q. And these e-mails began two days after the 23 testimony, is that correct? On November 13. 24 A. Yes. 25 Q. And after you testified you left here somewhat
26 1 Kleinberg and Mark Seel at Langan. 17 pages. 2 CHAIRMAN BAGOFF: She's going to do that 3 now, Mr. Afran. So we'll have it shortly. 4 MS. McGOVERN: Do you want to wait for that? 5 MR. AFRAN: I think we should, to keep the 6 record without jumping around. 7 CHAIRMAN BAGOFF: We're going to take a 8 five-minute break. 9 (Whereupon, a short recess is taken.) 10 CHAIRMAN BAGOFF: Back on the record. 11 Mr. Afran, you have the floor, sir. 12 We are now introducing O-38 -- document 13 O-38, you want to describe what it is, please, or have 14 the expert describe what it is? 15 Q. Do you have copy in front of you? 16 A. Yes. 17 Q. O-38, right? Why don't you -- I will let you do 18 that and then I will ask you some questions. Would you 19 just describe what this -- you produced it upon my 20 request a few minutes ago, so would you describe for the 21 board what this document is, as generally as you can? 22 A. What the document is, is an e-mail, it's pretty 23 much a continuous e-mail chain beginning when we, after 24 the very first meeting that I attended and was 25 approached by Langan to get more detail on the request	28 1 late in the evening, did you have any phone calls, zoom 2 meetings or other verbal contact with Anderson 3 Engineering, with anybody at Anderson or at Langan after 4 you testified until you received the e-mail of November 5 13? 6 A. I think I had one conversation that included Mr. 7 Anderson and Mr. Seel soon, around the 13th, which was 8 to discuss the issues, you know, to discuss whatever 9 questions they would have. 10 Q. Well, let me go back. 11 Before you got the e-mail from Paul Anderson on 12 the 13th, before that, were there any discussions with 13 you and anyone at Anderson or Langan after the day you 14 testified? 15 A. I am not sure. 16 Q. Do you keep a log of phone meetings, a record of 17 some sort, a diary of some sort at work? 18 A. I usually, if a conversations important, I 19 memorialize it. 20 Q. I assume you don't memorialize by e-mail, but by 21 some note in the file of some sort, is that correct? 22 A. No, I just keep the e-mail record. 23 Q. Well, you e-mail yourself when you're 24 memorializing a phone call you had? 25 A. No, I usually, I e-mail my supervisor at the

29 1 office to describe the conversation. 2 Q. Okay. 3 Now, so you don't recall after the night after 4 you testified to the day you received this e-mail 5 November 13, if there were any conversations, if there 6 were -- there would be an e-mail to your supervisor 7 about them? 8 A. Correct. 9 Q. Who would that supervisor be? 10 A. Nelson -- well, in the municipal it would be Ryan 11 MacNeill. And Nelson Hernandez is my direct department 12 supervisor. 13 Q. Thank you. 14 Now, turning to Exhibit 38, the document toward 15 the back, the first e-mail that's dated November 13, 16 it's from Mr. Anderson and it's addressed to Sam and 17 Mark. Presumably Mark Seel at Langan. 18 A. That's correct. 19 Q. Now, it says, "Are each of you available for a 20 conference call tomorrow? We would like to discuss the 21 three open issues before you go on vacation Sam. I can 22 do between 8:00 and 9:30 and after 2:00 PM." Signed 23 Paul. Then it says, Paul W. Anderson of Anderson 24 Consulting. Now, Mr. Anderson initiated this contact, 25 is that correct?	31 1 Now, there's no e-mail here to your supervisor, 2 as far as I can see? 3 A. No, there is not. That's the one, I can't 4 produce that tonight, but I can produce it if you need 5 it. 6 Q. Well, there's one dated November 14, which you 7 wrote to Mr. Anderson and Mr. Seel and copied Mr. 8 Hernandez and Alejandra Mazier? 9 A. Yes. 10 Q. Ms. Mazier. But that wouldn't be your internal 11 e-mail summarizing the conversation? 12 A. No, I believe there's -- I have to go and check 13 to see that there is. That I did make a memo of the 14 conversation. 15 Q. So there is a record of your conversation with 16 Mr. Anderson and Mr. Seel of November 14, but no one 17 that, no one has it, is that fair to say? 18 A. That's fair to say. 19 Q. Don't you think we should have it? 20 A. I can't produce it tonight. 21 Q. I understand. Why didn't you think that would be 22 relevant for us to know about here? 23 A. It was only general detail. The specifics of the 24 result of the conversation was included in those 25 e-mails.
30 1 A. Correct. 2 Q. Okay. 3 Now, you e-mailed back six minutes later and said 4 -- strike that. Mr. Seel e-mailed back six minutes 5 later and said, "I am available after 2:00 PM." Four 6 minutes later Mr. Anderson e-mailed back, "Okay. We all 7 agree to 2:30." Now, I don't see an e-mail from you 8 agreeing to the conversation, why is that? 9 A. We did have a phone conversation based on that 10 arrangement for an appointment. 11 Q. Yeah, but nothing in here indicates you said you 12 were available for the call. So how did you do the call 13 if you never told anyone you were available for it? 14 A. I made the call or they called me, whichever. We 15 did have a phone conversation. 16 Q. And that would have been the next day, November 17 14? 18 A. I guess so. If it was in the time frame they 19 were talking about. 20 Q. Well, November 13 Mr. Anderson said, "We'll call 21 tomorrow." And Mark said, "Yes." And you got the call 22 or made the call, presumably that was the next day, 23 correct? 24 A. Correct. 25 Q. Okay.	32 1 Q. Okay. I would like to see that document, please. 2 I would like to ask you to produce all the, of the 3 conversations, e-mails in which you memorialized your 4 discussion with the Anderson people and the Langan 5 people to your supervisors. I don't know what dates 6 they are, but we may find out more dates as we go along. 7 Now, when you received the e-mail from Mr. 8 Anderson on November 13, you would agree that you never 9 called Mr. Goll, isn't that correct? 10 A. No, I've never spoken with Mr. Goll. 11 Q. And you didn't e-mail him either to say, I got 12 this request from Mr. Anderson, did you? 13 A. No, I did not. 14 Q. What time, in your, here's an independent analyst 15 working for the public good evaluating two sets of 16 reputable engineers, why are you accepting e-mails from 17 one side, agreeing to conversations with that side and 18 not telling the other side? It doesn't even look like 19 you told the Planning Board. Why did you do that? 20 A. I, I did request guidance from the Planning Board 21 attorney as to whether I should be having those 22 conversations. 23 Q. You spoke with Ms. McGovern about this issue? 24 A. Yes. 25 Q. By phone, by e-mail, text, how did you do that?

33 1 A. By phone. 2 Q. Did you memorialize that discussion in the way 3 you say you normally do? 4 A. No. 5 Q. What did Ms. McGovern say to you? 6 MR. PLOCKER: I am going to object. Board 7 professionals and applicants professionals correspond 8 and talk about certain aspects of an application all the 9 time. Was Mr. Kleinberg ever contacted by Mr. Goll? 10 Did Mr. Afran ever ask Ms. McGovern or Mr. Kleinberg, 11 can Mr. Goll go see the site. I don't know, but it's 12 not unusual for applicants professionals, not attorneys, 13 not the actual member of the applicant, but for 14 professionals to discuss aspects of every application 15 with one another. It's done in informal reviews, some 16 towns do technical review committee meetings, so to 17 insinuate that anything untowardly was going on here is 18 absolutely preposterous. 19 MR. AFRAN: May I continue? 20 CHAIRMAN BAGOFF: Go ahead. 21 Q. You aren't speaking, Mr. Kleinberg, about 22 engineering matters and seeking technical guidance from 23 her, were you? 24 A. No, I was asking if I should be talking to the 25 applicants engineer.	35 1 A. No, I did not. 2 Q. So she didn't know this was going to be ex parte, 3 did she? 4 A. I don't know what ex parte means. 5 Q. One sided without the other side being present. 6 A. Okay. Okay. I didn't, I didn't think of that. 7 We requested the information from the engineer and I was 8 having a discussion to describe what we needed from him. 9 Q. So you proceeded to have the call the next day 10 with the Anderson and Langan people? 11 A. Yes. 12 Q. Okay. 13 Now, I note there's an e-mail from you dated 14 November 14 at 5:22 PM addressed to the same 15 individuals, Mr. Anderson, Mr. Seel, Ms. Mazier, Mr. 16 Hernandez and Mr. MacNeill. I don't think Mr. Rizzo was 17 copied on this. I am not going to read the whole thing 18 but it has a reference, to your understanding, as to 19 what Langan will forward based on the discussion you had 20 earlier that day. Is that correct? 21 A. I believe so. 22 Q. Now, but it wasn't just confirming what they were 23 forwarding that you referenced in that e-mail, was it? 24 A. No, we had technical discussions about what we 25 would be looking for.
34 1 Q. And what made you think you should ask Ms. 2 McGovern for guidance on that? Why did you do that. 3 Why did you think you should ask her for guidance on 4 such a matter? 5 A. Because she is our client. She is a 6 representative of our client and so that's why I called 7 her. 8 Q. Okay. 9 So you're an independent analyst and you spoke to 10 the boards attorney to ask whether it's ethically okay 11 for you to speak to one sides applicant and not the 12 other. Is that what happened? 13 A. No, I just asked if I should speak to the 14 applicants engineers. I didn't say one side or the 15 other. I didn't think about that. 16 Q. What did Ms. McGovern say to you? 17 A. We had requested -- she understood we requested 18 information from them and the only way to get the 19 information we need is to talk to them. That was my 20 understanding. 21 Q. And my question was, what did Ms. McGovern say to 22 you? 23 A. She said it's okay. 24 Q. Did you tell Ms. McGovern there was no plan to 25 involve the objectors engineer?	36 1 Q. But that's not all you said in the e-mail, was 2 it? You didn't just confirm what you were asking for in 3 the November 14 response -- 15th response -- strike 4 that. 5 November 14 response -- strike that. 6 When you wrote back from November 14, the 7 Anderson Langan people, you were not just confirming 8 what they would forward to you and what you needed, were 9 you? 10 A. You want me to -- I will try to find it and you 11 want me to read it? I could read it. 12 Q. Read it to yourself and tell me whether or not -- 13 well, I'll help you out, it would be easier. 14 A. If you read it, it would be a lot easier. 15 Q. Do you have glasses today, by the way? 16 A. I have a better pair. 17 Q. It says here's that "we agree --" well, strike 18 that. 19 In the sentence before it says, "As we discussed 20 we are surprised that the analysis for seepage parallel 21 to the slope would yield a FS," that's Frank/Sam, "on 22 the order of 1.5. We agree that that would be an 23 extreme event which may justify a lower Factor of Safety 24 upon review of relevant standards." Now, you can look 25 at your document I am quoting in the e-mail. So that

37 1 was your number one finding that you were conveying to 2 them after your discussion and you expressed an 3 emotional reaction, "we are surprised that the analysis 4 for seepage parallel to the slope would yield an FS on 5 the order of 1.5." So this was a qualitative discussion 6 you sent on November 14 to the other side after your off 7 the record ex parte phone meeting, isn't that correct? 8 A. That's correct. 9 Q. And at any point between November 13 and the time 10 you sent the November 14 e-mail, did you call Mr. Goll? 11 A. No, I never called Mr. Goll. 12 Q. Did you e-mail Mr. Goll? 13 A. No, I never had any correspondence or 14 conversation with Mr. Goll. 15 Q. Did you e-mail me? 16 A. No. 17 Q. Did you call me? 18 MR. PLOCKER: Did you e-mail him first? Did 19 Mr. Goll e-mail him? Did he contact him? 20 MR. AFRAN: I didn't know they were having 21 private off the record discussions that I need to probe, 22 Mr. Plocker. Perhaps your client should've informed us 23 of the fact this was undergoing. 24 MR. PLOCKER: Mr. Afran -- 25 MR. AFRAN: Perhaps Mr. Plocker's client	39 1 Q. It didn't even occur to you that there's a lawyer 2 on the other side who might want to know about these 3 private discussions with the other sides experts? 4 A. I understand the purpose of my service was to 5 explain to the Planning Board what the two technical 6 arguments were. I pointed out that neither engineer had 7 addressed a heavy rain fall ground fall incident and 8 then I pursued to have a technical discussion with the 9 applicants engineer on, on that particular -- he didn't 10 agree that they needed to be done. We hadn't received 11 the set of drawings, that's why I said I was surprised, 12 because you don't usually get numbers that high in that 13 type of analysis. And, and when I did receive the 14 drawings before the last, the previous meeting, I 15 determined that the reason that the numbers were so high 16 is that he didn't, he didn't raise the water level as 17 high as we thought it should be set. And so we asked 18 him to do additional calculations, which you have 19 attached to that document. 20 Q. That came in a few weeks ago? 21 A. Came in -- 22 Q. Ten days ago? 23 A. Friday. 24 Q. Friday? 25 A. Yeah.
38 1 should've informed us about these ex parte discussions. 2 MR. PLOCKER: Bruce, stop. Nothing that 3 occurred here is unusual or illegal. 4 MR. AFRAN: I -- 5 MR. PLOCKER: You have to let me finish, 6 Bruce. 7 MR. AFRAN: Go right ahead, Bryan. Continue 8 losing your temper. 9 MR. PLOCKER: Everybody thinks this is so 10 funny, but -- 11 MR. AFRAN: I don't think it's funny, 12 believe me. I don't think it's funny. 13 CHAIRMAN BAGOFF: Okay. Gentlemen, the 14 board will listen and the board will decide. 15 MR. PLOCKER: Bruce, you know what, you've 16 been doing job that we've been very pleased with, so I'm 17 just going to let you continue. 18 MR. AFRAN: All right, Bryan. Thank you. 19 MR. PLOCKER: Thank you. 20 CHAIRMAN BAGOFF: Go right ahead. 21 Q. You didn't call me or e-mail me either, did you? 22 A. No, I didn't know you. 23 Q. You had already testified, you were 24 cross-examined by me. 25 A. Yeah, but I didn't even know your name.	40 1 Q. Well actually until just now I didn't know there 2 were additional calculations that came in. 3 A. No, because this was a discussion I thought I was 4 required, because we had requested additional documents 5 and so we were having discussions about the additional 6 documents that we had requested. 7 Q. Now, you said you were surprised. Let me ask you 8 this. FS is Factor of Safety, correct? 9 A. Correct. 10 Q. And you say here you, "were surprised that the 11 analysis for seepage parallel to the slope" we'll go 12 into what that is in a moment, "would yield a Factor of 13 Safety of 1.5." That's what you're say in here? 14 A. Correct. 15 Q. You were surprised the Factor of Safety needed to 16 be that high, meaning up to 1.5? 17 A. No. No. 18 Q. What are you saying? 19 A. I was surprised he would give a result that high. 20 Q. Okay. 21 So you were expressing your own engineering 22 opinion about his result in this e-mail, correct? 23 A. Correct. 24 Q. Okay. 25 Now, what do you mean by, "We agree --" what did

41 1 you mean by this next sentence. "We agree that that 2 would be an extreme event which may justify a lower 3 Factor of Safety upon review of relevant standards." 4 A. Yes, I think, as I testified at the last meeting, 5 there is nothing, there is nothing in the data that has 6 been provided that indicates that this event could 7 actually occur. But for other extreme events, such as a 8 seismic case, and this would be equivalent to a, what's 9 called a sudden drawdown for a dam, those safety factors 10 in the order of 1.1 and 1.2 are usually considered 11 acceptable. 12 Q. What does it mean by saying, when you said, "We 13 agree." What were you agreeing with? 14 A. I'm sorry, we agreed what? 15 Q. It says, "We agree that that would be an extreme 16 event which may justify a lower Factor of Safety." 17 A. Yeah, we both agreed that the incident, that the 18 loading case that I was talking about is an unlikely 19 event. 20 Q. Where did you reach this agreement? 21 A. On the phone conversation. 22 Q. Where my expert was excluded? 23 A. Well, I -- 24 Q. "Yes" or "no"? 25 A. Yes. I didn't intentionally exclude him.	43 1 Q. So when I cross-examined you on some of these 2 very subjects on December 3, I didn't know your opinion 3 was the product of a private discussion with Langan and 4 Anderson, did I? 5 A. That was my opinion. It wasn't Langan's opinion. 6 Q. You said, "We agree with you." 7 A. Oh, I said a safety factor of 1.2 would be 8 adequate and we agreed. 9 Q. So in your independent evaluation of my clients 10 expert report and their clients expert report you 11 reached an agreement, an understanding on a point of 12 substance when one side was not party to the discussion 13 and you allowed me to cross-examine you without 14 disclosing you had those meetings, didn't you? 15 A. I think before the last cross-examination I had 16 given you those papers that summarized the discussion in 17 it. 18 Q. You had given me Exhibit O-36, the December 1 and 19 December 2 e-mails. You didn't give anything else to me 20 on that occasion, did you? 21 A. Okay. I thought the whole chain was attached. 22 Q. No, it was not. 23 A. I'm sorry, that's my mistake. 24 Q. So when I cross-examined you on these very 25 subjects I could not have known that you had reached an
42 1 Q. You Didn't bother to call him, right? 2 You know where Princeton Hydro is, don't you? 3 A. Yes, I do. 4 Q. Okay. 5 So you expressed an agreement on a point of 6 substance in terms of the Factor of Safety with the 7 applicants engineer in a private conversation in which 8 my engineer was not part of it, is that correct? 9 A. That's correct. 10 Q. Thank you. 11 And this conversation occurred prior to your 12 December 3 testimony, isn't that correct? 13 A. Correct. 14 Q. And when I cross examined you on these issues on 15 December 3 I didn't know about these private discussions 16 at that time because you only disclosed it tonight, 17 correct? 18 A. Well, I gave you, I think, the previous 19 conversations that were entered as an exhibit are 20 included in that chain. 21 Q. Exhibit O-36 was a December 1 and December 2 22 e-mail. I am referring to the November 14 e-mail which 23 was not? 24 A. Oh, okay. If you're referring to November 14, 25 no.	44 1 agreement with Langan on this very point, could I? 2 A. You couldn't, no. 3 Q. I note that these e-mails begin November 13, 4 after your November 10 testimony. From the time you did 5 your inspection -- strike that. 6 When was your visual inspection of the site? If 7 you don't remember the exact date, approximately? 8 A. I don't remember the exact date. 9 Q. Do you remember approximately when you went? 10 A. Must have been a couple weeks before the first 11 meeting. It -- I don't know if I have it in my report, 12 whether I recorded the date. We visited the site, the 13 area of the site in question October 2, 2025, along with 14 Paul W. Anderson, PE, the applicants site engineer, to 15 evaluate the conditions along the ridge in relation to 16 the descriptions contained in the applicants and the 17 objectors reports. 18 Q. Now, what you didn't say in that report was that 19 you had these private discussions, did you? But you 20 couldn't have because they occurred afterwards. 21 A. No, I said we were there with Mr. Anderson. 22 Q. What's the date of your report? 23 A. October 28. 24 Q. But you never supplemented your report to 25 identify your later discussions with Anderson and

45 1 Langan, did you? 2 A. No, because -- 3 Q. "Yes" or "no"? 4 A. The subsequent discussion I think took place 5 after that. After the report. 6 Q. Correct. But you never supplemented that report 7 to disclose those discussions, did you? 8 A. No. 9 Q. Okay. 10 Now, before November 13 were there any other 11 e-mail exchanges, texts exchanges, letter exchanges of 12 any sort between yourself and your staff at CME? 13 Yourself and anyone at Anderson and Langan. 14 A. I'm sorry, can you repeat the question again. 15 Q. Certainly. Before November 13, that first e-mail 16 in Exhibit O-38, were there any other written 17 communications of any kind, e-mail, text, letters, memo, 18 etc., between CMEs staff, yourself and anyone at 19 Anderson or Langan? 20 A. We had -- I had no subsequent discussions with 21 anybody at Langan or Anderson before I prepared the -- 22 between the time I visited the site and when I prepared 23 the report. 24 Q. That's not an answer to my question. Before 25 November 13 do you have any other written communications	47 1 A. I am not 100 percent sure. I can't say that 2 necessarily that I did. 3 Q. Will you make that search? 4 A. Yes. 5 Q. Now, prior to the date of your October 2 report, 6 not prior to its preparation but prior to the date of 7 October 2, did you have any other written communications 8 of any kind, again e-mail, text, letters, etc., from 9 yourself and anyone at CME and anyone at Anderson and 10 Langan? 11 A. Maybe just to confirm the appointment. The time 12 of the appointment at the site. We were referred to 13 Anderson by the town engineer -- 14 Q. I understand. 15 A. -- to arrange for a meeting. So I might have. 16 Might have been one of those, are you available? When? 17 Back and forth like that to me. 18 Q. Was that an e-mail, a phone call, how did the 19 engineer speak with you? 20 A. Sorry. 21 Q. How did the engineer communicate with you, by 22 e-mail, phone call, any other kind of writing? 23 A. I think the engineer e-mailed us that we would, 24 that we would -- she referred us to Mr. Anderson. She 25 may have made the appointment, I don't recall exactly.
46 1 of any kind? 2 A. I don't recall. 3 Q. Well, how would we know? 4 A. I will have to check, I guess. Whatever, you 5 know, I'm instructed to do I will do. 6 Q. I can't instruct you, I am saying as 7 cross-examiner I need to see that. So are you willing 8 to produce it? 9 A. If it exists I will produce it. 10 Q. Do you recall, sitting here today, whether 11 between the date of your report on October 2 and 12 November 13, you had any written exchanges of any kind 13 between Anderson and Langan and anyone at CME? 14 A. I don't recall. 15 Q. Now, the same question I am going to ask you 16 concerning phone discussions or zoom discussions. 17 Between the date of your report and the first November 18 13 e-mail in Exhibit O-38, did you have any phone 19 discussions, personal meetings or zoom meetings between 20 yourself and anyone at Langan or did anyone at CME 21 concerning this case? 22 A. I can't recall. 23 Q. Now, if you did have those personal discussions 24 you would have memorialized them to your supervisor, 25 correct?	48 1 Q. When you had that appointment made had you 2 consulted with anyone at the board, such as Ms. 3 McGovern, about doing that meeting with the applicants 4 engineer? 5 A. Not with Ms. McGovern for that meeting. We 6 contacted the town engineer and that was the arrangement 7 that was made for us to get to the site. 8 Q. Perhaps you can help me. Is it December -- well, 9 let me go back. 10 You testified on December 3, correct? 11 A. Yes. 12 Q. Okay. 13 And when we left here on December 3 you also knew 14 you would be coming back here to continue 15 cross-examination? 16 A. Yes. 17 Q. And on the December 5, just two days later, you 18 received a communication from Mr. Seel, again copied to 19 the same general group, attaching summaries for the 20 shallow slope stability cases you requested, assuming 21 full saturation and slope parallel seepage and output 22 files from ACS of their NJDEP-approved groundwater 23 mounding analysis. And you then, there was then a 24 discussion in substance by Mr. Seel of his view of what 25 all this means. Do you recall that e-mail? It's in

49 1 front of you. It's dated December 3 -- I'm sorry. 2 December 5. It's the third page in the packet. 3 A. The third page. 4 Q. Bottom half says, "Sam, as requested on 5 12/3/2025, attached are." 6 A. Okay. Yes. 7 Q. And there's a date of December 5 just above that. 8 Now, at that point you had already disclosed that 9 there was a December 1 and 2nd communication, which I 10 didn't know about, and I asked you to produce that, 11 which you did. So you already knew by the time you got 12 the December 5 e-mail that representing the objector I 13 wanted to see what communication you had with the other 14 sides engineer, correct? 15 A. I assumed that's why I prepared the package 16 tonight. 17 Q. But you didn't offer it until I started asking 18 questions about what communication you had. Why didn't 19 you just offer it right off the board as a summary, as 20 supplemental to your testimony? 21 A. I, I, I was going to begin discussing it and I 22 assumed you would ask, as you did the last time. 23 Q. Why didn't just forward it to -- oh, so you 24 depended on my asking it and if I happened to not 25 realize you had additional communication what was I	51 1 A. No. 2 Q. Had I gotten it on Friday I could have taken care 3 of that, couldn't I? 4 A. It wasn't resolved on Friday. We -- I told them 5 I need additional information. 6 Q. Okay. 7 So on Friday, December -- on Friday, December 5, 8 six hours later -- strike that. 9 Five hours later you wrote to Mr. Seel and you 10 stated, "Our initial comments are as follows." Would 11 you turn to the page, it's the second page in the 12 packet. 13 A. So -- 14 Q. I'll read it. Follow along with me. It says, 15 "Hello, Mark, Our initial comments are as follows." So 16 you now present in items 1, 2, 3, and 4 several comments 17 on the materials he sent to you, isn't that correct? 18 A. That is correct. 19 Q. Five hours after he sent them? 20 A. Yes. We were working on other projects and 21 there's other things to do. 22 Q. Not criticizing five hours, it was remarkably 23 expeditious, don't get me wrong. 24 A. I was hoping to get the information earlier this 25 week to get it resolved.
50 1 supposed to do? 2 A. I, I had no intention of not disclosing anything 3 we're talking about and in my testimony tonight. 4 Q. Why didn't you immediately send that to me and 5 Mr. Goll at that point when you received this 6 communication Friday, December 5? 7 A. I was, I was continuing with a series of 8 conversations in order to get additional submittals from 9 Langan. 10 Q. Well, you got one on December 5, why didn't you 11 immediately forward it to Mr. Goll? You knew how to 12 find Mr. Goll, he's your colleague. I'm certainly not 13 unknown to you either. So why didn't you forward it? 14 A. I didn't realize that I should have. 15 Q. After I'd criticized you for not forwarding 16 December 1 and 2nd e-mails you thought you didn't need 17 to forward this? 18 A. I brought it with me because I thought it would 19 be required. 20 Q. Could you repeat that? 21 A. I brought it with me because I thought it would 22 be required. 23 Q. But I don't have time to study it standing here 24 today, and my engineer doesn't have time to go over it, 25 does he?	52 1 Q. Yes, but again, now you write later that day with 2 your own opinion about what they gave you and you still 3 don't copy Mr. Goll or me, why is that? 4 A. I didn't realize I had to. 5 Q. After I said at the prior meeting you needed to? 6 A. I -- it didn't register with me when this 7 conversation started, certainly if Mr. Goll had called 8 we would have commenced a discussion with him as well. 9 We never received a call. 10 Q. Are you suggesting that profession of engineering 11 involves a degree in mind reading? How is he supposed 12 to know you're having these discussions? 13 A. Well, as far as last Friday you had already seen 14 other discussions. 15 Q. So he's supposed to assume, after I criticized 16 you for not disclosing your earlier discussions, that 17 you were again having ex parte discussions with the 18 other side, is that what you're saying? 19 A. That he was supposed to assume, no. But there 20 were, he could have called about a report. He could 21 have initiated a chain of communication as well. 22 Q. So in other words, he is still supposed somehow 23 be guessing you're having these discussions with the 24 other side and call to say, what other discussions are 25 you having off the record with the applicants engineers,

53 1 Mr. Kleinberg. He's supposed to guess that that's 2 happening, is that what you're saying? 3 A. No. 4 Q. I'm sure you're not because it would be absurd. 5 Now, on Tuesday, December 9, after a restful 6 weekend, Mr. Seel writes back to you in response to your 7 four numbered points that you sent on December 5. And 8 this is sent at 4:52 PM on Tuesday, December 9. 9 Yesterday, after the close of business essentially. And 10 he gives a detailed set of explanations in response to 11 your four points. And those appear, he says, in red 12 italic font below. Now, in the photocopies it's 13 italicized in light gray. Now, I can't really study all 14 this standing here because it's fairly extensive. But 15 you would agree that you received on Tuesday these 16 comments and didn't even think to send them to me that 17 evening so I can have my engineer look at it during the 18 day today? 19 A. Talking about yesterday evening? 20 Q. Yeah. Why didn't you just forward them first 21 thing or last night and I would've immediately sent them 22 to my engineer. You didn't give me that opportunity, 23 why? 24 A. Can I read the paragraph. The second paragraph 25 on that third page?	55 1 Q. Well, it would have been useful for us to at 2 least have known your questions, so when these were 3 finally resolved -- answered anyway -- well, are they 4 resolved or are they just answered? You got them last 5 night, all five. 6 A. They're just answered. They don't agree with the 7 recommendations that I have been making so they were 8 just answered. Did not make, he did not make a -- 9 Q. Well, if you had sent them to us in the morning I 10 could've at least had my engineer look at it and guide 11 me when I cross-examined you. The pattern is -- there 12 is a whole pattern of this, not just one day. 13 Before I move on to another subject, do you 14 understand the materials I am asking you for? The 15 e-mails I referred to that may or may not exist. The 16 e-mails memorializing phone calls on discussions you had 17 where you sent the supervisor. Things of that nature? 18 A. I do. 19 Q. Thank you. 20 I don't know that we can close this today. 21 I want to go back to the November 14 e-mail, 22 which summarizes discussions with the Anderson/Langan 23 people. I am trying to understand the meaning of one 24 phrase. "The analysis with seepage parallel to the 25 slope." What does that refer to? Could you explain it.
54 1 Q. The third page of the document. 2 MS. McGOVERN: Yes. 3 MR. AFRAN: The second paragraph. 4 MS. McGOVERN: If you want to read it you 5 can. 6 A. The submittals -- I'm recommending what they 7 should submit to resolve the issues that we had raised. 8 And I said, "The submittals should be submitted through 9 whatever channel has been established by the board for 10 this purpose. Based on the last meeting, the submittals 11 and response will be requested by the We Care team in 12 order to resolve the slope issues. We will review them 13 as soon as possible when they are received." 14 Q. So you knew then that we wanted the stuff, why 15 not just send it to us? There's no secret here. Why 16 did you depend on some unknown board procedure to 17 somehow get it to us when you could just have sent an 18 e-mail in three seconds? 19 A. I didn't get a response from them until yesterday 20 afternoon. 21 Q. So why do you need the applicants engineer to 22 give you permission to communicate with my engineer when 23 you're doing an independent evaluation? 24 A. I was waiting for him to resolve the technical 25 issues.	56 1 A. That is exactly that, a seepage. It's 2 groundwater moving parallel to the slope. 3 Q. Moving down the slope? 4 A. Down the slope. 5 Q. Okay. 6 So groundwater that comes from the top of the 7 ridge in many instances will travel down the slope? 8 A. Right. And it's being, and in the case of heavy 9 rainfall it's being supplied by rain falling directly on 10 the slope. 11 Q. So we have both runoff, especially in heavy 12 storms, and we have direct infiltration in heavy storms 13 on the slope itself? 14 A. Right. And these were conditions that none of 15 the two engineers had brought up that we asked them to 16 address. 17 Q. Well, that's why it's so very important we be 18 given copies of these because you're raising new issues. 19 That's the point. 20 MR. PLOCKER: I just want to make clear, 21 when you say, the two engineers, who are you referring 22 to? Are you referring to Princeton Hydro and Mr. Seel 23 or Mr. Anderson? 24 THE WITNESS: Yeah. 25 MR. PLOCKER: Thank you.

57 1 MR. AFRAN: I assumed that's what he meant. 2 Q. Now -- 3 A. No. No, I'm sorry. I meant the two engineers, I 4 meant Princeton Hydro and Langan. I'm sorry. 5 MR. PLOCKER: Right. That was my question. 6 That's what I said. Thank you. 7 Q. Now, what type of storms were you concerned about 8 when we talk about this type of seepage parallel to the 9 slope? 10 A. Recently there was a storm in Plainfield where 11 there was nine inches of rain in a few hours, which is a 12 tremendous amount of rain. 13 Q. When did that happen? 14 A. I am not sure. It was about six weeks or two 15 months ago. I am not exactly sure when. 16 Q. Recently. So obviously that's a big storm and 17 occasionally we do get storms with a lot of rain in 18 short periods of time like that. 19 Is there anything else that you defined as 20 seepage in this context as referring to? 21 A. Sorry. 22 Q. Is there anything else that you consider as 23 defining seepage parallel to the slope in this sentence, 24 other than say the nine inch rain? 25 A. It would be -- well, as we pointed out	59 1 MR. AFRAN: Bear in mind Mr. Chairman, my 2 engineers not seen it and I've not yet been able to 3 consult with my engineer. I do want to get some 4 background from Mr. Kleinberg on this point. 5 Q. When you say, extreme event, you mean a storm in 6 the order of a 100-year storm? 7 A. Right. And it would also involve previous 8 rainfall, what they call a antecedent moisture and it 9 would involve the presence of an actual groundwater 10 level which was not apparent on this site. 11 Q. At that time? 12 A. In the variable subsurface data there was no 13 precise determination of where the groundwater -- we 14 described the groundwater situation in our report. 15 Q. Right. Is that referring to the evidence or lack 16 therefore of mottling? 17 A. That's associated with that. 18 Q. And there was a discussion whether they used the 19 right standard in terms of the type of color chart the 20 DEP used with respect to identifying mottling, correct? 21 A. I think Langan indicated they did not see 22 mottling. 23 Q. And he used a different method that you 24 acknowledged was not as rigorous as what Princeton Hydro 25 used, is that correct?
58 1 infiltration seepage from the infiltration system in a 2 heavy rainfall situation. 3 Q. Now, other than what you said, are you able to 4 define a heavy rainfall situation? 5 A. It would, I would say at a minimum a 100-year 6 storm and and/or greater. The recent event was greater 7 than a 100-year storm. 8 Q. Well, 100-year storms occur with some degree of 9 frequency. Frequently, every few months, right? 10 A. No. 11 Q. Well, they're not uncommon, are they? 12 A. There, there is a, the whole definition is a 13 probability of occurrence. It means it has a one 14 percent chance that it will occur. 15 Q. Now, why were you worried about that degree of 16 seepage? 17 A. Sorry. 18 Q. Why is that degree of seepage a matter of 19 concern? 20 A. It's a standard precautionary evaluation that's 21 made for steep slope stability. 22 Q. You say that, "Would be an extreme event which 23 may justify a lower Factor of Safety upon review of 24 relevant standards." Let me ask you about the 25 substance --	60 1 A. Well, in a sample description what they said is 2 they didn't see any mottling. 3 Q. Based upon the color and coding that they 4 applied, isn't that correct? 5 A. No, they said they didn't -- I don't know. They 6 said they did not see mottling. 7 Q. And you don't know really what methodology they 8 used to reach that determination? 9 A. No, I don't. 10 Q. So it is an issue if there's evidence of mottling 11 because that would show prior waterways, correct? 12 A. It's -- that's what the conventional wisdom is. 13 Q. Now, what do you mean by "Upon review of relevant 14 standards." You don't say much in there about what 15 you're referring to? 16 A. Well, the 2908 or the one we're referencing 1902, 17 Core of Engineers Manual. 18 Q. Why don't you cite the standards in there? 19 A. I just, this was an e-mail, you know, I am not, 20 you know, pinning everything down. It's an e-mail. 21 Q. And you felt the lower factor of 1.5 was 22 appropriate because the seepage problem would likely 23 only occur in extreme events? 24 A. I don't know if it would even occur on this site. 25 Q. Well, then why talk about it?

