

1 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 TOWNSHIP OF WEST ORANGE DEPARTMENT OF PLANNING AND DEVELOPMENT WEDNESDAY, APRIL 30, 2025 6:30 P.M. RE; PB-24-01 WEST ESSEX HIGHLANDS, INC. BOARD MEMBERS: ROBERT BAGOFF, Chairman SUSAN MCCARTNEY, Mayor WILLIAM WILKES II LEE D. KLEIN, PE PTOE LORI KAPFERER (Alternate 2) KEN ALPER RYAN MacNEILL, Engineer GERARD HAIZEL, Planner JAMILET BAQUERIZO VITE, Board Secretary GENIECE GARY-ADAMS, Zoning Official JOSEPH FAGAN, Zoom Moderator FISHMAN COURT REPORTING AGENCY 89 HEADQUARTERS PLAZA NORTH 4 SPEEDWELL AVENUE, SUITE 1440 MORRISTOWN, NEW JERSEY 07960 (973) 285-5331 - FAX - (732) 605-9391	3 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 I N D E X WITNESS DIRECT CROSS REDIRECT RECROSS I N D E X O F E X H I B I T S <table><thead><tr><th>EXHIBIT</th><th>DESCRIPTION</th></tr></thead><tbody><tr><td>O-12</td><td>DR. BUTLER SLIDE SHOW</td></tr><tr><td>O-13</td><td>DR. DeVITO SLIDE SHOW</td></tr></tbody></table>	EXHIBIT	DESCRIPTION	O-12	DR. BUTLER SLIDE SHOW	O-13	DR. DeVITO SLIDE SHOW
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2 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 A P P E A R A N C E S : HUTT, SHIMANOWITZ & PLOCKER, ESQS. BY BRYAN D. PLOCKER, ESQ. Bplocker@huttshim.com 459 AMBOY AVENUE WOODBRIIDGE, NEW JERSEY 07095 Appearing on behalf of the Applicant GACCIONE & POMACO, ESQS. BY DIANA P. MCGOVERN, ESQ. ONE BOLAND DRIVE, SUITE 102 WEST ORANGE, NEW JERSEY 07052 Appearing on behalf of the Board BRUCE I. AFRAN, ESQ. 10 BRAEBRUN DRIVE PRINCETON, NEW JERSEY 08540 Appearing on behalf of the Objector, We Care NJ Corp. LAW OFFICES OF STEVEN L. SACKS-WILNER, ESQS. BY STEVEN L. SACKS-WILNER, ESQ. 20 EAST RIDGE ROAD SKILLMAN, NEW JERSEY 08558 Appearing on behalf of the Objector	4 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 CHAIRMAN BAGOFF: PB-24-01 West Essex Highlands, Inc. Block 179 Lot 32, Warner Road. The applicant is proposing to develop a 496 unit inclusionary multifamily residential development on a vacant 120 acre property in the northwest corner of the Township of West Orange. MS. MCGOVERN: So Mr. Afran was continuing with his objectors case. CHAIRMAN BAGOFF: Mr. Afran. MR. AFRAN: Yes, good evening. I think it's on. Good evening, Mr. Chairman. We have two witnesses for tonight. If you recall at the last meeting when there was a technical problem we couldn't go forward. One of those witnesses had a vacation scheduled for today, he's out of the county but he's available, that's Mark Gallagher, for June 4, assuming the rooms available at that time. But we do have two witnesses tonight. The first is Emil DeVito, who was scheduled the last meeting that we had that was postponed because of technical problems and then we have Luke Butler, our second witness tonight. Mr. Fagan is checking to see if we have Dr. DeVito's -- MR. FAGAN: I have it. I think I have it.						

5 1 Yes. 2 MR. AFRAN: Okay. 3 MR. FAGAN: Would you like me to display it? 4 MR. AFRAN: Yeah, let's just make sure we 5 have Mr. DeVito's. It was sent last time. Mr. Fagan is 6 checking to see if he still has it. 7 MR. FAGAN: Is that it? 8 MR. AFRAN: That appears to be -- how many 9 slides are there? 10 MR. FAGAN: I think just one. 11 MR. AFRAN: No, there are ten slides. So 12 there's a set of ten that you had last time. It should 13 be in the system. 14 MR. FAGAN: This is the download that he 15 sent me. All I have is one slide. I will double check. 16 MR. AFRAN: So we're trying to get the 17 display sent back again. Without that his testimony 18 would be problematic. 19 (Whereupon, a short recess is taken.) 20 MR. AFRAN: Okay. I think we're ready. 21 Mr. Chairman, we're ready. 22 CHAIRMAN BAGOFF: Go right ahead. 23 MR. AFRAN: Thank you. 24 If anyone can't hear me I'm sure you will 25 let me know. I will try to keep my voice up.	7 1 from where? 2 A. Rutgers University. 3 Q. And what was your field, major study? 4 A. Zoology, ecology and ornithology. 5 Q. And did you get a master's as part of your PhD? 6 A. No, just a BA in Zoology from Rutgers and a PhD 7 from Wisconsin. 8 Q. Thank you. 9 I understand you're presently employed by the New 10 Jersey Conservation Foundation, is that correct? 11 A. That's correct. 12 Q. And what is your position at the foundation? 13 A. I am the manager of science. 14 Q. And in that capacity do you work in the field of 15 forestry or forest ecology? 16 A. I work all over New Jersey and sometimes in other 17 parts of the northeast on ecological issues. Restoring 18 rare plant and animal habitat, doing rare species 19 conservation, doing scientific studies with colleagues 20 from different universities educating the public on a 21 variety of things. 22 Q. And how long have you worked with the New Jersey 23 Conservation Foundation? 24 A. 36 years. 25 Q. With the foundation?
6 1 We're presenting Emile DeVito, Dr. Emile 2 DeVito, who is a forester at the New Jersey Conservation 3 Fund I believe is -- 4 MR. DeVITO: Foundation. 5 MR. AFRAN: Foundation is the correct name. 6 Let me just qualify Mr. DeVito quickly, if I can. 7 MS. MCGOVERN: Do you swear or affirm to 8 tell the truth the whole truth nothing but the truth. 9 THE WITNESS: I do. 10 MS. MCGOVERN: Your full name and spell it 11 please for the record. 12 THE WITNESS: First name is Emile, 13 E-M-I-L-E. DeVito, D-E-V-I-T-O. 14 E M I L E D E V I T O, having been duly 15 sworn under oath testifies as follows: 16 MR. AFRAN: Mr. DeVito is being offered as 17 an expert in forestry and forest ecology. 18 Q. I understand you have a PhD, is that correct Mr. 19 DeVito? 20 A. Yeah. 21 Q. What is your PhD in? 22 A. My PhD was obtained in 1988 from the University 23 of Wisconsin studying New Jersey forests, bird 24 communities and forest communities. 25 Q. And before that you have an undergraduate degree	8 1 A. Yes. 2 MR. AFRAN: Mr. Chairman, we proffer Mr. 3 DeVito as an expert in forestry, forests, ecology and 4 zoology. 5 MR. PLOCKER: Mr. Chairman. 6 CHAIRMAN BAGOFF: Members of the Board have 7 any questions? Seeing none. 8 Mr. Plocker, do you have any questions? 9 MR. PLOCKER: I don't take any issue with 10 Mr. DeVito's credentials. 11 I would like to place a statement on the 12 record, that it appears the testimony he's offering has 13 zero impact on the applications compliance with the 14 Township's ordinances or this Boards jurisdiction, but 15 that being said, I believe I'll leave it up to the Board 16 and the Chairman's discretion how they want to handle 17 that testimony. 18 MR. AFRAN: Well Mr. Chairman, I would just 19 respond and note that an ecological study was required 20 by the settlement agreement, particularly in the area of 21 the forest and forest health and specifically that is 22 one of the reasons Mr. DeVito was retained and it was 23 required as a part of the settlement and incorporated 24 into the ordinance and therefore it is directly 25 responsive to, number one, Mr. Defeo's testimony and

9 1 number two, it is within the jurisdiction because it's 2 mandated as part of this very application. 3 CHAIRMAN BAGOFF: Thank you. 4 Mr. DeVito is accepted. 5 MR. AFRAN: Thank you, Mr. Chairman. I will 6 sit over here, if I interject I will bring the mic over 7 here. 8 CHAIRMAN BAGOFF: I'm sorry Dr. DeVito. 9 THE WITNESS: Thank you. 10 So I just want to talk a little bit about 11 what happens to a forest when it gets developed, 12 depending on what kind of development occurs and the 13 geography of the development. 14 So the forest here in West Orange up on the 15 ridge is large enough to contain what we call interior 16 forest habitat. In other words, the edges of the forest 17 suffer from all sorts of degradation. Be it excessive 18 wind, excessive heat, animals and plants that don't 19 belong in the forest that are bleeding in from the 20 backyards and streets and nearby areas, but the interior 21 of the forest, if you get far enough from all of those 22 disturbances, still acts as the forest ecosystem. And 23 so when you look at a forest tract you have to think 24 about what parts of the forest are acting as interior 25 core forest habitat that contain all the typical	11 1 photo I'm not looking at the property lines, I'm just 2 looking at the entire forest patch, so some of it bleeds 3 onto other parcels. So when you take a 300-foot edge of 4 that you're left with this hatched green, which is the 5 interior of the forest where you would expect interior 6 forest species. It's cooler, it's more moist, it 7 doesn't suffer from excessive sunlight or wind or wind 8 throws because of storms nearly as much as the edge. It 9 doesn't suffer from a whole host of species that inhabit 10 the suburban landscape and do better around people. And 11 so it has a very different biology than what's going on, 12 on the edges. 13 Q. The word interior, is that equal to the core in 14 this context? 15 A. The interior and core are interchangeable. 16 Q. The core is the same as interior on the screen? 17 A. That's right. 18 Q. Okay. Thank you. 19 A. And the graphic down below we note that there 20 are, the patch, the whole entire patch is 143 acres of 21 forest. It has 58 acres of core or interior core 22 forest, and we'll talk about the numbers later in a 23 better visual, but when you look at what's proposed to 24 be developed, the number of core -- the acres of core or 25 interior forest go from 58 down to 9, and we'll show you
10 1 ecological processes that go on in a forest and all the 2 species that are to be in a forest. 3 First is, what's edge where the forest is 4 being diminished, degraded by the surrounding urban 5 landscape. 6 MR. AFRAN: Let me note for the record, 7 since there are no page numbers, that was the first page 8 of the slide which was an aerial photograph of this 9 forest tract. We are now on the second page which has a 10 heading in the right corner, 300-Foot Edge Affects. 11 A. So typically for an eastern deciduous upland 12 forest of this type, most of the uplands as this forest, 13 but it's, you know, on a ridge. It's basically a dry 14 oak/hickory type forest. This is a quite mature forest, 15 it's never had agriculture. The soils have never been 16 plowed, so it has an impact soil layer and it has an 17 impact layer, ground layer of vivacious plants, shrubs 18 and of course the tree canopy which is well over 100 19 years old. 20 And the interior of the forest, generally for 21 this type of forest, you would use a thumbnail of 300 22 feet as, as where the edge effects degrade the forest. 23 So by, so you see the red line at the top of the 24 photo, that's the 300-foot line that goes around the 25 perimeter of the entire forest patch. Now, in this	12 1 that better in a future graphic. 2 Q. Let me just clarify then. The green crosshatched 3 section which occupies the majority of the forested area 4 in this slide, that's the interior or core forest, is 5 that correct? 6 A. That's correct. 7 Q. And the lighter -- the darker green around it 8 that is what you're describing as the edge, is that 9 correct? 10 A. The dark green line that goes around is just the 11 edge of the forest patch. And the edge of the forest 12 that functions as an edge which is to some extent 13 degraded is the forest that's not colored in. 14 Q. Thank you. 15 So the perimeter around the green crosshatch is, 16 is the edge, is that correct? 17 A. That's correct. 18 Okay. 19 So one of the things that happens when you have 20 forest edge is that you get all of these creatures that 21 are the predators on the interior forest species. Blue 22 Jays, they do incredibly well by people. Gray 23 squirrels, skunks, raccoons, they don't like to go into 24 a core forest because the core forest is not safe for 25 them. The core forest has predatory birds like Great