61 1 A. Because it's a precautionary step that we take. 2 Q. And you would take the higher standard -- Factor 3 of Safety standard in some instances, right? 4 A. If there were -- the name of the manual that 5 you're referencing is Rock Foundations and there are no 6 rock foundations on the slope that we're talking about. 7 Q. When you refer to seepage, seepage into what? 8 A. Seepage? 9 Q. Yeah. You say, "We agree" referring to the 10 analysis of seepage parallel to the slope. What are we 11 seeping into? 12 A. That's a worst case analysis. 13 Q. No, no, no. My question is, what are we seeping 14 into in this sentence? 15 A. Into the soil primarily. Mostly -- primarily the 16 soil overlying the rock. 17 Q. And you're saying the worst case analysis where 18 there's a 100-year storm? 19 A. No, I didn't say that was the worst case. 20 Q. Well, you said an extreme event and when I asked 21 you what you're referring to, you referred to a 100-year 22 storm. So what are you talking about? 23 A. Well, that would be an extreme event. 24 Q. Okay. Thank you. 25 You should engineer to take into account	63 1 Are you saying that you would evaluate this for a 2 higher safety factor only if there was an actual 3 catastrophe? 4 A. No. A situation is likely -- situations like 5 this, you know, are not, they're not long lasting. So 6 you, it's considered to by a lower factor of safety for 7 events that are not -- for instance, this references 8 here, last seismic event to use a reduced safety factor 9 of 1.2 or 1.3. 10 Q. I'm not asking about seismic events, I'm talking 11 about this rain problem? 12 A. Well, I'm just saying that's another infrequent 13 and unlikely event. 14 Q. But in the event of heavy rain along the order of 15 a 100-year storm and rain that is preceded by 16 saturation earlier, a collapse could occur on what your 17 calling a soil slope, isn't that correct? 18 A. Correct. 19 Q. And shouldn't we be engineering in advance of 20 that, so that does not happen rather than only looking 21 to see whether it has happened? 22 A. No, no. It's not the rainfall, that's not going 23 to happen. It's the development of the infinite slope 24 seepage condition that's the unusual event. 25 Q. Which develops because of unusual rain events of
62 1 something like a 100 year storm, which is really not 2 that uncommon, isn't that correct? 3 A. Well, I think the -- this is a situation we don't 4 even know can occur. 5 Q. You just said in Plainfield we had the problem? 6 A. Well, you had the rain, yes. 7 Q. So you had rain and the rain is what leads to the 8 fear or risk of the collapse because it's an extreme 9 rain event, isn't that correct? 10 A. Extreme rain events can cause slope movements. 11 Q. And we had one two months ago? 12 A. Right. 13 Q. Right. 14 A. And I'm not aware that there was a slope movement 15 associated with that storm. 16 Q. We don't evaluate the risk only if the crisis 17 occur's, do we? 18 A. No, but it would indicate, it would indicate that 19 the slope is resistant to that type of event. 20 Q. So you need to see a crisis in order to know 21 whether to use the higher safety factor? 22 A. I'm sorry, repeat that. I need to see a 23 crisis -- 24 Q. I'll move on. Well, I guess I won't move on. 25 I'll be fair to you and ask the question again.	64 1 an extreme nature preceded by infiltration? 2 A. But I don't know that. That could occur on this 3 site. When we looked at the slope we didn't see any 4 evidence of that. This slope has been there for ions. 5 Q. Well, Princeton Hydro saw evidence. 6 A. No, they did not mention heavy rainfall 7 conditions in their report. 8 Q. No, but they mentioned evidence of a higher water 9 table that Langan didn't see, isn't that correct? 10 A. Right. But Langan -- 11 Q. So they did mention it, didn't they? 12 CHAIRMAN BAGOFF: Let him finish, Mr. Afran. 13 Let him finish, please. 14 A. But Langan did assume a higher water level which 15 was, which I believe they meant to address that. 16 Q. What does that mean? 17 A. They did a stability calculations with the water 18 level about 3-feet below the surface. 19 Q. But you don't know the methodology they used, 20 right? 21 A. Sorry. 22 Q. You told me you didn't know what methodology they 23 used, isn't that correct? 24 A. I don't understand what that means. 25 Q. Do you know what methodology they used to

65 1 evaluate the high water table question? 2 A. Yes, they -- it's in their report. They used a 3 computer program, Slope W program and they imposed, they 4 imposed what they felt was an arbitrarily high 5 groundwater level and we asked them to provide an even 6 higher one, which they addressed in the submittal last 7 Friday. 8 Q. And despite that -- why did you ask them to do a 9 higher level? 10 A. Because the other, the analysis they did was not 11 the, they did infinite slope modes of failure that did 12 not intercept the groundwater level. 13 Q. So they didn't do the right analysis to begin 14 with when you said they used the higher figure? 15 A. And we reported that and we asked them for an 16 additional analysis. 17 Q. So you were concerned enough about this that you 18 rejected their solution and told them they needed to do 19 another solution, isn't that correct? 20 A. Correct. 21 Q. And despite all of these concerns you still 22 insist on using a lower safety factor? 23 A. Yes, because -- 24 Q. Okay. 25 A. -- I am not certain that the situation warrants a	67 1 this slope can collapse before we build? 2 MR. PLOCKER: Objection. That was not his 3 testimony. 4 MR. AFRAN: It's exactly what he said. 5 MR. PLOCKER: No, it wasn't. We could have 6 it read back. 7 MR. AFRAN: That is exactly what he said. 8 CHAIRMAN BAGOFF: Let him answer the 9 question. 10 MR. AFRAN: Perhaps we could have the court 11 reporter read back the answer since Mr. Plocker doesn't 12 think he said that. 13 CHAIRMAN BAGOFF: Why don't you ask him the 14 question again. 15 Q. Why don't you repeat that statement again? 16 A. The slope -- well, what I said was, any of these 17 conditions could occur whether or not, for the slope 18 we're talking about, whether or not this development is 19 ever built. 20 Q. So why are you referring to it in your evaluation 21 of this project if the condition is one that already 22 exists anyway? 23 A. I didn't say it -- I said, could. I don't know 24 that it exists. 25 Q. If something could happen it's a condition and
66 1 higher one. 2 Q. Well, you can never be certain in these 3 circumstances, can you? 4 A. Well, no, there are all kinds of instances. For 5 instance with dams, with seepage parallel to upstream 6 slope of the dam, safety factor 1.25 is on the Army 7 Corps of Engineers standard. It's the same physical 8 condition that we are talking about now. 9 Q. Well, the dam is not normally placed above Gilda 10 Radner's house, is it? I'm sorry. It's not normally 11 placed upon our neighbors houses, is it? 12 A. No. 13 Q. But don't you evaluate the risk based up non 14 proximity of the potential harm to real human beings and 15 if it has a slope above people's houses that reasonably 16 could collapse in a 100-year storm event proceeded by 17 more infiltration, as you described, shouldn't we be 18 engineering for the higher standard? 19 A. I believe the safety factor of 1.2 is appropriate 20 in this case. 21 May I add something? 22 Q. Of course. 23 A. This is a condition that would occur whether or 24 not this development is ever built. 25 Q. So in other words, there's already a risk that	68 1 risk that exists, isn't that a fair statement? 2 A. I think I said several times here that I am not 3 sure this could even occur on this site. It's a worst 4 case evaluation that we recommended be done. 5 Q. My question is simply, if this risk already 6 exists in slope of this nature before construction and 7 it just doesn't matter, then why are we -- 8 A. I don't know -- I think I said ten times, I don't 9 know that it exists. 10 Q. You just said a moment ago this could happen with 11 the existing slope as it stands, didn't you say that? 12 A. No, I said whether or not the development occur's 13 these are things that could occur. 14 Q. Yes, that's exactly what I asked you. 15 A. Yes, but -- 16 Q. So in other words, if these things could already 17 occur, and it just doesn't matter about Building D, why 18 talk about it in your report so much? And why are you 19 questioning them for further information if it just 20 doesn't matter? 21 A. Because these are basis that you touch when 22 you're completing a slope stability evaluation. And so 23 it was the one thing that was missed by both engineers 24 and we recommended that it be done just to check for 25 that eventuality.

69 1 Q. Which doesn't matter any way? 2 A. Sorry. 3 Q. Which you think doesn't matter any way? 4 A. No, no. What I'm saying is, you know, that it's 5 important to understand that this is not something that 6 doesn't, you know, that doesn't already exist. The 7 slope is not being actually built on. 8 Q. And yet you decided it was a factor that the 9 engineers had to address, is that correct? 10 A. It was a prudent analysis to do. 11 Q. Now, you agree that this slope has numerous rock 12 outcropping, don't you? 13 A. Not sure numerous. There's nine or ten. I think 14 they're numbered, but there's nine or ten of them. 15 Something like that. 16 Q. So you say that this is a soil slope not a rock 17 slope, that's your opinion? 18 A. Correct. 19 Q. Now, where in Section 8-13, for example, of the 20 Army manual -- well, the Army manual, does it define, I 21 asked this earlier, I'm not sure you answered it. Where 22 in the Army manual does it give a definition of soil 23 slopes. Are you aware of any? 24 A. Precise definition, no, I am not. 25 Q. A definition?	71 1 isn't that correct? 2 A. Correct. 3 Q. Now -- and now in 8-13 rather than all of 2908, I 4 don't see any definition for rock slope that means only 5 a slope with no soil. Do you see such a definition? 6 A. Right, but it's a foundation manual. 7 Q. All right. It's the foundation manual dealing 8 with rock foundations, correct? 9 A. Correct. 10 Q. And rock foundation refers not only to the 11 foundation on which you put a building, meaning you're 12 building it on rock, but also the rock structure on a 13 slope that holds up the rest of it, correct? 14 A. Right, but there are no foundations going on this 15 slope. 16 Q. I understand that. But where in Section 2908 do 17 you find the definition of rock slope that means only a 18 slope where there's no soil and only rock? Where do you 19 find such a definition. 20 A. I don't contend that either. 21 Q. So in other words, whether it's a soil slope or a 22 rock slope in your nomenclature depends in some vague 23 way, which no one knows, on how much soil there is, is 24 that what you're saying? 25 A. An analysis was done by two consultants and did
70 1 A. It's a slope with a stability where the stability 2 is controlled by the soil properties not the rock 3 properties. 4 Q. I asked you where in the Army manual there 5 appears a definition of a soil slope. Can you answer 6 that question? 7 A. It would be the 1902 manual is a slope stability 8 manual. So that's, there is a description of what a 9 slope is in there. 10 Q. There's also a description of a rock slope in 11 Section 8-13? 12 A. Well, that's the 2908 manual. 13 Q. Correct. 14 A. The 2908 is rock foundations. 15 Q. Well, in many places you have soil thinly 16 covering rock, isn't that correct? 17 A. Correct. Including here. 18 Q. Including here. Including say the Palisades 19 Ridge, you have thin soil, which is why you get desert 20 like plants such as cacti living there, correct? 21 A. I am not aware of that, but. 22 Q. Okay. 23 But in many cases on rock outcroppings on cliffs, 24 on igneous extrusions that exist we have a thin layer of 25 soil over a very large and substantial base of rock,	72 1 not identify any slope failure mechanisms that involved 2 the rock. The Princeton Hydro reduced the assumed rock 3 strength criteria and they still had a safety factor of 4 1.7, which -- 5 Q. On one of the buildings not Building D? 6 A. No, it's not a building. It's -- these failures 7 services, if you look at the things, the failure 8 services do not go through the building. 9 Q. Where were they using a 1.7 figure? 10 A. It was in Princeton Hydro's report. 11 Q. But you're using 1.5, right? 12 A. Right. 13 Q. And you're saying Langan's using 1.5 is okay, 14 right? 15 A. That's my opinion. 16 Q. So yet there is a difference between the higher 17 standard Princeton uses for this residential apartment 18 complex and what Langan and Anderson used? 19 A. It's not for the residential apartment complex. 20 Q. But that's what we're building, right? 21 A. Sorry. 22 Q. We're building one, right? 23 A. Yeah, but you're not building it on a slope. 24 Q. Well, we're not doing safety standards for the 25 squirrels that live here, we're talking about people who

73 1 will live in the building and live below it, correct? 2 A. The computer analysis did not identify a critical 3 safety. The safety factor probably for any modes of 4 failure involving the building are likely to be greater 5 than 2.0. 6 Q. Than 2.0? 7 A. Yeah. 8 Q. So in other words, you would want to -- 9 A. I don't know that for sure, I am guessing it 10 would likely be. 11 Q. You want to use a 2.0 then because that's the 12 point at which everyone agrees nothings going to happen, 13 right? 14 A. No. 15 Q. So you want a 2.0 -- 16 A. Even 2.0 something could happen. 17 Q. Correct. But the engineers all agree that there 18 is no likely safety factor above 2.0, correct? 19 A. Sorry. 20 Q. The engineers agree in your statement that 21 there's no need to be concerned about a safety factor 22 above 2.0, isn't that correct? That's what you said. 23 A. No -- you're talking about Princeton Hydro and 24 Langan? 25 Q. I'm just repeating what your said. You said the	75 1 structure of the building on top of a slope, which you 2 acknowledge has in fact further excess damage to the 3 slope structure, and the collapse of that rock 4 structure -- 5 A. I don't understand. What structure? 6 Q. The rock structure I'm referring to. 7 A. Yes, the loading is -- this rock structure has 8 been subjected to maybe a thousand feet of, feet of ice 9 on top of it and a glacier traveling across it. 10 Q. Which caused a lot of fractures, isn't that 11 correct? 12 A. Well, yes. 13 Q. Okay. 14 A. But it's experienced far worse than anything that 15 could happen, you know, in this local span of time. 16 Q. And in fact the fracturing on this site continues 17 over time, doesn't it? 18 A. Not necessarily, no. 19 Q. The natural forces that cause the excess 20 fracturing you refer to in your report continue, don't 21 they? 22 A. Well, no. The fracturing is due to cooling -- 200 23 million years ago it was due to cooling and then 24 whatever tectonic forces occurred afterwards. 25 Q. You said last week that the excess fracturing is
74 1 engineers, in plural, all agree there was no need for a 2 safety factor higher than 2.0, isn't that what you just 3 said? 4 A. I don't recall saying that. 5 Q. Okay. 6 Now, if this were a major rock slope, right? 7 Meaning not soil, in your understanding Section 8-13A 8 says, "For major rock slopes where the consequence of 9 failure is severe a minimum required calculated Factor 10 of Safety is 2.0." That's what it says, right? 11 A. Yes. 12 Q. Now, what is the consequence of failure? What 13 does that mean to you as an engineer. 14 A. It could be all kinds of consequences. It could 15 mean the structure is damaged, itself is damaged or -- 16 and/or needs to be repaired. But we're not talking 17 about a structure on this slope. 18 Q. Because you're not building it on the slope? 19 A. The analysis for the slope -- excuse me, if I can 20 explain. The analysis for the slope that Langan 21 produced included the building in the analysis and the 22 critical failure services did not include the building. 23 There were no changes in the safety factors reported 24 with the building or without the building. 25 Q. If you have continued excess fracturing below the	76 1 a factor of gravity working on the rock in the direction 2 of the eastward slope, isn't that what you said? 3 A. I -- 4 Q. "Yes" or "no", didn't you say that? 5 A. No, you're interpreting whatever I said 6 incorrectly. I didn't say it that way. 7 Q. You may not have used the exact form of words but 8 you agree that gravity on rock exposed in a slope face 9 continues to weather and fracture, isn't that correct? 10 A. I didn't -- I don't know that it's going to 11 necessarily fracture again. 12 Q. You were worried about joints opening that could 13 get water that would cause fracturing? 14 A. There may be existing ones that resulted from 15 something that occurred 200 million years ago. 16 Q. Then why bother to grout them? 17 A. So that any water doesn't end up daylighting on 18 the slope. 19 Q. In other words, if it daylights it's because it 20 is spreading the rock more and more? 21 A. No, it's just filling an open void. I don't 22 necessarily say it going to -- you're going to have to 23 move the rock. 24 Q. This is at odds frankly with your report. You 25 don't say these things in your report. You say,

77 1 "There's a danger of destabilization if the joints are 2 open and take in water." Isn't that what say in your 3 report? 4 A. I say in the report, if it fills a joint to a 5 water levels of elevation 590 at the top of the slope 6 and that pressure shows up at elevation 490 down below, 7 that's a lot of pressure that would cause the soil to 8 erode. 9 Q. And the soil erosion, the rock is experiencing 10 during high hydrostatic pressure, the rock could also 11 break apart, can't it? 12 A. It could, but probably, I don't know at that 13 point. You know, it's different rock down below. 14 Q. I would like to ask you something. I want to go 15 back and clarify something from last week. You spoke 16 about the core that was taken, if you recall, and you 17 couldn't identify certain information from the core. 18 Now, I'm turning to Page 14 of your report and what you 19 said was, that you were unable to identify the section 20 of core from which the samples were taken. I would like 21 you to explain what you mean by, the section of core. 22 What does that refer to? 23 A. There are photographs in the Langan report, they 24 photographed every -- I mean, the core box samples that 25 they took. And they photographed the one for the	79 1 Q. And you couldn't identify it, meaning that you 2 couldn't confirm their findings, isn't that correct? 3 A. No, they have a report by a reputable laboratory 4 and I believe it. 5 Q. So you believe them -- 6 A. And the rock is, the rock that they sample is a 7 very low strength. Nobody was trying to manufacture 8 something that was better than it is. 9 Q. Okay. So it was very low strength to begin with. 10 Why did you want to see which part of the core sample it 11 came from? 12 A. I was curious. 13 Q. I know. Why were you curious? Why does it 14 matter to you. 15 A. Because I look at rock a lot and I just wanted to 16 see. It didn't leap out at me but I did not intend to 17 mean anything nefarious in the report or anything like 18 that, you know, anything suspicious about it or anything 19 like that. It was just a statement. I could not pick 20 the core length and had selected the core samples. But 21 I had no -- sometimes we write too much and there's no 22 reason that I had particularly -- a particular concern, 23 but I wrote about it. 24 Q. Well, it's a little hard to tell from your report 25 which parts you think don't matter and which parts do.
78 1 location, the location that they took the test from. 2 They took the test, according to the report, from a 3 section of core that was near the top but I couldn't see 4 for sure whether that, what was in the photo was what 5 ended up in the text. 6 Q. Now, why does it matter whether it was from the 7 top or further down? 8 A. I wanted to see what -- the material came up, as 9 was recorded by both engineers, that the material came 10 up with very low strength. I wanted to take a look at 11 it to see if it looked unusual and the core didn't look 12 unusual. 13 Q. So what's the point of saying, "We were unable to 14 identify where it came from." 15 A. Well, I couldn't see something that looked weak, 16 is what I meant. 17 Q. Well, it doesn't say that. You say, "We were 18 unable to identify the section of core from which the 19 samples were taken." That doesn't say you couldn't see 20 anything that was weak. That says, you couldn't -- 21 A. I couldn't. 22 Q. Hang on. That says, you couldn't confirm what 23 Langan was saying, doesn't it? 24 A. I, I couldn't. I wanted to see the core section 25 that came out and I couldn't identify it.	80 1 Because every time I ask you something that sounds 2 negative you say, well, that part didn't matter. You 3 see the problem there? 4 A. No. 5 Q. Oh, okay. 6 Now, you say on Page 14, I touched on this last 7 week also, that a "downward dip to the east is not in 8 our experience a favorable inclination." And then you 9 said, "favorable inclination would be downward toward 10 the west." What do you mean when you say, favorable, 11 why is that relevant? 12 A. Because the, the -- because in order to fail the 13 rock would have to push all the rock out from behind it. 14 If there's no rock in front of it to the east then it's 15 more likely to move -- it's possible to move in that 16 direction. 17 Q. You just said it is more likely, then you said 18 it's possible. Which is it, is it more likely or is it 19 more possible? 20 A. It's possible. 21 Q. Thank you. 22 Now, basically what you're saying is if my arm on 23 an angle here is sloped and my arm here is sort of a 24 plateau near the ridge -- 25 A. Right.

81 1 Q. What you're saying is where my arm is gravity 2 works on the rock in this downward direction to the 3 east? 4 A. Correct. 5 Q. Because there's nothing here on the eastern side 6 holding back the rock, correct? 7 A. There is. There's friction. 8 Q. Correct. But gravities working against friction 9 and pulling it? 10 A. Yeah, but there's -- but Langan assumed a 11 representative friction angle on the joints of 35 12 degrees, which is two times 17 degrees, which would 13 provide enough resistance to keep the block from 14 sliding. 15 Q. And if you didn't have enough resistance the 16 block would slide, correct? 17 A. Correct. 18 Q. Thank you. 19 So we're building this apartment on a structure 20 that if this calculation is wrong means this building 21 and rock could slide, correct? 22 A. Right. 23 Q. Thank you. 24 A. Well, sorry. Can I strike that? 25 Q. No, you can't strike an admission. Only we can	83 1 was, I don't remember if Princeton Hydro addressed it. 2 Q. Well, you said it wasn't favorable, that means 3 there's a problem potentially? 4 A. The direction is not favorable, but they implied 5 that there is, there is adequate frictional resistance 6 to keep it from moving. 7 Q. They implied it? 8 A. They said. 9 Q. One moment they're implying, one moment they're 10 saying. What is it, definitively or is it an inference 11 that's just wrong, which is the case? 12 A. They reported in their technical engineering 13 report that a friction angle of 35 degrees can be 14 assigned to the rock joints. 15 Q. Do they explain why and what the basis of that 16 was? 17 A. No, they did not go into a detailed explanation 18 of it. 19 Q. So you can't really evaluate it because they 20 didn't give you enough to do that, can you? 21 A. That was their judgement and they spent time 22 looking at it and there was, there's, there are criteria 23 related to the roughness of the joints and what kind of 24 soil filling, if any, there is in the joints and 25 whatever they looked at they based on the fact that
82 1 strike, Mr. Plocker and I and Ms. McGovern, but you can 2 not strike. Thank you very much. 3 Now -- 4 MR. PLOCKER: Would he like to explain what 5 he was going to say. We're all about a fair and full 6 record, Bruce. So I think he should be allowed to say 7 what he was going to say. 8 Q. You believe the building could slide or the rock 9 could slide if the friction elements and analysis here 10 are wrong? 11 A. No. 12 Q. You just said they could? 13 A. I said the rock could slide, I didn't say the 14 building could slide. 15 Q. I see. So the rock under the building could 16 slide but the building somehow is going to stay 17 straight, is that what you're testifying to? 18 A. No, there is not enough force to move it. The 19 building is, it's ten to 40 feet beyond the ridge line 20 and the ridge line is another 20 or 30 feet of rock 21 before the slope ends. 22 Q. So why are you referencing this concern in your 23 report, again, if you say now it doesn't matter? 24 A. I reference it as a, as a factor that was 25 observed. It was observed in the Langan report and it	84 1 they're experienced engineers, they said that 35 degrees 2 can be assumed for the rock. 3 Q. And based on their assumptions, without any 4 documentation or support that you can see as an 5 independent evaluator, you're satisfied that must be 6 right and this friction inclination is so sufficient 7 that there's no danger of rock slide, is that your 8 testimony? 9 A. Is that my testimony? 10 Q. Yeah. Is that what you're saying. 11 A. My testimony is that they said it was 35 degrees 12 and you have to ask them. 13 Q. I'm asking you as the independent evaluator. 14 A. It is in my experience a representative value of 15 friction coefficient for rock on rock joints. 16 Q. I couldn't hear you, I'm sorry. Go ahead, sorry. 17 Couldn't hear you. 18 A. It's a representative friction coefficient for 19 rock on rock joints. 20 Q. What do you mean, it's representative? Is there 21 some manual that says rock wall has a 35 degree angle? 22 A. There are manuals that you use as references that 23 based on a description, that's what engineers do all the 24 time. 25 Q. No, I'm not asking if there are manuals that say

85 1 a 35 percent inclination is safe. I'm asking, how do 2 you know that calculation is correct? 3 A. It's based -- it's consistent with references 4 that talk about rock on rock joints. 5 Q. Well, that depends on the nature of the rock 6 formation in a given instance. The nature of cracks, 7 the nature of fractures and the structure that it 8 comprises in order to determine inclination, doesn't it? 9 A. Sorry, inclination is actually measured. We're 10 talking about friction coefficient. 11 Q. Friction coefficient, sorry. 12 A. One is easy to determine the other is not. 13 Q. Now, you don't have any data about -- you just 14 said you have no independent information about one 15 aspect of this, namely the friction coefficient, isn't 16 that correct? 17 A. Correct, but it's consistent with published data. 18 Q. Did you see any data that they referred to or 19 relied on in reaching this coefficient? 20 A. It was their recommendation as professional 21 engineers. 22 Q. And my -- other than their recommendation, which 23 is obviously potentially self interested since they 24 represent a client seeking to introduce this project, 25 did you see any information to validate that	87 1 reference. 2 Q. And they did not cite any data, photographs, 3 measurements or anything else from their inspection, did 4 they? 5 A. Only that they said that they had excavated 6 alongside the outcrops, they did test pits, which they 7 logged, and they described what they saw in the logs and 8 this was their opinion as experienced engineers. I 9 believe Mr. Seel is a geologist. 10 Q. Don't you think that if there was a dispute about 11 the structural integrity of the site to the point where 12 the board wanted it's so called independent evaluation, 13 there should be independent tests? 14 A. Our main scope -- 15 Q. I didn't ask you whether you should have done it, 16 I'm just asking -- 17 A. Well, it sounded like you were asking me. 18 Q. No, I didn't. 19 A. That's why I answered that. 20 Q. I didn't ask you whether you should have done it. 21 I know you what your scope was, you said that. I'm 22 asking you as an engineer retained to do an independent 23 evaluation, don't you feel where you have two sets of 24 engineers who differ on major issues concerning the 25 safety of this project on this ridge, that independent
86 1 recommendation? 2 A. Only based on my familiarity with design manuals 3 that that's a representative friction angle for rock on 4 rock contact. 5 Q. But there are instances when there are other 6 coefficients that will arise, aren't there? 7 A. There are instances, yes. It was -- but they 8 looked at the drawings and they said we are applying a 9 representative value of 35 degrees and that's within the 10 handbook values that are referenced. 11 Q. They looked at the joints from the surface, 12 correct? 13 A. They looked at -- yes. They didn't bore into the 14 -- well, they did bore into the rock, but. 15 Q. Let me ask you, other than their recommendation, 16 do you have any information on which you can 17 independently evaluate their conclusion of this 18 coefficient? 19 A. It's consistent with design manual 20 recommendations in design. That's the way we work. 21 Q. But you have no information as to their 22 measurements, their data, their -- any photographs or 23 anything else in which they relied to reach this 24 conclusion, do you? 25 A. Do I know where -- what, they did not cite a	88 1 evaluation and testing should have been done to decide 2 on these issues, such as the coefficient? 3 A. No, I don't think the outcrops are significant 4 enough to justify that. 5 Q. You're not a geologist, are you? 6 A. No. Geotechnical engineer. 7 Q. Do you have any photographs of the outcrops? 8 A. They're included in the Langan reports. 9 Q. I don't see any analysis in your report about the 10 outcrops, I don't see that here? 11 A. Well, we mentioned what the joints, we mentioned 12 that it was, we looked at it and we looked at their 13 description and it seemed consistent. 14 Q. Consistent with? 15 A. Well, we looked at, you know, the pieces that 16 were exposed and it looked consistent with what they 17 were describing. 18 Q. And are you saying that those conditions will be 19 consistent throughout this rock structure? 20 A. Of course. As we already discussed, I can't see 21 what's buried. 22 Q. And so other than the tests they have done, you 23 have no knowledge as to the remainder of the structure 24 in terms of safety, do you? 25 A. The engineers made assessments that are in the

89 1 standards. There's this geologic strength argument and 2 it goes on in the rebuttal reports between Langan and 3 Princeton Hydro. They -- and Princeton Hydro 4 established a very conservative value of GSI of 20. 5 They ran stability calculations which came up with a 6 safety factor of 1.7 which -- 7 Q. Is above 1.5? 8 A. And then it says -- I'm sorry. 9 Q. That's above 1.5, correct? 10 A. Correct. 11 Q. So their calculation is 1.7? 12 A. Right. 13 Q. Which is more than the 1.5 you're accepting from 14 Langan, but you don't see anything wrong with Princeton 15 Hydro's calculations either, did you? 16 A. No. 17 Q. Okay. 18 A. The question -- 19 Q. You have a dispute between two engineers? 20 A. Can I answer or no? 21 Q. What. 22 A. The other question between -- the analysis 23 between the two engineers is one sets the bar higher 24 than the another. 25 Q. And you see nothing wrong with the analysis	91 1 Q. Can you find anything wrong with Princeton 2 Hydro's analysis? 3 A. Nothing wrong with it. 4 Q. Thank you. 5 A. Other than I have a different opinion on the 6 required safety factor. 7 Q. Correct. But other than that you have nothing -- 8 you see nothing wrong with their analysis that led to 9 1.7? 10 A. Right. 11 Q. Okay. Thank you. 12 MR. AFRAN: Just need a moment. Would this 13 be a good time to take a break? 14 CHAIRMAN BAGOFF: We'll take a ten-minute 15 break. 16 (Whereupon, a short recess is taken.) 17 CHAIRMAN BAGOFF: Back on the record. 18 Mr. Afran. 19 Q. I'm sorry for the delay, we had some other issues 20 as well as the, Mr. Plocker and I, review. 21 That concludes for now our cross-examination of 22 Mr. Kleinberg, subject to his supplying the materials we 23 discussed and I would appreciate if some time in the 24 next week, if possible, that could be done. We still 25 have a few weeks before the next likely meeting and that
90 1 Princeton Hydro did, did you? 2 A. No. Nothing. 3 Q. Okay. 4 So you don't think when you have two sets of 5 engineers and you could find nothing wrong with either 6 analysis, you're to err on the conservative side? 7 A. And when you do, you get a safety factor of 1.7. 8 Q. That's -- whose conservative analysis is that? 9 A. Princeton Hydro. 10 Q. Right. And that's above 1.5? 11 A. That's better than 1.5. 12 Q. The safety factor of 2.0 is what they 13 recommended? 14 A. Well, they do, but I don't agree with that. 15 Q. But you said there is nothing erroneous about the 16 calculation of 1.7, isn't that correct? 17 A. I said that. 18 Q. So therefore if you have two engineers who have 19 two sets of reports and you can find nothing wrong with 20 either one of them, and yet you're accepting the lower 21 safety value rather than the higher, is that your 22 testimony? 23 A. My testimony is that 1.5 is an acceptable slope 24 stability factor for, for a slope that's not being 25 developed.	92 1 will give us time to review it as we discussed outside 2 with Mr. Plocker, Ms. McGovern and the Chair. We will 3 review those materials and see if we have a need for 4 further cross-examination or if Princeton Hydro needs to 5 come back based on those materials. So at this point 6 we'll stop our examination of Mr. Kleinberg for now 7 subject to what we just discussed. 8 CHAIRMAN BAGOFF: Thank you, sir. Okay. 9 So I ask any members of the board if they have 10 any questions for Mr. Kleinberg? 11 MAYOR McCARTNEY: No, sir. 12 CHAIRMAN BAGOFF: Ms. Kapferer? 13 MS. KAPFERER: No questions. 14 CHAIRMAN BAGOFF: Vice Chairman Guarino? 15 VICE CHAIRMAN GUARINO: No questions, sir. 16 CHAIRMAN BAGOFF: Mr. Wilkes? 17 MR. WILKES: No questions. 18 CHAIRMAN BAGOFF: Mr. Alper? 19 MR. ALPER: No questions. 20 CHAIRMAN BAGOFF: Mr. Cardoza? 21 MR. CARDOZA: No questions. 22 CHAIRMAN BAGOFF: Council Person Scarpa? 23 COUNCILWOMAN SCARPA: No questions. 24 CHAIRMAN BAGOFF: Malvica? 25 MS. APTE: No questions.