1 **Horned Owls and Hawks, that do really well in the core**
 2 **forest where it's more shaded and, and not as much**
 3 **sunlight and the animals aren't used to being in there**
 4 **so they don't know the terrain as well so it's unsafe**
 5 **for them. Whereas they do great around the edges. And**
 6 **so once you start to cut up a forest and create an**
 7 **additional edge these creatures get access to the middle**
 8 **of the forest and they do a great deal of damage to the**
 9 **processes that goes on the inside of the forest.**

10 **So now the yellow line here is the parcel that's**
 11 **in question, and this picture shows the current forest**
 12 **interior that's on that parcel where the forest process**
 13 **is still much as they were 300 or 400 years ago when the**
 14 **whole place was forest, right. And as development has**
 15 **encroached, this forest patch has become isolated and**
 16 **then the edge habitat is diminished and the core forest**
 17 **species where you have this area, core interior area no**
 18 **longer utilizes where their population can be sustained.**

19 **The green area is a population surplus area where**
 20 **critters are successful, they produce young, they have**
 21 **an abundance of offspring and the gray area that's not**
 22 **colored in green is a population sink, where critters**
 23 **who -- it looks like forest, they settle there, they try**
 24 **to go through their life history but they don't**
 25 **generally do very well, so it's called population sink**

1 **where, that's where the core forest creatures go to die.**
 2 **They're not successful.**

3 **Q.** Where on here do you see, please clarify where is
 4 the population sink depicted here or where do you
 5 identify it on this slide?

6 **A.** So the population sink is everything that's not
 7 colored in, right. It's the area that's not green
 8 crosshatched, that's where core forest species fail in
 9 having successful reproduction and maintaining their
 10 population.

11 **Q.** Is the population sink analogous to the word edge
 12 in your usage?

13 **A.** Well, the edge is the place and the population
 14 sink is what happens. That's why we use the word sink,
 15 it's like going down the drain.

16 **Q.** Thank you.

17 For the record, this is the slide, we all see it
 18 but just for the record, this is slide with the solid
 19 yellow outlined rectangular forest.

20 **A.** So these are some of the species you would expect
 21 in the core forest. Of course I haven't surveyed this
 22 forest, you know, I've been brought in on this, I didn't
 23 have permission to go into that forest, not only that it
 24 was the wrong time of the year but these are the species
 25 that you would expect in the forest and they are species

1 of special concern in New Jersey. Now, they have no
 2 regulatory protection, but I'm just pointing it out
 3 that, you know, if you're interested in protecting
 4 forest processes, if you're interested in protecting the
 5 integrity, the biodiversity in your community, these are
 6 the kinds of species that you can be concerned about.
 7 Box turtles and Wood Thrush are on the top. Box --
 8 obviously the Box turtle on the left, Wood Thrush on the
 9 right and the smooth green snake is a species that you
 10 would expect in the core forest. And probably, you
 11 know, after another few weeks go by you'd be able to go
 12 there, these animals would be out of hibernation or back
 13 from the tropics where they migrate and you would find
 14 these species in the core forest.

15 **Q.** For the record, this is a slide headed, New
 16 Jersey Species of Special Concern with three animals
 17 depicted.

18 **A.** So this slide shows the proposed development
 19 superimposed on to the aerial photograph in red. You
 20 can see that much of that development envelope is within
 21 the existing, what's now existing and functioning as
 22 core forest and if you were to put a 300 -- so now once
 23 we see where the development will occur and forest would
 24 be cleared and turned into an urban landscape or
 25 suburban landscape, then we have to go ahead and put a

1 300-foot line around that red patch because then over
 2 time everything within 300 feet of that development will
 3 start to begin to act as an edge and after a few years
 4 all interior forest function will be lost. So we put
 5 that 300-foot line -- we put that 300-foot line, thank
 6 you for zooming in. Then you can see that in addition
 7 to the forest that's completely obliterated by the
 8 development there's also an impact to the rest of the
 9 green core forest everywhere within 300 feet of that
 10 development is no longer acting as core forest, it's
 11 acting as edge.

12 **And so if you then look at the next slide, now I**
 13 **have colored in the core, the remaining core forest.**
 14 **This is the forest that remains that's more than 300**
 15 **feet from any development. Any urban or suburban**
 16 **development and it's the two areas that are outlined in**
 17 **that magenta color and that totals nine acres.**

18 **Q.** Let me clarify, you have two areas that comprise
 19 a total combined of nine acres?

20 **A.** That's right.

21 **Q.** So now you're testifying that would be the
 22 remaining core forest after the project is built?

23 **A.** That's right.

24 **Q.** Now, can you go to --

25 **A.** Now, that doesn't happen immediately, that takes

1 a little bit of time, a few years for those edge
2 processes to invade the forest that hasn't been
3 disturbed, but after a few years you would only have
4 core forest ecological processes still happening with
5 integrity in those areas outlined in the magenta and
6 that nine acres is not big enough to support any core
7 processes.

8 Q. And just to clarify this, the slide that
9 previously depicted the red area is the area of
10 development of the proposed project, is that correct?

11 A. Yes.

12 Q. Okay. Thank you.

13 A. So, again, here's the core forest today and then
14 there's the same image with the proposed development in
15 red and remaining core forest, which totals nine acres.

16 And, again, nine acres is not enough to support
17 any population of any forest interior species, forest
18 interior species are area sensitive. In order to
19 maintain a population those forest interior species need
20 a decent size tract of forest, usually about 50 acres or
21 more for a population to be sustained, which they have
22 now which they, you know, well, completely all the core
23 forest species will completely disappear. That's a lot
24 of species. And I already mentioned we have not done
25 any studies, we don't know of any threatened or

1 endangered species that are existing in this forest and
2 it's not very likely that there are any threatened or
3 endangered species protected by regulations because they
4 generally need even greater acres of core forest, but
5 there are lots of species of special concern that should
6 be in here and species of special concern that are
7 listed by the State of New Jersey are those species that
8 are next in line to become threatened. So if you're
9 interested in protecting diversity in your municipality
10 than you should be trying to protect your core forest.
11 That's all I have.

12 Q. If you can go back to the last slide a moment,
13 please.

14 So for the record, this slide depicts the area of
15 disturbance in red and then it has three smaller areas
16 in magenta and those are the areas the witness has said
17 comprise the remaining core forest. I'm just describing
18 it so the written record is clear as to what slide we're
19 dealing with.

20 Was that all of your presentation at this point?

21 A. That's all I have. If anyone would like to ask
22 any questions I would welcome that.

23 Q. Let me develop a little bit with you on one
24 point.

25 Now, looking at those slides is it your testimony

1 that everything that is remaining outside of the
2 magenta, and not including the area in red, that would
3 be edge forest, is that correct?

4 A. That's right. Over time after a few years.

5 Q. Now, what's the process that affects the edge?
6 What does the edge forest go through versus the core
7 forest?

8 A. Well, the edge forest has additional sun slight,
9 higher temperatures, greater exposure to wind, greater
10 exposure to drought because the canopy is subject to
11 wind, trees get blown over in storms. So the soil loses
12 its moisture more easily. The, the forest canopy is
13 what creates the conditions, the interior forest
14 conditions and if you're too far, too close to an edge you
15 lose those conditions and once you lose those conditions
16 insect populations change. Forest understory plant
17 population change, you get lots of weeds, alien species
18 invade from people's backyards. You get all those
19 predators that I talked about venturing into the forest
20 because they feel safe because the large predators that
21 pray on Blue Jays and crows and squirrels and those
22 types of things, they're gone.

23 Q. So you're saying over time there is a species
24 interchange in which edge species could dominate because
25 there's very little forest left?

1 A. That's right. Two different habitats. They're
2 different as chalk and cheese. And, yeah, you just get
3 a total changeover on the flora and fauna between the
4 edge forest and the core forest. An edge forest is sort
5 of, you know, like a little bit bigger than a hedgerow
6 in a farm field. It's not a forest, it's just edge.

7 Q. Is there --

8 A. Supports things like raccoons and crows and deer
9 and woodchucks and all the things that live with people.
10 None of the sensitive species.

11 Q. And what species typically would live in the core
12 forest that would be lost once it converts to edge?

13 A. Well, I gave you three special concern species
14 that probably are there, you know, if you were to go
15 look, and there would be a lot more. All sorts of
16 species of forest warblers, long distance migratory
17 birds. There would be a lot more of the various
18 salamander species, because the soils remain moist, so
19 red-backed salamanders and other woodland salamanders.
20 There would be a whole series of species that suffer
21 once you lose those core forest conditions. But as I
22 said before, it's important to recognize that you lose a
23 lot of species, they just don't happen to be species on
24 the threatened and endangered list because, you know,
25 first we haven't searched this forest for threatened and