93 1 CHAIRMAN BAGOFF: Mr. Rizzo? 2 MR. RIZZO: No questions. 3 CHAIRMAN BAGOFF: Do any of the members of 4 the public have any questions of Mr. Kleinberg on his 5 testimony? Please come up and get identified. Any 6 questions from members of the public? Questions for Mr. 7 Kleinberg. Come up and -- 8 THE PUBLIC: Gilda Paul, Howell Drive. 9 So thank you for your testimony and I 10 apologize because I wasn't here for all of your 11 testimony last week, but I left assured by your 12 testimony and now I'm am totally confused. I left 13 reassured by your testimony last week and now I am 14 totally confused. My sense of your testimony last week 15 was that there was zero chance of a landslide, a 16 mudslide or flooding with the building, is that correct? 17 THE WITNESS: Zero chance? We don't usually 18 deal in zero chances. 19 THE PUBLIC: So what would you put the 20 chances at, what percentage would you put it at? 21 THE WITNESS: I'm sorry, where did you say 22 you live again? 23 THE PUBLIC: Howell Drive. 24 THE WITNESS: Howell Drive. That's Lot 13 25 and 15?	95 1 THE WITNESS: Sure. 2 THE PUBLIC: So the fact that, I don't know, 3 6,000 trees or something would be removed, does that 4 affect the calculations at all? 5 THE WITNESS: No, because, and the reason I 6 say that is because the slope we're talking about is 7 going to be maintained wooded, as far as I understand. 8 THE PUBLIC: Okay. So -- all right. So the 9 fact that the ground above won't be wooded and be 10 absorbing water, will still not affect that, is that 11 correct? 12 THE WITNESS: I don't -- in my opinion, it 13 won't affect it. 14 THE PUBLIC: Okay. Thank you. 15 CHAIRMAN BAGOFF: Thank you. 16 Go right head, sir. 17 THE PUBLIC: Hello. Bill Slazak. I offer a 18 procedural question. I don't know if I can ask, first I 19 have a statement that's about five minutes. 20 CHAIRMAN BAGOFF: Not tonight. 21 THE PUBLIC: This is just questions, there 22 would be another opportunity? 23 CHAIRMAN BAGOFF: Yes, sir. 24 THE PUBLIC: Bill Slazak, Marie Terrace. I 25 am a retired engineer with the Army Corps of Engineers.
94 1 THE PUBLIC: I'm actually 61. I'm right 2 across from the building. What percentage would you 3 give to the chance of some, you know, of some kind of 4 mudslide, landslide, flooding, what number would you 5 give? 6 THE WITNESS: That's a really tough question. 7 THE PUBLIC: What range would you give? Can 8 you give me a range. If it's not zero, is it between 9 zero and ten, between zero and 20? I mean, what -- 10 THE WITNESS: I don't think I can answer that 11 question. It's what -- all I can say is that the 12 calculations that were done indicate that it's not a 13 likely event. 14 THE PUBLIC: What does, not likely mean? Is 15 that 49 percent, is that, I mean because I left with the 16 impression it was zero. So, you know, I am just trying 17 to understand what it would be. 18 THE WITNESS: No, I, I am not trying to 19 evade the question. I can't put a number on it like 20 that. What it shows is that for the slope as it stands, 21 whether up to whatever you do until now, it's computed 22 to be stable and so it would be -- I, I can't answer, 23 really put an answer to that question. 24 THE PUBLIC: Can I ask you one more 25 question.	96 1 I retired in 2013 and worked for a private engineering 2 firm for ten years after that. So I have done a 3 detailed analysis of the data that I saw and I'm not 4 sure whether I've seen it all but what, you know, so I 5 looked at the data that was provided on November 24, I 6 believe, and then I also saw a map that was submitted on 7 December 1, but I didn't seeing else. So I have a 8 number of questions. One of them pertains to the Factor 9 of Safety. My, you know, I understand that we're 10 talking about a Corps of Engineering standard of 1.5 as 11 being, you know, it's really a baseline, a minimum 12 standard, and it's, and I'm going go preface it by 13 saying, I'm not a geotechnical engineer, but I am an 14 engineer, you know, familiar with the principal and 15 practices. And so what I was able to find in the 16 literature is that, that an experienced geotechnical 17 engineer would really do a risk face analysis looking at 18 more than just, you know, whether it's 1.5 or not. And, 19 you know, very quickly, you know, given the fact that 20 the factor of safety was exactly 1.5 on two of the four 21 transects that we looked at, you know, I would think the 22 board would be a little bit reticent to approve a 23 project based on data that appears right now. 24 CHAIRMAN BAGOFF: Sir, ask the question of 25 the expert, please.

97 1 THE PUBLIC: Sorry. 2 CHAIRMAN BAGOFF: Ask the question of the 3 expert, please. 4 THE PUBLIC: Okay. 5 So the information, you know, I thought your 6 report was very good, I thought it was comprehensive. 7 What I was wondering was, you had, one of the 8 recommendations you had asked for the, you know, for the 9 analysis under heavy rainfall conditions, but you also 10 asked about mounding and suggested mitigated measures 11 for the impoundment basin, did you receive that? 12 THE WITNESS: What I was recommending is 13 that the design engineer review mounding under a heavy 14 rain. 15 THE PUBLIC: Right. 16 THE WITNESS: The mounding analysis, I don't 17 do that. I have never done one. 18 THE PUBLIC: Right. 19 THE WITNESS: So I am not that familiar with 20 what goes into it. But it predicts the extent of water 21 under a certain rainfall event. 22 THE PUBLIC: Right. 23 THE WITNESS: And recommended that the 24 design engineer for the system evaluate that to 25 determine if it could, if the extent of the mounding	99 1 So just a couple of thoughts for the board to consider. 2 Thank you very much. 3 CHAIRMAN BAGOFF: Thank you, sir. 4 THE PUBLIC: Rachel Klein, Howell Drive. My 5 question is, are there any like recommendations or 6 requirements or some sort of like maybe catchment area 7 just in case there is a debris slide or just debris 8 being piled up as the they're digging out the rocks and 9 lands or if the rocks do loosen, is there any 10 recommendation to somehow create a buffer between some 11 of the homes that are? There are quite a few homes that 12 are below this project and as has happened before, you 13 know, gravity takes stuff down, even if it appears to be 14 far away it will still hit these homes or, you know, 15 damage these homes. So my question is, is there 16 anything, a buffer zone, required or recommended to 17 catch any debris? 18 THE WITNESS: I think Mr. Afran referred to 19 that the last meeting. Right now it's not a rockfall 20 situation. It wouldn't, it wouldn't occur that way. I 21 don't think it will occur. 22 THE PUBLIC: Even just rockfall, like a pile 23 of mud or dirt that's been removed from the ground, they 24 go home for the night, a rainstorm comes, this has 25 happened. That, you've referred to it actually, an
98 1 could go back over the slope and introduce water onto 2 the slope. 3 THE PUBLIC: Right. But that hasn't been 4 done yet? 5 THE WITNESS: It hasn't been done. The 6 response from Langan were basically that they -- it's 7 their opinion that the water level that they have 8 assumed for their, for their high groundwater assumption 9 is higher than the mounding would occur and so there is 10 no possibility for the water to go over to exceed that. 11 But what I said, I think in the last -- that they should 12 submit their analysis. I mean their evaluation formally 13 to the board and so that was our last recommendation to 14 them. 15 THE PUBLIC: Just one final question, if I 16 could ask him. 17 CHAIRMAN BAGOFF: Sure. Go ahead, sir. 18 THE PUBLIC: Based on the literature that I 19 reviewed, not only are trees important on the slope 20 itself, but also adjacent, you know, on the, even the 21 flat part because the roots are so interconnected, so is 22 that something that you think should be considered? And 23 also climate changes. So those are a number of factors 24 that I think might suggest that a, you know, a factor of 25 safety a 1.51 might be appropriate as opposed to 1.5.	100 1 event that happened once before on this mountain. This 2 happened in 1998. Debris from the building of The 3 Grand, you know, they left, the storm came, the debris 4 fell and damaged the homes. So I'm asking as an 5 engineer is there any requirement to protect the homes? 6 It's a lot of homes as the mountain slopes down, to 7 protect these homes from any debris, not rock. Any 8 debris fall? 9 THE WITNESS: The lower -- you live, I'm 10 sorry, I'm not familiar with, you are in the, on the 11 streets just below the -- 12 THE PUBLIC: That's right below, yeah. 13 THE WITNESS: Right below. 14 THE PUBLIC: But so are many other homes -- 15 THE WITNESS: Right. 16 THE PUBLIC: -- as the mountain continues. 17 THE WITNESS: The slope flattens out, so -- 18 to something in the neighborhood of ten degrees in that 19 area. 20 THE PUBLIC: I think you're referring lower 21 down to where there's a sewer line. 22 THE WITNESS: Below. 23 THE PUBLIC: I'm where, like you'd be 24 walking and you could like touch the soil with your 25 mouth as you're walking up it's so steep.

101 1 THE WITNESS: And some of the lots are 2 benched into the slope. 3 THE PUBLIC: I'm literally like, I'm 4 retaining wall city. 5 THE PUBLIC: You have retaining walls on 6 your -- 7 THE PUBLIC: Three. 8 THE WITNESS: Three? 9 THE PUBLIC: Yeah. 10 THE WITNESS: I mean, I, the lower slope is 11 like a 10 to 15 degree angle. I don't anticipate that 12 would occur. 13 THE PUBLIC: So there's no recommendation 14 then to create any kind of buffer between us and the 15 project? 16 THE WITNESS: I don't have one. 17 THE PUBLIC: Okay. Thank you. 18 THE WITNESS: Sorry. 19 THE PUBLIC: Hi. My name is Victor Misarti. 20 I live on Wayfair Drive, which is at the bottom of the 21 hill to the east. And it's, I am very concerned too. I 22 have a question, if maybe you could give some more data, 23 Bruce was asking for more data. Maybe one of them, 24 maybe is it possible you can give a better, more 25 accurate idea of the angles of the slope. Because for	103 1 testing per the recommendations? 2 THE WITNESS: That I don't, I mean, I don't 3 know exactly what the process is, and so I understand 4 that if requirements are set they have to be resolved 5 and that there's a formal process for that, but that's 6 all I understand. 7 THE PUBLIC: I have one last question. So 8 the water table, I think it was you or maybe some prior 9 engineers testimony, was saying that the water table in 10 the more wet time of the year might interfere with the 11 detention basins, was that you? 12 THE WITNESS: No, that's another issue. 13 That's the best management practice because -- can you 14 help me out with this. It's the, that was the DEP 15 requirement for ground water recharge infiltration. 16 THE PUBLIC: Right. Like the basins but the 17 water tables already that high. 18 THE WITNESS: Well, the recharge basin to 19 work properly has to be at least 2-feet, this is my 20 understanding, I'm not an expert on this, has to be at 21 least 2-feet above the local seasonal high water 22 groundwater level and so that evaluation that's 23 referring to the stuff to the west. 24 THE PUBLIC: Is that some of the additional 25 information you're going to be getting, the water table?
102 1 instance you have been saying 10 degrees or 20 degree 2 average and it's not. It's, you know, like the contour 3 lines in places like close to 40, 45 degrees. So I 4 don't know if it's possible you could confirm or deny 5 that? 6 THE WITNESS: The Langan submittal includes 7 the topographic plan. I didn't see anything that steep. 8 THE PUBLIC: Okay. 9 All right. So the other thing is more 10 information is needed, you're going to come back with 11 that from the other engineers. Is any other testing 12 needed? I have questions about the water table. Like 13 you mentioned, it was tested at a dry time. 14 THE WITNESS: We have the -- have you seen 15 our report? 16 THE PUBLIC: Yes sir, I have seen your 17 report. 18 THE WITNESS: There is a list of 11 or 12 19 recommendations or requirements and that includes 20 monitoring wells too. 21 THE PUBLIC: So that still can happen? 22 THE WITNESS: That's in our recommended 23 requirements. 24 THE PUBLIC: Okay. 25 So the Langan or someone's going to do more	104 1 THE WITNESS: Well, we recommended that they 2 install monitoring wells to check the influence of the 3 construction on the water level and since there's no 4 precise measurement of the groundwater level, that they 5 install wells to monitor the affect of the construction 6 on the groundwater level. 7 THE PUBLIC: Okay. Thank you. 8 THE WITNESS: You're welcome. 9 CHAIRMAN BAGOFF: Thank you. 10 Any other members of the public who have 11 questions for Mr. Kleinberg on his testimony, please 12 come up. Go right ahead. 13 THE PUBLIC: Hi. My name is Safina Joseph. 14 I also have prepared a five-minute speech, I know you 15 mentioned not tonight, I am wondering when we would have 16 an opportunity to make statements rather than questions? 17 CHAIRMAN BAGOFF: Questions now. 18 THE PUBLIC: I understand. When would we 19 have an opportunity to -- 20 CHAIRMAN BAGOFF: Some time in January. 21 THE PUBLIC: Okay. 22 I guess I won't read my speech then, but I 23 did have a question concerning something that you 24 mentioned and in terms of a prior person who came up. 25 The impact of cutting down the 6,000 trees for this

105 1 project, you mentioned that it would not affect the soil 2 health or the ability of the soil to be more stable? 3 THE WITNESS: No, the slope that we've been 4 talking about is the one that's going to remain forested 5 and that's what I meant to stay. 6 THE PUBLIC: Well, okay. So let's rephrase 7 the question then about the 6,000 trees that would be 8 cut down for the property. How will that affect the 9 soil health in that regard in terms of its ability to 10 absorb water, prevent flooding, flash flooding, 11 especially in the setting of climate change? 12 THE WITNESS: That's beyond my expertise. 13 You know, and we didn't, we were tasked with looking at 14 the slope on the east side of Building D and I didn't, I 15 didn't look to that area. I can't speak to it. 16 THE PUBLIC: I understand, but it's going to 17 affect the soil and in some way, in regards to the 18 flooding and things brought up this meeting and if it's 19 not your expertise who, who would look into this in 20 terms of this impact? 21 THE WITNESS: That would have been 22 included -- I am guessing it would have been included in 23 the previous review with the DEP. But I am not sure. 24 THE PUBLIC: Well, that, you know, on my way 25 here I told my four year old and he told me to bring a	107 1 THE PUBLIC: I do feel trees do affect 2 quality of the soil. 3 CHAIRMAN BAGOFF: Then you can ask the 4 question and if he can answer the question he will. 5 THE WITNESS: I'm so sorry, I can't answer. 6 That's a whole other thing. 7 CHAIRMAN BAGOFF: Thank you. 8 Come right up. 9 THE PUBLIC: Hi. Sam McKenzie. 10 You made it pretty clear that you don't 11 believe an extreme event is likely, if you're incorrect 12 and a mudslide or a rock slide or something were to 13 happen, what might that look like? What's the, like 14 level of impact. How many homes would be damaged in 15 that area? 16 THE WITNESS: I, I think -- well, based on 17 the angles of the slopes that are out there the, I think 18 it would be localized. 19 THE PUBLIC: What does localized mean? Can 20 you define that at all. 21 THE WITNESS: Couple hundred feet, something 22 like that. 23 THE PUBLIC: So no ones property would be 24 damaged, including this new development? 25 THE WITNESS: I'm sorry, the new
106 1 book about the Amazon and he understands the concept of 2 cutting down trees and how it affects the health of this 3 climate and environment, which we are, so I feel if a 4 four year old is able to understand, I am sure, even 5 though you may not be an expert in this, you're cutting 6 down 6,000 trees that roots into the soil, we understand 7 that that's going to affect the soil health and the 8 ability of the soil to prevent flash flooding and keep 9 our community safe. Does the board understand that 10 generally or is that something we're just not willing to 11 comment on given that's not your expertise? 12 THE WITNESS: Well, are you asking the 13 board? 14 THE PUBLIC: I'm asking anybody willing to 15 answer in terms of this project. 16 CHAIRMAN BAGOFF: Ma'am, so you understand, 17 this is for questions of the expert, statements will 18 come at a later time. Right. There is a process, we 19 have to keep on track. So the public can ask the expert 20 questions and later on provide comments. 21 THE PUBLIC: I do feel it is within the 22 realm of the expert given he's been talking quality of 23 the soil. 24 CHAIRMAN BAGOFF: But he's not talking about 25 trees.	108 1 development? 2 THE PUBLIC: So like if something were to 3 happen are there going to be damage to homes, including 4 the apartment that would go into this new development? 5 THE WITNESS: I think we're talking about a 6 slope that's not being built on and the slopes on the 7 new development are much flatter. 8 THE PUBLIC: Okay. 9 THE WITNESS: But I did not look at it or 10 evaluate it. 11 THE PUBLIC: Okay. Thank you. 12 CHAIRMAN BAGOFF: Thank you. 13 THE PUBLIC: Good evening. Danielle 14 DePalma, 200-foot notice area. 15 I want to ask you something without all the 16 technicalities involved. None of the percentages, none 17 of the technicalities. If you, if you lived below the 18 mountain slope, as Rachel said, she has three retaining 19 walls, would you feel safe living here without any sort 20 of catchment for construction or debris and after 21 hearing the families complaints for 25 years, even if a 22 100-year storm happened, would you feel safe without 23 constantly looking over your shoulder? I have friends 24 who live here and I am worried about them during and 25 after construction and it bothers me that they are

109 1 constantly looking over their back. Can you ensure us 2 tonight that nothing will happen? 3 THE WITNESS: I can't do ensurances, but 4 it's the analysis that shows that it's not likely, but 5 that's the best I can do. 6 THE PUBLIC: Would you feel safe living here 7 below the project? 8 THE WITNESS: I would feel safe. 9 THE PUBLIC: Thank you. 10 CHAIRMAN BAGOFF: Come right up. 11 THE PUBLIC: Hi. My name is Jacqueline 12 Kennedy. 13 I had a question for you regarding the 14 gentleman's cross-examination. You seem to sort of 15 downplay the likelihood of what we're calling the 16 100-year storm, but I've lived here 16 years and we've 17 had three 100-year storms in the -- 18 THE WITNESS: No, I was not saying a 19 100-year storm is not likely. 20 THE PUBLIC: Okay. 21 THE WITNESS: I was saying that the 22 development of the infinite slope, this is a technical 23 term, the infinite slope condition, the likelihood of 24 that developing is not great. It's something that we 25 recommended as a "what if" analysis to see what the	111 1 is buttressed by soil. So it's not, it's not the same 2 type of condition as what, as the one you're referring 3 to. 4 THE PUBLIC: Okay. Thank you. 5 THE WITNESS: You're welcome. 6 THE PUBLIC: Jack Michael of Verona. 7 I just want some clarity, you spoke earlier, 8 maybe last week, is this a soil slope? You kept 9 mentioning a soil slope. 10 THE WITNESS: All of the modes of stability 11 that were analyzed by the two engineers, the engineer 12 for the, for We Care and the engineer for the applicant, 13 all evaluated soil slopes that -- all the analysis and 14 calculations that were done involved safety factors in 15 the soil. 16 THE PUBLIC: Okay. 17 Now, would you, as a professional, rather 18 build on a soil slope or on a rock slope? 19 THE WITNESS: They both have their problems 20 and -- 21 THE PUBLIC: If you had a preference. 22 THE WITNESS: I prefer soil slope myself. 23 You're asking me a personal opinion, this is not a 24 professional recommendation. 25 THE PUBLIC: You'd rather go on a soil slope
110 1 reserve stability would be. 2 THE PUBLIC: And I guess another question I 3 would say, you keep talking how one of the slopes, and I 4 know we're talking about several, that there would be 5 some trees as a buffer. My understanding is that there 6 were trees, the trees for the buffer, if there were 7 anything, the slope would remain with trees. Part of 8 the slope, correct? Is that what you said. 9 THE WITNESS: Correct. 10 THE PUBLIC: So I'm wondering how much is a 11 good amount to absorb any kind of slide, because there 12 were trees buffering Seton Hall's field and the 13 apartments as well, so how do we measure how much trees 14 is enough trees to prevent a slide from happening again? 15 THE WITNESS: I, I think that the situation 16 that you're talking about below the field is much 17 different. It's -- I haven't done an investigation or 18 anything like that on the site. I did read a report for 19 the existing residences, there was an engineering report 20 done that are adjacent to the apartment building, it's 21 an entirely different situation than the slope we're 22 talking about. That's like, the slope is nearly 23 vertical and, and the rock is entirely exposed and it's 24 not buttressed by soil at the toe. This slope is. The 25 one for the West Essex, the one slope below Building D	112 1 rather than a rock slope where the stability on a rock 2 slope is greater? 3 THE WITNESS: Sorry. 4 THE PUBLIC: Stability on a rock slope is 5 greater. 6 THE WITNESS: I don't know. It's kind of 7 hypothetical. I don't know. 8 THE PUBLIC: Okay. 9 THE WITNESS: Soils are easier to work with 10 and rock is not, if you have to. But the rock we're 11 talking about here is not involved in the construction 12 itself. 13 THE PUBLIC: But earlier you talked about a 14 mountain slide factor. The mountain slide factor that 15 exists already on this property, you just spoke about 16 it. 17 THE WITNESS: Oh. Oh, okay. I know what 18 you're referring to. You're referring to the landslide 19 hazard report. 20 THE PUBLIC: You just mentioned about that 21 15, 20 minutes ago. 22 THE WITNESS: Sorry. 23 THE PUBLIC: You just mentioned it about 15, 24 20 minutes ago. 25 THE WITNESS: I mentioned it in our report.

113 1 THE PUBLIC: Yes. 2 THE WITNESS: And it was -- and I think in 3 the discussion at the last meeting said that we could 4 not find -- there was no explanation given as to why 5 they identified the slope. 6 THE PUBLIC: In your testimony you said, and 7 I won't be quoting this, this is a condition that 8 already exists. 9 THE WITNESS: No, it's reported. This was, 10 this was identified by the, I think, the USGS was 11 working for the New Jersey Geological Survey and they 12 identified an area which they said was a hazardous class 13 B-3, slopes up to 15 degrees. And we said that we'd not 14 discounted that because we had not been able to find out 15 why it particularly identified, they identified it as a 16 hazard, but they didn't say what the mechanism was. 17 THE PUBLIC: Okay. 18 But having that hazard here, and you said it 19 existed for many years, and nothings happened, it's 20 always been there. What would change that and make that 21 slide occur? Let me rephrase it. 22 Would digging a trench 800 feet wide by 25 23 feet deep at the top of that mountain create or enhance 24 the chances of having that slide on the western side of 25 this, or eastern side of this property?	115 1 could loosen or has been loosened, you would install 2 rock bolts, something like that. But, so we recommended 3 it in the report that these requirements be set by the 4 Planning Board for, you know, for the construction 5 requirements. 6 THE PUBLIC: But the area between the 7 building and going down the slope, it comes to a point 8 where the bottom of that building footings are equal 9 with what point down the mountain? You're kind of 10 creating -- not creating a weakness across the base of 11 that. Now, on top of it, not to mention 30 years ago, 12 40 years ago a trench was also carved out along the base 13 of that mountain for a sewer easement that went from the 14 property next door across that mountain to Howell Drive. 15 Does that create a weakness in that, I'm going to say, 16 triangle part of the mountain there? 17 THE WITNESS: The applicants engineer did a 18 slope stability calculation and their report is that it 19 did not indicate that it led to an instability. 20 THE PUBLIC: Okay. 21 Now, with their calculation do they also 22 calculate the, since you mentioned earlier you designed 23 dams at some point, do they calculate the amount of 24 hydrostatic pressure that's going to be added to that 25 slope in that mountain? Now, I'm going to, I know
114 1 THE WITNESS: Well, we made a recommendation 2 in our report in order to minimize, that we feel should 3 be, should be included as a requirement of the Planning 4 Board so that the excavation is performed in a 5 responsible manner that wouldn't lead to damage 6 downhill. 7 THE PUBLIC: But my point is, if you're on 8 that ridge and you're digging on, I'm almost positive 9 you said this in the last meeting, that you're going 10 25-foot below grade for the footings of that building. 11 Now, at that 25-foot mark -- 12 THE WITNESS: That's on the southern half, 13 not as deep on the northern half. 14 THE PUBLIC: On the eastern side I am 15 talking about. At that base corner of 25-feet on the 16 eastern side of that mountain, I will say dropping off 17 the cliff, did anybody calculate where, if you went in a 18 horizontal line down the mountain, exactly how far out 19 that goes? Is it 100-feet, like, because then you're 20 creating a triangle basically of an area of rock that, 21 as you said, could slide down the mountain? 22 THE WITNESS: I didn't say -- I said that 23 the rock should be, the excavation should be supported. 24 In other words, when you're digging rock you evaluate 25 the rock as you're going down and if it looks like it	116 1 you're not a tree expert, but several people said 6,000 2 trees, earlier on in the report 7,500 trees, so that 3 soaks up between 50 and a 100 gallons of water a day. 4 So even if it's at 50 times 7,500, we're talking shy of 5 400,000 gallons of water per day. 6 Now, you mentioned the nine inch rainfall. 7 If we get a nine inch rainfall any particular day, I 8 know over ten acres of land, if you get a five inch 9 rainfall you're close to 4 million gallons of water, 10 multiply that by three, because there's 30 acres of land 11 we're clearing, so does that amount of water put 12 pressure on that building or put pressure on that lower 13 mountain? 14 THE WITNESS: I think in general the levels 15 on the western side would be lower downhill, so that -- 16 THE PUBLIC: The topographic map does show 17 the elevations continue upward on the western side of 18 that D building, so there is going to be added water 19 coming back to that. So that's why I only mention 10 20 acres and not the complete 30. 21 THE WITNESS: Looking at the contours and 22 they slope away from the building. I don't know what to 23 say. 24 THE PUBLIC: Clearing of that acreage you 25 don't think adds hydrostatic pressure?

117 1 THE WITNESS: I have to say I was only 2 tasked with looking at the analysis done by Princeton 3 Hydro and Langan for the slope on the eastern side of 4 the building. I made no evaluation regarding the 5 western side of the building. 6 THE PUBLIC: But the activity of clearing on 7 the western side of the building, don't you think that 8 that adds to the pressure on the eastern side of the 9 building? They're clearing 7,500 trees and they're not 10 replacing any trees, so you're talking hundreds of 11 thousands of gallons of water. 12 THE WITNESS: Well, that would have been in 13 the stormwater management plan, that evaluation. I 14 can't talk to it. 15 THE PUBLIC: Okay. Thank you. 16 CHAIRMAN BAGOFF: Do any other members of 17 the public have questions? Please come up. On Mr. 18 Kleinberg's testimony. Please come up here. 19 THE PUBLIC: Good evening. Seth Weisleder, 20 Howell Drive. 21 So I heard a lot of calculations, I tried to 22 follow them all. When you entered onto this site to 23 look at this slope did you enter from Warner and then 24 walk-through the forest or did you enter from Howell? 25 THE WITNESS: I entered from the cul-de-sac	119 1 basalt and sandstone and at what point along the slope, 2 along those homes specifically there, does the basalt 3 and sandstone line kind of occur? Do we know where that 4 occur's. 5 THE WITNESS: It appears to have occurred 6 around Langan borings 2 and 4. They didn't encounter 7 any basalt in those points and they went to 50-feet deep 8 and they were in material that was, that was described 9 as being similar to sandstone. 10 THE PUBLIC: Around those areas is the rock 11 stream stronger or already weakened where they meet? 12 THE WITNESS: It becomes flatter and the 13 rock becomes weaker, but not critically so. 14 THE PUBLIC: Did your report include any 15 mitigation measures related to that boundary or where 16 that is? I mean, because it's really not -- did you see 17 anywhere that it flattened out along those homes there? 18 THE WITNESS: You can see from the contours 19 that it flattens out ten degrees and less as you get 20 further down the slope. 21 THE PUBLIC: It flattens out because there's 22 homes built there that create it flattened out, doesn't 23 the slope end -- we have three or four retaining walls, 24 wouldn't it flatten out below those homes to the 25 roadway? It's all kind of --
118 1 at the end of Howell Drive where it goes around. 2 THE PUBLIC: So if you entered -- so that's 3 where the emergency road access would be, correct? 4 THE WITNESS: I believe so, yes. 5 THE PUBLIC: Okay. 6 And when you were entering that can you 7 describe what you kind of saw and what you looked at and 8 what was going through your mind a little bit at that 9 time? 10 THE WITNESS: Well, I noticed the trees, the 11 rock outcrops and boulders in place. The slopes, the 12 slopes appeared visually to me to be stable under 13 existing conditions. I did not see any evidence of, of, 14 of a potential slide or, you know. 15 THE PUBLIC: Just out of curiosity, what 16 would demonstrate evidence? 17 THE WITNESS: Well, you would see mounding 18 of -- tilting of trees and those sorts of things. I 19 didn't notice that. 20 THE PUBLIC: And did you notice any roof 21 lines of homes or how steep the slope was? 22 THE WITNESS: I saw the homes that are, I 23 mean, I could see what, see number 15 and 13 Howell 24 Drive, something like that. 25 THE PUBLIC: So you testified that this is	120 1 THE WITNESS: I'm talking about the slope 2 that's above the retaining walls. 3 THE PUBLIC: Okay. 4 I don't know, I mean I live there and I 5 don't know where I see flat land there, but. 6 THE WITNESS: I didn't say flat, I said ten 7 degrees. 8 THE PUBLIC: Okay. 9 Be interesting to see a photograph at some 10 point. Did you take any photographs along your walk? 11 THE WITNESS: No, I did not. 12 THE PUBLIC: Any reason why? 13 THE WITNESS: No. 14 THE PUBLIC: Okay. 15 So the construction activity, you mentioned 16 filling in, I guess, not the cracks, I'm sorry, it's 17 late. The different, so many different terminology 18 being used, but you filling in the slivers or the area 19 where water might be going in and around? 20 THE WITNESS: If they encountered it. 21 THE PUBLIC: What do you call that again, 22 I'm sorry. What was name of those areas? 23 THE WITNESS: The rock joints. 24 THE PUBLIC: The joints, correct. So the 25 joints, how would construction, if there are some joints

121 1 and there's blasting and construction, how, what is the 2 magnitude or reach to other joints in that area? So if 3 you had to blast some rock or to put in the emergency 4 roadway with asphalt or blast or dig or cause vibration, 5 how far could those vibrations occur and cause issues? 6 Not just directly below Building D but a little on the 7 outskirts, what's the likelihood of that? 8 THE WITNESS: We recommended, I think, in 9 the report that if blasting is done it should be 10 controlled and there's a procedure where they, they can 11 design the blasting, the way that the explosives, in 12 order to limit it, in order to minimize the disturbance 13 at a distance. So we recommended that they consider the 14 distance to be, the distance to the top of the slope, 15 which is only 10 or 15-feet from the line of the 16 excavation. So that would, assuming that, that this is 17 the type of control that is established, that, that 18 blasting would be designed so that the ground motion is 19 not severe. 20 THE PUBLIC: Severe in terms of, you're 21 saying 50-feet 100-feet, so when you're 200-feet away 22 would you feel something move or if there was an issue 23 going on already in the slope would that be affected? 24 THE WITNESS: Well, they use a motion 25 criterion. A velocity vibration inches per second. For	123 1 That was one of the requirements we recommended that the 2 board establish. 3 THE PUBLIC: So given, I believe that you 4 acknowledged that this slope falls into a higher land 5 slide prone class, is that correct? Than Langan 6 assumed. 7 THE WITNESS: No, that's what the -- there 8 was a hazard area map, Langan did a subsurface 9 investigation of the stability calculation that did not 10 indicate that there is instability. So that's, and 11 Princeton Hydro also did an analysis and their safety 12 factors were pretty much very close. 13 THE PUBLIC: You think, I mean I know you 14 did some great comparisons and I do thank you for that 15 in trying to help this board achieve, but don't you 16 think that might have been a little bit better if you 17 were just given the full scope to do your independent 18 geotechnical verification with the whole works and not 19 just numbers and really being out there and really 20 digging your own bores where you want to and really 21 trying to make heads or tails, because I feel like we 22 are just crunching a lot of numbers from an ivory tower 23 and wouldn't it be better if you were just given the 24 option to do your full own independent report assessment 25 and dig where you needed to, to find out what's going on
122 1 instance, if you were blasting for a sewer in a 2 residential street you would size it so that the, the 3 velocity of the vibration, which they monitor with a 4 device, is lower, is lower so that it would not create a 5 disturbance. 6 THE PUBLIC: So would you recommend to the 7 board that a full blasting and vibration impact study be 8 required to protect the homes in and around Howell Drive 9 and beyond before construction or approval? 10 THE PUBLIC: We recommended that a, that an 11 earth work, an earth work control plan be submitted 12 before construction is approved. 13 THE PUBLIC: Is that an earth -- I'm sorry. 14 Is an earth work plan different than a basting impact 15 study? 16 THE WITNESS: No, that would include that. 17 THE PUBLIC: Okay. I'm sorry. 18 THE WITNESS: Whatever excavation they would 19 do they would have to explain, come up with a monitoring 20 program to do that. We recommended that they install 21 what are called, slope indicators, which measure the 22 amount of ground movement and so we recommended they be 23 installed prior to construction and monitored both 24 during and after construction to confirm that slope 25 movements are not occurring due to the construction.	124 1 here? 2 THE WITNESS: Well, I am going to say both 3 of the engineering firms who did the comments and did 4 comments on the slope stability evaluation are 5 representable and highly qualified engineering firms. 6 THE PUBLIC: Agreed. 7 THE WITNESS: I don't know that what we would 8 do would add to it. 9 THE PUBLIC: But we are still at a point 10 where you designate this as a known hazard zone for 11 construction? 12 THE WITNESS: As a known hazard. No, I 13 would not. There are, there have to be precautions 14 during construction to not create a situation, but they 15 don't appear to exist now based on the calculations that 16 were done and the appearance of the site. 17 THE PUBLIC: Okay. Thank you. 18 CHAIRMAN BAGOFF: Thank you. 19 THE PUBLIC: Jessica Pearson. 20 Mr. Chairman, I have a question for the 21 board, just because I don't understand the appearance of 22 documents that I don't think were there today, this 23 afternoon. Mr. Kleinberg e-mailed a site plan with 24 markings and the disappearance of a CME letter on the 25 sanitary sewer that was there this morning and now it's

125 1 not. Can you -- 2 CHAIRMAN BAGOFF: I don't know anything 3 about that. 4 THE PUBLIC: Can you tell us anything about 5 that? 6 CHAIRMAN BAGOFF: The board wasn't aware. 7 Any letters provided today will be provided to the 8 objector and the applicant. 9 THE PUBLIC: I'm sorry. 10 CHAIRMAN BAGOFF: The letters that were 11 described today, letters that were, the letters that 12 were described today will be provided to the objector 13 and the applicant by the expert. I don't know anything 14 about a CME report that was there this morning and not 15 there now. 16 MS. McGOVERN: Is it on there? 17 MR. PLOCKER: It's on there. 18 CHAIRMAN BAGOFF: It's on the website, our 19 secretary just found it. 20 THE PUBLIC: Is it the Mr. Kleinberg site 21 plan, letter and e-mail from Mr. Kleinberg? 22 MS. McGOVERN: That's O-36 and O-37 was the 23 diagram and that should be on there too. 24 THE PUBLIC: Yeah, that wasn't there this 25 morning.	127 1 missing apparently are there. So providing that 2 information may not be as accurate as the public needs 3 to hear, so at this moment our secretary will look and 4 see if there ar any documents in the CME letter that are 5 not there that have been brought to the Planning Board. 6 THE PUBLIC: I mean, how can you review 7 things and actually think about closing this application 8 without the benefit of having the opportunity to hear 9 testimony on these very important new documents? 10 CHAIRMAN BAGOFF: We were listening 11 previously, we are going to hear testimony based on what 12 Mr. Afran said. 13 THE PUBLIC: Sorry, say that again, sir. 14 You're going to hear testimony on -- 15 CHAIRMAN BAGOFF: We listened earlier, we 16 heard the testimony, if needed by the objector will be 17 provided at a subsequent meeting. 18 THE PUBLIC: What about the applicant? 19 CHAIRMAN BAGOFF: What about the applicant? 20 THE PUBLIC: I mean there's a whole new CME 21 letter that there was never any discussion of the 22 sanitary sewer in any real way, so my question is, how 23 are you getting a review letter and not having CME and 24 perhaps the engineer that created the utility plan to 25 work out compliance issues and, and the record is not
126 1 MS. McGOVERN: Our board secretary is saying 2 otherwise. 3 THE PUBLIC: I was on there. 4 CHAIRMAN BAGOFF: We're not arguing with 5 you. 6 THE PUBLIC: I am simply saying it just 7 deals, it's very difficult to follow along with some of 8 these meetings where the public has not had, and I am 9 sure the board hasn't either, had an ample opportunity 10 to review these very important documents. 11 CHAIRMAN BAGOFF: They're on the website. 12 As far as the secretary told us it was on website this 13 morning. 14 THE PUBLIC: The other question is regarding 15 this CME letter, there's references made to documents 16 that are not posted, like capacity calculations for 17 their sanitary sewer, which are not anywhere on this 18 page. 19 CHAIRMAN BAGOFF: We'll find out. 20 THE PUBLIC: I am just saying. 21 CHAIRMAN BAGOFF: I am saying we'll find 22 out. 23 THE PUBLIC: There are a lot of missing 24 documents and I just, it's very concerning. 25 CHAIRMAN BAGOFF: The documents you said	128 1 complete. It says it very clearly in the CME letter. 2 So I guess I am saying, you haven't heard any testimony 3 on this utility. Zero. 4 CHAIRMAN BAGOFF: We have. Thank you so 5 much for bringing that to our attention. The secretary 6 will review it and we'll have our board attorney and I 7 look at this. 8 THE PUBLIC: Thank you. 9 CHAIRMAN BAGOFF: Thank you. 10 THE PUBLIC: Hi. Susan Pannullo, 200-foot 11 notification range. Thank you for all your testimony. 12 I am going to ask you a difficult question, a general 13 engineering question. When there is a failure, there is 14 a disaster and the engineer has chosen the less 15 conservative means of evaluating risk versus the more 16 conservative means being presented with two divergent 17 opinions, engineering opinions from two very good 18 engineering firms, when you choose one engineer who 19 adjudicates this and chooses the less stringent choice 20 and there's disaster, how is that managed? How is that 21 dealt with in terms of litigation, in terms of risk to 22 the engineer that's made that choice. How does that 23 work. Medicine I understand. How does that work in 24 engineering? 25 CHAIRMAN BAGOFF: He didn't testify to that

129 1 and that's a legal question. So that's above his 2 ability to provide that information. 3 THE PUBLIC: That would be experience, all 4 right. That's his experience. I am not asking him to 5 opine about what happens in court, but in your opinion 6 as an engineer, in your experience, you're making a 7 choice between a more conservative versus a less 8 conservative opinion regarding the numbers that are used 9 to decide the risk, right. And you're making a choice 10 based on that which happens in engineering all the same 11 time I'm sure. And I'm asking you in your experience 12 when there's a choice between a more conservative and 13 less conservative standard and there's a disaster which 14 happens, nothings zero risk, which is, you very clearly 15 laid out, how is that managed? 16 THE WITNESS: I don't quite understand what 17 you mean, managed. In other words, if it has a slope 18 failure? 19 THE PUBLIC: The building comes down, which 20 this builder has experienced. If something, if there's 21 a disaster, if the O-ring, you know, falls apart on a 22 spaceship these are engineering challenges, I teach 23 engineering and these are things that you think about in 24 medicine, these can cause death. It sounds like that's 25 the situation here. And you make choices regarding the	131 1 method in this case is the amount of reserve strength 2 that you have on the failure surface. In other words, 3 based on the recommendation for, for the Princeton Hydro 4 may be two times. 5 THE PUBLIC: That 1.5 versus 2.0 number, 6 right? 7 THE WITNESS: And so the one and half 8 criteria is generally accepted in the practice as being 9 adequate. And to recommend the higher, you know, would 10 like to use, you know, the higher coefficient all the 11 time but it enables, it imposes large financial burdens 12 on people if we over design everything. 13 THE PUBLIC: So that's helpful, and I guess 14 troubling to me because now what we're doing is talking 15 about financial challenges versus evaluating safety. 16 Like when is it a good idea to accept a lesser standard? 17 THE WITNESS: But these standards are set by 18 the standard setting -- 19 THE PUBLIC: But somebody thinks the 20 standard is 2.0 -- 21 THE WITNESS: -- and in my experience the 22 site conditions indicated by the exploration and the 23 type of construction on the slope, which there is no 24 construction permitted on the slope, there is not -- 25 does not warrant a safety factor of 2.0.
130 1 standards that we use to evaluate risk in any situation 2 and we very commonly are a third opinion, which you are, 3 you are a third opinion when you have an engineering 4 group saying one thing and another engineer group saying 5 another thing and you have to adjudicate that, you're a 6 third opinion as an impartial expert, how is that dealt 7 with when there's an error? When there's, you know, a 8 flaw in the choice between the less stringent versus the 9 more stringent standard. 10 THE WITNESS: Well, there would be, you 11 know, an investigation. If it was me I would be on the 12 carpet and -- 13 THE PUBLIC: And you feel that, right, I 14 guess that's a very simple one, you can feel bad when 15 something terrible happens based on the decision? 16 THE WITNESS: Yeah, I might be fined or 17 jailed, if I was negligent put in jail, which would be a 18 terrible thing. 19 THE PUBLIC: So thinking about those 20 terrible things, what would make an engineer, and I 21 really don't know, what would make an engineer make a 22 choice to use the less stringent versus a more stringent 23 recommendation when evaluating risk in determining, you 24 know, what their opinions should be in a situation? 25 THE WITNESS: Well, the less stringent	132 1 THE PUBLIC: Are there ever situations where 2 it's utilizing a higher standard it becomes untenable, 3 unfeasible, unsafe to proceed with a project utilizing a 4 more conservative estimate of risk? 5 THE WITNESS: Yes, if it was some kind of a 6 capital improvement project for a municipality and if 7 they had a budget of X million dollars and the bids all 8 come in to X, bids come in at 2X then th project doesn't 9 go forward. These sorts of things, and if you 10 arbitrarily decide to use that to design everything to 11 the highest standard and then it's not affordable, then 12 it's a problem. 13 THE PUBLIC: I will stop in a second, I know 14 it's a lot of questions, but when is it ever a worse 15 thing in engineering to use a better safety standard 16 than a lower safety standard, given the choice provided 17 by two expert firms? Like what's the harm, I guess is 18 what I am asking. What's the harm ever in accepting in 19 your analysis the more stringent safety standard when 20 all things are equal rather than the less stringent 21 safety standard? 22 THE WITNESS: Well, you can make the stuff 23 so large that it's not constructible. Or that it is so 24 difficult in construction that you -- it's not 25 affordable.

133 1 THE PUBLIC: Again, we are talking about 2 money, I don't want to talk about money at all. I will 3 leave this alone. I want to put it out there for maybe 4 thought. This is one of those things maybe we all have 5 to sleep on but -- 6 THE WITNESS: And in this instance the 7 standards which apply more or less in this case there 8 are codes you have to follow. And, and the codes are 9 minimus too. 10 THE PUBLIC: Thank you so much. 11 THE WITNESS: I'm sorry. 12 THE PUBLIC: No, don't be sorry. This is 13 hard. We are here for many, many months going through 14 this because this is hard. If it was easy we would have 15 been done with this in a few meetings, right. So I 16 appreciate your thoughtfulness. Thank you. 17 THE WITNESS: Thank you. 18 CHAIRMAN BAGOFF: Do any other members have 19 questions for Mr. Kleinberg on his testimony? Please 20 come up. 21 THE PUBLIC: Walter Steinman, Verona. 22 You stated that the geology had a basalt top 23 and a sandstone base and about 200 million years ago, 24 180 years ago and it was Jurassic, so we got fissures 25 forming in there. Prior to the glacial period ten	135 1 years ago it silted. Okay. After that it broke off 2 North America what has mapped in that period of time is 3 you got a lot of piles and you stated that you were at 4 the bottom of the hill and you saw the slope and then it 5 slides out and becomes a shallow slope, correct? 6 THE WITNESS: I reviewed -- I am not a 7 geologist. You -- included in the review the geology of 8 the Caldwell Quadra Angle Map and that indicated that 9 most of the soils overlying directly overlies the rock 10 glacial till. 11 THE PUBLIC: And glacial till is made up of 12 what? How much smectite and how much illite? 13 THE WITNESS: I can't talk to that. 14 THE PUBLIC: That's where people, 15 individuals that are concerned about is the mass wasting 16 coming down the hill and at the bottom of the hill, 17 you're saying that slopes and it slopes, gently slopes 18 off. Is that a talis pile or is that a mass waste over 19 the mountain over millennia or generations? 20 THE WITNESS: I can only say the mapping 21 says it's a glacial till. 22 THE PUBLIC: It is glacial, yes. There's 23 about 80,000 years ago 400-feet above there, okay. 24 Thank you. 25 THE WITNESS: I'm sorry. I'm not --
134 1 thousand years ago here, you had a tertiary and that 2 area eroded. What -- on the slope you had, you have, 3 you said you have soil there. Has there been any 4 testing on how much smectite and illite is in that soil, 5 because that's the weathering material from basalt. 6 Illite and smectite are phyllosilicates that are very 7 slippery. So if you're going to take all these out and 8 waters going to come into this area, you're going to 9 have a situation where the slope can slide down to the 10 bottom. Has there been any check for the actual 11 minerals of the soil? 12 THE WITNESS: No, and I am not an expert in 13 the subject you're talking about, the chemistry of the 14 rock. I am not a geologist. And, and again, in this 15 case we looked at the slope on the east side of the 16 proposed Building D and that is going to remain wooded 17 as it is today, is my understanding. 18 THE PUBLIC: But the geology will weigh the 19 formation of the two mountains, the Orange formation and 20 the Preakness formation were two lava flows that flowed 21 out during the Jurassic periods, one came out, flowed 22 out just like Iceland. It flowed out underground then 23 it stopped, then we had an erosion. So you had all the 24 red sandstone come that's iron in the sandstone and then 25 it occurred again, during tertiary about 40 million	136 1 THE PUBLIC: Okay. 2 CHAIRMAN BAGOFF: Any another members of the 3 public who have questions for Mr. Kleinberg on his 4 testimony? 5 THE PUBLIC: Deborah Deruce, D-E-R-U-C-E. I 6 find it interesting, I want to know from your 7 statements, you are saying that by building this project 8 it's a feasible project and the slope by the 9 calculations that you do, but my question is that over a 10 period of time, like 20, 30, 40 years, residents living 11 below the slope are talking about, you know, basements 12 being flooded when it rains very heavily, where 13 sinkholes appear along Howell Road when you go up Howell 14 there are a lot of sinkholes that appear in certain 15 parts where houses are being built and when you are 16 coming down Howell and Slayback you have water coming 17 through where the sewer separates from the roads and 18 holes appear. So with all these observations that 19 people are saying that they see coming just from the 20 water from the top, how does that affect now if you're 21 going to be building this big project, are you saying 22 that's not going to be exacerbated on account of that 23 area is not going to be affected but the area below will 24 not be affected by the bigger improvements that you're 25 putting through?

137 1 THE WITNESS: I apologize. I looked at the 2 slope on the east side of Building D and the stability 3 calculations that were performed by the engineers. The 4 conditions you are describing, sinkholes and that sort 5 of thing, are, I have no idea what the basis -- I mean, 6 I believe that it occur's but I have no idea what's 7 causing it. 8 THE PUBLIC: After Hurricane Sandy many 9 trees fell down, you could see over a period of time how 10 the land keeps on moving, even where I live at the 11 bottom, I have a simple ridge that goes down on the side 12 of my house is sloped, that whole slope is deeper and 13 deeper in the past few years. When I go uphill and I 14 look around and I see those marshy type things growing, 15 the sinkholes and trees deteriorating and you can see 16 this kind of evolution that's going on in that whole 17 forest, especially along the slopes in and around that 18 site. So I am saying with all these calculations, which 19 are hypothetical, if you go and actually observe what's 20 going on over in those areas over a period of time, I 21 live there 30 years and people are saying these things 22 are happening in basements, what happens in this area 23 when you hear this, how are those kinds of observations 24 on the surface to what you're, when you're building down 25 in bedrock?	139 1 A. She was asking me a general question, what sort 2 of a choice I'm faced with in designing something. And 3 do I -- and am I justified in designing for a higher 4 safety factor than is required. 5 Q. My questions very simple. You said there'd be a 6 financial burden to the developer. Are you aware of 7 what the -- 8 A. I was not talking about this developer. I was 9 not. 10 Q. Are you aware -- let me be clear then. 11 A. That was definitely not my basis for the 12 recommending the 1.5. 1.5 is because that is a standard 13 that is applied to this condition. I was -- I had no 14 concern about any impact on the development. She asked 15 me what I would do as an engineer. Why I would make 16 this choice over that and I was not talking about, it's 17 a hypothetical, and I was not talking about this 18 project. So if you're implying that, that is incorrect. 19 Q. I am responding to what you said. 20 A. No, you're twisting it. 21 Q. Excuse me, Mr. Kleinberg. 22 A. You're twisting what I said. 23 Q. It is my responsibility to follow up what you 24 say. And if what you say leads to a question, it is my 25 duty to ask it. It is your duty to answer it. My
138 1 THE WITNESS: I really, I can't -- I did not 2 spend a lot of time there but I did not see anything and 3 I am not contradicting you at all but the limited area 4 that I looked at, which is wooded slope to the east of 5 the building, I didn't see anything that looked like 6 what you're describing. I'm sorry. 7 THE PUBLIC: All right. Thank you. 8 CHAIRMAN BAGOFF: Thank you. 9 Do any other members have any questions for 10 Mr. Kleinberg on his testimony? Seeing none. Thank you 11 very much. 12 MR. AFRAN: I have one follow-up question in 13 case Mr. Kleinberg doesn't come back. I want to ask one 14 more. 15 CHAIRMAN BAGOFF: Mr. Afran. 16 Q. You mentioned, Mr. Kleinberg, that using the 17 higher safety factor would be a financial burden on the 18 applicant. Now, I don't see any reference in your 19 report to any financial calculations or burden? 20 A. That was not in my venue. What I testified to is 21 that 1.5 in my experience is an adequate safety factor 22 for a slope of this type. 23 Q. Is there any financial calculations that you're 24 aware of as to what the additional burden would be from 25 the higher safety factor?	140 1 question is very simple. Are you aware of any increased 2 financial burden that has been calculated on this 3 project on this developer -- 4 A. None. 5 Q. Let me finish, sir. If a higher safety factor 6 were used, "yes" or "no"? Are you aware of any such 7 increased burden calculation. 8 A. No. 9 Q. Thank you. 10 CHAIRMAN BAGOFF: Okay. Thank you. 11 The next regular Planning Board meeting will be 12 held Wednesday, January 7 at 7:30 PM. This applicant 13 will be continued to January 7 at 7:30 PM via zoom. The 14 notice will be preserved, at that time we will announce 15 when the next Planning Board meeting will continue, if 16 Mr. Afran has anymore questions, otherwise at that time 17 we will have public comment. 18 MR. AFRAN: My client has one question for 19 the board. I want to clarify, because they may not be 20 used to the practice. On the 7th of January we don't 21 have to be here? 22 CHAIRMAN BAGOFF: Correct. 23 MR. AFRAN: You have to -- the board will 24 announce the new date for the new year and we'll all 25 consult about that date.

141 1 CHAIRMAN BAGOFF: That's for you and Mr. 2 Plocker and our attorney and our experts, we will both 3 come up with dates that make sense. 4 MR. AFRAN: Great. So the public should pay 5 attention to the boards agenda to show that and we'll of 6 course communicate as well. 7 Mr. Pannullo has something to address to the 8 board. 9 MR. PANNULLO: Thank you. Before we wish 10 each other a happy New Year, this is the third time we 11 have tried to assemble for public comment in the middle 12 of an evening. It is not just, we're tired and turn out 13 and making it difficult with winter, the days are 14 shorter, the nights are longer. People don't make it 15 and I have asked before and I will ask, please, once 16 again, we need to get a date certain. We need a time 17 certain to start. Which is it, 6:30 PM or 6:00 or 7:00, 18 whatever time you want in the evening to begin public 19 comment for solely that purpose during the course, we 20 promise you we'll fill the night, a partial night, like 21 we have people here tonight, we had people here last 22 night, please, it's not -- 23 CHAIRMAN BAGOFF: Thank you. We hear you. 24 MR. PANNULLO: Is that a yes or no? 25 CHAIRMAN BAGOFF: The board will decide	143 1 C E R T I F I C A T E 2 I, ERIC S. FISHMAN, a Shorthand Reporter 3 and Notary Public of the State of New Jersey do hereby 4 certify that the foregoing is a true and accurate 5 transcript of the testimony as taken stenographically by 6 and before me at the time, place and on the date 7 hereinbefore set forth, to the best of my ability. 8 I DO FURTHER CERTIFY that I am neither a 9 relative nor employee nor attorney nor counsel of any of 10 the parties to the action; and that I am neither a 11 relative nor employee of such attorney or counsel; and 12 that I am not financially interested in the action. 13 14  15 16 ERIC S. FISHMAN, S.R 17 18 Dated: <u>1/13/2026</u> 19 20 21 22 23 24 25
142 1 based on more testimony to be provided. Public comment 2 cannot be given until all testimony is done. 3 MR. PANNULLO: The public comments when 4 testimony is on regular evening. 5 CHAIRMAN BAGOFF: Correct. Not going to 6 happen tonight. 7 MR. PANNULLO: No, that's fine. I just 8 don't want to come back and do this again. 9 CHAIRMAN BAGOFF: We are working on it. 10 MR. PANNULLO: Okay. Please work on it on 11 an equal end for all of us. We keep coming. Appreciate 12 it gentleman. Thank you. Happy New Year. Happy 13 holiday's. 14 CHAIRMAN BAGOFF: Thank very much. 15 (Hearing concludes at 10:28 PM.) 16 17 18 19 20 21 22 23 24 25	144 1 SIGNATURE PAGE/ERRATA SHEET 2 3 WITNESS: 4 CASE REFERENCE: 5 6 INSTRUCTIONS TO WITNESS 7 After you have read your transcript, please note any errors in transcript 8 on this page. Do not mark on the transcript itself. Please sign and date this sheet as 9 indicated below. If additional lines are required for corrections, attach additional sheets. 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 ----- Page Line ----- ----- I have read my transcript and subscribed to its accuracy, to include the corrections or amendments noted above or hereto attached: ----- Signature of Witness Date

0	37:10, 42:22, 42:24, 55:21, 77:18, 80:6	3	7:00 [1] - 141:17 7:30 [2] - 140:12, 140:13 7th [1] - 140:20	acknowledged [2] - 59:24, 123:4 acknowledging [1] - 22:17 acreage [1] - 116:24 acres [3] - 116:8, 116:10, 116:20 ACS [1] - 48:22 action [2] - 143:10, 143:12 activity [2] - 117:6, 120:15 actual [5] - 6:9, 33:13, 59:9, 63:2, 134:10 add [2] - 66:21, 124:8 added [2] - 115:24, 116:18 additional [14] - 27:1, 27:8, 39:18, 40:2, 40:4, 40:5, 49:25, 50:8, 51:5, 65:16, 103:24, 138:24, 144:7 address [5] - 8:1, 56:16, 64:15, 69:9, 141:7 addressed [6] - 22:12, 29:16, 35:14, 39:7, 65:6, 83:1 addressing [1] - 27:6 adds [2] - 116:25, 117:8 adequate [4] - 43:8, 83:5, 131:9, 138:21 adjacent [3] - 9:15, 98:20, 110:20 adjudicate [1] - 130:5 adjudicates [1] - 128:19 admission [1] - 81:25 admit [1] - 8:11 advance [1] - 63:19 adversary [1] - 15:21 advice [1] - 18:4 advisement [1] - 15:24 affect [10] - 95:4, 95:10, 95:13, 104:5, 105:1, 105:8, 105:17, 106:7, 107:1, 136:20 affected [3] - 121:23, 136:23, 136:24 affects [1] - 106:2 affordable [2] - 132:11, 132:25 AFRAN [47] - 2:10,
07095 [1] - 2:4 07952 [1] - 2:8 07960 [1] - 1:24 08540 [1] - 2:11	1440 [1] - 1:24 15 [6] - 93:25, 101:11, 112:21, 112:23, 113:13, 118:23 15-feet [1] - 121:15 15th [1] - 36:3 16 [1] - 109:16 17 [2] - 26:1, 81:12 180 [1] - 133:24 1902 [2] - 60:16, 70:7 1998 [1] - 100:2 19th [1] - 27:14	3 [7] - 42:12, 42:15, 43:2, 48:10, 48:13, 49:1, 51:16 3-feet [1] - 64:18 30 [6] - 82:20, 115:11, 116:10, 116:20, 136:10, 137:21 35 [7] - 81:11, 83:13, 84:1, 84:11, 84:21, 85:1, 86:9 38 [1] - 29:14	8 8-13 [4] - 4:23, 69:19, 70:11, 71:3 8-13A [2] - 5:12, 74:7 80,000 [1] - 135:23 800 [1] - 113:22 89 [1] - 1:23 8:00 [1] - 29:22	
1	1 [8] - 22:15, 23:19, 42:21, 43:18, 49:9, 50:16, 51:16, 96:7 1.1 [1] - 41:10 1.2 [4] - 41:10, 43:7, 63:9, 66:19 1.25 [1] - 66:6 1.3 [1] - 63:9 1.5 [22] - 5:11, 36:22, 37:5, 40:13, 40:16, 60:21, 72:11, 72:13, 89:7, 89:9, 89:13, 90:10, 90:11, 90:23, 96:10, 96:18, 96:20, 98:25, 131:5, 138:21, 139:12 1.51 [1] - 98:25 1.7 [7] - 72:4, 72:9, 89:6, 89:11, 90:7, 90:16, 91:9 10 [8] - 1:2, 2:10, 27:19, 44:4, 101:11, 102:1, 116:19, 121:15 100 [3] - 47:1, 62:1, 116:3 100-feet [5] - 9:20, 9:22, 9:24, 114:19, 121:21 100-year [12] - 58:5, 58:7, 58:8, 59:6, 61:18, 61:21, 63:15, 66:16, 108:22, 109:16, 109:17, 109:19 102 [1] - 2:7 10:28 [1] - 142:15 11 [1] - 102:18 12 [1] - 102:18 12/3/2025 [1] - 49:5 120-acre [1] - 4:3 13 [20] - 3:4, 25:4, 25:9, 25:13, 25:25, 27:23, 28:5, 29:5, 29:15, 30:20, 32:8, 37:9, 44:3, 45:10, 45:15, 45:25, 46:12, 46:18, 93:24, 118:23 13th [2] - 28:7, 28:12 14 [14] - 30:17, 31:6, 31:16, 35:14, 36:3, 36:5, 36:6, 37:6,	2 2 [12] - 21:3, 22:1, 22:17, 23:20, 42:21, 43:19, 44:13, 46:11, 47:5, 47:7, 51:16, 119:6 2-feet [2] - 103:19, 103:21 2.0 [14] - 5:11, 73:5, 73:6, 73:11, 73:15, 73:16, 73:18, 73:22, 74:2, 74:10, 90:12, 131:5, 131:20, 131:25 20 [8] - 14:2, 82:20, 89:4, 94:9, 102:1, 112:21, 112:24, 136:10 200 [3] - 75:22, 76:15, 133:23 200-feet [1] - 121:21 200-foot [2] - 108:14, 128:10 2013 [1] - 96:1 2025 [7] - 1:2, 3:4, 22:1, 25:10, 25:25, 44:13 20th [1] - 27:15 24 [1] - 96:5 25 [2] - 108:21, 113:22 25-feet [1] - 114:15 25-foot [2] - 114:10, 114:11 28 [1] - 44:23 285-5331 [1] - 1:25 2908 [5] - 60:16, 70:12, 70:14, 71:3, 71:16 2:00 [2] - 29:22, 30:5 2:30 [1] - 30:7 2nd [2] - 49:9, 50:16 2X [1] - 132:8	4 4 [4] - 1:24, 51:16, 116:9, 119:6 40 [6] - 14:17, 82:19, 102:3, 115:12, 134:25, 136:10 40-feet [1] - 5:25 400,000 [1] - 116:5 400-feet [1] - 135:23 45 [1] - 102:3 459 [1] - 2:4 49 [1] - 94:15 490 [1] - 77:6 496 [1] - 4:2 4:52 [1] - 53:8	9 9 [4] - 25:13, 25:25, 53:5, 53:8 9,2025 [1] - 3:4 973 [1] - 1:25 9:30 [1] - 29:22
		5 5 [8] - 48:17, 49:2, 49:7, 49:12, 50:6, 50:10, 51:7, 53:7 50 [2] - 116:3, 116:4 50-feet [2] - 119:7, 121:21 590 [1] - 77:5 5:22 [1] - 35:14	A ability [5] - 105:2, 105:9, 106:8, 129:2, 143:7 able [7] - 6:18, 8:5, 58:3, 59:2, 96:15, 106:4, 113:14 absence [1] - 27:17 absolutely [1] - 33:18 absorb [2] - 105:10, 110:11 absorbing [1] - 95:10 absurd [1] - 53:4 accept [1] - 131:16 acceptable [2] - 41:11, 90:23 accepted [1] - 131:8 accepting [4] - 32:16, 89:13, 90:20, 132:18 access [2] - 10:5, 118:3 accompany [1] - 17:4 according [1] - 78:2 account [2] - 61:25, 136:22 accuracy [1] - 144:22 accurate [3] - 101:25, 127:2, 143:4 achieve [1] - 123:15 acknowledge [1] - 75:2	
			6 6,000 [5] - 95:3, 104:25, 105:7, 106:6, 116:1 605-9391 [1] - 1:25 61 [1] - 94:1 6:00 [1] - 141:17 6:30 [2] - 1:2, 141:17	
		7 7 [3] - 5:11, 140:12, 140:13 7,500 [3] - 116:2, 116:4, 117:9 732 [1] - 1:25		