21 1 endangered species, so we don't know if there are any 2 there, but also it's unlikely there are any threatened 3 or endangered species there because usually you have to 4 get upwards of 300, 400 acres of forest to start 5 accumulating those most sensitive threatened and 6 endangered species. But doesn't mean that special 7 concern species aren't important. They're next on the 8 list and we're losing them. All of their population is 9 declining in New Jersey, every one of those special 10 concerned species, that's why they're called special 11 concern and endangered. We're in danger of losing them 12 in the near future. 13 Q. What's the primary loss of decline of these 14 species? 15 A. Forest fragmentation development and the creation 16 of edge as opposed to forest interior. 17 Q. Now, you familiar with Mr. Defeo's presentation? 18 A. Uh-huh. 19 Q. Now, Mr. Defeo spoke about the goal of putting 20 deer fencing, basically creating two sides of forest 21 outside of the area of disturbance. Is that process Mr. 22 Defeo speaks about, putting those fences up to encourage 23 new understory, going to halt the creation of edge 24 forest as you described it? 25 A. No, that will, if those fences are effective and	23 1 Q. As an analogy, and you talked about this, I am 2 not sure it's a proper biological concept, but is there 3 any analogy between edge and core forest and barrier 4 beach and interior base and things like that? 5 A. So you're asking me about a barrier beach habitat 6 versus a -- 7 Q. I mean, barrier beach absorb -- 8 A. -- natural water habitat? 9 Q. Barrier beach absorb wind, they absorb salt, 10 things of that nature and the echo system behind them is 11 much different, does the edge in a sense protect the 12 core in the same way? 13 A. So the analogy that you're speaking of is 14 obviously there's the ocean, which is saltwater, and 15 it's windy and, you know, it's a harsh environment, so 16 as you move inland on a barrier beach you go from a 17 grassland to a shrub land, the black cherry and poison 18 ivy, and then when you get a couple hundred yards back 19 from the beach you start to get juniper trees and holly 20 trees and you end up with a forest because the impact of 21 the ocean is ameliorated as you move inland and so the 22 same thing is true here. The development is an 23 incredibly harsh unsuitable environment and it causes 24 things to be happening on the edge of the forest and 25 those things progressively march inland until you get a
22 1 last for decades and actually prevent deer from 2 monitoring every time a tree falls down, that will have 3 some impact on the regeneration of forest understory. 4 But that has nothing to do with ameliorating the 5 fragmentation, the extra sunlight, extra wind, soil 6 moisture decline, all those other factors, that has 7 nothing to go do with it. So even if we had no deer in 8 New Jersey we could still have all our problems of the 9 forest fragmentation and loss of core forest. 10 Q. So the deer fencing will not address this problem 11 at all? 12 A. Not at all. Not one bit. 13 MR. AFRAN: One moment, please. 14 Q. Can you also just explain why the remainder core 15 forest in magenta would not be sufficient to maintain 16 their ecological processes? 17 A. Well, certain ecological processes would still be 18 occurring in those magenta areas but the species that 19 require forest, core forest, they involve the tiny 20 little patches of forest like that. They're 21 territories, they're much larger than a handful of acres 22 and so they do support the population of core forest 23 species. There's just not enough space. They're just 24 jammed into small areas, they don't even have the size 25 necessarily of one or two breeding territories.	24 1 certain distance from the disturbance and that in this 2 type of forest is generally considered to be 300 feet. 3 Many of our regulations talk about 300 feet in terms of 4 protecting forest quality. 5 Q. Now, I understand there's some who feel the edge 6 is actually much larger, 1,500 feet for example, you're 7 using 300 feet. Can you explain why you're choosing 8 that number? 9 A. I'm choosing 300 feet because eastern deciduous 10 forests tend to, you know, that's about three or four 11 for the height, that's about the height of three or four 12 trees combined. So if a tree on the edge blows down the 13 sunlight comes in, the next tree comes down, after a 14 decade you have enough gap forming and sunlight and wind 15 that you, until you get 300 feet from where all that 16 started, that's how you lose your forest processes. 17 Now, there are other things that you would use lose, 18 much larger buffer size. For instance, if you had a 19 vernal pond here that's breeding rare vernal pond 20 obligate species like spring peepers or wood frogs, 21 generally, you know, there's a lot of debate over this 22 but for example, states that have really good forest 23 regulations say that a vernal pond needs a 1,000 foot 24 buffer. New Jersey has no regulations. So, you know, 25 people who do forestry in New Jersey don't protect

25 1 vernal ponds for developers. 2 Q. But use the 300 foot as sort of a conservative 3 measure? 4 A. Well, 300 foot is what it should be for this 5 forest type. If we were in the Pine Barrens of New 6 Jersey, the forest ecology is very different and the 7 buffer would be much less. Might only be 100 feet, 8 because it's already a sunny, dry forest, it doesn't 9 have that, that shady, cool canopy. It's not cool and 10 green shade, to quote the John Denver song. So, if you 11 have an open savanna where wildfires are and trees are 12 far apart then you don't really get edge of grass. 13 Q. So that was my last question in terms of the 14 canopy. You mentioned earlier the canopy helps protect 15 the core? 16 A. Canopy creates -- 17 Q. Could you explain that process? 18 A. Canopy creates the forest environment that the 19 core forest species evolve in and that canopy has been 20 here for thousands of years and now there's so little 21 left and that's the point trying to protect those places 22 where we still have canopy forest. 23 Q. Thank you. 24 MR. AFRAN: That covers my questions 25 directly for the witness, Mr. Chairman.	27 1 MR. KLEIN: Sure. 2 So to follow-up on that. So the red area, does 3 that include, I believe there's going to be some 4 landscaping added? 5 THE WITNESS: Landscape is irrelevant. The 6 forest -- you want to have core forest. You need 7 undisturbed forest 300 feet away from any disturbance. 8 Landscaping is completely irrelevant. 9 MR. KLEIN: You can't plant back? 10 THE WITNESS: You can't plant forest. Once 11 you disturb the forest it's gone. 12 MR. KLEIN: Not forest edge. You're 13 measuring 300 feet from the edge of the red. Should you 14 go in a little bit because there's, I don't know, like 15 let's say 50 feet of landscaping? 16 THE WITNESS: No, because that's not going to 17 create any kind of canopy. It's just going to be 18 scattered plants and that's just -- 19 MR. KLEIN: And that's not an edge? 20 THE WITNESS: Well that's, no, I'm talking 21 about the edge of the actual forest. Landscaping is no 22 different -- whatever you do for a landscaping is no 23 different than somebody's lawn or somebody's shrubs or 24 that's just development. That doesn't count toward any 25 forest conditions.
26 1 CHAIRMAN BAGOFF: Thank you. 2 Mayor McCartney, do you have a question of Mr. 3 DeVito on his testimony? 4 MAYOR MCCARTNEY: Thank you, Chairman. 5 Good evening. So in the testimony that we have 6 heard so far I understand the proposed application is 7 120 acres, 25 of that is steep slope and 61 is 8 developable and the testimony we heard was that they 9 were going to disturb 27.9. By looking at that stark 10 red blotch is what you're calling proposed -- the 11 proposed development area. That to me looks like a lot 12 more than 27.9 acres. So I guess I feel a little -- 13 THE WITNESS: So the table there shows that 14 the existing forest area is 1.3 and the post development 15 forest area is 114. That comes out to be 29 acres. So 16 the red is 29 acres. That's all done with GIS computer 17 measuring. It's accurate. So that red blotch is 29 18 acres. The problem is that by developing 29 acres you 19 lose core forest conditions on 49 acres because of that 20 300 foot. The development takes up 29 acres and then 21 the 300 feet around the development takes another 20 22 acres out of what we need for core forest conditions. 23 MAYOR MCCARTNEY: Thank you. 24 CHAIRMAN BAGOFF: Mr. Klein, do you have any 25 questions for Mr. DeVito on his testimony?	28 1 MR. AFRAN: I think there might some 2 confusion with the word edge. The word edge refers to a 3 forest but not the area of development? 4 MR. KLEIN: Correct. But 300 feet in from 5 the edge of the mature forest is where the core starts? 6 THE WITNESS: That's right. 7 MR. KLEIN: If you were to disturb something 8 within the core you couldn't, you couldn't -- you can't 9 replant within the 300 foot edge to create more edge? 10 THE WITNESS: So -- 11 MR. KLEIN: Enhance the edge. 12 THE WITNESS: So one way to enhance it, it 13 might be possible to enhance an edge to some kind of 14 degree by planting, for example, evergreens that keep 15 sunlight out, you know, out of the forest. But that 16 doesn't do anything for the crows, the Blue Jays, the 17 squirrels, all the predators, all the weeds that are 18 going to come from people's yards. So you might be able 19 to mitigate that problem of extra sunlight and extra 20 wind a little bit but, plus you would have to plant -- 21 in order to do that and not let those processes begin, 22 you would have to plant, you know, Norway spruces that 23 are already 40 or 50 feet tall which you can't do. If 24 you plant something that's six feet tall it's doing 25 nothing.

29 1 MR. KLEIN: Until they mature. 2 THE WITNESS: Until it grows. By that time 3 this is already over with. 4 MR. KLEIN: Does the building itself create 5 any kind of barrier for wind and weather to protect it? 6 THE WITNESS: Well I, I would imagine a 7 building smack up against the forest would, depending on 8 which way the wind blows would occasionally be helpful. 9 But, you know, there are so many aspects of this, in 10 terms of all the critters that are coming to that 11 building because of the fact that people, you know, 12 crows, squirrels, raccoons, they come to the building 13 because people are there and then they go into the 14 forest and eat all the bird eggs and all the other core 15 forest species. 16 MR. KLEIN: So if -- so just in general, if 17 a forest is only 600 feet deep it's not really a forest? 18 THE WITNESS: That's right. Absolutely. 19 That's exactly right. If you have a forest that's 600 20 by 600 by 600, there's no forest there at all. You're 21 going to get nothing but common edge species that live 22 with people. All the things that live in everybody's 23 backyard. 24 MR. KLEIN: So if you expanded that zero 25 forest into ten acres, is that a forest?	31 1 forest in the terms of acreage as it stands now? 2 A. 58 acres. 3 Q. So basically in answer to Mr. Klein's question, 4 basically we have the smallest core forest now? 5 A. That's right. And, you know, that's why it's so 6 rare in this part of the world. There's almost no 7 patches this big that's left. Now, you do have some 8 bigger patches in the wetlands, you know, along the 9 Passaic River, East Orange Water Reserve, that kind of 10 place, but those are mostly wetland forests, different 11 habitat, different species for the most part. 12 MR. AFRAN: I didn't mean to interrupt, I'm 13 sorry. 14 MR. KLEIN: That's fine. 15 CHAIRMAN BAGOFF: Mr. Wilkes, any questions 16 for Mr. DeVito on his testimony? 17 MR. WILKES: No additional questions. No. 18 CHAIRMAN BAGOFF: Mr. Alper, do you have any 19 questions? 20 MR. ALPER: Sure. 21 Dr. DeVito, I think you covered some of this, 22 does deer fencing protect at all from the edge, does it 23 make it a harder for the edge predators or are they 24 small enough to slip in? 25 THE WITNESS: They climb and, yeah, they
30 1 THE WITNESS: So -- 2 MR. KLEIN: In other words, whatever the 3 math is for -- 4 THE WITNESS: So if you have a forest that's 5 600 feet square, there's no core forest. If you add 100 6 feet all the way around on every side, now you have a 7 little bit of core forest. I couldn't tell you the 8 exact amount, but until you get to be 40, 50, 100 acres 9 of core forest, it's not big enough for the core forest 10 species to live. 11 MR. KLEIN: So what's the smallest core 12 forest? 13 THE WITNESS: I would say if you have 50 14 acres of core forest then you have a forest where forest 15 interior species can survive. Box turtles, Wood 16 Thrushes, smooth green snakes, worm-eating warblers, 17 other birds, all sorts of butterflies and salamanders 18 that need core forests. You have hundreds of species. 19 MR. KLEIN: So that's a 50 acre plot of land 20 with a 300 foot buffer? 21 THE WITNESS: Of forest around. 22 MR. KLEIN: Around. 23 THE WITNESS: Right. That's very rare in 24 this part of the world and that's what we have here. 25 Q. So let's clarify, if I can. What is the existing	32 1 just, you know, they either fly or climb. I mean, a 2 raccoon might have a little trouble but the first branch 3 that falls up against the fence that doesn't get swept 4 away, you know, the next day, the raccoons are going to 5 be in there because raccoons are looking at the forest 6 going, I got to get in there. 7 MR. ALPER: Do you have an opinion on 8 whether or not this forest is healthy? 9 THE WITNESS: I can only see the forest from 10 the edges since I'm in the streets and people's 11 backyards and all that sort of thing. The canopies 12 intact, that's the most important thing. I mean, 13 healthy is a terrible word for a forest, that's a human 14 word, people are healthy. A forest is a dynamic system, 15 trees live, they die, they fall, they regenerate. Now, 16 everywhere in New Jersey there's a bit of a problem with 17 deer, right. So, you know, you want to do things that 18 might promote native tree regeneration, but most of the 19 trees in this forest can live for 350 years. It's only 20 120 years old. So you got a long time to fix those 21 other problems. You know, hopefully the science and 22 restoration ecology is working on being able to fix 23 those things long before our time runs out. 24 MR. ALPER: Is there anything you would 25 recommend that could ameliorate any of the problems

1 there?