4:13, 4:16, 11:23, 12:6, 12:9, 14:23, 15:1, 15:14, 15:20, 15:25, 16:10, 16:13, 17:13, 17:16, 17:21, 17:23, 17:25, 18:3, 19:3, 19:8, 19:15, 21:17, 21:22, 24:13, 24:19, 25:7, 25:11, 26:5, 33:19, 37:20, 37:25, 38:4, 38:7, 38:11, 38:18, 54:3, 57:1, 59:1, 67:4, 67:7, 67:10, 91:12, 138:12, 140:18, 140:23, 141:4 afra [18] - 4:10, 4:15, 4:20, 11:20, 16:8, 17:20, 19:14, 24:9, 26:3, 26:11, 33:10, 37:24, 64:12, 91:18, 99:18, 127:12, 138:15, 140:16 afternoon [2] - 54:20, 124:23 afterwards [2] - 44:20, 75:24 agencies [1] - 20:14 AGENCY [1] - 1:23 agenda [1] - 141:5 ago [17] - 26:20, 39:20, 39:22, 57:15, 62:11, 68:10, 75:23, 76:15, 112:21, 112:24, 115:11, 115:12, 133:23, 133:24, 134:1, 135:1, 135:23 agree [19] - 30:7, 32:8, 36:17, 36:22, 39:10, 40:25, 41:1, 41:13, 41:15, 43:6, 53:15, 55:6, 61:9, 69:11, 73:17, 73:20, 74:1, 76:8, 90:14 agreed [4] - 41:14, 41:17, 43:8, 124:6 agreeing [3] - 30:8, 32:17, 41:13 agreement [4] - 41:20, 42:5, 43:11, 44:1 agrees [1] - 73:12 ahead [9] - 16:23, 18:2, 19:14, 33:20, 38:7, 38:20, 84:16, 98:17, 104:12 Alejandra [3] - 22:4, 27:15, 31:8 allegedly [1] - 15:11 allowed [2] - 43:13,	82:6 almost [2] - 6:25, 114:8 alone [1] - 133:3 alongside [1] - 87:6 ALPER [2] - 1:12, 92:19 alper [1] - 92:18 Amazon [1] - 106:1 AMBOY [1] - 2:4 AMENDMENT/REASON [1] - 144:8 amendments [1] - 144:23 America [1] - 135:2 amount [7] - 20:11, 57:12, 110:11, 115:23, 116:11, 122:22, 131:1 ample [1] - 126:9 analysis [38] - 22:25, 36:20, 37:3, 39:13, 40:11, 48:23, 55:24, 61:10, 61:12, 61:17, 65:10, 65:13, 65:16, 69:10, 71:25, 73:2, 74:19, 74:20, 74:21, 82:9, 88:9, 89:22, 89:25, 90:6, 90:8, 91:2, 91:8, 96:3, 96:17, 97:9, 97:16, 98:12, 109:4, 109:25, 111:13, 117:2, 123:11, 132:19 analyst [3] - 13:17, 32:14, 34:9 analyzed [1] - 111:11 analyzing [1] - 7:1 AND [1] - 1:1 Anderson [48] - 9:13, 10:3, 10:6, 10:19, 11:18, 11:19, 15:7, 17:2, 19:20, 19:24, 22:2, 22:3, 23:23, 25:16, 25:18, 25:20, 28:2, 28:3, 28:7, 28:11, 28:13, 29:16, 29:23, 29:24, 30:6, 30:20, 31:7, 31:16, 32:4, 32:8, 32:12, 35:10, 35:15, 36:7, 43:4, 44:14, 44:21, 44:25, 45:13, 45:19, 45:21, 46:13, 47:9, 47:13, 47:24, 56:23, 72:18 Anderson/Langan [1] - 55:22 anger [1] - 17:25 Angle [1] - 135:8	angle [6] - 80:23, 81:11, 83:13, 84:21, 86:3, 101:11 angles [2] - 101:25, 107:17 announce [2] - 140:14, 140:24 answer [14] - 12:11, 23:22, 45:24, 67:8, 67:11, 70:5, 89:20, 94:10, 94:22, 94:23, 106:15, 107:4, 107:5, 139:25 answered [7] - 12:12, 55:3, 55:4, 55:6, 55:8, 69:21, 87:19 antecedent [1] - 59:8 anticipate [1] - 101:11 anyway [2] - 55:3, 67:22 apart [2] - 77:11, 129:21 apartment [5] - 72:17, 72:19, 81:19, 108:4, 110:20 apartments [1] - 110:13 apologize [3] - 8:13, 93:10, 137:1 apparent [1] - 59:10 appear [5] - 53:11, 124:15, 136:13, 136:14, 136:18 appearance [2] - 124:16, 124:21 appeared [1] - 118:12 Appearing [2] - 2:5, 2:8 appearing [1] - 2:11 Applicant [1] - 2:5 applicant [12] - 4:1, 15:8, 21:8, 33:13, 34:11, 111:12, 125:8, 125:13, 127:18, 127:19, 138:18, 140:12 applicants [21] - 7:8, 11:13, 11:24, 12:19, 12:24, 16:2, 19:9, 19:17, 19:22, 33:7, 33:12, 33:25, 34:14, 39:9, 42:7, 44:14, 44:16, 48:3, 52:25, 54:21, 115:17 application [3] - 33:8, 33:14, 127:7 applied [2] - 60:4,	139:13 apply [2] - 5:7, 133:7 applying [1] - 86:8 appointment [5] - 30:10, 47:11, 47:12, 47:25, 48:1 appreciate [3] - 91:23, 133:16, 142:11 approached [2] - 22:7, 26:25 appropriate [4] - 12:18, 60:22, 66:19, 98:25 approval [1] - 122:9 approve [1] - 96:22 approved [2] - 48:22, 122:12 APTE [1] - 92:25 ar [1] - 127:4 arbitrarily [2] - 65:4, 132:10 area [20] - 9:12, 13:3, 44:13, 99:6, 100:19, 105:15, 107:15, 108:14, 113:12, 114:20, 115:6, 120:18, 121:2, 123:8, 134:2, 134:8, 136:23, 137:22, 138:3 areas [3] - 119:10, 120:22, 137:20 arguing [1] - 126:4 argument [1] - 89:1 arguments [1] - 39:6 arise [1] - 86:6 arm [3] - 80:22, 80:23, 81:1 Army [8] - 4:23, 7:18, 66:6, 69:20, 69:22, 70:4, 95:25 arrange [2] - 10:6, 47:15 arrangement [2] - 30:10, 48:6 aside [3] - 19:21, 19:22, 22:16 aspect [1] - 85:15 aspects [2] - 33:8, 33:14 asphalt [1] - 121:4 assemble [1] - 141:11 assessment [1] - 123:24 assessments [1] - 88:25 assigned [1] - 83:14 associated [2] - 59:17, 62:15 associates [1] - 10:8	assume [4] - 28:20, 52:15, 52:19, 64:14 assumed [8] - 49:15, 49:22, 57:1, 72:2, 81:10, 84:2, 98:8, 123:6 assuming [2] - 48:20, 121:16 assumption [1] - 98:8 assumptions [1] - 84:3 assured [1] - 93:11 attach [1] - 144:7 attached [8] - 22:15, 24:2, 27:5, 27:10, 39:19, 43:21, 49:5, 144:23 attaching [1] - 48:19 attachment [1] - 25:11 attended [2] - 26:24, 27:4 attention [2] - 128:5, 141:5 attorney [6] - 32:21, 34:10, 128:6, 141:2, 143:9, 143:11 attorneys [1] - 33:12 authority [1] - 20:15 available [5] - 29:19, 30:5, 30:12, 30:13, 47:16 AVENUE [2] - 1:24, 2:4 average [1] - 102:2 aware [10] - 5:24, 62:14, 69:23, 70:21, 125:6, 138:24, 139:6, 139:10, 140:1, 140:6
				B
				B-3 [1] - 113:13 background [1] - 59:4 bad [1] - 130:14 Bagoff [2] - 10:23, 18:17 BAGOFF [82] - 1:9, 4:1, 4:9, 4:15, 4:18, 12:12, 15:23, 17:19, 17:22, 17:24, 18:2, 18:20, 19:13, 21:20, 21:23, 24:9, 26:2, 26:7, 26:10, 33:20, 38:13, 38:20, 64:12, 67:8, 67:13, 91:14, 91:17, 92:8, 92:12, 92:14, 92:16, 92:18,

92:20, 92:22, 92:24,
93:1, 93:3, 95:15,
95:20, 95:23, 96:24,
97:2, 98:17, 99:3,
104:9, 104:17,
104:20, 106:16,
106:24, 107:3, 107:7,
108:12, 109:10,
117:16, 124:18,
125:2, 125:6, 125:10,
125:18, 126:4,
126:11, 126:19,
126:21, 126:25,
127:10, 127:15,
127:19, 128:4, 128:9,
128:25, 133:18,
136:2, 138:8, 138:15,
140:10, 140:22,
141:1, 141:23,
141:25, 142:5, 142:9,
142:14
bar [1] - 89:23
basalt [6] - 7:1,
119:1, 119:2, 119:7,
133:22, 134:5
base [5] - 70:25,
114:15, 115:10,
115:12, 133:23
based [20] - 30:9,
35:19, 54:10, 60:3,
66:13, 83:25, 84:3,
84:23, 85:3, 86:2,
92:5, 96:23, 98:18,
107:16, 124:15,
127:11, 129:10,
130:15, 131:3, 142:1
baseline [1] - 96:11
basements [2] -
136:11, 137:22
basin [2] - 97:11,
103:18
basins [2] - 103:11,
103:16
basis [4] - 68:21,
83:15, 137:5, 139:11
basting [1] - 122:14
bear [1] - 59:1
become [1] - 8:23
becomes [4] -
119:12, 119:13,
132:2, 135:5
bedrock [2] - 6:12,
137:25
began [3] - 5:13,
23:2, 27:22
begin [5] - 44:3,
49:21, 65:13, 79:9,
141:18
beginning [1] - 26:23
behalf [4] - 2:5, 2:8,

2:11, 21:7
behind [1] - 80:13
beings [1] - 66:14
below [22] - 9:24,
53:12, 64:18, 73:1,
74:25, 77:6, 77:13,
99:12, 100:11,
100:12, 100:13,
100:22, 108:17,
109:7, 110:16,
110:25, 114:10,
119:24, 121:6,
136:11, 136:23, 144:7
benched [1] - 101:2
benefit [1] - 127:8
best [3] - 103:13,
109:5, 143:7
better [8] - 9:11,
36:16, 79:8, 90:11,
101:24, 123:16,
123:23, 132:15
between [34] - 7:7,
8:4, 10:24, 17:10,
19:24, 23:22, 25:14,
25:15, 25:18, 25:25,
27:2, 29:22, 37:9,
45:12, 45:18, 45:22,
46:11, 46:13, 46:17,
46:19, 72:16, 89:2,
89:19, 89:22, 89:23,
94:8, 94:9, 99:10,
101:14, 115:6, 116:3,
129:7, 129:12, 130:8
beyond [4] - 16:2,
82:19, 105:12, 122:9
bids [2] - 132:7,
132:8
big [2] - 57:16,
136:21
bigger [1] - 136:24
bill [2] - 95:17, 95:24
bit [4] - 5:5, 96:22,
118:8, 123:16
blast [2] - 121:3,
121:4
blasting [6] - 121:1,
121:9, 121:11,
121:18, 122:1, 122:7
block [2] - 81:13,
81:16
BOARD [1] - 1:8
board [35] - 11:5,
11:8, 13:14, 13:16,
15:23, 18:3, 18:5,
26:21, 27:19, 33:6,
38:14, 48:2, 49:19,
54:9, 54:16, 87:12,
92:9, 96:22, 98:13,
99:1, 106:9, 106:13,
122:7, 123:2, 123:15,

124:21, 125:6, 126:1,
126:9, 128:6, 140:19,
140:23, 141:8, 141:25
Board [9] - 2:8,
32:19, 32:20, 39:5,
114:4, 115:4, 127:5,
140:11, 140:15
boards [2] - 34:10,
141:5
BOLAND [1] - 2:7
bolts [1] - 115:2
book [1] - 106:1
bore [2] - 86:13,
86:14
bores [1] - 123:20
borings [1] - 119:6
Borough [2] - 17:3
bother [2] - 42:1,
76:16
bothers [1] - 108:25
bottom [7] - 49:4,
101:20, 115:8,
134:10, 135:4,
135:16, 137:11
boulders [1] - 118:11
boundary [1] -
119:15
box [1] - 77:24
bplocker@
huttshim.com [1] -
2:3
BREABURN [1] -
2:10
break [4] - 26:8,
77:11, 91:13, 91:15
bridge [1] - 13:19
briefly [1] - 18:23
bring [2] - 24:10,
105:25
bringing [1] - 128:5
broadly [1] - 12:21
broke [1] - 135:1
brought [6] - 22:12,
50:18, 50:21, 56:15,
105:18, 127:5
BRUCE [1] - 2:10
Bruce [5] - 38:2,
38:6, 38:15, 82:6,
101:23
BRYAN [1] - 2:3
Bryan [2] - 38:7,
38:18
budget [1] - 132:7
buffer [5] - 99:10,
99:16, 101:14, 110:5,
110:6
buffering [1] -
110:12
build [2] - 67:1,
111:18

builder [1] - 129:20
building [44] - 9:13,
13:3, 16:17, 71:11,
71:12, 72:6, 72:8,
72:20, 72:22, 72:23,
73:1, 73:4, 74:18,
74:21, 74:22, 74:24,
75:1, 81:19, 81:20,
82:8, 82:14, 82:15,
82:16, 82:19, 93:16,
94:2, 100:2, 110:20,
114:10, 115:7, 115:8,
116:12, 116:18,
116:22, 117:4, 117:5,
117:7, 117:9, 129:19,
136:7, 136:21,
137:24, 138:5
Building [8] - 9:15,
68:17, 72:5, 105:14,
110:25, 121:6,
134:16, 137:2
buildings [1] - 72:5
built [6] - 66:24,
67:19, 69:7, 108:6,
119:22, 136:15
burden [6] - 138:17,
138:19, 138:24,
139:6, 140:2, 140:7
burdens [1] - 131:11
buried [1] - 88:21
business [2] - 17:17,
53:9
buttressed [2] -
110:24, 111:1
BY [2] - 2:3, 2:7

C

cacti [1] - 70:20
calculate [3] -
114:17, 115:22,
115:23
calculated [2] - 74:9,
140:2
calculation [8] -
81:20, 85:2, 89:11,
90:16, 115:18,
115:21, 123:9, 140:7
calculations [21] -
27:6, 27:8, 27:10,
27:11, 27:12, 39:18,
40:2, 64:17, 89:5,
89:15, 94:12, 95:4,
111:14, 117:21,
124:15, 126:16,
136:9, 137:3, 137:18,
138:19, 138:23
Caldwell [1] - 135:8
cannot [1] - 142:2
capacity [1] - 126:16

capital [1] - 132:6
CARDOZA [2] - 1:12,
92:21
cardoza [1] - 92:20
care [3] - 12:10,
17:13, 51:2
Care [3] - 2:11,
54:11, 111:12
caring [1] - 7:24
carpet [1] - 130:12
carved [1] - 115:12
case [16] - 5:7, 41:8,
41:18, 46:21, 56:8,
61:12, 61:17, 61:19,
66:20, 68:4, 83:11,
99:7, 131:1, 133:7,
134:15, 138:13
CASE [1] - 144:3
cases [2] - 48:20,
70:23
catastrophe [1] -
63:3
catch [1] - 99:17
catchment [2] - 99:6,
108:20
categorize [3] - 5:19,
6:21, 6:23
category [1] - 4:24
caused [1] - 75:10
causing [1] - 137:7
certain [9] - 23:14,
33:8, 65:25, 66:2,
77:17, 97:21, 136:14,
141:16, 141:17
certainly [3] - 45:15,
50:12, 52:7
certify [1] - 143:4
CERTIFY [1] - 143:8
chain [5] - 23:18,
26:23, 42:20, 43:21,
52:21
Chair [2] - 27:19,
92:2
chairman [3] - 25:7,
59:1, 124:20
Chairman [3] - 1:9,
1:10, 92:14
CHAIRMAN [82] -
4:1, 4:9, 4:15, 4:18,
12:12, 15:23, 17:19,
17:22, 17:24, 18:2,
18:20, 19:13, 21:20,
21:23, 24:9, 26:2,
26:7, 26:10, 33:20,
38:13, 38:20, 64:12,
67:8, 67:13, 91:14,
91:17, 92:8, 92:12,
92:14, 92:15, 92:16,
92:18, 92:20, 92:22,
92:24, 93:1, 93:3,

95:15, 95:20, 95:23, 96:24, 97:2, 98:17, 99:3, 104:9, 104:17, 104:20, 106:16, 106:24, 107:3, 107:7, 108:12, 109:10, 117:16, 124:18, 125:2, 125:6, 125:10, 125:18, 126:4, 126:11, 126:19, 126:21, 126:25, 127:10, 127:15, 127:19, 128:4, 128:9, 128:25, 133:18, 136:2, 138:8, 138:15, 140:10, 140:22, 141:1, 141:23, 141:25, 142:5, 142:9, 142:14 challenge [1] - 18:11 challenged [2] - 15:16, 18:9 challenges [2] - 129:22, 131:15 chance [6] - 4:25, 14:20, 58:14, 93:15, 93:17, 94:3 chances [3] - 93:18, 93:20, 113:24 change [2] - 105:11, 113:20 CHANGE [1] - 144:8 changes [2] - 74:23, 98:23 channel [1] - 54:9 Chapter [1] - 5:11 characterization [1] - 15:19 chart [1] - 59:19 check [5] - 31:12, 46:4, 68:24, 104:2, 134:10 chemistry [1] - 134:13 choice [10] - 128:19, 128:22, 129:7, 129:9, 129:12, 130:8, 130:22, 132:16, 139:2, 139:16 choices [1] - 129:25 choose [1] - 128:18 chooses [1] - 128:19 chosen [1] - 128:14 chronological [2] - 24:15, 24:20 circumstances [1] - 66:3 cite [3] - 60:18, 86:25, 87:2 city [1] - 101:4	civic [1] - 13:22 clarify [2] - 77:15, 140:19 clarity [1] - 111:7 class [2] - 113:12, 123:5 clear [5] - 7:21, 16:12, 56:20, 107:10, 139:10 clearing [4] - 116:11, 116:24, 117:6, 117:9 clearly [3] - 15:3, 128:1, 129:14 client [7] - 15:9, 34:5, 34:6, 37:22, 37:25, 85:24, 140:18 clients [3] - 20:10, 43:9, 43:10 cliff [4] - 5:23, 5:25, 114:17 cliffs [1] - 70:23 climate [3] - 98:23, 105:11, 106:3 close [5] - 53:9, 55:20, 102:3, 116:9, 123:12 closing [1] - 127:7 CME [12] - 19:21, 45:12, 46:13, 46:20, 47:9, 124:24, 125:14, 126:15, 127:4, 127:20, 127:23, 128:1 CMEs [1] - 45:18 codes [2] - 133:8 coding [1] - 60:3 coefficient [9] - 84:15, 84:18, 85:10, 85:11, 85:15, 85:19, 86:18, 88:2, 131:10 coefficients [1] - 86:6 collapse [5] - 62:8, 63:16, 66:16, 67:1, 75:3 colleague [1] - 50:12 colleagues [1] - 13:2 color [2] - 59:19, 60:3 coming [7] - 48:14, 116:19, 135:16, 136:16, 136:19, 142:11 commenced [1] - 52:8 comment [5] - 106:11, 140:17, 141:11, 141:19, 142:1 comments [8] - 51:10, 51:15, 51:16, 53:16, 106:20, 124:3,	124:4, 142:3 commercial/ residential [1] - 20:2 commissions [1] - 20:15 committee [1] - 33:16 commonly [1] - 130:2 communicate [3] - 47:21, 54:22, 141:6 communication [7] - 48:18, 49:9, 49:13, 49:18, 49:25, 50:6, 52:21 communications [3] - 45:17, 45:25, 47:7 community [1] - 106:9 company [5] - 17:1, 20:9, 20:11, 22:4, 22:5 comparison [1] - 5:21 comparisons [1] - 123:14 complaints [1] - 108:21 complete [4] - 22:24, 23:3, 116:20, 128:1 completing [1] - 68:22 complex [2] - 72:18, 72:19 compliance [1] - 127:25 comprehensive [1] - 97:6 comprised [1] - 23:16 comprises [1] - 85:8 compromised [2] - 17:5, 18:14 computed [1] - 94:21 computer [2] - 65:3, 73:2 concept [1] - 106:1 concern [4] - 58:19, 79:22, 82:22, 139:14 concerned [5] - 57:7, 65:17, 73:21, 101:21, 135:15 concerning [5] - 46:16, 46:21, 87:24, 104:23, 126:24 concerns [1] - 65:21 concludes [2] - 91:21, 142:15 conclusion [2] - 86:17, 86:24	condition [9] - 63:24, 66:8, 66:23, 67:21, 67:25, 109:23, 111:2, 113:7, 139:13 conditions [11] - 8:23, 22:25, 44:15, 56:14, 64:7, 67:17, 88:18, 97:9, 118:13, 131:22, 137:4 conference [1] - 29:20 confirm [6] - 36:2, 47:11, 78:22, 79:2, 102:4, 122:24 confirming [2] - 35:22, 36:7 confused [2] - 93:12, 93:14 connection [4] - 10:10, 12:24, 13:22, 13:24 consequence [2] - 74:8, 74:12 consequences [1] - 74:14 conservative [10] - 89:4, 90:6, 90:8, 128:15, 128:16, 129:7, 129:8, 129:12, 129:13, 132:4 consider [3] - 57:22, 99:1, 121:13 considered [3] - 41:10, 63:6, 98:22 consistent [7] - 85:3, 85:17, 86:19, 88:13, 88:14, 88:16, 88:19 constantly [2] - 108:23, 109:1 constitute [1] - 11:24 constructible [1] - 132:23 construction [20] - 68:6, 104:3, 104:5, 108:20, 108:25, 112:11, 115:4, 120:15, 120:25, 121:1, 122:9, 122:12, 122:23, 122:24, 122:25, 124:11, 124:14, 131:23, 131:24, 132:24 consult [3] - 12:5, 59:3, 140:25 consultants [1] - 71:25 consulted [4] - 11:16, 12:13, 15:11, 48:2 Consulting [2] -	9:14, 29:24 consulting [3] - 11:13, 11:25, 15:7 contact [4] - 28:2, 29:24, 37:19, 86:4 contacted [4] - 17:2, 17:3, 33:9, 48:6 contained [1] - 44:16 contains [1] - 27:11 contend [1] - 71:20 context [1] - 57:20 continue [7] - 33:19, 38:7, 38:17, 48:14, 75:20, 116:17, 140:15 continued [2] - 74:25, 140:13 continues [3] - 75:16, 76:9, 100:16 continuing [2] - 4:19, 50:7 continuous [1] - 26:23 contour [1] - 102:2 contours [2] - 116:21, 119:18 contract [1] - 11:2 contradicting [1] - 138:3 control [2] - 121:17, 122:11 controlled [2] - 70:2, 121:10 controlling [1] - 6:15 conventional [1] - 60:12 conversation [18] - 14:10, 16:5, 25:17, 27:2, 28:6, 29:1, 30:8, 30:9, 30:15, 31:11, 31:14, 31:15, 31:24, 37:14, 41:21, 42:7, 42:11, 52:7 conversations [10] - 16:1, 16:16, 25:19, 28:18, 29:5, 32:3, 32:17, 32:22, 42:19, 50:8 conveying [1] - 37:1 cooling [2] - 75:22, 75:23 copied [4] - 25:19, 31:7, 35:17, 48:18 copies [1] - 56:18 copy [6] - 21:12, 21:14, 24:11, 25:7, 26:15, 52:3 Core [1] - 60:17 core [12] - 77:16, 77:17, 77:20, 77:21, 77:24, 78:3, 78:11,
---	--	--	--	---

78:18, 78:24, 79:10, 79:20 corner [2] - 4:4, 114:15 Corp [1] - 2:12 Corps [3] - 66:7, 95:25, 96:10 correct [106] - 6:8, 6:12, 6:19, 6:20, 7:2, 7:3, 7:10, 7:11, 8:16, 9:8, 10:25, 11:1, 12:16, 12:17, 13:9, 13:10, 19:25, 20:1, 21:4, 21:5, 21:8, 27:18, 27:19, 27:20, 27:23, 28:21, 29:8, 29:18, 29:25, 30:1, 30:23, 30:24, 32:9, 35:20, 37:7, 37:8, 40:8, 40:9, 40:14, 40:22, 40:23, 42:8, 42:9, 42:12, 42:13, 42:17, 45:6, 46:25, 48:10, 49:14, 51:17, 51:18, 59:20, 59:25, 60:4, 60:11, 62:2, 62:9, 63:17, 63:18, 64:9, 64:23, 65:19, 65:20, 69:9, 69:18, 70:13, 70:16, 70:17, 70:20, 71:1, 71:2, 71:8, 71:9, 71:13, 73:1, 73:17, 73:18, 73:22, 75:11, 76:9, 79:2, 81:4, 81:6, 81:8, 81:16, 81:17, 81:21, 85:2, 85:16, 85:17, 86:12, 89:9, 89:10, 90:16, 91:7, 93:16, 95:11, 110:8, 110:9, 118:3, 120:24, 123:5, 135:5, 140:22, 142:5 corrections [2] - 144:7, 144:23 correspond [1] - 33:7 correspondence [1] - 37:13 could've [1] - 55:10 council [1] - 92:22 Councilwoman [1] - 1:13 COUNCILWOMAN [1] - 92:23 counsel [3] - 18:3, 143:9, 143:11 countered [1] - 14:12 counties [1] - 20:15 couple [5] - 10:7,	22:22, 44:10, 99:1, 107:21 course [4] - 66:22, 88:20, 141:6, 141:19 COURT [1] - 1:23 court [2] - 67:10, 129:5 covering [1] - 70:16 cracks [2] - 85:6, 120:16 create [7] - 99:10, 101:14, 113:23, 115:15, 119:22, 122:4, 124:14 created [1] - 127:24 creating [3] - 114:20, 115:10 crisis [3] - 62:16, 62:20, 62:23 criteria [3] - 72:3, 83:22, 131:8 criterion [1] - 121:25 critical [2] - 73:2, 74:22 critically [1] - 119:13 criticized [2] - 50:15, 52:15 criticizing [1] - 51:22 cross [13] - 18:10, 38:24, 42:14, 43:1, 43:13, 43:15, 43:24, 46:7, 48:15, 55:11, 91:21, 92:4, 109:14 cross-examination [6] - 18:10, 43:15, 48:15, 91:21, 92:4, 109:14 cross-examine [1] - 43:13 cross-examined [4] - 38:24, 43:1, 43:24, 55:11 cross-examiner [1] - 46:7 crunching [1] - 123:22 cubicles [1] - 21:1 cul [1] - 117:25 cul-de-sac [1] - 117:25 curiosity [1] - 118:15 curious [2] - 79:12, 79:13 cut [1] - 105:8 cutting [3] - 104:25, 106:2, 106:5	136:5 dam [3] - 41:9, 66:6, 66:9 damage [4] - 75:2, 99:15, 108:3, 114:5 damaged [5] - 74:15, 100:4, 107:14, 107:24 dams [3] - 13:19, 66:5, 115:23 danger [2] - 77:1, 84:7 Danielle [1] - 108:13 data [12] - 41:5, 59:12, 85:13, 85:17, 85:18, 86:22, 87:2, 96:3, 96:5, 96:23, 101:22, 101:23 Date [1] - 144:25 date [14] - 44:7, 44:8, 44:12, 44:22, 46:11, 46:17, 47:5, 47:6, 49:7, 140:24, 140:25, 141:16, 143:6, 144:6 Dated [1] - 143:19 dated [6] - 22:1, 25:3, 29:15, 31:6, 35:13, 49:1 dates [3] - 32:5, 32:6, 141:3 daylighting [1] - 76:17 daylights [1] - 76:19 days [4] - 27:22, 39:22, 48:17, 141:13 de [1] - 117:25 deal [2] - 7:4, 93:18 dealing [2] - 7:22, 71:7 deals [2] - 6:25, 126:7 dealt [2] - 128:21, 130:6 death [1] - 129:24 debate [1] - 7:7 debating [1] - 7:9 Deborah [1] - 136:5 debris [8] - 99:7, 99:17, 100:2, 100:3, 100:7, 100:8, 108:20 DECEMBER [2] - 1:2, 3:4 December [33] - 21:3, 22:1, 22:15, 22:17, 23:19, 23:20, 25:13, 25:25, 42:12, 42:15, 42:21, 43:2, 43:18, 43:19, 48:8, 48:10, 48:13, 48:17, 49:1, 49:2, 49:7, 49:9, 49:12, 50:6, 50:10,	50:16, 51:7, 53:5, 53:7, 53:8, 96:7 decide [5] - 38:14, 88:1, 129:9, 132:10, 141:25 decided [1] - 69:8 decision [1] - 130:15 declined [1] - 17:4 deep [3] - 113:23, 114:13, 119:7 deeper [2] - 137:12, 137:13 define [3] - 58:4, 69:20, 107:20 defined [1] - 57:19 defining [1] - 57:23 definitely [1] - 139:11 definition [14] - 5:16, 5:19, 6:3, 7:19, 7:20, 58:12, 69:22, 69:24, 69:25, 70:5, 71:4, 71:5, 71:17, 71:19 definitively [1] - 83:10 degree [7] - 52:11, 58:8, 58:15, 58:18, 84:21, 101:11, 102:1 degrees [12] - 81:12, 83:13, 84:1, 84:11, 86:9, 100:18, 102:1, 102:3, 113:13, 119:19, 120:7 delay [1] - 91:19 demonstrate [1] - 118:16 deny [1] - 102:4 DEP [3] - 59:20, 103:14, 105:23 DePalma [1] - 108:14 DEPARTMENT [1] - 1:1 department [2] - 20:5, 29:11 depended [1] - 49:24 Deruce [1] - 136:5 describe [7] - 26:13, 26:14, 26:19, 26:20, 29:1, 35:8, 118:7 described [9] - 5:22, 9:11, 14:1, 59:14, 66:17, 87:7, 119:8, 125:11, 125:12 describing [3] - 88:17, 137:4, 138:6 description [7] - 4:24, 6:5, 60:1, 70:8, 70:10, 84:23, 88:13 DESCRIPTION [1] - 3:3	descriptions [1] - 44:16 design [8] - 86:2, 86:19, 86:20, 97:13, 97:24, 121:11, 131:12, 132:10 designate [1] - 124:10 designed [2] - 115:22, 121:18 designer [2] - 13:17, 13:18 designing [2] - 139:2, 139:3 despite [2] - 65:8, 65:21 dessert [1] - 70:19 destabilization [1] - 77:1 detail [2] - 26:25, 31:23 detailed [4] - 8:20, 53:10, 83:17, 96:3 details [2] - 16:18, 27:13 detention [1] - 103:11 deteriorating [1] - 137:15 determination [2] - 59:13, 60:8 determine [3] - 85:8, 85:12, 97:25 determined [1] - 39:15 determining [1] - 130:23 develop [1] - 4:2 developed [1] - 90:25 developer [3] - 139:6, 139:8, 140:3 developing [1] - 109:24 development [12] - 4:3, 20:3, 63:23, 66:24, 67:18, 68:12, 107:24, 108:1, 108:4, 108:7, 109:22, 139:14 DEVELOPMENT [1] - 1:1 develops [1] - 63:25 device [1] - 122:4 diagram [1] - 125:23 DIANA [1] - 2:7 diary [1] - 28:17 differ [1] - 87:24 difference [2] - 6:5, 72:16 different [9] - 23:21,
---	---	--	--	--

59:23, 77:13, 91:5,
110:17, 110:21,
120:17, 122:14
differently [1] -
16:24
difficult [4] - 126:7,
128:12, 132:24,
141:13
dig [2] - 121:4,
123:25
digging [5] - 99:8,
113:22, 114:8,
114:24, 123:20
dip [1] - 80:7
direct [2] - 29:11,
56:12
directed [4] - 5:12,
10:6, 11:18, 12:2
directing [1] - 16:24
direction [4] - 76:1,
80:16, 81:2, 83:4
directly [4] - 17:2,
56:9, 121:6, 135:9
dirt [1] - 99:23
disagree [2] - 15:18,
15:21
disappearance [1] -
124:24
disaster [4] - 128:14,
128:20, 129:13,
129:21
disclose [1] - 45:7
disclosed [2] -
42:16, 49:8
disclosing [3] -
43:14, 50:2, 52:16
discounted [1] -
113:14
discuss [5] - 22:8,
28:8, 29:20, 33:14
discussed [10] -
16:6, 16:18, 17:10,
19:8, 20:25, 36:19,
88:20, 91:23, 92:1,
92:7
discussing [3] - 5:4,
5:7, 49:21
discussion [24] -
12:2, 16:17, 19:3,
19:5, 22:11, 23:2,
23:6, 32:4, 33:2, 35:8,
35:19, 37:2, 37:5,
39:8, 40:3, 43:3,
43:12, 43:16, 45:4,
48:24, 52:8, 59:18,
113:3, 127:21
discussions [33] -
18:25, 19:7, 22:9,
22:18, 22:19, 23:1,
23:4, 23:16, 23:24,

27:13, 28:12, 35:24,
37:21, 38:1, 39:3,
40:5, 42:15, 44:19,
44:25, 45:7, 45:20,
46:16, 46:19, 46:23,
52:12, 52:14, 52:16,
52:17, 52:23, 52:24,
55:16, 55:22
dispute [2] - 87:10,
89:19
disrespectfully [1] -
7:24
distance [4] - 9:21,
121:13, 121:14
distinction [2] - 7:15,
8:3
disturbance [3] -
6:18, 121:12, 122:5
divergent [1] -
128:16
DO [1] - 143:8
document [8] -
26:12, 26:21, 26:22,
29:14, 32:1, 36:25,
39:19, 54:1
documentation [1] -
84:4
documents [9] -
40:4, 40:6, 124:22,
126:10, 126:15,
126:24, 126:25,
127:4, 127:9
dollars [1] - 132:7
done [27] - 4:11,
14:4, 16:23, 20:12,
33:15, 39:10, 68:4,
68:24, 71:25, 87:15,
87:20, 88:1, 88:22,
91:24, 94:12, 96:2,
97:17, 98:4, 98:5,
110:17, 110:20,
111:14, 117:2, 121:9,
124:16, 133:15, 142:2
door [1] - 115:14
down [30] - 9:16,
9:18, 9:22, 56:3, 56:4,
56:7, 60:20, 77:6,
77:13, 78:7, 99:13,
100:6, 100:21,
104:25, 105:8, 106:2,
106:6, 114:18,
114:21, 114:25,
115:7, 115:9, 119:20,
129:19, 134:9,
135:16, 136:16,
137:9, 137:11, 137:24
downhill [2] - 114:6,
116:15
downplay [1] -
109:15

downward [3] - 80:7,
80:9, 81:2
Dr [2] - 10:23, 18:17
drawdown [1] - 41:9
drawing [2] - 13:14,
13:16
drawings [3] - 39:11,
39:14, 86:8
DRIVE [2] - 2:7, 2:10
Drive [10] - 93:8,
93:23, 93:24, 99:4,
101:20, 115:14,
117:20, 118:1,
118:24, 122:8
drop [1] - 22:21
dropping [1] -
114:16
dry [1] - 102:13
due [3] - 75:22,
75:23, 122:25
during [10] - 11:25,
19:6, 53:17, 77:10,
108:24, 122:24,
124:14, 134:21,
134:25, 141:19
duty [2] - 139:25

E

e-mail [57] - 16:5,
21:3, 21:11, 21:15,
22:1, 22:6, 22:15,
22:16, 25:3, 25:9,
25:17, 25:23, 25:24,
26:22, 26:23, 28:4,
28:11, 28:20, 28:22,
28:23, 28:25, 29:4,
29:6, 29:15, 30:7,
31:1, 31:11, 32:7,
32:11, 32:25, 35:13,
35:23, 36:1, 36:25,
37:10, 37:12, 37:15,
37:18, 37:19, 38:21,
40:22, 42:22, 45:11,
45:15, 45:17, 46:18,
47:8, 47:18, 47:22,
48:25, 49:12, 54:18,
55:21, 60:19, 60:20,
125:21
E-MAIL [1] - 3:4
e-mailed [5] - 30:3,
30:4, 30:6, 47:23,
124:23
e-mails [17] - 22:16,
22:18, 23:15, 23:18,
23:19, 23:22, 24:5,
24:20, 27:22, 31:25,
32:3, 32:16, 43:19,
44:3, 50:16, 55:15,
55:16

earth [7] - 6:10, 6:11,
13:19, 122:11,
122:13, 122:14
easement [1] -
115:13
easier [3] - 36:13,
36:14, 112:9
east [8] - 80:7, 80:14,
81:3, 101:21, 105:14,
134:15, 137:2, 138:4
eastern [6] - 81:5,
113:25, 114:14,
114:16, 117:3, 117:8
eastward [1] - 76:2
easy [2] - 85:12,
133:14
egress [1] - 11:19
either [10] - 8:7,
15:12, 32:11, 38:21,
50:13, 71:20, 89:15,
90:5, 90:20, 126:9
elements [1] - 82:9
elevation [2] - 77:5,
77:6
elevations [1] -
116:17
emergency [2] -
118:3, 121:3
emotional [1] - 37:3
employee [2] -
143:9, 143:11
enables [1] - 131:11
encounter [1] -
119:6
encountered [1] -
120:20
end [9] - 22:23,
25:10, 25:13, 25:15,
25:16, 76:17, 118:1,
119:23, 142:11
ended [1] - 78:5
ends [1] - 82:21
engineer [60] - 7:8,
10:4, 12:7, 12:9,
12:20, 12:24, 13:14,
13:16, 15:7, 16:2,
16:25, 17:3, 19:18,
21:6, 33:25, 34:25,
35:7, 39:6, 39:9, 42:7,
42:8, 44:14, 47:13,
47:19, 47:21, 47:23,
48:4, 48:6, 49:14,
50:24, 53:17, 53:22,
54:21, 54:22, 55:10,
59:3, 61:25, 74:13,
87:22, 88:6, 95:25,
96:13, 96:14, 96:17,
97:13, 97:24, 100:5,
111:11, 111:12,
115:17, 127:24,

128:14, 128:18,
128:22, 129:6, 130:4,
130:20, 130:21,
139:15
Engineer [1] - 1:18
Engineering [4] -
16:6, 22:7, 28:3,
96:10
engineering [24] -
7:25, 11:24, 19:22,
20:5, 21:7, 33:22,
40:21, 52:10, 63:19,
66:18, 83:12, 96:1,
110:19, 124:3, 124:5,
128:13, 128:17,
128:18, 128:24,
129:10, 129:22,
129:23, 130:3, 132:15
Engineers [3] -
60:17, 66:7, 95:25
engineers [34] - 9:5,
10:25, 11:13, 12:20,
19:9, 19:24, 20:7,
32:16, 34:14, 52:25,
56:15, 56:21, 57:3,
59:2, 68:23, 69:9,
73:17, 73:20, 74:1,
78:9, 84:1, 84:23,
85:21, 87:8, 87:24,
88:25, 89:19, 89:23,
90:5, 90:18, 102:11,
103:9, 111:11, 137:3
enhance [1] - 113:23
ensurances [1] -
109:3
ensure [1] - 109:1
enter [2] - 117:23,
117:24
entered [4] - 42:19,
117:22, 117:25, 118:2
entering [1] - 118:6
entirely [2] - 110:21,
110:23
environment [1] -
106:3
equal [3] - 115:8,
132:20, 142:11
equation [1] - 27:12
equivalent [1] - 41:8
ERIC [2] - 143:2,
143:16
erode [1] - 77:8
eroded [1] - 134:2
erosion [2] - 77:9,
134:23
err [1] - 90:6
erroneous [1] -
90:15
error [1] - 130:7
ERROR [1] - 144:8

errors [1] - 144:6 especially [3] - 56:11, 105:11, 137:17 ESQ [3] - 2:3, 2:7, 2:10 ESQS [2] - 2:2, 2:6 essentially [1] - 53:9 Essex [1] - 110:25 ESSEX [1] - 1:5 establish [1] - 123:2 established [3] - 54:9, 89:4, 121:17 estate [1] - 20:3 estimate [1] - 132:4 etc [2] - 45:18, 47:8 ethically [1] - 34:10 evade [1] - 94:19 evaluate [14] - 6:18, 19:17, 19:23, 44:15, 62:16, 63:1, 65:1, 66:13, 83:19, 86:17, 97:24, 108:10, 114:24, 130:1 evaluated [1] - 111:13 evaluating [5] - 10:16, 32:15, 128:15, 130:23, 131:15 evaluation [26] - 10:24, 11:3, 11:6, 11:10, 12:15, 12:19, 12:23, 14:4, 15:4, 18:18, 22:24, 23:3, 43:9, 54:23, 58:20, 67:20, 68:4, 68:22, 87:12, 87:23, 88:1, 98:12, 103:22, 117:4, 117:13, 124:4 evaluations [2] - 13:11, 13:21 evaluator [2] - 84:5, 84:13 evening [12] - 4:17, 4:18, 4:19, 4:20, 28:1, 53:17, 53:19, 108:13, 117:19, 141:12, 141:18, 142:4 event [21] - 36:23, 41:2, 41:6, 41:16, 41:19, 58:6, 58:22, 59:5, 61:20, 61:23, 62:9, 62:19, 63:8, 63:13, 63:14, 63:24, 66:16, 94:13, 97:21, 100:1, 107:11 events [6] - 41:7, 60:23, 62:10, 63:7, 63:10, 63:25 eventuality [1] - 68:25	evidence [7] - 59:15, 60:10, 64:4, 64:5, 64:8, 118:13, 118:16 evolution [1] - 137:16 ex [5] - 35:2, 35:4, 37:7, 38:1, 52:17 exacerbated [1] - 136:22 exact [3] - 44:7, 44:8, 76:7 exactly [10] - 21:20, 47:25, 56:1, 57:15, 67:4, 67:7, 68:14, 96:20, 103:3, 114:18 examination [8] - 5:1, 18:10, 43:15, 48:15, 91:21, 92:4, 92:6, 109:14 examine [1] - 43:13 examined [5] - 38:24, 42:14, 43:1, 43:24, 55:11 examiner [1] - 46:7 example [2] - 6:4, 69:19 excavated [1] - 87:5 excavation [4] - 114:4, 114:23, 121:16, 122:18 exceed [1] - 98:10 excess [4] - 74:25, 75:2, 75:19, 75:25 exchanges [4] - 45:11, 46:12 exclude [1] - 41:25 excluded [1] - 41:22 excuse [3] - 21:6, 74:19, 139:21 exhibit [3] - 25:22, 42:19, 42:21 EXHIBIT [1] - 3:3 Exhibit [5] - 22:15, 29:14, 43:18, 45:16, 46:18 exist [4] - 55:15, 69:6, 70:24, 124:15 existed [1] - 113:19 existing [4] - 68:11, 76:14, 110:19, 118:13 exists [7] - 67:22, 67:24, 68:1, 68:6, 68:9, 112:15, 113:8 exits [2] - 8:7, 46:9 expeditious [1] - 51:23 experience [8] - 80:8, 84:14, 129:3, 129:4, 129:6, 129:11, 131:21, 138:21	experienced [6] - 12:10, 75:14, 84:1, 87:8, 96:16, 129:20 experiencing [1] - 77:9 expert [18] - 11:11, 12:14, 26:14, 41:22, 43:10, 96:25, 97:3, 103:20, 106:5, 106:17, 106:19, 106:22, 116:1, 125:13, 130:6, 132:17, 134:12 expertise [3] - 105:12, 105:19, 106:11 experts [5] - 13:12, 14:9, 14:10, 39:3, 141:2 explain [7] - 39:5, 55:25, 74:20, 77:21, 82:4, 83:15, 122:19 explanation [2] - 83:17, 113:4 explanations [1] - 53:10 exploration [1] - 131:22 explorations [1] - 13:4 explosives [1] - 121:11 exposed [4] - 14:20, 76:8, 88:16, 110:23 expressed [2] - 37:2, 42:5 expressing [1] - 40:21 extensive [1] - 53:14 extent [3] - 18:24, 97:20, 97:25 extreme [13] - 36:23, 41:2, 41:7, 41:15, 58:22, 59:5, 60:23, 61:20, 61:23, 62:8, 62:10, 64:1, 107:11 extrusions [1] - 70:24	62:21, 63:2, 63:6, 63:8, 65:22, 66:6, 66:19, 69:8, 72:3, 73:3, 73:18, 73:21, 74:2, 76:1, 82:24, 89:6, 90:7, 90:12, 90:24, 91:6, 96:20, 98:24, 112:14, 131:25, 138:17, 138:21, 138:25, 139:4, 140:5 Factor [11] - 36:23, 40:8, 40:12, 40:15, 41:3, 41:16, 42:6, 58:23, 61:2, 74:9, 96:8 factors [5] - 41:9, 74:23, 98:23, 111:14, 123:12 facts [1] - 13:8 fail [1] - 80:12 failure [11] - 6:1, 65:11, 72:1, 72:7, 73:4, 74:9, 74:12, 74:22, 128:13, 129:18, 131:2 failures [1] - 72:6 fair [5] - 31:17, 31:18, 62:25, 68:1, 82:5 fairly [1] - 53:14 fall [3] - 39:7, 100:8 falling [1] - 56:9 falls [2] - 123:4, 129:21 familiar [5] - 8:23, 11:19, 96:14, 97:19, 100:10 familiarity [1] - 86:2 families [1] - 108:21 far [9] - 15:10, 31:2, 52:13, 75:14, 95:7, 99:14, 114:18, 121:5, 126:12 favorable [5] - 80:8, 80:9, 80:10, 83:2, 83:4 FAX [1] - 1:25 fear [1] - 62:8 feasible [1] - 136:8 feet [7] - 75:8, 82:19, 82:20, 107:21, 113:22, 113:23 fell [2] - 100:4, 137:9 felt [3] - 13:7, 60:21, 65:4 few [9] - 20:9, 26:20, 39:20, 57:11, 58:9, 91:25, 99:11, 133:15, 137:13	field [2] - 110:12, 110:16 figure [2] - 65:14, 72:9 file [1] - 28:21 files [1] - 48:22 fill [1] - 141:20 filling [4] - 76:21, 83:24, 120:16, 120:18 fills [1] - 77:4 final [1] - 98:15 finally [1] - 55:3 financial [7] - 131:11, 131:15, 138:17, 138:19, 138:23, 139:6, 140:2 financially [1] - 143:12 findings [1] - 79:2 fine [2] - 17:23, 142:7 fined [1] - 130:16 finish [4] - 38:5, 64:12, 64:13, 140:5 firm [6] - 9:14, 20:2, 20:6, 20:16, 20:18, 96:2 firms [4] - 124:3, 124:5, 128:18, 132:17 first [14] - 24:22, 24:24, 25:3, 25:12, 25:23, 26:24, 27:3, 29:15, 37:18, 44:10, 45:15, 46:17, 53:20, 95:18 FISHMAN [3] - 1:23, 143:2, 143:16 fissures [1] - 133:24 five [8] - 26:8, 51:9, 51:19, 51:22, 55:5, 95:19, 104:14, 116:8 five-minute [2] - 26:8, 104:14 flash [2] - 105:10, 106:8 flat [3] - 98:21, 120:5, 120:6 flatten [1] - 119:24 flattened [2] - 119:17, 119:22 flattens [3] - 100:17, 119:19, 119:21 flatter [2] - 108:7, 119:12 flaw [1] - 130:8 flooded [1] - 136:12 flooding [6] - 93:16, 94:4, 105:10, 105:18, 106:8 floor [1] - 26:11
F				
face [5] - 5:23, 5:25, 76:8, 96:17 faced [1] - 139:2 fact [10] - 6:25, 11:2, 18:15, 37:23, 75:2, 75:16, 83:25, 95:2, 95:9, 96:19 factor [34] - 5:11, 5:12, 43:7, 60:21,				

flowed [3] - 134:20, 134:21, 134:22 flows [1] - 134:20 follow [6] - 51:14, 117:22, 126:7, 133:8, 138:12, 139:23 follow-up [1] - 138:12 follows [3] - 27:2, 51:10, 51:15 font [1] - 53:12 footings [2] - 114:10, 115:8 FOR [1] - 144:8 force [1] - 82:18 forces [2] - 75:19, 75:24 foregoing [1] - 143:4 forest [2] - 117:24, 137:17 forested [1] - 105:4 form [1] - 76:7 formal [1] - 103:5 formally [1] - 98:12 formation [4] - 85:6, 134:19, 134:20 forming [1] - 133:25 forth [4] - 23:17, 27:17, 47:17, 143:7 forward [8] - 35:19, 36:8, 49:23, 50:11, 50:13, 50:17, 53:20, 132:9 forwarding [3] - 27:16, 35:23, 50:15 foundation [5] - 5:13, 71:6, 71:7, 71:10, 71:11 foundations [6] - 13:19, 13:20, 61:6, 70:14, 71:8, 71:14 Foundations [3] - 5:4, 5:10, 61:5 four [7] - 30:5, 53:7, 53:11, 96:20, 105:25, 106:4, 119:23 fracture [2] - 76:9, 76:11 fractures [3] - 7:2, 75:10, 85:7 fracturing [8] - 9:5, 74:25, 75:16, 75:20, 75:22, 75:25, 76:13 frame [1] - 30:18 Frank/Sam [1] - 36:21 frankly [1] - 76:24 frequency [1] - 58:9 frequently [1] - 58:9 friction [12] - 81:7,	81:8, 81:11, 82:9, 83:13, 84:6, 84:15, 84:18, 85:10, 85:11, 85:15, 86:3 frictional [1] - 83:5 Friday [9] - 39:23, 39:24, 50:6, 51:2, 51:4, 51:7, 52:13, 65:7 friends [1] - 108:23 front [4] - 5:14, 26:15, 49:1, 80:14 FS [3] - 36:21, 37:4, 40:8 full [5] - 48:21, 82:5, 122:7, 123:17, 123:24 funny [3] - 38:10, 38:11, 38:12 FURTHER [1] - 143:8	glasses [1] - 36:15 Goll [1] - 50:11 goll [15] - 10:9, 10:13, 32:9, 32:10, 33:9, 33:11, 37:10, 37:11, 37:12, 37:14, 37:19, 50:5, 50:12, 52:3, 52:7 government [1] - 20:14 grade [1] - 114:10 Grand [1] - 100:3 gravities [1] - 81:8 gravity [4] - 76:1, 76:8, 81:1, 99:13 gray [1] - 53:13 great [5] - 5:15, 15:14, 109:24, 123:14, 141:4 greater [5] - 58:6, 73:4, 112:2, 112:5 ground [6] - 39:7, 95:9, 99:23, 103:15, 121:18, 122:22 groundwater [13] - 22:25, 48:22, 56:2, 56:6, 59:9, 59:13, 59:14, 65:5, 65:12, 98:8, 103:22, 104:4, 104:6 group [3] - 48:19, 130:4 grout [1] - 76:16 growing [1] - 137:14 GSI [1] - 89:4 GUARINO [2] - 1:10, 92:15 Guarino [1] - 92:14 guess [11] - 30:18, 46:4, 53:1, 62:24, 104:22, 110:2, 120:16, 128:2, 130:14, 131:13, 132:17 guessing [3] - 52:23, 73:9, 105:22 guidance [4] - 32:20, 33:22, 34:2, 34:3 guide [1] - 55:10	142:12 hard [3] - 79:24, 133:13, 133:14 harm [3] - 66:14, 132:17, 132:18 hazard [6] - 112:19, 113:16, 113:18, 123:8, 124:10, 124:12 hazardous [1] - 113:12 head [1] - 95:16 headed [1] - 5:10 HEADQUARTERS [1] - 1:23 heads [1] - 123:21 health [4] - 105:2, 105:9, 106:2, 106:7 hear [11] - 17:22, 19:4, 20:21, 84:16, 84:17, 127:3, 127:8, 127:11, 127:14, 137:23, 141:23 heard [5] - 15:10, 20:20, 117:21, 127:16, 128:2 hearing [2] - 108:21, 142:15 heavily [1] - 136:12 heavy [10] - 39:7, 56:8, 56:11, 56:12, 58:2, 58:4, 63:14, 64:6, 97:9, 97:13 held [1] - 140:12 Hello [1] - 51:15 hello [1] - 95:17 help [4] - 36:13, 48:8, 103:14, 123:15 helpful [1] - 131:13 hereby [1] - 143:3 hereinbefore [1] - 143:7 hereto [1] - 144:23 Hernandez [4] - 22:3, 29:11, 31:8, 35:16 hi [5] - 101:19, 104:13, 107:9, 109:11, 128:10 high [11] - 22:25, 39:12, 39:17, 40:16, 40:19, 65:1, 65:4, 77:10, 98:8, 103:17, 103:21 higher [23] - 61:2, 62:21, 63:2, 64:8, 64:14, 65:6, 65:9, 65:14, 66:1, 66:18, 72:16, 74:2, 89:23, 90:21, 98:9, 123:4, 131:9, 131:10, 132:2,	138:17, 138:25, 139:3, 140:5 highest [1] - 132:11 HIGHLANDS [1] - 1:5 highly [1] - 124:5 hill [4] - 101:21, 135:4, 135:16 himself [1] - 12:10 hit [1] - 99:14 hold [1] - 23:11 holding [1] - 81:6 holds [1] - 71:13 holes [1] - 136:18 holiday's [1] - 142:13 home [1] - 99:24 homes [18] - 99:11, 99:14, 99:15, 100:4, 100:5, 100:6, 100:7, 100:14, 107:14, 108:3, 118:21, 118:22, 119:2, 119:17, 119:22, 119:24, 122:8 hoping [1] - 51:24 horizontal [1] - 114:18 hours [5] - 51:8, 51:9, 51:19, 51:22, 57:11 house [2] - 66:10, 137:12 houses [3] - 66:11, 66:15, 136:15 Howell [11] - 93:8, 99:4, 115:14, 117:20, 117:24, 118:1, 118:23, 122:8, 136:13, 136:16 howell [2] - 93:23, 93:24 human [1] - 66:14 hundred [1] - 107:21 hundreds [1] - 117:10 Hurricane [1] - 137:8 HUTT [1] - 2:2 Hydro [17] - 10:16, 42:2, 56:22, 57:4, 59:24, 64:5, 72:2, 73:23, 83:1, 89:3, 90:1, 90:9, 92:4, 117:3, 123:11, 131:3 Hydro's [3] - 72:10, 89:15, 91:2 hydrostatic [3] - 77:10, 115:24, 116:25 hypothesis [1] - 9:25 hypothetical [3] -
G				
GACCIONE [1] - 2:6 gallons [4] - 116:3, 116:5, 116:9, 117:11 general [5] - 31:23, 48:19, 116:14, 128:12, 139:1 generally [3] - 26:21, 106:10, 131:8 generations [1] - 135:19 gentleman [2] - 10:15, 142:12 gentleman's [1] - 109:14 gentlemen [1] - 38:13 gently [1] - 135:17 geologic [1] - 89:1 Geological [1] - 113:11 geologist [4] - 87:9, 88:5, 134:14, 135:7 geology [3] - 133:22, 134:18, 135:7 geotechnical [4] - 88:6, 96:13, 96:16, 123:18 Gilda [2] - 66:9, 93:8 given [14] - 25:8, 43:16, 43:18, 56:18, 85:6, 96:19, 106:11, 106:22, 113:4, 123:3, 123:17, 123:23, 132:16, 142:2 glacial [5] - 133:25, 135:10, 135:11, 135:21, 135:22 glacier [1] - 75:9				
H				
half [4] - 49:4, 114:12, 114:13, 131:7 halfway [1] - 9:15 Hall's [1] - 110:12 handbook [1] - 86:10 hang [2] - 24:9, 78:22 happy [3] - 141:10,				

112:7, 137:19, 139:17	144:22	38:1	introducing [1] - 26:12	Joseph [1] - 104:13
I	included [10] - 23:1, 28:6, 31:24, 42:20, 74:21, 88:8, 105:22, 114:3, 135:7	infrequent [1] - 63:12	investigation [4] - 8:20, 110:17, 123:9, 130:11	judgement [1] - 83:21
ice [1] - 75:8	includes [3] - 5:10, 102:6, 102:19	ingress [1] - 11:20	investigations [1] - 13:15	jumping [1] - 26:6
Iceland [1] - 134:22	including [5] - 70:17, 70:18, 107:24, 108:3	initial [2] - 51:10, 51:15	involve [3] - 34:25, 59:7, 59:9	Jurassic [2] - 133:24, 134:21
idea [4] - 101:25, 131:16, 137:5, 137:6	inclusionary [1] - 4:2	initiated [2] - 29:24, 52:21	involved [4] - 72:1, 108:16, 111:14, 112:11	justified [1] - 139:3
identified [6] - 93:5, 113:5, 113:10, 113:12, 113:15	incorrect [2] - 107:11, 139:18	insinuate [2] - 15:3, 33:17	involves [1] - 52:11	justify [5] - 36:23, 41:2, 41:16, 58:23, 88:4
identify [11] - 4:24, 21:20, 44:25, 72:1, 73:2, 77:17, 77:19, 78:14, 78:18, 78:25, 79:1	incorrectly [1] - 76:6	insist [1] - 65:22	involving [1] - 73:4	K
identifying [1] - 59:20	increased [2] - 140:1, 140:7	inspection [8] - 8:16, 9:10, 11:25, 16:21, 23:24, 44:5, 44:6, 87:3	ions [1] - 64:4	KAPFERER [2] - 1:11, 92:13
igneous [1] - 70:24	independent [26] - 10:24, 11:3, 11:6, 11:11, 12:15, 12:19, 13:11, 14:4, 14:6, 15:5, 16:21, 18:18, 32:14, 34:9, 43:9, 54:23, 84:5, 84:13, 85:14, 87:12, 87:13, 87:22, 87:25, 123:17, 123:24	instability [3] - 8:25, 115:19, 123:10	iron [1] - 134:24	keep [10] - 92:12
illegal [1] - 38:3	independently [1] - 86:17	install [4] - 104:2, 104:5, 115:1, 122:20	issue [5] - 16:19, 32:23, 60:10, 103:12, 121:22	keep [10] - 18:24, 26:5, 28:16, 28:22, 81:13, 83:6, 106:8, 106:19, 110:3, 142:11
illite [3] - 134:4, 134:6, 135:12	indicate [6] - 6:14, 62:18, 94:12, 115:19, 123:10	installations [1] - 13:20	issues [19] - 6:14, 8:1, 9:3, 16:6, 21:7, 22:12, 27:7, 28:8, 29:21, 42:14, 54:7, 54:12, 54:25, 56:18, 87:24, 88:2, 91:19, 121:5, 127:25	keeps [2] - 18:24, 137:10
immediately [3] - 50:4, 50:11, 53:21	indicated [8] - 4:23, 12:1, 22:22, 22:23, 59:21, 131:22, 135:8, 144:7	installed [1] - 122:23	italic [1] - 53:12	KEN [1] - 1:12
impact [6] - 104:25, 105:20, 107:14, 122:7, 122:14, 139:14	indicates [2] - 30:11, 41:6	instance [6] - 63:7, 66:5, 85:6, 102:1, 122:1, 133:6	italicized [1] - 53:13	Kennedy [1] - 109:12
impartial [1] - 130:6	indicating [1] - 23:13	instances [5] - 56:7, 61:3, 66:4, 86:5, 86:7	items [4] - 22:22, 22:24, 23:2, 51:16	kept [1] - 111:8
implied [2] - 83:4, 83:7	indicators [1] - 122:21	instruct [1] - 46:6	itself [5] - 56:13, 74:15, 98:20, 112:12, 144:6	kind [17] - 20:21, 45:17, 46:1, 46:12, 47:8, 47:22, 83:23, 94:3, 101:14, 110:11, 112:6, 115:9, 118:7, 119:3, 119:25, 132:5, 137:16
implying [2] - 83:9, 139:18	individuals [2] - 35:15, 135:15	instructed [1] - 46:5	ivory [1] - 123:22	KEN [1] - 1:12
important [6] - 28:18, 56:17, 69:5, 98:19, 126:10, 127:9	inference [1] - 83:10	instructions [1] - 11:7	J	Kennedy [1] - 109:12
imposed [2] - 65:3, 65:4	infiltration [6] - 56:12, 58:1, 64:1, 66:17, 103:15	INSTRUCTIONS [1] - 144:5	jack [1] - 111:6	kept [1] - 111:8
imposes [1] - 131:11	infinite [5] - 27:7, 63:23, 65:11, 109:22, 109:23	integrity [1] - 87:11	Jacqueline [1] - 109:11	kind [17] - 20:21, 45:17, 46:1, 46:12, 47:8, 47:22, 83:23, 94:3, 101:14, 110:11, 112:6, 115:9, 118:7, 119:3, 119:25, 132:5, 137:16
impoundment [1] - 97:11	influence [1] - 104:2	intend [1] - 79:16	jail [1] - 130:17	kinds [3] - 66:4, 74:14, 137:23
impression [1] - 94:16	influenced [4] - 13:5, 13:7, 14:12, 15:4	intention [1] - 50:2	jailed [1] - 130:17	Klein [1] - 99:4
improvement [1] - 132:6	informal [1] - 33:15	intentionally [1] - 41:25	January [4] - 104:20, 140:12, 140:13, 140:20	KLEINBERG [1] - 1:18
improvements [1] - 136:24	information [18] - 24:3, 27:1, 34:18, 34:19, 35:7, 51:5, 51:24, 68:19, 77:17, 85:14, 85:25, 86:16, 86:21, 97:5, 102:10, 103:25, 127:2, 129:2	interaction [2] - 19:17, 19:24	JERRY [1] - 1:10	kleinberg [24] - 4:5, 4:6, 4:19, 11:22, 15:11, 15:15, 18:7, 19:1, 19:16, 24:15, 25:15, 33:9, 53:1, 59:4, 91:22, 92:6, 92:10, 93:4, 104:11, 125:21, 133:19, 138:13, 138:16, 139:21
inappropriate [1] - 18:7	informed [2] - 37:22, 144:22	interest [1] - 19:9	Jersey [3] - 4:4, 113:11, 143:3	Kleinberg [9] - 16:13, 26:1, 33:10, 33:21, 93:7, 124:23, 125:20, 136:3, 138:10
INC [1] - 1:5		interested [2] - 85:23, 143:12	JERSEY [4] - 1:24, 2:4, 2:8, 2:11	Kleinberg's [2] - 15:4, 117:18
inch [4] - 57:24, 116:6, 116:7, 116:8		interesting [2] - 120:9, 136:6	Jessica [1] - 124:19	knowledge [1] - 88:23
inches [2] - 57:11, 121:25		interfere [2] - 18:4, 103:10	job [1] - 38:16	known [4] - 43:25, 55:2, 124:10, 124:12
incident [2] - 39:7, 41:17		interfering [1] - 17:17	JOHN [1] - 1:12	knows [2] - 15:8, 71:23
inclination [6] - 80:8, 80:9, 84:6, 85:1, 85:8, 85:9		interjection [2] - 18:6, 18:10	joint [1] - 77:4	
include [4] - 74:22, 119:14, 122:16,		internal [2] - 9:5, 31:10	joints [16] - 76:12, 77:1, 81:11, 83:14, 83:23, 83:24, 84:15, 84:19, 85:4, 86:11, 88:11, 120:23, 120:24, 120:25, 121:2	

L laboratory [1] - 79:3 lack [2] - 9:10, 59:15 laid [1] - 129:15 land [5] - 116:8, 116:10, 120:5, 123:4, 137:10 lands [1] - 99:9 landslide [3] - 93:15, 94:4, 112:18 Langan [47] - 16:5, 21:4, 22:7, 23:1, 25:18, 26:1, 26:25, 27:17, 28:3, 28:13, 29:17, 32:4, 35:10, 35:19, 36:7, 43:3, 44:1, 45:1, 45:13, 45:19, 45:21, 46:13, 46:20, 47:10, 50:9, 57:4, 59:21, 64:9, 64:10, 64:14, 72:18, 73:24, 74:20, 77:23, 78:23, 81:10, 82:25, 88:8, 89:2, 89:14, 98:6, 102:6, 102:25, 117:3, 119:6, 123:5, 123:8 Langan's [2] - 43:5, 72:13 large [3] - 70:25, 131:11, 132:23 last [30] - 14:2, 22:10, 22:11, 23:5, 23:9, 23:10, 39:14, 41:4, 43:15, 49:22, 52:13, 53:21, 54:10, 55:4, 63:8, 65:6, 75:25, 77:15, 80:6, 93:11, 93:13, 93:14, 98:11, 98:13, 99:19, 103:7, 111:8, 113:3, 114:9, 141:21 lasting [1] - 63:5 late [2] - 28:1, 120:17 lava [1] - 134:20 lawyer [1] - 39:1 layer [1] - 70:24 lead [1] - 114:5 leads [2] - 62:7, 139:24 leap [1] - 79:16 least [6] - 4:24, 9:2, 55:2, 55:10, 103:19, 103:21 leave [1] - 133:3 led [2] - 91:8, 115:19 left [7] - 4:22, 27:25, 48:13, 93:11, 93:12, 94:15, 100:3	legal [1] - 129:1 length [1] - 79:20 less [10] - 119:19, 128:14, 128:19, 129:7, 129:13, 130:8, 130:22, 130:25, 132:20, 133:7 lessor [1] - 131:16 letter [8] - 45:11, 124:24, 125:21, 126:15, 127:4, 127:21, 127:23, 128:1 letters [6] - 45:17, 47:8, 125:7, 125:10, 125:11 level [14] - 6:11, 39:16, 59:10, 64:14, 64:18, 65:5, 65:9, 65:12, 98:7, 103:22, 104:3, 104:4, 104:6, 107:14 levels [2] - 77:5, 116:14 light [2] - 19:1, 53:13 likelihood [3] - 109:15, 109:23, 121:7 likely [14] - 60:22, 63:4, 73:4, 73:10, 73:18, 80:15, 80:17, 80:18, 91:25, 94:13, 94:14, 107:11, 109:4, 109:19 limit [1] - 121:12 limited [1] - 138:3 line [7] - 13:20, 82:19, 82:20, 100:21, 114:18, 119:3, 121:15 Line [1] - 144:9 lines [3] - 102:3, 118:21, 144:7 list [1] - 102:18 listen [1] - 38:14 listened [1] - 127:15 listening [1] - 127:10 literally [1] - 101:3 literature [2] - 96:16, 98:18 litigation [1] - 128:21 live [10] - 72:25, 73:1, 93:22, 100:9, 101:20, 108:24, 120:4, 137:10, 137:21 lived [4] - 14:14, 14:18, 108:17, 109:16 living [4] - 70:20, 108:19, 109:6, 136:10 loading [2] - 41:18, 75:7 local [2] - 75:15, 103:21	localized [2] - 107:18, 107:19 location [2] - 78:1 locations [1] - 13:3 log [1] - 28:16 logged [1] - 87:7 logs [1] - 87:7 look [20] - 8:24, 15:2, 21:19, 24:13, 32:18, 36:24, 53:17, 55:10, 72:7, 78:10, 78:11, 79:15, 105:15, 105:19, 107:13, 108:9, 117:23, 127:3, 128:7, 137:14 looked [19] - 9:16, 64:3, 78:11, 78:15, 83:25, 86:8, 86:11, 86:13, 88:12, 88:15, 88:16, 96:5, 96:21, 118:7, 134:15, 137:1, 138:4, 138:5 looking [10] - 7:18, 35:25, 63:20, 83:22, 96:17, 105:13, 108:23, 109:1, 116:21, 117:2 looks [2] - 25:3, 114:25 loosen [2] - 99:9, 115:1 loosened [1] - 115:1 LORI [1] - 1:11 losing [1] - 38:8 lovely [1] - 15:20 low [3] - 78:10, 79:7, 79:9 lower [17] - 17:19, 36:23, 41:2, 41:16, 58:23, 60:21, 63:6, 65:22, 90:20, 100:9, 100:20, 101:10, 116:12, 116:15, 122:4, 132:16 M ma'am [1] - 106:16 MacNeill [3] - 22:4, 29:11, 35:16 magnitude [1] - 121:2 mail [57] - 16:5, 21:3, 21:11, 21:15, 22:1, 22:6, 22:15, 22:16, 25:3, 25:9, 25:17, 25:23, 25:24, 26:22, 26:23, 28:4, 28:11, 28:20, 28:22, 28:23, 28:25, 29:4, 29:6,	29:15, 30:7, 31:1, 31:11, 32:7, 32:11, 32:25, 35:13, 35:23, 36:1, 36:25, 37:10, 37:12, 37:15, 37:18, 37:19, 38:21, 40:22, 42:22, 45:11, 45:15, 45:17, 46:18, 47:8, 47:18, 47:22, 48:25, 49:12, 54:18, 55:21, 60:19, 60:20, 125:21 MAIL [1] - 3:4 mailed [5] - 30:3, 30:4, 30:6, 47:23, 124:23 mails [17] - 22:16, 22:18, 23:15, 23:18, 23:19, 23:22, 24:5, 24:20, 27:22, 31:25, 32:3, 32:16, 43:19, 44:3, 50:16, 55:15, 55:16 main [1] - 87:14 maintain [1] - 5:6 maintained [1] - 95:7 major [3] - 74:6, 74:8, 87:24 malvica [1] - 92:24 managed [3] - 128:20, 129:15, 129:17 management [2] - 103:13, 117:13 manner [1] - 114:5 Manual [3] - 4:23, 7:18, 60:17 manual [17] - 4:25, 5:2, 5:6, 5:9, 5:17, 61:4, 69:20, 69:22, 70:4, 70:7, 70:8, 70:12, 71:6, 71:7, 84:21, 86:19 manuals [5] - 8:1, 8:2, 84:22, 84:25, 86:2 manufacture [1] - 79:7 map [3] - 96:6, 116:16, 123:8 Map [1] - 135:8 mapped [1] - 135:2 mapping [1] - 135:20 Marie [1] - 95:24 mark [4] - 13:2, 25:21, 114:11, 144:6 Mark [10] - 21:4, 21:6, 23:20, 25:18, 26:1, 29:17, 30:21, 51:15 marked [1] - 21:16	markings [1] - 124:24 marshy [1] - 137:14 mass [2] - 135:15, 135:18 material [6] - 6:15, 22:9, 78:8, 78:9, 119:8, 134:5 materials [5] - 51:17, 55:14, 91:22, 92:3, 92:5 matter [13] - 9:6, 34:4, 58:18, 68:7, 68:17, 68:20, 69:1, 69:3, 78:6, 79:14, 79:25, 80:2, 82:23 matters [1] - 33:22 MAYOR [1] - 92:11 Mayor [1] - 1:10 mazier [1] - 31:10 Mazier [3] - 22:5, 31:8, 35:15 Mazier's [1] - 27:16 McCartney [2] - 1:10, 92:11 McGovern [24] - 2:7, 4:10, 17:11, 17:15, 17:17, 25:9, 25:14, 25:21, 26:4, 32:23, 33:5, 33:10, 34:16, 34:21, 34:24, 48:3, 48:5, 54:2, 54:4, 82:1, 92:2, 125:16, 125:22, 126:1 mcGovern [1] - 34:2 McGovern's [1] - 18:10 McKenzie [1] - 107:9 mean [32] - 7:23, 8:21, 13:16, 23:12, 40:25, 41:1, 41:12, 59:5, 60:13, 64:16, 74:13, 74:15, 77:21, 77:24, 79:17, 80:10, 84:20, 94:9, 94:14, 94:15, 98:12, 101:10, 103:2, 107:19, 118:23, 119:16, 120:4, 123:13, 127:6, 127:20, 129:17, 137:5 meaning [5] - 40:16, 55:23, 71:11, 74:7, 79:1 means [10] - 35:4, 48:25, 58:13, 64:24, 71:4, 71:17, 81:20, 83:2, 128:15, 128:16 meant [7] - 8:21, 57:1, 57:3, 57:4, 64:15, 78:16, 105:5
---	---	--	---	--