2 THE WITNESS: So I mentioned the one thing
3 that would, I wish, I was always trying to get power
4 companies to plant Norway spruces or white pines or big
5 evergreens on the southern edges of their, of their
6 power line cuts because the sun comes in from the south,
7 right. Because the sun, since we're in the northern
8 hemisphere, so if you plant southern exposure with dense
9 plantings of evergreens eventually over time that will
10 limit the amount of sunlight coming in which dries
11 everything out. That's one of the worst things. The
12 problem is that, that takes an immense amount of time,
13 you know, because you can't plant big things. So now,
14 had somebody, had somebody planted those things, you
15 know, 50 years ago around the edge of this whole place
16 then you would have more core forest from the point of
17 view of sun and wind, but not from predators.

18 MR. ALPER: In the spirit of, you said the
19 best kind of planting today, is it worthwhile, is it
20 that condition that would make sense that would be
21 helpful down the road a few years to plant a bunch of
22 tall trees eventually on the southern edges?

23 THE WITNESS: That's always helpful. If you
24 have an edge it's always good to try and prevent the
25 sunlight from getting in.

1 MR. ALPER: Thank you.

2 CHAIRMAN BAGOFF: Ms. Kapferer, do you have
3 any questions of Dr. DeVito on his testimony?

4 MS. KAPFERER: Yes. Thank you Chairman and
5 thank you Dr. DeVito.

6 Can you speak to other benefits, maybe other
7 benefits of core forests? You've spoken to some
8 already, but.

9 THE WITNESS: Well, I mean this particular
10 forest has maturing trees that are going to live a long
11 time and we know from recent studies that the trees here
12 in northern New Jersey, the red oaks, the hickories, the
13 maples, very sequestered carbon faster than they ever
14 have before and there is a lot of frankly garbage out
15 there about you have to cut down the trees when they get
16 to be 100 years old because, you know, the forest isn't
17 healthy. That's because red oaks are incredibly
18 valuable and the timber industry is trying to think up
19 reasons why you have to cut down 100 year old trees.
20 They're going to live another 200 years and they're
21 going to sequester incredible amounts of carbon and
22 they're going to do it for another good 100 years. And
23 that's the most important, right. If you're going to
24 fight climate changes we have to fight it now, not by
25 planting a bunch of little trees. By the time they grow

1 up and sequester carbon, usable amounts of carbon,
2 battles going to be over. We have to fight climate
3 change now by not cutting down mature trees and most of
4 the carbon is sequestered in the roots and in the soil.
5 And so, you know, when you plant a bunch of little trees
6 it takes 50 or 60 years before you even break even,
7 never mind actually start gaining carbon. So right now
8 what we should be doing in New Jersey is protecting our
9 mature forest and there's this thing about a young
10 forest initiative, which is a bunch of smoke screens
11 made up by the Fish and Wildlife Agency because they
12 want more deer and more huntable species and so they're
13 saying that we need to be logging our forests in order
14 to create healthy forests, which is absolutely garbage.

15 MS. KAPFERER: Is there any difference in
16 your experience between edge forest and core forest as
17 far as drainage and stormwater runoff?

18 THE WITNESS: So over time there would be a
19 difference because alien plants such as Japanese
20 Stiltgrass and garlic mustard and all these species come
21 in on the edge. They have their annuals or short lived
22 perennials and they have really weak root systems and
23 lots of erosion starts to occur when you lose the native
24 woody understory and the native woody root mass in favor
25 of all these alien species that don't secure the soil

1 and so in the winter time you get tremendous amounts of
2 runoff and the soil gets carried away. So that's a
3 problem. That appears to be a huge problem, even in all
4 of our wild areas where there's a lot of forest that's
5 grown up of agricultural soil. This is not here.
6 There's post agricultural forest which is a forest that
7 has grown up that were farms until World War 1 or World
8 War 2 and they look like forests, but the understory is
9 nothing but alien weeds and they don't hold the soil
10 because they're short lived annual plants and they have
11 no root systems, but that's not here. This forest has,
12 even though it's deer browsed, those root systems are
13 still intact and the soil is still intact, it's never
14 been disturbed and that's really important.

15 MS. KAPFERER: Thank you.

16 That's it for me.

17 CHAIRMAN BAGOFF: I have a question. So
18 what would you do?

19 THE WITNESS: What would I do?

20 CHAIRMAN BAGOFF: With that piece of land,
21 what would you do?

22 THE WITNESS: Find the money and save it. I
23 know that's hard to do, but that's what I would try to
24 do.

25 MAYOR McCARTNEY: And it's not for sale.

37 1 THE WITNESS: Everything's for sale all the 2 time. 3 CHAIRMAN BAGOFF: Mr. MacNeill, do you have 4 any questions of Dr. DeVito. 5 MR. MacNEILL: No, I do not have any 6 questions. 7 CHAIRMAN BAGOFF: You have any questions, 8 Mr. Haizel. 9 MR. HAIZEL: Yes, I do. I am hoping I'm not 10 asking the same question that's been posed before. 11 THE WITNESS: That's fine. 12 MR. HAIZEL: Looking at it from the opposite 13 side, the other side, is there anything in the industry 14 that's best practices so that say what we do now in 15 design, green design, to help the, battle the impacts of 16 global warming and warming climate change, is there 17 anything on the building side in design that puts any 18 sort of a dent in the impacts that the development in 19 general could have? 20 THE WITNESS: Well, that's not my field. I 21 mean, obviously there are things that are done, right, 22 to try to lessen the carbon footprint of the 23 development, but I have no experience with any of that. 24 All I am is a forest ecologist. 25 MR. HAIZEL: Fair enough. Thank you.	39 1 target of, you know, aspirations to be preserved. I 2 don't know if it's specific to block and lot or anything 3 like that. 4 MR. PLOCKER: So you have read the West 5 Orange Master Plan about this property being zoned for 6 this particular development? 7 THE WITNESS: No, not zoned. No. 8 MR. PLOCKER: Okay. Thank you. 9 CHAIRMAN BAGOFF: Do any members of the 10 public have any questions for Dr. DeVito on his 11 testimony, please raise your hand, come up and be 12 identified. 13 Any members of the public have any 14 questions? Please raise your hand and come up. You 15 only have three minutes to ask questions. Got right 16 ahead. 17 THE PUBLIC: Victor Misarti, M-I-S-A-R-T-I. 18 So I have a question about the deer fence. So my 19 question is about the deer fence. Some other testimony 20 was saying that this was unhealthy forest because 21 there's only big trees and no small trees or no -- 22 THE WITNESS: That's not true. That's not 23 true that there are no small trees. There are -- there 24 is a very, very young age class that's rather sparse but 25 there's lots of mid sized trees that are 30, 40, 50
38 1 CHAIRMAN BAGOFF: Mr. Plocker, do you have 2 any questions? 3 MR. PLOCKER: Just a couple. 4 Dr. DeVito, thank you very much for your 5 testimony. 6 THE WITNESS: You're welcome. 7 MR. PLOCKER: I just have a couple of 8 questions. From a ecological or forestry point of view, 9 is there any portion of the West Orange ordinances that 10 the application doesn't require? 11 THE WITNESS: I'm not aware -- 12 MR. PLOCKER: That apply to this job. 13 THE WITNESS: I am not aware of having to do 14 with ordinances that there's anything that protects the 15 species that are here, the trees that are here, the soil 16 that's here. I do know that the West Orange Master Plan 17 encourages the protection of biodiversity and natural 18 resources, but I don't believe there's any ordinance 19 that specifically, you know, is a pinch point, so to 20 speak. 21 MR. PLOCKER: And just since you referenced 22 the West Orange Master Plan, do you know if this 23 particular property is mentioned in the current West 24 Orange Master Plan? 25 THE WITNESS: I was told that it has been the	40 1 years old that are ready to fill canopy gaps as they 2 form. 3 THE PUBLIC: Great. So, thank you for 4 clearing that up. 5 So my question about deer fence is if the 6 deer fence is excluding all the deer from eating smaller 7 trees or something, like I don't know if you could 8 address that. I don't really understand that. 9 THE WITNESS: Deer fence -- I put up many 10 deer fences, I put one in 30 years ago at Watchung 11 Reservation and inside the deer fence there's a lot of 12 species that have colonized that area because the deer 13 can't get in and deer fences work in terms of allowing 14 herbaceous plants and native shrubs like viburnums and I 15 spice bush and witch hazel to be able to grow tall. 16 Right now those species are there but they're browsed 17 and they're tiny because they keep getting browsed and 18 the deer fence would allow them to flush up and grow 19 bigger, just like if you have fenced something in a 20 vegetable garden. But in terms of trees, the deer fence 21 would have to last, to make a difference, the deer fence 22 would have to last for not just these trees but the sub 23 canopy that's already there and the young trees that are 24 30 or 40 years old they're not being bothered by the 25 deer, they're going to grow up and fill the canopy. So