measure [2] - 110:13, 122:21 measured [1] - 85:9 measurement [1] - 104:4 measurements [2] - 86:22, 87:3 measures [2] - 97:10, 119:15 mechanism [1] - 113:16 mechanisms [1] - 72:1 medicine [2] - 128:23, 129:24 meet [1] - 119:11 meeting [28] - 5:6, 10:5, 16:7, 22:10, 22:11, 23:9, 23:10, 24:23, 24:24, 26:24, 27:3, 37:7, 39:14, 41:4, 44:11, 47:15, 48:3, 48:5, 52:5, 54:10, 91:25, 99:19, 105:18, 113:3, 114:9, 127:17, 140:11, 140:15 meetings [9] - 22:20, 28:2, 28:16, 33:16, 43:14, 46:19, 126:8, 133:15 member [3] - 19:19, 19:21, 33:13 MEMBERS [1] - 1:8 members [9] - 19:20, 92:9, 93:3, 93:6, 104:10, 117:16, 133:18, 136:2, 138:9 memo [2] - 31:13, 45:17 memorialize [3] - 28:19, 28:20, 33:2 memorialized [3] - 22:18, 32:3, 46:24 memorializing [3] - 23:23, 28:24, 55:16 mention [4] - 64:6, 64:11, 115:11, 116:19 mentioned [14] - 64:8, 88:11, 102:13, 104:15, 104:24, 105:1, 112:20, 112:23, 112:25, 115:22, 116:6, 120:15, 138:16 mentioning [1] - 111:9 merits [1] - 7:10 method [2] - 59:23, 131:1	methodology [4] - 60:7, 64:19, 64:22, 64:25 Michael [1] - 111:6 mid [1] - 24:3 middle [2] - 4:5, 141:11 might [13] - 5:25, 11:25, 16:23, 39:2, 47:15, 47:16, 98:24, 98:25, 103:10, 107:13, 120:19, 123:16, 130:16 millenniums [1] - 135:19 million [6] - 75:23, 76:15, 116:9, 132:7, 133:23, 134:25 mind [6] - 5:18, 7:21, 7:23, 52:11, 59:1, 118:8 minerals [1] - 134:11 minimize [2] - 114:2, 121:12 minimum [3] - 58:5, 74:9, 96:11 minimus [1] - 133:9 minor [1] - 6:6 minute [4] - 16:4, 26:8, 91:14, 104:14 minutes [7] - 26:20, 30:3, 30:4, 30:6, 95:19, 112:21, 112:24 Misarti [1] - 101:19 missed [1] - 68:23 missing [2] - 126:23, 127:1 mistake [1] - 43:23 misunderstood [1] - 16:14 mitigated [1] - 97:10 mitigation [1] - 119:15 modes [3] - 65:11, 73:3, 111:10 moisture [1] - 59:8 moment [9] - 16:23, 17:21, 23:8, 40:12, 68:10, 83:9, 91:12, 127:3 money [2] - 133:2 monitor [2] - 104:5, 122:3 monitored [1] - 122:23 monitoring [3] - 102:20, 104:2, 122:19 months [4] - 57:15, 58:9, 62:11, 133:13 morning [5] - 55:9,	124:25, 125:14, 125:25, 126:13 MORRISTOWN [1] - 1:24 most [4] - 6:11, 6:13, 20:12, 135:9 mostly [3] - 14:2, 20:5, 61:15 motion [2] - 121:18, 121:24 mottling [6] - 59:16, 59:20, 59:22, 60:2, 60:6, 60:10 mounding [7] - 48:23, 97:10, 97:13, 97:16, 97:25, 98:9, 118:17 mountain [17] - 100:1, 100:6, 100:16, 108:18, 112:14, 113:23, 114:16, 114:18, 114:21, 115:9, 115:13, 115:14, 115:16, 115:25, 116:13, 135:19 mountains [1] - 134:19 mouth [1] - 100:25 move [9] - 15:24, 55:13, 62:24, 76:23, 80:15, 82:18, 121:22 movement [2] - 62:14, 122:22 movements [2] - 62:10, 122:25 moving [4] - 56:2, 56:3, 83:6, 137:10 MR [83] - 4:13, 4:16, 11:15, 11:23, 12:4, 12:6, 12:8, 12:9, 14:22, 14:23, 14:24, 15:1, 15:2, 15:14, 15:18, 15:20, 15:25, 16:8, 16:11, 16:13, 17:13, 17:16, 17:21, 17:23, 17:25, 18:3, 18:23, 19:3, 19:5, 19:8, 19:11, 19:15, 21:16, 21:17, 21:18, 21:22, 24:8, 24:13, 24:19, 25:7, 25:11, 26:5, 33:6, 33:19, 37:18, 37:20, 37:24, 37:25, 38:2, 38:4, 38:5, 38:7, 38:9, 38:11, 38:15, 38:18, 38:19, 54:3, 56:20, 56:25, 57:1, 57:5, 59:1, 67:2, 67:4, 67:5,	67:7, 67:10, 82:4, 91:12, 92:17, 92:19, 92:21, 93:2, 125:17, 138:12, 140:18, 141:4, 141:9, 141:24, 142:3, 142:7, 142:10 MS [14] - 4:10, 17:11, 17:15, 25:9, 25:14, 25:21, 26:4, 54:2, 54:4, 92:13, 92:25, 125:16, 125:22, 126:1 mud [1] - 99:23 mudslide [3] - 93:16, 94:4, 107:12 multifamily [1] - 4:2 multiply [1] - 116:10 municipal [3] - 13:22, 16:25, 29:10 municipalities [2] - 20:13, 20:14 municipality [1] - 132:6 must [2] - 44:10, 84:5	negative [1] - 80:2 negligent [1] - 130:17 neighborhood [1] - 100:18 neighbors [1] - 66:11 Nelson [2] - 29:10, 29:11 never [12] - 20:25, 30:13, 32:8, 32:10, 37:11, 37:13, 44:24, 45:6, 52:9, 66:2, 97:17, 127:21 new [9] - 56:18, 107:24, 107:25, 108:4, 108:7, 127:9, 127:20, 140:24 New [5] - 4:4, 113:11, 141:10, 142:12, 143:3 NEW [4] - 1:24, 2:4, 2:8, 2:11 next [10] - 25:22, 30:16, 30:22, 35:9, 41:1, 91:24, 91:25, 115:14, 140:11, 140:15 night [7] - 29:3, 53:21, 55:5, 99:24, 141:20, 141:22 nights [1] - 141:14 nine [6] - 57:11, 57:24, 69:13, 69:14, 116:6, 116:7 NJ [1] - 2:11 NJDEP [1] - 48:22 NJDEP-approved [1] - 48:22 nobody [1] - 79:7 nomenclature [1] - 71:22 non [1] - 66:13 none [5] - 56:14, 108:16, 138:10, 140:4 nonpublic [1] - 20:7 normally [4] - 13:11, 33:3, 66:9, 66:10 North [1] - 135:2 NORTH [1] - 1:23 northern [1] - 114:13 northwest [1] - 4:4 Notary [1] - 143:3 note [4] - 28:21, 35:13, 44:3, 144:6 noted [1] - 144:23 nothing [14] - 30:11, 38:2, 41:5, 81:5, 89:25, 90:2, 90:5, 90:15, 90:19, 91:3,
N				
name [7] - 5:2, 38:25, 61:4, 101:19, 104:13, 109:11, 120:22 namely [1] - 85:15 names [1] - 27:16 natural [1] - 75:19 nature [8] - 19:23, 25:12, 55:17, 64:1, 68:6, 85:5, 85:6, 85:7 near [2] - 78:3, 80:24 nearly [1] - 110:22 necessarily [4] - 47:2, 75:18, 76:11, 76:22 necessary [1] - 9:1 need [22] - 6:18, 8:13, 12:4, 18:11, 21:12, 21:19, 23:7, 31:4, 34:19, 37:21, 46:7, 50:16, 51:5, 54:21, 62:20, 62:22, 73:21, 74:1, 91:12, 92:3, 141:16 needed [12] - 15:6, 22:23, 35:8, 36:8, 39:10, 40:15, 52:5, 65:18, 102:10, 102:12, 123:25, 127:16 needs [3] - 74:16, 92:4, 127:2 nefarious [1] - 79:17				

91:7, 91:8, 109:2 nothings [3] - 73:12, 113:19, 129:14 notice [4] - 108:14, 118:19, 118:20, 140:14 noticed [1] - 118:10 notification [1] - 128:11 noting [1] - 17:9 November [37] - 22:23, 24:3, 24:4, 24:20, 25:4, 25:9, 25:13, 25:25, 27:19, 27:21, 27:23, 28:4, 29:5, 29:15, 30:16, 30:20, 31:6, 31:16, 32:8, 35:14, 36:3, 36:5, 36:6, 37:6, 37:9, 37:10, 42:22, 42:24, 44:3, 44:4, 45:10, 45:15, 45:25, 46:12, 46:17, 55:21, 96:5 NOVEMBER [1] - 3:4 number [9] - 18:4, 18:6, 37:1, 94:4, 94:19, 96:8, 98:23, 118:23, 131:5 numbered [2] - 53:7, 69:14 numbers [5] - 39:12, 39:15, 123:19, 123:22, 129:8 numerous [2] - 69:11, 69:13	34:25, 44:17 observant [1] - 17:9 observations [2] - 136:18, 137:23 observe [3] - 8:22, 18:15, 137:19 observed [2] - 82:25 obvious [2] - 8:24, 17:18 obviously [2] - 57:16, 85:23 occasion [2] - 20:9, 43:20 occasionally [1] - 57:17 occur [21] - 39:1, 41:7, 58:8, 58:14, 60:23, 60:24, 62:4, 63:16, 64:2, 66:23, 67:17, 68:3, 68:13, 68:17, 98:9, 99:20, 99:21, 101:12, 113:21, 119:3, 121:5 occur's [4] - 62:17, 68:12, 119:4, 137:6 occurred [7] - 38:3, 42:11, 44:20, 75:24, 76:15, 119:5, 134:25 occurrence [1] - 58:13 occurring [1] - 122:25 October [5] - 44:13, 44:23, 46:11, 47:5, 47:7 odds [1] - 76:24 OF [2] - 1:1, 1:1 offer [3] - 49:17, 49:19, 95:17 offering [1] - 19:1 office [1] - 29:1 often [1] - 18:8 old [2] - 105:25, 106:4 on-site [1] - 15:6 once [2] - 100:1, 141:15 one [78] - 5:19, 13:2, 13:5, 13:7, 13:8, 13:12, 14:7, 14:9, 14:15, 14:19, 15:10, 17:7, 18:4, 19:16, 19:19, 19:23, 20:4, 20:24, 22:13, 23:13, 24:13, 25:12, 28:6, 31:3, 31:6, 31:16, 31:17, 32:17, 33:15, 34:11, 34:14, 35:5, 37:1, 43:12, 47:16, 50:10, 55:12, 55:23,	58:13, 60:16, 62:11, 65:6, 66:1, 67:21, 68:23, 71:23, 72:5, 72:22, 77:25, 83:9, 85:12, 85:14, 89:23, 90:20, 94:24, 96:8, 97:7, 97:17, 98:15, 101:16, 101:23, 103:7, 105:4, 110:3, 110:25, 111:2, 123:1, 128:18, 130:4, 130:14, 131:7, 133:4, 134:21, 138:12, 138:13, 140:18 ONE [1] - 2:7 ones [3] - 25:24, 76:14, 107:23 open [3] - 29:21, 76:21, 77:2 opening [1] - 76:12 opine [1] - 129:5 opinion [18] - 5:6, 40:22, 43:2, 43:5, 52:2, 69:17, 72:15, 87:8, 91:5, 95:12, 98:7, 111:23, 129:5, 129:8, 130:2, 130:3, 130:6 opinions [3] - 128:17, 130:24 opportunity [6] - 53:22, 95:22, 104:16, 104:19, 126:9, 127:8 opposed [1] - 98:25 opposers [1] - 7:8 option [1] - 123:24 OR [1] - 144:8 ORANGE [2] - 1:1, 2:8 Orange [2] - 5:24, 134:19 order [15] - 23:3, 24:15, 36:22, 37:5, 41:10, 50:8, 54:12, 59:6, 62:20, 63:14, 80:12, 85:8, 114:2, 121:12 ordinance [2] - 5:22, 6:3 otherwise [3] - 11:20, 126:2, 140:16 outcropping [1] - 69:12 outcroppings [1] - 70:23 outcrops [6] - 9:16, 87:6, 88:3, 88:7, 88:10, 118:11 output [1] - 48:21 outs [1] - 13:2	outside [1] - 92:1 outskirts [1] - 121:7 overlie [1] - 135:9 overlying [2] - 61:16, 135:9 own [5] - 18:9, 40:21, 52:2, 123:20, 123:24	P P.M [1] - 1:2 package [1] - 49:15 packet [2] - 49:2, 51:12 Page [3] - 77:18, 80:6, 144:9 page [8] - 49:2, 49:3, 51:11, 53:25, 54:1, 126:18, 144:6 PAGE/ERRATA [1] - 144:1 pages [2] - 23:25, 26:1 pair [1] - 36:16 Palisades [1] - 70:18 Pannullo [1] - 128:10 pannullo [1] - 141:7 PANNULLO [5] - 141:9, 141:24, 142:3, 142:7, 142:10 papers [2] - 23:5, 43:16 paragraph [4] - 23:13, 53:24, 54:3 parallel [10] - 36:20, 37:4, 40:11, 48:21, 55:24, 56:2, 57:8, 57:23, 61:10, 66:5 part [10] - 4:24, 7:7, 9:9, 9:18, 42:8, 79:10, 80:2, 98:21, 110:7, 115:16 parte [5] - 35:2, 35:4, 37:7, 38:1, 52:17 partial [1] - 141:20 particular [7] - 5:7, 6:22, 21:10, 22:6, 39:9, 79:22, 116:7 particularly [2] - 79:22, 113:15 parties [1] - 143:10 parts [5] - 7:4, 12:2, 79:25, 136:15 party [2] - 13:13, 43:12 past [1] - 137:13 pattern [2] - 55:11, 55:12 Paul [5] - 28:11, 29:23, 44:14, 93:8	pay [1] - 141:4 PB-24-01 [1] - 1:5 PE [1] - 44:14 Pearson [1] - 124:19 people [21] - 10:3, 10:19, 18:8, 19:6, 20:6, 23:23, 25:16, 32:4, 32:5, 35:10, 36:7, 55:23, 72:25, 116:1, 131:12, 135:14, 136:19, 137:21, 141:14, 141:21 people's [1] - 66:15 per [3] - 103:1, 116:5, 121:25 percent [4] - 47:1, 58:14, 85:1, 94:15 percentage [3] - 20:11, 93:20, 94:2 percentages [1] - 108:16 perform [1] - 27:12 performed [3] - 11:12, 114:4, 137:3 perhaps [5] - 37:22, 37:25, 48:8, 67:10, 127:24 period [6] - 27:3, 133:25, 135:2, 136:10, 137:9, 137:20 periods [2] - 57:18, 134:21 permission [3] - 10:5, 11:17, 54:22 permitted [1] - 131:24 person [1] - 104:24 Person [1] - 92:22 personal [4] - 22:19, 46:19, 46:23, 111:23 pertains [1] - 96:8 phone [15] - 22:19, 28:1, 28:16, 28:24, 30:9, 30:15, 32:25, 33:1, 37:7, 41:21, 46:16, 46:18, 47:18, 47:22, 55:16 photo [1] - 78:4 photocopies [1] - 53:12 photograph [1] - 120:9 photographed [2] - 77:24, 77:25 photographs [5] - 77:23, 86:22, 87:2, 88:7, 120:10 phrase [1] - 55:24 phyllosilicates [1] -
---	--	---	---	--	--

O

O-36 [8] - 21:17, 21:22, 22:15, 23:12, 23:17, 42:21, 43:18, 125:22
O-37 [1] - 125:22
O-38 [8] - 3:4, 25:22, 26:12, 26:13, 26:17, 45:16, 46:18
O-ring [1] - 129:21
oath [8] - 4:7, 17:12, 17:14, 17:15, 17:18, 18:7, 18:8, 18:12
object [3] - 11:15, 18:25, 33:6
objecting [1] - 18:24
objection [4] - 14:22, 19:4, 19:11, 67:2
Objector [1] - 2:11
objector [4] - 49:12, 125:8, 125:12, 127:16
objectors [6] - 12:20, 20:16, 20:18, 20:20,

offer [3] - 49:17, 49:19, 95:17
offering [1] - 19:1
office [1] - 29:1
often [1] - 18:8
old [2] - 105:25, 106:4
on-site [1] - 15:6
once [2] - 100:1, 141:15
one [78] - 5:19, 13:2, 13:5, 13:7, 13:8, 13:12, 14:7, 14:9, 14:15, 14:19, 15:10, 17:7, 18:4, 19:16, 19:19, 19:23, 20:4, 20:24, 22:13, 23:13, 24:13, 25:12, 28:6, 31:3, 31:6, 31:16, 31:17, 32:17, 33:15, 34:11, 34:14, 35:5, 37:1, 43:12, 47:16, 50:10, 55:12, 55:23,

order [15] - 23:3, 24:15, 36:22, 37:5, 41:10, 50:8, 54:12, 59:6, 62:20, 63:14, 80:12, 85:8, 114:2, 121:12
ordinance [2] - 5:22, 6:3
otherwise [3] - 11:20, 126:2, 140:16
outcropping [1] - 69:12
outcroppings [1] - 70:23
outcrops [6] - 9:16, 87:6, 88:3, 88:7, 88:10, 118:11
output [1] - 48:21
outs [1] - 13:2

part [10] - 4:24, 7:7, 9:9, 9:18, 42:8, 79:10, 80:2, 98:21, 110:7, 115:16
parte [5] - 35:2, 35:4, 37:7, 38:1, 52:17
partial [1] - 141:20
particular [7] - 5:7, 6:22, 21:10, 22:6, 39:9, 79:22, 116:7
particularly [2] - 79:22, 113:15
parties [1] - 143:10
parts [5] - 7:4, 12:2, 79:25, 136:15
party [2] - 13:13, 43:12
past [1] - 137:13
pattern [2] - 55:11, 55:12
Paul [5] - 28:11, 29:23, 44:14, 93:8

pay [1] - 141:4
PB-24-01 [1] - 1:5
PE [1] - 44:14
Pearson [1] - 124:19
people [21] - 10:3, 10:19, 18:8, 19:6, 20:6, 23:23, 25:16, 32:4, 32:5, 35:10, 36:7, 55:23, 72:25, 116:1, 131:12, 135:14, 136:19, 137:21, 141:14, 141:21
people's [1] - 66:15
per [3] - 103:1, 116:5, 121:25
percent [4] - 47:1, 58:14, 85:1, 94:15
percentage [3] - 20:11, 93:20, 94:2
percentages [1] - 108:16
perform [1] - 27:12
performed [3] - 11:12, 114:4, 137:3
perhaps [5] - 37:22, 37:25, 48:8, 67:10, 127:24
period [6] - 27:3, 133:25, 135:2, 136:10, 137:9, 137:20
periods [2] - 57:18, 134:21
permission [3] - 10:5, 11:17, 54:22
permitted [1] - 131:24
person [1] - 104:24
Person [1] - 92:22
personal [4] - 22:19, 46:19, 46:23, 111:23
pertains [1] - 96:8
phone [15] - 22:19, 28:1, 28:16, 28:24, 30:9, 30:15, 32:25, 33:1, 37:7, 41:21, 46:16, 46:18, 47:18, 47:22, 55:16
photo [1] - 78:4
photocopies [1] - 53:12
photograph [1] - 120:9
photographed [2] - 77:24, 77:25
photographs [5] - 77:23, 86:22, 87:2, 88:7, 120:10
phrase [1] - 55:24
phyllosilicates [1] -

134:6 physical [1] - 66:7 pick [1] - 79:19 pieces [1] - 88:15 pile [2] - 99:22, 135:18 piled [2] - 25:24, 99:8 piles [1] - 135:3 pinning [1] - 60:20 pipe [1] - 13:20 pits [1] - 87:6 place [4] - 17:5, 45:4, 118:11, 143:6 placed [2] - 66:9, 66:11 places [5] - 6:11, 6:13, 19:9, 70:15, 102:3 Plainfield [2] - 57:10, 62:5 plan [8] - 34:24, 102:7, 117:13, 122:11, 122:14, 124:23, 125:21, 127:24 PLANNING [1] - 1:1 Planning [8] - 32:19, 32:20, 39:5, 114:3, 115:4, 127:5, 140:11, 140:15 plans [1] - 6:24 plants [1] - 70:20 plateau [1] - 80:24 PLAZA [1] - 1:23 pleased [1] - 38:16 plocker [9] - 12:1, 15:21, 18:22, 37:22, 67:11, 82:1, 91:20, 92:2, 141:2 PLOCKER [32] - 2:2, 2:3, 11:15, 12:4, 12:8, 14:22, 14:24, 15:2, 15:18, 16:8, 16:11, 18:23, 19:5, 19:11, 21:16, 21:18, 24:8, 33:6, 37:18, 37:24, 38:2, 38:5, 38:9, 38:15, 38:19, 56:20, 56:25, 57:5, 67:2, 67:5, 82:4, 125:17 Plocker's [1] - 37:25 plural [1] - 74:1 PM [8] - 29:22, 30:5, 35:14, 53:8, 140:12, 140:13, 141:17, 142:15 point [28] - 13:1, 14:19, 16:10, 17:16, 18:1, 18:16, 18:17,	19:16, 37:9, 42:5, 43:11, 44:1, 49:8, 50:5, 56:19, 59:4, 73:12, 77:13, 78:13, 87:11, 92:5, 114:7, 115:7, 115:9, 115:23, 119:1, 120:10, 124:9 pointed [2] - 39:6, 57:25 points [5] - 23:14, 23:15, 53:7, 53:11, 119:7 POMACO [1] - 2:6 positive [1] - 114:8 possibility [1] - 98:10 possible [8] - 54:13, 80:15, 80:18, 80:19, 80:20, 91:24, 101:24, 102:4 posted [1] - 126:16 potential [2] - 66:14, 118:14 potentially [2] - 83:3, 85:23 practice [4] - 16:20, 103:13, 131:8, 140:20 practices [1] - 96:15 Preakness [1] - 134:20 precautionary [2] - 58:20, 61:1 precautions [1] - 124:13 preceded [1] - 64:1 precise [3] - 59:13, 69:24, 104:4 predicts [1] - 97:20 preface [1] - 96:12 prefer [1] - 111:22 preference [1] - 111:21 preparation [2] - 5:5, 47:6 prepare [1] - 17:1 prepared [4] - 45:21, 45:22, 49:15, 104:14 preposterous [1] - 33:18 presence [3] - 13:12, 14:9, 59:9 present [11] - 10:17, 12:20, 14:13, 15:8, 15:9, 16:21, 17:9, 19:17, 19:23, 35:5, 51:16 presented [1] - 128:16 preserved [1] - 140:14	pressure [8] - 77:6, 77:7, 77:10, 115:24, 116:12, 116:25, 117:8 presumably [2] - 29:17, 30:22 pretty [7] - 7:21, 26:22, 27:1, 27:13, 107:10, 123:12 prevent [3] - 105:10, 106:8, 110:14 previous [4] - 39:14, 42:18, 59:7, 105:23 previously [2] - 19:1, 127:11 primarily [4] - 20:15, 25:17, 61:15 Princeton [21] - 10:16, 42:2, 56:22, 57:4, 59:24, 64:5, 72:2, 72:10, 72:17, 73:23, 83:1, 89:3, 89:14, 90:1, 90:9, 91:1, 92:4, 117:2, 123:11, 131:3 PRINCETON [1] - 2:11 principal [1] - 96:14 private [8] - 20:10, 37:21, 39:3, 42:7, 42:15, 43:3, 44:19, 96:1 probability [1] - 58:13 probe [1] - 37:21 problem [6] - 60:22, 62:5, 63:11, 80:3, 83:3, 132:12 problems [2] - 17:7, 111:19 procedural [1] - 95:18 procedure [2] - 54:16, 121:10 proceed [1] - 132:3 proceeded [3] - 35:9, 63:15, 66:16 process [3] - 103:3, 103:5, 106:18 produce [8] - 10:23, 31:4, 31:20, 32:2, 46:8, 46:9, 49:10 produced [2] - 26:19, 74:21 product [1] - 43:3 profession [2] - 8:3, 52:10 professional [4] - 7:25, 85:20, 111:17, 111:24 professionals [4] -	33:7, 33:12, 33:14 program [3] - 65:3, 122:20 project [17] - 67:21, 85:24, 87:25, 96:23, 99:12, 101:15, 105:1, 106:15, 109:7, 132:3, 132:6, 132:8, 136:7, 136:8, 136:21, 139:18, 140:3 projects [2] - 20:8, 51:20 promise [1] - 141:20 prompted [2] - 21:10, 22:5 prone [1] - 123:5 proper [1] - 16:20 properly [1] - 103:19 properties [2] - 70:2, 70:3 property [6] - 4:3, 105:8, 107:23, 112:15, 113:25, 115:14 proposed [2] - 9:15, 134:16 proposing [1] - 4:1 protect [3] - 100:5, 100:7, 122:8 protuberances [1] - 6:6 provide [4] - 65:5, 81:13, 106:20, 129:2 provided [8] - 41:6, 96:5, 125:7, 125:12, 127:17, 132:16, 142:1 providing [1] - 127:1 proximity [1] - 66:14 prudent [1] - 69:10 PUBLIC [148] - 93:8, 93:19, 93:23, 94:1, 94:7, 94:14, 94:24, 95:2, 95:8, 95:14, 95:17, 95:21, 95:24, 97:1, 97:4, 97:15, 97:18, 97:22, 98:3, 98:15, 98:18, 99:4, 99:22, 100:12, 100:14, 100:16, 100:20, 100:23, 101:3, 101:5, 101:7, 101:9, 101:13, 101:17, 101:19, 102:8, 102:16, 102:21, 102:24, 103:7, 103:16, 103:24, 104:7, 104:13, 104:18, 104:21, 105:6, 105:16, 105:24,	106:14, 106:21, 107:1, 107:9, 107:19, 107:23, 108:2, 108:8, 108:11, 108:13, 109:6, 109:9, 109:11, 109:20, 110:2, 110:10, 111:4, 111:6, 111:16, 111:21, 111:25, 112:4, 112:8, 112:13, 112:20, 112:23, 113:1, 113:6, 113:17, 114:7, 114:14, 115:6, 115:20, 116:16, 116:24, 117:6, 117:15, 117:19, 118:2, 118:5, 118:15, 118:20, 118:25, 119:10, 119:14, 119:21, 120:3, 120:8, 120:12, 120:14, 120:21, 120:24, 121:20, 122:6, 122:10, 122:13, 122:17, 123:3, 123:13, 124:6, 124:9, 124:17, 124:19, 125:4, 125:9, 125:20, 125:24, 126:3, 126:6, 126:14, 126:20, 126:23, 127:6, 127:13, 127:18, 127:20, 128:8, 128:10, 129:3, 129:19, 130:13, 130:19, 131:5, 131:13, 131:19, 132:1, 132:13, 133:1, 133:10, 133:12, 133:21, 134:18, 135:11, 135:14, 135:22, 136:1, 136:5, 137:8, 138:7 public [18] - 4:11, 13:25, 14:2, 32:15, 93:4, 93:6, 104:10, 106:19, 117:17, 126:8, 127:2, 136:3, 140:17, 141:4, 141:11, 141:18, 142:1, 142:3 Public [1] - 143:3 published [1] - 85:17 pulling [1] - 81:9 purpose [4] - 9:1, 39:4, 54:10, 141:19 pursued [1] - 39:8 push [1] - 80:13 pushed [3] - 14:15, 14:16, 14:19
---	---	--	--	---