41 1 for a deer fence to impact the canopy of this forest 2 that fence would have to be up for 150 to 200 years, and 3 that's not going to happen, right. There's nobody on 4 God's green earth that's going to maintain a fence for 5 150 to 200 years. 6 THE PUBLIC: Thank you. 7 CHAIRMAN BAGOFF: Thank you, sir. 8 Do any other members of the public have any 9 questions for Dr. DeVito? Please raise your hand and 10 come up and be identified. Seeing none. Thank you Dr. 11 -- I'm sorry, go ahead. 12 MR. WILNER: Mr. Afran had to step out so I 13 am an associate with him. My name is Steven Sachs 14 Wilner. I'm an attorney at law in the State of New 15 Jersey, and there's been some discussion regarding 16 mitigation of the affects of the development. Is there 17 any mitigation that would, unless it created a core 18 forest of 50 acres, that would make any difference for 19 the core forest? 20 THE WITNESS: I want to make sure I 21 understand your question. If we use general principles 22 for this type upland eastern deciduous oak, hickory 23 forest that edge effect go in 300 feet and ruin interior 24 forest conditions. Then if this development footprint 25 is put where it's proposed you might, like I said, you	43 1 core forest? 2 THE WITNESS: I haven't done the math, if 3 all of the development was put on one edge, so that you 4 leave a -- because right now the development is gutting 5 the interior of the forest, right. So, you know, it's 6 total conversion to non forest right in the middle of 7 the core forest. If all the development is somehow 8 pushed to one edge, then I could, you know, figure out 9 how many acres of core forest would be left and I don't 10 know if it would approach 20 acres, but, you know, you 11 could have a completely different site plan. But I 12 don't think you can because you have wetlands on the 13 western side and steep slopes I think somewhere on the 14 eastern side. So where the development is put, 15 obviously all the numbers change, but doesn't look to me 16 like you can protect the core forest at this site if you 17 develop it. 18 MR. WILNER: That's all I have. 19 Mr. Afran, now that you're back, do you want 20 to -- 21 Q. Well, I have one follow-up question actually for 22 Dr. DeVito. I know there's a member of the public ahead 23 of me, but Dr. DeVito, in terms of the edge versus the 24 base flora, what's the relationship of invasive plant 25 species to the edge? Is there a relationship we should
42 1 might be able to ameliorate some things by planting 2 incredibly large white pines or Norway spruce or things 3 that are long lived and cascade shade in order to keep 4 the sunlight from entering into the forest. But I don't 5 think you can do it over a time frame when it would make 6 a difference, because you can't plant ones that are big 7 enough and other than that you can't do anything. Core 8 forest, if you -- if you have a development within 300 9 feet of, anything within 300 feet of a development is no 10 longer core forest. That's a ecological fact, right. 11 That's why we're looking at all the species because 12 interior species need core forest and they hardly have 13 any of it in this part of New Jersey and so they're 14 disappearing. 15 MR. WILNER: And even -- 16 THE WITNESS: And there's nothing you can 17 do. 18 MR. WILNER: Even those trees however, only 19 do a partial mitigation? 20 THE WITNESS: Yeah, you're mitigating just 21 one thing which is sunlight and therefore the 22 temperature and the drying soil conditions, right. 23 MR. Wilner: And with 50 acres of core 24 forest could you in any way have a 29 acre development 25 and have a core forest left that is, that functions as a	44 1 know about? 2 A. There are a greater number of alien plant species 3 that colonize the edge than colonize the shade of the 4 interior of the forest. Alien species like soil 5 disturbance, they like drought, they like heat, they 6 like sunlight, they like elevated pH, which is a lower 7 acidity. They also like all the things that are caused 8 by the creation of an edge and being put up against an 9 urban landscape, which many of those species actually 10 come from the urban landscape. They're transported by 11 landscapers, they carry weeds all over the place, they 12 dump weeds all over the place. 13 Q. So in terms of the question that was given before 14 -- I'm sorry. 15 A. So there's more species, greater density of those 16 species because of the extra sunlight. Again, they like 17 the sunlight, they like the draught, they're better 18 competitors in harsh conditions. They're not sensitive. 19 Forest species are sensitive, alien and invasive 20 species, that's why we call them weeds because they're 21 not sensitive, especially near people. 22 Q. So in terms of what you're referring to in terms 23 of the question earlier about water retention, and 24 you're speaking to the fact that the native root mass 25 has a greater role in water retention than alien root

45 1 mass, if you recall? 2 A. Yeah. 3 Q. So in other words, if we have a larger edge or 4 dominant edge will we expect to see a greater alien root 5 mass and less water retention over time? 6 A. And also greater erosion. Know one, you know, 7 there are engineers who use numbers, this site is going 8 to hold this much, shed that much water, those numbers 9 change once you're down the road as alien species become 10 the dominant vegetation. Those numbers are going to 11 change and the soils are going to hold less water. It's 12 going to get more compact, it's going to go dryer more 13 of the time and dry soil takes a long time to get wet. 14 It's hydrophobic, which means it doesn't like water. It 15 rains and if it is dry it stays dry for a really long 16 time and all water is surface runoff until it starts to 17 get wet. Think of putting Nestle's chocolate in milk, 18 it takes a long time to stir and takes a long time to 19 get wet, that's what a dried out forest is like that 20 doesn't accept the water right away because it is to dry 21 and so that means there's more runoff. 22 MR. AFRAN: Thank you. That covered my 23 supplemental questions. 24 CHAIRMAN BAGOFF: Thank you. 25 THE PUBLIC: Rachel Klein, Howell Drive.	47 1 THE WITNESS: I'm not sure what you're 2 asking me. Let me just go to this. 3 THE PUBLIC: Might not have an answer. 4 MR. PLOCKER: I'm going to object. As a 5 layperson you can see that there's a portion of red in 6 an area where there's zero building development. That's 7 why I just -- there is a site plan that can be viewed 8 but we're not doing testimony on that tonight. 9 MR. AFRAN: Well, if it's so obvious to 10 everybody what's the harm in talking about it. 11 MR. PLOCKER: You can talk about anything 12 you want, I'm enjoying that actually. 13 THE PUBLIC: I'm asking how it's going to 14 affect the community and that's why everyone's here. 15 Thank you. 16 THE WITNESS: As far as I know the red is 17 the limit of disturbance, which means there's no forest 18 area. Can't put back forest, it's not possible. You 19 can plant trees, you can make a plantation, you can 20 plant shrubs, you can do whatever, you can't make a 21 forest. That soils thousands of years old and we don't 22 know how to put it back. 23 THE PUBLIC: Eric Henry. 24 So the 300 foot border, that's an estimate, 25 right?
46 1 So is there any method of deer fencing 2 create a core forest? 3 THE WITNESS: No. As I said, deer fencing 4 has nothing do with core forest. Deer fencing has to do 5 with the plant community in the understory that if you 6 are trying to protect some native wild flowers and 7 shrubs and eventually tree regeneration 100 years down, 8 but not core forest environment conditions. 9 THE PUBLIC: Hi. Ellen Hare and thank you 10 for your presentation. I just have one question, I am 11 new to this whole development plan and I just want some 12 clarity. When I look at the map and I see the bright 13 red territory, am I correct in assuming that, that is 14 all deforested? 15 THE WITNESS: That was taken right from the 16 site plan of the limit of disturbance, so, yes. That's 17 -- everything is converted to non forest. 18 THE PUBLIC: So it's either one of four 19 buildings or pavement or cement? 20 THE WITNESS: Grass perhaps and beds, flower 21 beds and buildings and pavement and sidewalks and 22 whatever. 23 THE PUBLIC: And does any of that edge of 24 the red go further than 300 feet of those property lines 25 in the Highlands?	48 1 THE WITNESS: Yeah. That's the estimate 2 that's used for this type of forest in the issue of 3 forest fragmentation and forest interior and that whole 4 science of fragmentation. 5 THE PUBLIC: Okay. 6 So in theory it could be more than 300 feet? 7 THE WITNESS: Well -- 8 THE PUBLIC: I mean, if it's an estimate. 9 THE WITNESS: It could be an estimate used, 10 that's not what evidence shows. You go to the forest, 11 once you get 300 feet from the edge you start seeing 12 typical interior forest conditions. That's how we come 13 up with that number, surveying forest after forest, 14 after forest. 15 THE PUBLIC: But in theory it could be a 16 little more, it could be a little less? 17 THE WITNESS: Yes. 18 THE PUBLIC: If it's a little bit more how 19 much do we have left, like 99 acres? 20 THE WITNESS: Let's suppose this was some 21 type of other kind of forest, perhaps the Olympic Rain 22 Forest on the West Coast where the number that you would 23 use is much bigger, so then you would say, when you have 24 a patch of forest this size there's no core forest 25 because nowhere are you far enough from the edge. If

49 1 you are in the Pine Barrens of New Jersey where the edge 2 affect is smaller then you would have more core forest. 3 But what we're using here is the number that's applied 4 to the institute. 5 THE PUBLIC: Makes sense. If it is an 6 estimate, in theory you would use lose a little bit more 7 than what we estimated, am I wrong there? If it's an 8 estimate you would lose more. 9 A. So if the estimate of my 300 number is inaccurate 10 and let's say it's 500, then there is no core forest. 11 If it's 150 then there's more core forest. I'm using 12 the best number -- 13 THE PUBLIC: I understand. 14 THE WITNESS: Your using science, it's an 15 estimate but it's an estimate in theory. My point is 16 you could lose a little bit more than that and it's gone 17 and you can't get it back and that's it. Gone. 18 THE WITNESS: Well, the amount that's left 19 already can't support anything. 20 THE PUBLIC: Exactly. 21 And another question, the deer in there, I 22 mean the deer fence, are we keeping them out or are we 23 keeping them in and how many acres does it, does it take 24 to support the deer? 25 THE WITNESS: From what I understand the	51 1 trees are going to be cut down. So if 5,000 trees are 2 cut down is that still considered core forest in that 3 space? Would that still be considered core forest. 4 THE WITNESS: It doesn't matter how many 5 trees are cut down. When the canopy -- it doesn't 6 matter if they were 200 gigantic eight-foot, you know, 7 diameter trees that are 400 years old or if they were 8 8,000 little trees that are this big. When you take 9 away the forest canopy you lose the forest conditions. 10 So the development is going to wipe the slate clean. 11 They might replant some trees, they might leave a patch 12 of trees here or there, but it doesn't matter because 13 the development envelope, the limit of disturbance is 14 taking away the forest forever and then all you have to 15 do is, after that, is look at what forest remains and 16 talk about the conditions in that forest. I am, 17 everything I have said tonight has nothing to do with 18 how many trees they're going to remove, all it has to do 19 with is the shape of the patch of forest that is not 20 harmed and what happens to that, right. Most of that 21 turns from core forest into the edge forest and the edge 22 forest doesn't support the lesser, the more uncommon 23 species that one would hope that the City of West Orange 24 is trying to, you know, keep on the landscape. 25 THE PUBLIC: And my second question is, in
50 1 proposal to put up the deer fence is to help with the 2 regeneration of plants on the ground where the deer feed 3 and lots of people put up deer fencing. 4 MS. MCGOVERN: You have to wait until the 5 answers finished. The court reporter has to take down 6 what you're saying. 7 THE PUBLIC: Sure. 8 THE WITNESS: Lots of people put up deer 9 fences because they want to see results on the forest 10 flora by keeping the deer out from browsing everything 11 in sight every winter and deer fences work. They do a 12 certain thing, but I'm not talking about what deer 13 fences do or don't do. I'm talking about what land 14 development and the taking away of forest and the 15 creation the edge does, which has nothing to do with the 16 deer. 17 THE PUBLIC: Okay. Thank you. 18 CHAIRMAN BAGOFF: Please step up to the mic. 19 State your name, sir. 20 THE PUBLIC: Orin Knights. 21 Thank you, Dr. DeVito for being here today. 22 I have two questions to ask. 23 First question is regarding the forest core. 24 I am not sure exactly the approximate size of that area 25 but my understanding is that approximately about 5,000	52 1 regards to the concern for flooding, if that area is 2 disturbed, development, how much affect would it have on 3 the forest edge? You mentioned about the retention of 4 water, would it be -- would it impact, as far as, 5 especially downhill because you don't have any 6 disturbing the top from the west down, would the forest 7 edge be able to contain that type of -- 8 THE WITNESS: So the only thing, I am not an 9 engineer and I don't do stormwater calculations and 10 there is going to be other people that testify to that, 11 I believe. But the only thing that I can say is that 12 the edge forest being more exposed to sunlight and more 13 exposed to wind, the soils going to dry out more quickly 14 in any given time period. And when it's dry it's going 15 to be less accepting of a rainstorm. If a rainstorm, 16 you've seen it all in your yard, if a rain comes gently, 17 starts slowly, the ground gets wet and the soil 18 particles and then absorbs water and water can seep in. 19 If the rain comes fast, a big summer thunderstorm, this 20 thunderstorm is sometimes over and the ground has barely 21 had a chance to accept any of that water, it all runs 22 off as surface flooding. It depends on if you have 23 sheet flow across the surface or if you have water 24 percolating down into the soil and if the soil starts 25 out dry, it's not going to absorb a lot of water. On

53 1 the other hand if the soils already wet, we had giant 2 floods in New Jersey a couple years ago because we had 3 back to back to back heavy storms, so eventually the 4 soil gets saturated, when the soil is saturated already 5 it might as well be rooftop because it can't hold 6 anymore water and if the soils to wet it can't hold any 7 water, it only absorbs water when it's in that middle 8 range where there's space between all the soil particles 9 for water to go, but not so dry that it sheds water. 10 THE PUBLIC: Thank you. 11 THE PUBLIC: Hello. Faith Singelis. Thank 12 you for coming, Dr. DeVito. I have two questions. One 13 related to what the gentleman before me just asked and 14 one about the watershed. 15 So this forest, I believe, sits sort of 16 saddling two watersheds and there's creeks that run off. 17 Can you just speak to from you profession as a forest 18 ecologist how diminishing that forest or getting rid of 19 that forest might affect the watershed, how many gallons 20 of water? 21 THE WITNESS: I really can't. I am not, I 22 believe that most of this property is in the Canoe Brook 23 Watershed, I guess a couple separate streams. 24 CHAIRMAN BAGOFF: I am going to stop you 25 right there.	55 1 are declining. The witness did address the notion of 2 special concerns declining throughout New Jersey and 3 then a follow-up said, why is that and the witness said, 4 Dr. DeVito said because the fragmentation of forests. 5 So he did get into this in his direct testimony. I 6 wanted to point that out to you. 7 CHAIRMAN BAGOFF: Very specifically about 8 this project, that's what the Planning Board want's to 9 hear, about this project and we want to focus on this 10 project. So if you want to testify because you have 11 direct knowledge of invasive species, go right ahead. 12 Invasive species in other towns or the State of New 13 Jersey, that's for another fight. We have to discuss 14 what's on this lot. 15 MR. AFRAN: Invasive species are not unique 16 to West Orange life history no matter what town -- 17 CHAIRMAN BAGOFF: This application is in 18 West Orange and that's what the Planning Board needs to 19 hear. You want to testify to that because that's your 20 direct knowledge, that would be fantastic. 21 THE WITNESS: I think I can say one thing 22 that bears on this, which is simply that this forest is 23 on soil that has never been disturbed by agriculture and 24 therefore it's somewhat resistant to invasive species 25 because the root mass, the soil layers that have built
54 1 THE WITNESS: This is not my field. 2 CHAIRMAN BAGOFF: You didn't testify to 3 that. He said he's not qualified. Ask another 4 question, please. 5 THE PUBLIC: That's fine. 6 So just in general, how would you describe 7 the State of new Jersey as opposed to our state of core 8 forests remaining and how threatened are those areas 9 from invasive species? 10 CHAIRMAN BAGOFF: Okay, I'm sorry, this is 11 not about -- we really want to focus on this area. Can 12 you ask another question. He didn't testify to that. 13 THE PUBLIC: Okay. I have to think about 14 how to rephrase my question. 15 Can you just speak a little bit about 16 invasive species and how this development might impact 17 what is already happening in West Orange and greater New 18 Jersey? 19 CHAIRMAN BAGOFF: I'm sorry. 20 THE WITNESS: I didn't testify to that. 21 CHAIRMAN BAGOFF: Stop. Stop. He didn't 22 testify to this. Focus on West Orange. 23 THE WITNESS: I will talk about this -- 24 MR. AFRAN: Can I make one point. He did 25 address the notion that special concerns, for example,	56 1 up over thousands of years, the organic layer, the layer 2 that rainwater leaches nutrients and then pods even 3 deeper, those things have an impact since the end of the 4 Ice Age because there's never been a plow on that 5 mountain because it wasn't good for agriculture and so 6 those soils are resistant to invasive species because of 7 the low pH the low nutrients and they don't attract 8 invasive species, which is more or less species that 9 like gardens and farms, disturb ground and all the 10 things that people do, right. So this forest has been 11 logged many times. You're right, it's not a virgin 12 forest, the colonists came here, cut down and cut down 13 again, cut down again, probably hasn't been cut down 14 since around World War 1 or something. And so -- and 15 the soils have never been disturbed appreciably and so 16 it's resistant to invasive species. 17 THE PUBLIC: And how long does it take to 18 create soil? 19 THE WITNESS: I don't know. To long. 20 THE PUBLIC: Hundreds of years. Thank you. 21 THE WITNESS: Thank you. 22 THE PUBLIC: Good evening. Margaret 23 Cunningham and thank you Dr. DeVito for coming. 24 My question is, can you clarify the 25 difference between canopy, the core, because it seems

57 1 like we had discussion on how many trees will get cut 2 down and that doesn't matter because the canopy? 3 THE WITNESS: Yeah, I can do that. I am not 4 talking about the places where trees are going to be cut 5 down. I am only talking about the places where 6 development is not going to occur, right. It's a forest 7 now and it's still going to be a forest. The problem is 8 because of the proximity of the development what remains 9 is going to have very little core forest because the 10 conditions that a forest creates by having a canopy, 11 cool and green and shady, are impacted by the 12 development all around the edges. And so you lose the 13 core forest conditions within 300 feet in general in 14 this type of forest. You lose those forest conditions 15 within 300 feet of the edge. There's already an edge 16 where all those houses are that have been built ages 17 ago, right. They have already long been impacting that 18 forest, but the interior is still good. And this 19 development is going right in the interior and that's 20 going to repeat that process and then the only thing 21 that's left as core forest are those two little tiny 22 purple outlined areas, magenta outlined areas. 23 THE PUBLIC: And that does not consider -- 24 those two areas are really not canopy. They don't -- 25 THE WITNESS: No, no, they're going to have	59 1 was still a very dry, thin soil, could be on different 2 type of mountain in New Jersey, they're all different 3 mountains in New Jersey but the forest is basically the 4 same, right. Oak, hickory, dry soil somewhat, you know, 5 this forest doesn't have any steep north facing slopes 6 where you would get hemlocks and sugar maples and things 7 like that. It's basically all sunny dry mountain top 8 and that's the number I'm using. And that could be the 9 salt, it could be metamorphic rock, this is igneous 10 rock, it could be metamorphic rock in the islands of New 11 Jersey. You can't tell the difference between those 12 forests because since the Ice Age they have built up 13 soil and that soil is pretty much the same. The bedrock 14 is largely irrelevant at that point. 15 THE PUBLIC: Thank you. 16 THE PUBLIC: Michael Heningburd, 17 H-E-N-I-N-G-B-U-R-D. 18 You mentioned a term I never heard before, 19 you talked about, you mentioned the term called a dry 20 forest. I have not heard that term before and you 21 talked about that being exacerbated by this development 22 and in particular going directly around the development 23 on the side of the mountain. 24 THE WITNESS: So every forest runs along a 25 continuum from very dry soil to very wet soils. The
58 1 their forest canopy, but the only reason, the only 2 reason they're still acting as interior core forest is 3 because they're far away from disturbance. 4 THE PUBLIC: But there are nine acres? 5 THE WITNESS: Yeah, that's right. All 6 together. 7 THE PUBLIC: Good evening. Susan Pannullo. 8 And thank you very much Dr. DeVito for coming here and 9 educating us. 10 I have a few questions, I guess pinging off 11 the 300 foot estimate concept for this particular 12 development. So assuming that 300 foot is flat then how 13 is the 300 foot estimate impacted by the steep slope 14 terrain? 15 THE WITNESS: It's not. 16 THE PUBLIC: Okay. Thank you. 17 How about wetlands? 18 THE WITNESS: It's not. 19 THE PUBLIC: And does the salt bedrock 20 matter? 21 THE WITNESS: That -- no. This, this is an 22 upland fairly dry soil because it's a thin soil on that 23 bedrock, only hickory forest and that's the kind of 24 forest that I'm using that 300 foot number. It doesn't 25 matter if the soil was slightly different, whether it	60 1 very wet soils are your loam land swamps where the water 2 soils almost always saturated. The very dry forests and 3 slopes that face south into the sunlight like some of 4 the Watchung Ridge, you know, there's a slope that sun 5 is almost hitting perpendicular, those tend to be very 6 dry slopes because they're on hard bedrock of various 7 types of soil, it's not very thick, it dries out very 8 quickly. So here what you have is a ridge top which 9 also has very thin soil, it dries out quickly and in 10 droughts can get very dry and there, you know, I said a 11 dry forest, if I was speaking to a scientific audience I 12 would say a xeric forest. Some people, you've heard the 13 word, xeriscapes, something like that, where they say 14 let's plant species in your yard that are tolerant, they 15 don't need to be watered, right. Because they like, 16 they can do well in a dry landscape. So, you know, you 17 could say mesic, which is wet, and xeric, which is dry. 18 You can use the word dry, so we don't confuse people. 19 THE PUBLIC: The reason I'm asking is I am 20 very concerned about wildfires and curious whether what 21 they're doing here is going to exacerbate the dry forest 22 and perhaps make it more susceptible to wildfire, which 23 we are experiencing in New Jersey all over? 24 THE WITNESS: These forests generally are 25 not susceptible to forest fires. They become