put ^[10] - 71:11, 93:19, 93:20, 94:19, 94:23, 116:11, 116:12, 121:3, 130:17, 133:3 putting ^[1] - 136:25	range ^[3] - 94:7, 94:8, 128:11 rather ^[9] - 7:25, 63:20, 71:3, 90:21, 104:16, 111:17, 111:25, 112:1, 132:20 RE ^[1] - 1:5 reach ^[4] - 41:20, 60:8, 86:23, 121:2 reached ^[2] - 43:11, 43:25 reaching ^[1] - 85:19 reaction ^[1] - 37:3 read ^[14] - 35:17, 36:11, 36:12, 36:14, 51:14, 53:24, 54:4, 67:6, 67:11, 104:22, 110:18, 144:6, 144:22 reading ^[3] - 5:5, 5:17, 52:11 ready ^[1] - 4:11 real ^[3] - 20:2, 66:14, 127:22 realize ^[4] - 4:6, 49:25, 50:14, 52:4 really ^[17] - 15:20, 16:16, 23:13, 53:13, 60:7, 62:1, 83:19, 94:6, 94:23, 96:11, 96:17, 119:16, 123:19, 123:20, 130:21, 138:1 realm ^[2] - 20:21, 106:22 reason ^[5] - 7:6, 39:15, 79:22, 95:5, 120:12 reasonable ^[1] - 12:1 reasonably ^[1] - 66:15 reassured ^[1] - 93:13 rebuttal ^[1] - 89:2 receive ^[3] - 11:7, 39:13, 97:11 received ^[10] - 21:3, 28:4, 29:4, 32:7, 39:10, 48:18, 50:5, 52:9, 53:15, 54:13 recent ^[1] - 58:6 recently ^[3] - 6:1, 57:10, 57:16 recess ^[2] - 26:9, 91:16 recharge ^[2] - 103:15, 103:18 recommend ^[2] - 122:6, 131:9 recommendation ^[11] - 85:20, 85:22, 86:1, 86:15, 98:13,	99:10, 101:13, 111:24, 114:1, 130:23, 131:3 recommendations ^[6] - 55:7, 86:20, 97:8, 99:5, 102:19, 103:1 recommended ^[15] - 68:4, 68:24, 90:13, 97:23, 99:16, 102:22, 104:1, 109:25, 115:2, 121:8, 121:13, 122:10, 122:20, 122:22, 123:1 recommending ^[3] - 54:6, 97:12, 139:12 record ^[13] - 16:12, 19:12, 26:6, 26:10, 28:16, 28:22, 31:15, 37:7, 37:21, 52:25, 82:6, 91:17, 127:25 recorded ^[2] - 44:12, 78:9 records ^[1] - 23:16 red ^[2] - 53:11, 134:24 reduce ^[1] - 17:25 reduced ^[2] - 63:8, 72:2 refer ^[5] - 6:17, 55:25, 61:7, 75:20, 77:22 REFERENCE ^[1] - 144:3 reference ^[5] - 27:11, 35:18, 82:24, 87:1, 138:18 referenced ^[3] - 19:5, 35:23, 86:10 references ^[5] - 5:11, 63:7, 84:22, 85:3, 126:15 referencing ^[3] - 60:16, 61:5, 82:22 referred ^[7] - 47:12, 47:24, 55:15, 61:21, 85:18, 99:18, 99:25 referring ^[19] - 5:9, 6:21, 16:15, 42:22, 42:24, 56:21, 56:22, 57:20, 59:15, 60:15, 61:9, 61:21, 67:20, 75:6, 100:20, 103:23, 111:2, 112:18 refers ^[1] - 71:10 regard ^[1] - 105:9 regarded ^[1] - 22:24 regarding ^[6] - 22:11, 109:13, 117:4, 126:14, 129:8, 129:25 regards ^[1] - 105:17	register ^[1] - 52:6 regular ^[2] - 140:11, 142:4 rejected ^[1] - 65:18 related ^[2] - 83:23, 119:15 relation ^[1] - 44:15 relative ^[2] - 143:9, 143:11 relevant ^[6] - 31:22, 36:24, 41:3, 58:24, 60:13, 80:11 relied ^[3] - 8:3, 85:19, 86:23 relying ^[2] - 5:19, 6:2 remain ^[3] - 105:4, 110:7, 134:16 remainder ^[1] - 88:23 remarkably ^[1] - 51:22 remember ^[4] - 44:7, 44:8, 44:9, 83:1 removed ^[2] - 95:3, 99:23 repaired ^[1] - 74:16 repeat ^[7] - 8:14, 11:4, 13:25, 45:14, 50:20, 62:22, 67:15 repeatedly ^[2] - 6:17, 15:14 repeating ^[2] - 8:12, 73:25 rephrase ^[2] - 105:6, 113:21 replacing ^[1] - 117:10 reply ^[1] - 22:17 report ^[62] - 6:17, 6:22, 6:25, 7:4, 7:12, 7:15, 9:2, 9:3, 10:15, 15:16, 17:2, 22:8, 23:1, 43:10, 44:11, 44:18, 44:22, 44:24, 45:5, 45:6, 45:23, 46:11, 46:17, 47:5, 52:20, 59:14, 64:7, 65:2, 68:18, 72:10, 75:20, 76:24, 76:25, 77:3, 77:4, 77:18, 77:23, 78:2, 79:3, 79:17, 79:24, 82:23, 82:25, 83:13, 88:9, 97:6, 102:15, 102:17, 110:18, 110:19, 112:19, 112:25, 114:2, 115:3, 115:18, 116:2, 119:14, 121:9, 123:24, 125:14, 138:19	reported ^[4] - 65:15, 74:23, 83:12, 113:9 Reporter ^[1] - 143:2 reporter ^[1] - 67:11 REPORTING ^[1] - 1:23 reports ^[5] - 10:25, 44:17, 88:8, 89:2, 90:19 represent ^[3] - 20:16, 20:18, 85:24 representable ^[1] - 124:5 representative ^[11] - 15:9, 17:8, 18:14, 27:15, 34:6, 81:11, 84:14, 84:18, 84:20, 86:3, 86:9 representatives ^[1] - 9:13 representing ^[2] - 20:20, 49:12 reputable ^[2] - 32:16, 79:3 request ^[4] - 26:20, 26:25, 32:12, 32:20 requested ^[9] - 23:3, 34:17, 35:7, 40:4, 40:6, 48:20, 49:4, 54:11 required ^[9] - 40:4, 50:19, 50:22, 74:9, 91:6, 99:16, 122:8, 139:4, 144:7 requirement ^[3] - 100:5, 103:15, 114:3 requirements ^[7] - 99:6, 102:19, 102:23, 103:4, 115:3, 115:5, 123:1 reserve ^[2] - 110:1, 131:1 residences ^[1] - 110:19 residential ^[4] - 4:3, 72:17, 72:19, 122:2 residents ^[1] - 136:10 resistance ^[3] - 81:13, 81:15, 83:5 resistant ^[1] - 62:19 resolve ^[3] - 54:7, 54:12, 54:24 resolved ^[5] - 51:4, 51:25, 55:3, 55:4, 103:4 respect ^[3] - 15:14, 20:7, 59:20 respectfully ^[1] - 11:22
Q				
Quadra ^[1] - 135:8 qualified ^[1] - 124:5 qualify ^[1] - 8:19 qualitative ^[1] - 37:5 quality ^[2] - 106:22, 107:2 questioning ^[1] - 68:19 questions ^[35] - 4:12, 8:10, 15:17, 18:16, 26:18, 28:9, 49:18, 55:2, 92:10, 92:13, 92:15, 92:17, 92:19, 92:21, 92:23, 92:25, 93:2, 93:4, 93:6, 95:21, 96:8, 102:12, 104:11, 104:16, 104:17, 106:17, 106:20, 117:17, 132:14, 133:19, 136:3, 138:9, 139:5, 140:16 quickly ^[1] - 96:19 quite ^[3] - 12:10, 99:11, 129:16 quoting ^[2] - 36:25, 113:7				
R				
Rachel ^[2] - 99:4, 108:18 Radner's ^[1] - 66:10 rain ^[16] - 39:7, 56:9, 57:11, 57:12, 57:17, 57:24, 62:6, 62:7, 62:9, 62:10, 63:11, 63:14, 63:15, 63:25, 97:14 rainfall ^[11] - 56:9, 58:2, 58:4, 59:8, 63:22, 64:6, 97:9, 97:21, 116:6, 116:7, 116:9 rains ^[1] - 136:12 rainstorm ^[1] - 99:24 raise ^[1] - 39:16 raised ^[2] - 27:7, 54:7 raising ^[1] - 56:18 ran ^[1] - 89:5				

responded [1] - 23:14 responding [2] - 22:14, 139:19 response [8] - 36:3, 36:5, 53:6, 53:10, 54:11, 54:19, 98:6 responsibility [1] - 139:23 responsible [1] - 114:5 rest [1] - 71:13 restful [1] - 53:5 restroom [3] - 12:4, 12:5, 12:7 result [3] - 31:24, 40:19, 40:22 resulted [1] - 76:14 retained [2] - 10:23, 87:22 retaining [6] - 13:20, 101:4, 101:5, 108:18, 119:23, 120:2 reticent [1] - 96:22 retired [2] - 95:25, 96:1 return [1] - 8:9 review [16] - 33:16, 36:24, 41:3, 54:12, 58:23, 60:13, 91:20, 92:1, 92:3, 97:13, 105:23, 126:10, 127:6, 127:23, 128:6, 135:7 reviewed [2] - 98:19, 135:6 reviews [1] - 33:15 ridge [11] - 9:12, 9:14, 9:24, 44:15, 56:7, 80:24, 82:19, 82:20, 87:25, 114:8, 137:11 Ridge [1] - 70:19 rigorous [1] - 59:24 ring [1] - 129:21 risk [14] - 62:8, 62:16, 66:13, 66:25, 68:1, 68:5, 96:17, 128:15, 128:21, 129:9, 129:14, 130:1, 130:23, 132:4 RIZZO [1] - 93:2 rizzo [3] - 22:4, 35:16, 93:1 road [1] - 118:3 Road [1] - 136:13 roads [1] - 136:17 roadway [2] - 119:25, 121:4 ROBERT [1] - 1:9	Rock [3] - 5:4, 5:10, 61:5 rock [98] - 5:13, 5:17, 5:21, 5:25, 6:3, 6:6, 6:8, 6:16, 7:1, 7:2, 7:10, 7:13, 7:16, 7:19, 7:22, 8:4, 9:16, 61:6, 61:16, 69:11, 69:16, 70:2, 70:10, 70:14, 70:16, 70:23, 70:25, 71:4, 71:8, 71:10, 71:12, 71:17, 71:18, 71:22, 72:2, 74:6, 74:8, 75:3, 75:6, 75:7, 76:1, 76:8, 76:20, 76:23, 77:9, 77:10, 77:13, 79:6, 79:15, 80:13, 80:14, 81:2, 81:6, 81:21, 82:8, 82:13, 82:15, 82:20, 83:14, 84:2, 84:7, 84:15, 84:19, 84:21, 85:4, 85:5, 86:3, 86:4, 86:14, 88:19, 100:7, 107:12, 110:23, 111:18, 112:1, 112:4, 112:10, 114:20, 114:23, 114:24, 114:25, 115:2, 118:11, 119:10, 119:13, 120:23, 121:3, 134:14, 135:9 rockfall [2] - 99:19, 99:22 rocks [2] - 99:8, 99:9 roof [1] - 118:20 roots [2] - 98:21, 106:6 roughly [1] - 24:20 roughness [1] - 83:23 runoff [1] - 56:11 Ryan [1] - 29:10	72:3, 72:24, 73:3, 73:18, 73:21, 74:2, 74:23, 87:25, 88:24, 89:6, 90:7, 90:12, 90:21, 91:6, 96:20, 98:25, 111:14, 123:11, 131:15, 131:25, 132:15, 132:16, 132:19, 132:21, 138:17, 138:21, 138:25, 139:4, 140:5 Safina [1] - 104:13 Sam [4] - 29:16, 29:21, 49:4, 107:9 sample [3] - 60:1, 79:6, 79:10 samples [4] - 77:20, 77:24, 78:19, 79:20 SAMUEL [1] - 1:18 sandstone [6] - 119:1, 119:3, 119:9, 133:23, 134:24 Sandy [1] - 137:8 sanitary [3] - 124:25, 126:17, 127:22 satisfied [1] - 84:5 saturation [2] - 48:21, 63:16 saw [7] - 64:5, 87:7, 96:3, 96:6, 118:7, 118:22, 135:4 SCARPA [2] - 1:13, 92:23 Scarpa [1] - 92:22 scope [3] - 87:14, 87:21, 123:17 search [1] - 47:3 seasonal [1] - 103:21 second [7] - 22:13, 24:14, 51:11, 53:24, 54:3, 121:25, 132:13 seconds [1] - 54:18 secret [1] - 54:15 secretary [5] - 125:19, 126:1, 126:12, 127:3, 128:5 Section [6] - 4:22, 5:12, 69:19, 70:11, 71:16, 74:7 section [7] - 5:9, 5:13, 77:19, 77:21, 78:3, 78:18, 78:24 see [68] - 6:9, 6:11, 7:18, 8:24, 8:25, 9:4, 9:6, 10:9, 12:22, 17:1, 21:15, 24:7, 24:8, 30:7, 31:2, 31:13, 32:1, 33:11, 46:7,	49:13, 59:21, 60:2, 60:6, 62:20, 62:22, 63:21, 64:3, 64:9, 71:4, 71:5, 78:3, 78:8, 78:11, 78:15, 78:19, 78:24, 79:10, 79:16, 80:3, 82:15, 84:4, 85:18, 85:25, 88:9, 88:10, 88:20, 89:14, 89:25, 91:8, 92:3, 102:7, 109:25, 118:13, 118:17, 118:23, 119:16, 119:18, 120:5, 120:9, 127:4, 136:19, 137:9, 137:14, 137:15, 138:2, 138:5, 138:18 seeing [2] - 96:7, 138:10 seeking [2] - 33:22, 85:24 Seel [6] - 21:4, 21:6, 25:18, 26:1, 29:17, 48:24 seel [14] - 22:2, 22:14, 23:14, 27:3, 28:7, 30:4, 31:7, 31:16, 35:15, 48:18, 51:9, 53:6, 56:22, 87:9 seel's [1] - 22:17 seem [2] - 5:16, 109:14 seepage [19] - 36:20, 37:4, 40:11, 48:21, 55:24, 56:1, 57:8, 57:20, 57:23, 58:1, 58:16, 58:18, 60:22, 61:7, 61:8, 61:10, 63:24, 66:5 seeping [2] - 61:11, 61:13 seismic [3] - 41:8, 63:8, 63:10 selected [1] - 79:20 self [1] - 85:23 send [4] - 21:10, 50:4, 53:16, 54:15 sense [3] - 25:4, 93:14, 141:3 sent [11] - 22:6, 37:6, 37:10, 51:17, 51:19, 53:7, 53:8, 53:21, 54:17, 55:9, 55:17 sentence [4] - 36:19, 41:1, 57:23, 61:14 separates [1] - 136:17 series [5] - 22:8, 23:4, 27:5, 27:11,	50:7 service [1] - 39:4 services [3] - 72:7, 72:8, 74:22 set [11] - 7:24, 23:17, 23:19, 24:19, 39:11, 39:17, 53:10, 103:4, 115:3, 131:17, 143:7 Seth [1] - 117:19 Seton [1] - 110:12 sets [6] - 10:25, 32:15, 87:23, 89:23, 90:4, 90:19 setting [2] - 105:11, 131:18 several [5] - 23:15, 51:16, 68:2, 110:4, 116:1 severe [3] - 74:9, 121:19, 121:20 sewage [1] - 20:14 sewer [7] - 100:21, 115:13, 122:1, 124:25, 126:17, 127:22, 136:17 shallow [2] - 48:20, 135:5 SHEET [1] - 144:1 sheet [1] - 144:6 sheets [1] - 144:7 SHIMANOWITZ [1] - 2:2 short [3] - 26:9, 57:18, 91:16 shorter [1] - 141:14 Shorthand [1] - 143:2 shortly [1] - 26:3 should've [2] - 37:22, 38:1 shoulder [1] - 108:23 show [6] - 8:5, 8:6, 21:14, 60:11, 116:16, 141:5 showed [3] - 13:1, 13:2 shown [1] - 6:24 shows [3] - 77:6, 94:20, 109:4 shy [1] - 116:4 side [30] - 13:9, 14:9, 14:13, 14:21, 32:17, 32:18, 34:14, 35:5, 37:6, 39:2, 43:12, 52:18, 52:24, 81:5, 90:6, 105:14, 113:24, 113:25, 114:14, 114:16, 116:15, 116:17, 117:3, 117:5, 117:7, 117:8, 134:15,
--	---	---	---	---

137:2, 137:11 sided [1] - 35:5 sides [5] - 15:24, 16:20, 34:11, 39:3, 49:14 sigh [1] - 39:15 sign [1] - 144:6 SIGNATURE [1] - 144:1 signature [1] - 144:25 signed [1] - 29:22 significant [1] - 88:3 silted [1] - 135:1 similar [1] - 119:9 simple [4] - 130:14, 137:11, 139:5, 140:1 simply [2] - 68:5, 126:6 sinkholes [4] - 136:13, 136:14, 137:4, 137:15 site [45] - 8:15, 8:17, 8:22, 9:2, 9:9, 10:5, 10:7, 11:17, 11:20, 11:23, 12:3, 12:22, 14:25, 15:6, 15:7, 15:8, 15:10, 16:9, 16:15, 16:18, 17:1, 19:6, 23:24, 33:11, 44:6, 44:12, 44:13, 44:14, 45:22, 47:12, 48:7, 59:10, 60:24, 64:3, 68:3, 75:16, 87:11, 110:18, 117:22, 124:16, 124:23, 125:20, 131:22, 137:18 sitting [1] - 46:10 situation [15] - 5:24, 58:2, 58:4, 59:14, 62:3, 63:4, 65:25, 99:20, 110:15, 110:21, 124:14, 129:25, 130:1, 130:24, 134:9 situations [2] - 63:4, 132:1 six [4] - 30:3, 30:4, 51:8, 57:14 size [1] - 122:2 Slayback [1] - 136:16 Slazak [2] - 95:17, 95:24 sleep [1] - 133:5 slide [20] - 81:16, 81:21, 82:8, 82:9, 82:13, 82:14, 82:16, 84:7, 99:7, 107:12,	110:11, 110:14, 112:14, 113:21, 113:24, 114:21, 118:14, 123:5, 134:9 slides [1] - 135:5 sliding [1] - 81:14 slippery [1] - 134:7 slivers [1] - 120:18 slope [157] - 5:17, 5:18, 5:21, 6:1, 6:3, 6:6, 6:7, 6:9, 6:10, 6:13, 6:19, 6:22, 6:23, 7:13, 7:19, 8:4, 8:25, 9:16, 9:17, 9:18, 9:22, 9:23, 13:21, 27:7, 36:21, 37:4, 40:11, 48:20, 48:21, 54:12, 55:25, 56:2, 56:3, 56:4, 56:7, 56:10, 56:13, 57:9, 57:23, 58:21, 61:6, 61:10, 62:10, 62:14, 62:19, 63:17, 63:23, 64:3, 64:4, 65:11, 66:6, 66:15, 67:1, 67:16, 67:17, 68:6, 68:11, 68:22, 69:7, 69:11, 69:16, 69:17, 70:1, 70:5, 70:7, 70:9, 70:10, 71:4, 71:5, 71:13, 71:15, 71:17, 71:18, 71:21, 71:22, 72:1, 72:23, 74:6, 74:17, 74:18, 74:19, 74:20, 75:1, 75:3, 76:2, 76:8, 76:18, 77:5, 82:21, 90:23, 90:24, 94:20, 95:6, 98:1, 98:2, 98:19, 100:17, 101:2, 101:10, 101:25, 105:3, 105:14, 108:6, 108:18, 109:22, 109:23, 110:7, 110:8, 110:21, 110:22, 110:24, 110:25, 111:8, 111:9, 111:18, 111:22, 111:25, 112:1, 112:2, 112:4, 113:5, 115:7, 115:18, 115:25, 116:22, 117:3, 117:23, 118:21, 119:1, 119:20, 119:23, 120:1, 121:14, 121:23, 122:21, 122:24, 123:4, 124:4, 129:17, 131:23, 131:24, 134:2, 134:9, 134:15, 135:4, 135:5,	136:8, 136:11, 137:2, 137:12, 138:4, 138:22 Slope [1] - 65:3 sloped [2] - 80:23, 137:12 slopes [16] - 7:10, 13:19, 69:23, 74:8, 100:6, 107:17, 108:6, 110:3, 111:13, 113:13, 118:11, 118:12, 135:17, 137:17 small [1] - 20:10 smectite [3] - 134:4, 134:6, 135:12 so-called [1] - 8:4 soaks [1] - 116:3 soil [53] - 5:18, 6:6, 6:8, 6:13, 6:15, 6:22, 6:23, 7:13, 7:15, 7:16, 7:19, 7:22, 8:4, 61:15, 61:16, 63:17, 69:16, 69:22, 70:2, 70:5, 70:15, 70:19, 70:25, 71:5, 71:18, 71:21, 71:23, 74:7, 77:7, 77:9, 83:24, 100:24, 105:1, 105:2, 105:9, 105:17, 106:6, 106:7, 106:8, 106:23, 107:2, 110:24, 111:1, 111:8, 111:9, 111:13, 111:15, 111:18, 111:22, 111:25, 134:3, 134:4, 134:11 soils [2] - 112:9, 135:9 solely [1] - 141:19 solution [2] - 65:18, 65:19 someone [1] - 15:6 sometimes [1] - 79:21 somewhat [1] - 27:25 soon [2] - 28:7, 54:13 sorry [44] - 11:4, 19:3, 20:17, 22:21, 41:14, 43:23, 45:14, 47:20, 49:1, 57:3, 57:4, 57:21, 58:17, 62:22, 64:21, 66:10, 69:2, 72:21, 73:19, 81:24, 84:16, 85:9, 85:11, 89:8, 91:19, 93:21, 97:1, 100:10, 101:18, 107:5, 107:25, 112:3, 112:22, 120:16,	120:22, 122:13, 122:17, 125:9, 127:13, 133:11, 133:12, 135:25, 138:6 sort [11] - 8:16, 28:17, 28:21, 45:12, 80:23, 99:6, 108:19, 109:14, 137:4, 139:1 sorts [2] - 118:18, 132:9 sought [1] - 18:4 sounded [1] - 87:17 sounds [2] - 80:1, 129:24 southern [1] - 114:12 spaceship [1] - 129:22 span [1] - 75:15 speaking [1] - 33:21 specific [2] - 7:20, 11:7 specifically [1] - 119:2 specifics [1] - 31:23 speech [2] - 104:14, 104:22 SPEEDWELL [1] - 1:24 spend [1] - 138:2 spent [1] - 83:21 spoken [1] - 32:10 spreading [1] - 76:20 squirrels [1] - 72:25 stability [21] - 6:14, 6:15, 13:21, 27:7, 48:20, 58:21, 64:17, 68:22, 70:1, 70:7, 89:5, 90:24, 110:1, 111:10, 112:1, 112:4, 115:18, 123:9, 124:4, 137:2 stable [3] - 94:22, 105:2, 118:12 staff [8] - 11:24, 16:25, 19:19, 19:20, 19:21, 19:22, 45:12, 45:18 stages [1] - 15:15 stand [1] - 12:10 standard [23] - 7:24, 12:1, 58:20, 59:19, 61:2, 61:3, 66:7, 66:18, 72:17, 96:10, 96:12, 129:13, 130:9, 131:16, 131:18, 131:20, 132:2, 132:11, 132:15, 132:16, 132:19, 132:21, 139:12	standards [10] - 36:24, 41:3, 58:24, 60:14, 60:18, 72:24, 89:1, 130:1, 131:17, 133:7 standing [2] - 50:23, 53:14 stands [2] - 68:11, 94:20 start [1] - 141:17 started [2] - 49:17, 52:7 starting [1] - 25:9 State [1] - 143:3 statement [6] - 23:13, 67:15, 68:1, 73:20, 79:19, 95:19 statements [3] - 104:16, 106:17, 136:7 stay [2] - 82:16, 105:5 steep [4] - 58:21, 100:25, 102:7, 118:21 Steinman [1] - 133:21 stenographically [1] - 143:5 step [1] - 61:1 stepped [1] - 15:15 still [11] - 4:6, 4:13, 52:2, 52:22, 65:21, 72:3, 91:24, 95:10, 99:14, 102:21, 124:9 stop [3] - 38:2, 92:6, 132:13 stopped [1] - 134:23 storm [16] - 57:10, 57:16, 58:6, 58:7, 59:5, 59:6, 61:18, 61:22, 62:1, 62:15, 63:15, 66:16, 100:3, 108:22, 109:16, 109:19 storms [6] - 56:12, 57:7, 57:17, 58:8, 109:17 stormwater [1] - 117:13 straight [2] - 23:22, 82:17 stream [1] - 119:11 street [1] - 122:2 streets [1] - 100:11 strength [7] - 7:1, 72:3, 78:10, 79:7, 79:9, 89:1, 131:1 strengths [1] - 7:9 strike [11] - 11:9, 30:4, 36:3, 36:5, 36:17, 44:5, 51:8,
--	---	---	---	--

81:24, 81:25, 82:1, 82:2 stringent [8] - 128:19, 130:8, 130:9, 130:22, 130:25, 132:19, 132:20 stronger [1] - 119:11 structural [4] - 20:5, 20:7, 21:7, 87:11 structure [13] - 71:12, 74:15, 74:17, 75:1, 75:3, 75:4, 75:5, 75:6, 75:7, 81:19, 85:7, 88:19, 88:23 study [4] - 50:23, 53:13, 122:7, 122:15 stuff [6] - 15:12, 27:16, 54:14, 99:13, 103:23, 132:22 subject [4] - 55:13, 91:22, 92:7, 134:13 subjected [1] - 75:8 subjects [2] - 43:2, 43:25 submit [2] - 54:7, 98:12 submittal [2] - 65:6, 102:6 submittals [4] - 50:8, 54:6, 54:8, 54:10 submitted [7] - 27:5, 27:6, 27:9, 27:10, 54:8, 96:6, 122:11 subscribed [1] - 144:22 subsequent [4] - 22:10, 45:4, 45:20, 127:17 substance [4] - 42:6, 43:12, 48:24, 58:25 substantial [3] - 7:4, 7:7, 70:25 subsurface [2] - 59:12, 123:8 sudden [1] - 41:9 sued [1] - 14:7 sufficient [1] - 84:6 suggest [1] - 98:24 suggested [1] - 97:10 suggesting [1] - 52:10 suggests [1] - 18:10 SUITE [2] - 1:24, 2:7 summaries [1] - 48:19 summarized [3] - 22:9, 23:5, 43:16 summarizes [1] - 55:22	summarizing [1] - 31:11 summary [4] - 16:5, 23:7, 23:12, 49:19 supervisor [7] - 28:25, 29:6, 29:9, 29:12, 31:1, 46:24, 55:17 supervisors [1] - 32:5 supplemental [1] - 49:20 supplemented [2] - 44:24, 45:6 supplied [1] - 56:9 supplying [1] - 91:22 support [1] - 84:4 supported [1] - 114:23 supposed [6] - 50:1, 52:11, 52:15, 52:19, 52:22, 53:1 surface [8] - 6:10, 9:4, 9:6, 13:4, 64:18, 86:11, 131:2, 137:24 surprised [7] - 36:20, 37:3, 39:11, 40:7, 40:10, 40:15, 40:19 Survey [1] - 113:11 SUSAN [2] - 1:10, 1:13 Susan [1] - 128:10 suspicious [1] - 79:18 symptoms [1] - 8:24 system [3] - 15:21, 58:1, 97:24	temper [1] - 38:8 ten [13] - 39:22, 68:8, 69:13, 69:14, 82:19, 91:14, 94:9, 96:2, 100:18, 116:8, 119:19, 120:6, 133:25 ten-minute [1] - 91:14 term [2] - 19:1, 109:23 terminology [1] - 120:17 terms [10] - 42:6, 59:19, 88:24, 104:24, 105:9, 105:20, 106:15, 121:20, 128:21 Terrace [1] - 95:24 terrible [3] - 130:15, 130:18, 130:20 tertiary [2] - 134:1, 134:25 test [4] - 8:21, 78:1, 78:2, 87:6 tested [1] - 102:13 testified [15] - 11:16, 11:17, 11:22, 16:2, 24:24, 27:18, 27:25, 28:4, 28:14, 29:4, 38:23, 41:4, 48:10, 118:25, 138:20 testify [1] - 128:25 testifying [2] - 8:15, 82:17 testimony [38] - 4:5, 17:11, 17:14, 19:2, 27:23, 42:12, 44:4, 49:20, 50:3, 67:3, 84:8, 84:9, 84:11, 90:22, 90:23, 93:5, 93:9, 93:11, 93:12, 93:13, 93:14, 103:9, 104:11, 113:6, 117:18, 127:9, 127:11, 127:14, 127:16, 128:2, 128:11, 133:19, 136:4, 138:10, 142:1, 142:2, 142:4, 143:5 testimony's [1] - 17:15 testing [4] - 88:1, 102:11, 103:1, 134:4 tests [2] - 87:13, 88:22 text [4] - 32:25, 45:17, 47:8, 78:5 texts [1] - 45:11 th [1] - 132:8 THE [263] - 4:8,	24:11, 24:22, 56:24, 93:8, 93:17, 93:19, 93:21, 93:23, 93:24, 94:1, 94:6, 94:7, 94:10, 94:14, 94:18, 94:24, 95:1, 95:2, 95:5, 95:8, 95:12, 95:14, 95:17, 95:21, 95:24, 97:1, 97:4, 97:12, 97:15, 97:16, 97:18, 97:19, 97:22, 97:23, 98:3, 98:5, 98:15, 98:18, 99:4, 99:18, 99:22, 100:9, 100:12, 100:13, 100:14, 100:15, 100:16, 100:17, 100:20, 100:22, 100:23, 101:1, 101:3, 101:5, 101:7, 101:8, 101:9, 101:10, 101:13, 101:16, 101:17, 101:18, 101:19, 102:6, 102:8, 102:14, 102:16, 102:18, 102:21, 102:22, 102:24, 103:2, 103:7, 103:12, 103:16, 103:18, 103:24, 104:1, 104:7, 104:8, 104:13, 104:18, 104:21, 105:3, 105:6, 105:12, 105:16, 105:21, 105:24, 106:12, 106:14, 106:21, 107:1, 107:5, 107:9, 107:16, 107:19, 107:21, 107:23, 107:25, 108:2, 108:5, 108:8, 108:9, 108:11, 108:13, 109:3, 109:6, 109:8, 109:9, 109:11, 109:18, 109:20, 109:21, 110:2, 110:9, 110:10, 110:15, 111:4, 111:5, 111:6, 111:10, 111:16, 111:19, 111:21, 111:22, 111:25, 112:3, 112:4, 112:6, 112:8, 112:9, 112:13, 112:17, 112:20, 112:22, 112:23, 112:25, 113:1, 113:2, 113:6, 113:9, 113:17, 114:1, 114:7, 114:12, 114:14, 114:22, 115:6, 115:17, 115:20, 116:14, 116:16, 116:21,	116:24, 117:1, 117:6, 117:12, 117:15, 117:19, 117:25, 118:2, 118:4, 118:5, 118:10, 118:15, 118:17, 118:20, 118:22, 118:25, 119:5, 119:10, 119:12, 119:14, 119:18, 119:21, 120:1, 120:3, 120:6, 120:8, 120:11, 120:12, 120:13, 120:14, 120:20, 120:21, 120:23, 120:24, 121:8, 121:20, 121:24, 122:6, 122:10, 122:13, 122:16, 122:17, 122:18, 123:3, 123:7, 123:13, 124:2, 124:6, 124:7, 124:9, 124:12, 124:17, 124:19, 125:4, 125:9, 125:20, 125:24, 126:3, 126:6, 126:14, 126:20, 126:23, 127:6, 127:13, 127:18, 127:20, 128:8, 128:10, 129:3, 129:16, 129:19, 130:10, 130:13, 130:16, 130:19, 130:25, 131:5, 131:7, 131:13, 131:17, 131:19, 131:21, 132:1, 132:5, 132:13, 132:22, 133:1, 133:6, 133:10, 133:11, 133:12, 133:17, 133:21, 134:12, 134:18, 135:6, 135:11, 135:13, 135:14, 135:20, 135:22, 135:25, 136:1, 136:5, 137:1, 137:8, 138:1, 138:7 there'd [1] - 139:5 therefore [2] - 59:16, 90:18 thin [2] - 70:19, 70:24 thinking [1] - 130:19 thinks [2] - 38:9, 131:19 thinly [1] - 70:15 third [9] - 8:12, 49:2, 49:3, 53:25, 54:1, 130:2, 130:3, 130:6,
--	--	--	---	--

104:2, 104:5 WEST [3] - 1:1, 1:5, 2:8 West [2] - 5:24, 110:25 west [2] - 80:10, 103:23 western [5] - 113:24, 116:15, 116:17, 117:5, 117:7 wet [1] - 103:10 wherein [1] - 16:18 whichever [1] - 30:14 whole [9] - 35:17, 43:21, 55:12, 58:12, 107:6, 123:18, 127:20, 137:12, 137:16 wide [1] - 113:22 WILKES [2] - 1:11, 92:17 wilkes [1] - 92:16 WILLIAM [1] - 1:11 willing [3] - 46:7, 106:10, 106:14 winter [1] - 141:13 wisdom [1] - 60:12 wish [1] - 141:9 WITNESS [118] - 1:17, 4:8, 24:11, 24:22, 56:24, 93:17, 93:21, 93:24, 94:6, 94:10, 94:18, 95:1, 95:5, 95:12, 97:12, 97:16, 97:19, 97:23, 98:5, 99:18, 100:9, 100:13, 100:15, 100:17, 100:22, 101:1, 101:8, 101:10, 101:16, 101:18, 102:6, 102:14, 102:18, 102:22, 103:2, 103:12, 103:18, 104:1, 104:8, 105:3, 105:12, 105:21, 106:12, 107:5, 107:16, 107:21, 107:25, 108:5, 108:9, 109:3, 109:8, 109:18, 109:21, 110:9, 110:15, 111:5, 111:10, 111:19, 111:22, 112:3, 112:6, 112:9, 112:17, 112:22, 112:25, 113:2, 113:9, 114:1, 114:12, 114:22, 115:17, 116:14,	116:21, 117:1, 117:12, 117:25, 118:4, 118:10, 118:17, 118:22, 119:5, 119:12, 119:18, 120:1, 120:6, 120:11, 120:13, 120:20, 120:23, 121:8, 121:24, 122:16, 122:18, 123:7, 124:2, 124:7, 124:12, 129:16, 130:10, 130:16, 130:25, 131:7, 131:17, 131:21, 132:5, 132:22, 133:6, 133:11, 133:17, 134:12, 135:6, 135:13, 135:20, 135:25, 137:1, 138:1, 144:2, 144:5 Witness [1] - 144:25 witness [4] - 14:18, 17:18, 18:11, 18:13 wondering [3] - 97:7, 104:15, 110:10 WOODBIDGE [1] - 2:4 wooded [4] - 95:7, 95:9, 134:16, 138:4 word [3] - 9:10, 9:11, 17:7 words [10] - 52:22, 66:25, 68:16, 71:21, 73:8, 76:7, 76:19, 114:24, 129:17, 131:2 works [7] - 14:1, 14:3, 18:12, 18:13, 20:7, 81:2, 123:18 worried [3] - 58:15, 76:12, 108:24 worse [2] - 75:14, 132:14 worst [4] - 61:12, 61:17, 61:19, 68:3 would've [1] - 53:21 write [4] - 9:1, 9:3, 52:1, 79:21 writes [1] - 53:6 writing [1] - 47:22 written [4] - 45:16, 45:25, 46:12, 47:7 wrote [5] - 10:15, 31:7, 36:6, 51:9, 79:23	year [5] - 62:1, 103:10, 105:25, 106:4, 140:24 years [18] - 14:2, 14:17, 75:23, 76:15, 96:2, 108:21, 109:16, 113:19, 115:11, 115:12, 133:23, 133:24, 134:1, 135:1, 135:23, 136:10, 137:13, 137:21 yesterday [4] - 27:4, 53:9, 53:19, 54:19 yield [3] - 36:21, 37:4, 40:12 yourself [11] - 6:17, 9:18, 14:20, 22:2, 28:23, 36:12, 45:12, 45:13, 45:18, 46:20, 47:9 yup [1] - 21:13
Z		
zero [9] - 93:15, 93:17, 93:18, 94:8, 94:9, 94:16, 128:3, 129:14 zone [2] - 99:16, 124:10 zoom [5] - 22:19, 28:1, 46:16, 46:19, 140:13		
Y		
Year [2] - 141:10, 142:12		