61 1 susceptible during extreme droughts like we had last 2 fall. We had some wildfires in north Jersey recently 3 during the extreme droughts. I doubt that, you know, 4 this, this forest, the proposed development is not going 5 to change whether or not the wildfire risk goes up, you 6 know, that much more quickly. The problem here is that 7 by having development in the middle of the forest and, 8 you know, you can't defend that development from a 9 wildfire, right. 10 THE PUBLIC: I don't think so. 11 THE WITNESS: If a wildfire starts on the 12 western end of this forest during the drought, winds are 13 blowing 60 miles an hour, like we saw is in the Pine 14 Barrens the other day, no fireman in the world can stop 15 a wildfire when the winds are blowing fast, but that's, 16 that's not going to change. I mean, those folks that 17 are on the eastern side of this patch of forest are as 18 much at risk now as they will be because if the winds 19 blowing strong enough you can't stop a wildfire. That's 20 a fallacy to think that people can stop a wildfire. You 21 just saw California, they couldn't do anything when the 22 winds are blowing strong enough, you can't do anything. 23 And that is caused by extreme drought conditions, it's 24 not going to be impacted by whether or not there's a 25 couple buildings up there.	63 1 wind, you know, if you want to cool off in the summer 2 you go into the middle of a forest. 3 MR. AFRAN: Thank you. 4 That's all I have. 5 CHAIRMAN BAGOFF: Mr. Klein. 6 MR. KLEIN: So you said it's 300 feet the 7 edge all the way around for this particular -- 8 THE WITNESS: Yes. 9 MR. KLEIN: Can you -- could you have 10 surveyed it and actually found the edge? In other 11 words, on the shady side it's still 300 feet, on the 12 side it's still 300 feet. It's really just 300 feet? 13 THE WITNESS: No, if you were to go and look 14 at the slope and at that particular spot, you know, you 15 could adjust things here or there. But I mean, so some 16 places the edge would be a little bit -- you would say 17 well, this is going to create an edge even more over 18 here and some other place you might say it's going to 19 create a little less like on the north side. 20 MR. KLEIN: So you're saying it's like an 21 average? 22 THE WITNESS: It's like an average, yeah. 23 MR. KLEIN: You mentioned something about 24 logging on this property. Did you say logging on this 25 property?
62 1 THE PUBLIC: Okay. Thank you. 2 CHAIRMAN BAGOFF: Thank you. 3 Any other members of the public have any 4 questions for Dr. DeVito about his testimony. Please 5 stand up. 6 MR. AFRAN: I have one follow-up, if I can. 7 CHAIRMAN BAGOFF: Final question, sir. 8 Q. One of the questions the public asked was whether 9 there's a canopy on the edge as well as the core and you 10 said, you know, any forest has a canopy. But you also 11 said earlier the core canopy help create the core 12 conditions. Is there a distinction between the canopy 13 on the edge and the canopy in the core? 14 THE WITNESS: The distinction is that on the 15 edge you have sunlight and wind coming in, so the canopy 16 is not affected in creating those interior conditions 17 because you need that, you need that forest that's 18 protected from wind and sunlight to have that high 19 humidity and low temperature maintain itself during the 20 course of the day. On the edge you lose humidity that 21 you accumulated over the night, right. In the morning 22 you get up and there's a dew and it's moist and you're 23 on the edge, that evaporates in no time. When you're 24 deep in the forest those conditions stay for hours on 25 end, you have much more moist conditions. There's less	64 1 THE WITNESS: The forest is about 120 years 2 old, these mountains had no trees on them in the middle 3 of the 1800's, everything was cut for firewood. People 4 had to cook. 5 MR. KLEIN: It was cut but the soil wasn't 6 disturbed? 7 THE WITNESS: No, cut. Our forest has been 8 cut over many times. 9 MR. KLEIN: And that doesn't disturb the 10 soil? 11 THE WITNESS: Not much. They came, they cut 12 all the timber, they dragged it off. They were never 13 plowed. The soil horizons going down were never 14 disturbed. 15 MR. KLEIN: When the tree falls and they 16 drag a tree that's similar to plowing? 17 THE WITNESS: Well, they didn't drag the 18 root stumps. They cut the trees and dragged the trees 19 and that only touches organic matter at the surface. It 20 doesn't turn over the soil. Now, the trees blow over in 21 a wind storm and you see, you know, you can see what 22 happens and what happens is they move very slowly and 23 that impacts the soil horizons a little bit over the 24 course of centuries, but that's, you know, minute 25 compared to the whole area.

65 1 MR. KLEIN: Okay. 2 And then you talked about the alien species, 3 the weeds. They're bad, always bad? 4 THE WITNESS: Good and bad. Good and bad 5 aren't good words. 6 MR. KLEIN: Beneficial and not beneficial? 7 THE WITNESS: Alien species are almost never 8 beneficial. Now, that's not a hard and fast rule, we 9 have Russian olive growing up in all our farm fields in 10 northern New Jersey and it's terrible, it makes 11 monocultures, it doesn't let any other species in but 12 hummingbirds because they feed on the flowers when they 13 get here. You know, they just got here last week and 14 they're feeding on the flowers. So it's good for one 15 little thing but by enlarge it's, it's stopping hundreds 16 of species, moths, butterflies food chain. There are no 17 insects eating the leaves and so there's no food chain. 18 That's one of the reasons that critters disappear is 19 that in the edge you have all these alien species and 20 they don't have any insects living on them so their food 21 chain is gone. 22 MR. KLEIN: That's it. 23 Thank you. 24 CHAIRMAN BAGOFF: Thank you. Thank you very 25 much.	67 1 several people in the zoom audience raised their hand 2 and I would like to make an announcement that we are not 3 entertaining public comment from the zoom audience. 4 Thank you. 5 CHAIRMAN BAGOFF: Mr. Afran, we're going to 6 take a five-minute break. 7 (Whereupon, a short recess is taken.) 8 CHAIRMAN BAGOFF: Thank you. Welcome back 9 ladies and gentlemen on zoom, members of the audience. 10 Mr. Afran, you have the floor, sir. 11 MR. AFRAN: Thank you, Mr. Chairman. 12 Our next witness and the only other witness 13 for this evening is Professor Luke Butler from the 14 College of New Jersey and he's going to speak to, he is 15 an expert in -- he's an avian zoologist and an avian 16 biologist who focuses on the physiological and 17 biological aspects of avian life, particularly with 18 respect to the effects of human disturbance. So he is 19 going to speak to these issues and so I can now call Dr. 20 Butler. 21 MS. MCGOVERN: What's the first name? 22 MR. AFRAN: Luke, L-U-K-E. Butler. 23 MS. MCGOVERN: Okay. 24 Do you swear or affirm to tell the truth the 25 whole truth nothing but the truth.
66 1 MR. PLOCKER: I have one question. 2 CHAIRMAN BAGOFF: Mr. Plocker. 3 MR. PLOCKER: Mr. DeVito, and I'll qualify 4 my question, because I appreciate you did qualify before 5 that you are not a professional engineer, but you did 6 give some general testimony about storm -- storms and 7 water. Not being an engineer, is it fair to say that in 8 your testimony you did not consider the stormwater 9 design plan that's a part of this application, which has 10 already been approved by the DEP? 11 THE WITNESS: No, I didn't do that. All I 12 did was talk about, I mean I've done a million soil 13 picks and talking about whether or not soils can absorb 14 water when they're wet, when they're dry, you know, in 15 the forest. I'm not talking about their engineering 16 plans. 17 MR. PLOCKER: Okay. Thank you. 18 MR. AFRAN: And is it fair to say what you 19 discussed, in terms of dry soil, water runoff and 20 flooding, etc., is within the scope of your expertise as 21 a forester and forest recovery? 22 THE WITNESS: Yes. 23 CHAIRMAN BAGOFF: Okay. 24 Thank you, Dr. DeVito. 25 MR. FAGAN: Mr. Chairman, I'd like to say	68 1 THE WITNESS: I do. 2 MS. MCGOVERN: State you name and spell it, 3 please. 4 THE WITNESS: Luke, L-U-K-E. Butler, 5 B-U-T-L-E-R. 6 L U K E B U T L E R, having been duly sworn 7 under oath according to law testifies as follows: 8 Q. Thank you. 9 I understand you're a PhD in zoology? 10 A. Yes. From the University of Washington in 11 Seattle. 12 Q. And when you did get your PhD? 13 A. 2005. 14 Q. And you're presently on the faculty of The 15 College of New Jersey, is that correct? 16 A. Correct. The department of biology. 17 Q. And how would you describe the area of expertise 18 that you're bringing to this meeting tonight? 19 A. So I'm called what's called an avian biologist 20 and I have specific expertise in avian life history, 21 which is different stages of life that birds exhibit at 22 different times of the year and in particular the 23 behavior and physiology of birds in particular, you 24 know, more particular I've conducted multiple studies on 25 the human disturbance on bird behavior.

69 1 Q. And how long have you been on the faculty of The 2 College of New Jersey? 3 A. 16 years. 4 Q. And are you -- what's your rank? 5 A. Associate professor. 6 Q. Thank you. 7 MR. AFRAN: We offer Professor Butler for 8 the purposes described. 9 CHAIRMAN BAGOFF: Have you been to this 10 forest? 11 THE WITNESS: Yes. Well, not in it, but to 12 it. 13 CHAIRMAN BAGOFF: Surrounding it? 14 THE WITNESS: Yes. 15 CHAIRMAN BAGOFF: So your testimony is from 16 the periphery of the forest and mostly based on 17 hypothesis of what is going on inside the forest? 18 THE WITNESS: Well, yeah. I have 19 observations of -- so I do know some things about what's 20 going on and then I am also, I do have predictions I am 21 going to make based on what I have seen, things that I 22 had not, what would be seen if somebody were to do an 23 extensive study. 24 CHAIRMAN BAGOFF: But you haven't done an 25 extensive study?	71 1 MR. PLOCKER: I'm not done talking. 2 CHAIRMAN BAGOFF: Ladies and gentlemen, I'm 3 going to ask, this is a colloquy between two attorneys. 4 They're great advocates. 5 One at a time gentlemen. 6 Mr. Plocker. 7 MR. PLOCKER: Just for the record, there is 8 nothing that requires an ecological study in the 9 settlement agreement or ordinance. 10 MR. AFRAN: I have the settlement agreement 11 and it expressly requires an environmental review by Mr. 12 Defeo. Does not limit it solely to the question of a 13 deer fence. It requires an environmental review. 14 Period. And those words are unequivocal and they are 15 within the scope of what we're and what we're offering 16 is within the scope of that. 17 CHAIRMAN BAGOFF: I'm trying to parse the 18 language so the Board hears more, the public hears more 19 information besides the trees are gone because 20 something's built there and there would be less birds. 21 MR. AFRAN: I'm not sure it would be that 22 trivial a presentation. 23 CHAIRMAN BAGOFF: But if there are less 24 trees there's probably less birds. 25 MR. AFRAN: If you destroy forest you
70 1 THE WITNESS: No. 2 MR. AFRAN: The purpose of his testimony is 3 to speak to the effect of human disturbance on an 4 existing forest in terms of its relationship to the 5 avian life that's typically seen in the forest. So that 6 obviously one can't study the destructive effects until 7 the documents developed and it's built but the purpose 8 is to speak to what happens in the life cycles of these 9 animals. In terms of human disturbance it's relevant 10 for the need of an ecological study in the settlement 11 agreement and the ordinance. 12 MR. PLOCKER: Bruce, can you point to where 13 there's a need for an ecological study? 14 Sorry, Chairman. 15 MR. AFRAN: The settlement agreement states 16 that there shall be an environmental review conducted by 17 William Defeo of this project and does not limit it in 18 any way to any particular area of environmental impact. 19 And therefore if the forest will disappear, as prior 20 witnesses have said and made clear, then the impact on 21 wildlife in that forest is obviously relevant to an 22 environmental review that the settlement mandates. 23 MR. PLOCKER: Okay. I believe that's taking 24 a very bias view of the settlement agreement, Mr. Afran. 25 MR. AFRAN: Mr. Plocker --	72 1 destroy the capacity of bird species to engage in formal 2 life histories. 3 CHAIRMAN BAGOFF: As the expert said before, 4 we're not talking destruction. Those aren't the words 5 we're going to use, so there's going to be less core 6 forest, using his words. Okay. So there's less volume 7 of something where birds live. I'm not trying to 8 overcome what's going on, I'm trying to have the Board 9 understand the value of the information and the public 10 the value of the information. 11 MR. AFRAN: Well, you have two types of 12 forest, forest edge and core. As the edge grows the 13 types of species change and that was made clear by Mr. 14 DeVito -- Dr. DeVito. So clearly when you can convert 15 core to edge, which is what the prior witness spoke to, 16 you're going to have species change and interchange. 17 It's not just at matter of losing numbers, it's a matter 18 of the environmental impact from this development that 19 will cause this species interchange and changes in the 20 nature of what lives here. 21 CHAIRMAN BAGOFF: And I think, the public 22 will correct me if I am wrong, the public is interested 23 in trees and I don't want to make less of the turtle, a 24 snake or salamander, but as we look at this the Planning 25 Board is looking at the effect of trees and carbon

73 1 dioxide transference and I'm not arguing that's not an 2 impact on other creatures, but the public that is in the 3 room tonight, and I am sure online, are thinking more 4 about trees. And I will allow this and we'll keep it 5 slow and focused on this forest and things that will 6 happen here and not vastly in the State of New Jersey, 7 if you can. 8 THE WITNESS: Sure. Absolutely. 9 MR. AFRAN: Our intention was to focus on 10 this forest, but obviously he has knowledge about 11 eastern forests in New Jersey is how we focus that 12 discussion. 13 CHAIRMAN BAGOFF: Yes, and we all agree. 14 Let's proceed. 15 MR. PLOCKER: Yeah. I would like to make 16 the same statement I made last time. I believe this 17 area of testimony, whatever it may be, it seems it would 18 be of a subject matter that's outside the jurisdiction 19 of this Board at a Planning Board hearing. 20 CHAIRMAN BAGOFF: I understand your 21 objection. We'll hear it and at the end of everything 22 you gentlemen will both have an opportunity to discuss 23 that with the Board as we deliberate. 24 MR. AFRAN: I do wish to apologize to my 25 good friend Mr. Plocker for interrupting him. I was	75 1 rules and kind of operate similarly across. 2 So as I said, I'm going to talk about three 3 things. I'm going talk about observation of a subset of 4 bird life at the site. 5 I'm going to give predictions about what I 6 think overall bird life at the site is like and I am 7 going to give predictions about the, how then proposed 8 development will change the community at the site. And 9 I will get more into the concept of a bird community in 10 a minute. 11 So just to let you know, going back to the 12 Chairman's question about, did I conduct an extensive 13 study. I did not. I visited the periphery of the site, 14 I did not access the interior of the site. That yellow 15 all around the screen shows places where I stood or 16 walked and listened or looked for birds, for the amounts 17 of time you see in those text boxes. 18 MR. AFRAN: For the record, there's no page 19 numbers, I don't mean to interrupt, we should keep track 20 of this. This is a slide headed, Number One, 21 Observation of A Subset of The Bird Life At The Site. 22 MR. PLOCKER: Was this marked or submitted 23 in advance? 24 MR. AFRAN: It was submitted today and I 25 understand that it's not marked. I understand there
74 1 only going to say, of course both of us have different 2 views of the document, that's our jobs, to present 3 different views. 4 MR. PLOCKER: That's all right. We'll bring 5 the air-conditioning next time. 6 CHAIRMAN BAGOFF: Go right ahead. 7 THE WITNESS: Thank you, Mr. Chairman. 8 Mr. Afran, the next time you ask me to do 9 something like this I will not be following Dr. DeVito. 10 I feel like a bit of an opening act right here now. 11 Thank you so much. So what you'll see with what 12 I have to say tonight, my scope of the content or topic 13 that I am going to address about this parcel of land is 14 much narrower than Dr. DeVito addressed. So, yeah, 15 basically what I'm going to tell you about is what's on 16 the title. So I observed the bird community at the wood 17 lot, this parcel, and then I have some ideas and 18 predictions about what the bird life is likely to be 19 like throughout the, or different parts of the parcel 20 and then I will give a little bit of a discussion on 21 area sensitivity and what that looks like for birds and 22 I am not going to present on any other type of animal 23 tonight except birds. But what, very often things in 24 one type of bird work similarly in other types of birds, 25 so I am going to be talking about birds but the law and	76 1 might be a need for the Board members to review this 2 again and of course we would bring Mr. -- Professor 3 Butler back if need be, but we should mark it as the 4 next Objectors exhibit. 5 MS. MCGOVERN: I think we're up to what, 6 O-12? 7 MR. AFRAN: Yeah, I don't know whether Dr. 8 DeVito's was marked O-11. That was submitted a couple 9 months ago. 10 MR. PLOCKER: I think it was on the agenda, 11 I don't know if it was marked on the agenda. 12 MS. MCGOVERN: We marked the DeVito CV and 13 color design by ecological Solutions, is that DeVito's? 14 MR. AFRAN: That was one of the slides but 15 then there was a ten slide set that had been submitted 16 prior to the meeting. 17 MR. PLOCKER: It's on there. 18 MS. MCGOVERN: So DeVito CV was O-6. The 19 color slide was O-7, but this ones definitely O-12. 20 MR. AFRAN: We should make the ten set O-7A 21 so we're clear. 22 MR. PLOCKER: There is an item on the agenda 23 Ms. McGovern, there is a slide show and I believe that's 24 what Mr. Afran is referring to. 25 MS. MCGOVERN: Okay. The entire slide show

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1 would be O-7 then.

2 MR. AFRAN: Okay.

3 MS. MCGOVERN: Because that one slide was

4 part of that.

5 MR. AFRAN: I think that's right.

6 MS. MCGOVERN: So that was probably the

7 first one and I called it that in my notes.

8 MR. PLOCKER: Yeah. Right now exhibit O-7

9 it says, West Orange Core Map 2025 and right under that

10 it's not marked as exhibit specific, but West Orange

11 DeVito Slide Presentation.

12 MR. AFRAN: It was meant to be one document,

13 I believe.

14 MS. MCGOVERN: All right. Okay. So O-12 is

15 going to be Dr. Burke's --

16 MR. AFRAN: Butler.

17 MS. MCGOVERN: Butler, I'm sorry. Slide

18 show and how many slides are there?

19 THE WITNESS: 18.

20 MR. AFRAN: They're not numbered, right?

21 Okay.

22 MS. MCGOVERN: Okay. So it would be Dr.

23 Butler's side presentation, 18 slides. And then I don't

24 know, what is O-8? Colorized slide by Walsh objector I

25 have. Do you have something different? And then O-9

78

1 Colorized --

2 MR. AFRAN: I don't have my list with me.

3 MS. MCGOVERN: Just for purposes of the

4 record, we'll do O-13 will be the slide show from Dr.

5 DeVito, just to make sure we have it.

6 MR. PLOCKER: And just for housekeeping

7 record, I think the Boards doing an excellent job

8 maintaining everything on the agenda, but doesn't appear

9 all the O exhibits are actually marked as O exhibits on

10 the agenda. So if it would be possible to.

11 MR. AFRAN: I appreciate Mr. Plocker saying

12 that, because we had some questions about making sure

13 things were fully posted.

14 MS. MCGOVERN: So the color diagram by

15 Ecological Solutions, the one side slide is marked O-7,

16 but the balance is how many slides?

17 MR. AFRAN: Ten, I believe. Total is ten.

18 MS. MCGOVERN: Ten slides will be O-13.

19 Okay.

20 I'm sorry for interrupting your testimony.

21 So you're O-12.

22 MR. AFRAN: Okay. Thank you.

23 **A. Thank you.**

24 **So you can, you had plenty of time now to study**

25 **how much time I spent at each site. You see a total**

79

1 around a little over two hours, two hours five minutes

2 total time. And so I walked along Howell Drive and

3 stood around the south side and these were good

4 conditions to watch birds, nice mornings, nice middays

5 and in that short sample I detected 20 species of birds.

6 These 20 species, I'm sure a lot of these are backyard

7 birds, a lot of you are familiar with them and almost

8 none of these were a surprise to me. If I hadn't seen

9 them I would've been surprised. This is exactly what

10 one would've expect at this time of year exactly where I

11 was standing in a quality forest that contains typical

12 bird life. Especially where I was standing in between

13 the forest and the neighborhood. So as you can, like as

14 I mentioned, a subset of all these birds are kind of

15 like backyard birds actually not forest interior birds.

16 So I am going to skip ahead to that first.

17 So there were only seven of the species that I

18 saw were really considered a forest bird species, the

19 rest of them were backyard birds, it's exactly typical

20 for where I was standing which is on the -- in the

21 margin between the forest and open space, like the

22 neighborhood around here. And so this a very expected

23 result. I forgot to mention I probably should have told

24 Mr. Afran to bring this into the record, I have been

25 teaching courses on birds in New Jersey and species up

80

1 here where I taught courses doing bird surveys for

2 almost my entire time as a professor, also doing adult

3 education. So I'm extremely confident in the ID's I

4 zeroed down about these identifications or the grouping

5 that I saw.

6 MR. AFRAN: Could you just identify the

7 seven species on the sides?

8 A. Well, sure. The seven species highlighted right

9 now are pileated woodpecker, red-bellied woodpecker,

10 blue jay, black-capped chickadee, tufted titmouse, white

11 breasted nuthatch and worm-eating warbler.

12 So part of this could seem maybe not impressive

13 or maybe impressive depending how you think about how

14 much time I spent looking. So one of the things I did

15 was I analyzed my, the detections of new species that I

16 made the longer I surveyed. And so what this figure is

17 showing you along the horizontal access is the amount of

18 time that I spent observing, you can see goes from zero

19 time up to 125 minutes. And on the Y access what you're

20 seeing is the percent of all the species that I showed

21 that I observed at that point in time. So of course by

22 the end of my observation I saw 100 percent species I

23 was going to see and before I started I had not seen any

24 of them, but you see in the first 20 minutes I saw

25 almost 75 percent I was going to see. And adding

1 another hour almost 90 minutes of that I only added an
 2 additional six or seven species. So the reason for that
 3 is because the birds are abundant. Every time I went to
 4 another site I saw more of the same species I was
 5 counting but I was counting the same species again and
 6 again, seeing lots of different species and what this
 7 pattern suggests is given the fact that there's still an
 8 increase here whereas I continue to survey I detected
 9 more and more species it does suggest in an extensive
 10 study the line continued to go up and more and more
 11 species would be detected over time. That's what you
 12 would expect when you sample something out in space like
 13 that on a landscape, especially something that fly's
 14 around like birds. So I for sure didn't max out what
 15 could be there, if I stood at those points longer I
 16 surely would have been observing more species.

17 This is just a summary table or summary slide to
 18 make sure all the components in my study are tracking
 19 one thing.

20 I want to mention among the 20 species there's 14
 21 different families of birds. So in taxonomy or
 22 ornithology relatedness is nested so closely related
 23 species are either taxonomy or ornithology are next to
 24 each other distant from, further apart, in this case 14
 25 different families of birds. The whole family, like all

1 the woodpeckers are in the same family. You have the
 2 sparrows that are in the same family. The corvidae, the
 3 crows, those are all in the same family. So seeing 14
 4 different families really tells you there's very
 5 different kinds of birds and within some of those
 6 families there's multiple species. So within a parody
 7 woodchuck, chickadees, with the woodpeckers I saw or
 8 observed three species, flicker, hairy woodpecker and
 9 red-bellied woodpecker.

10 The fourth woodpecker --

11 MR. AFRAN: Could I just suggest Professor
 12 Butler talk a little slower.

13 THE WITNESS: Oh, sure.

14 MR. AFRAN: It'll help the court reporter.

15 Okay.

16 A. Let me think more slowly. This is like a
 17 lecture, right. Do you want me to go back to anything?

18 CHAIRMAN BAGOFF: No, you're good.

19 THE WITNESS: Thank you.

20 A. So I had prefaced I was going to make a
 21 prediction on what kinds of birds I think would probably
 22 be there, because I have only a small sample, I was only
 23 there for about two hours and I saw a few things and as
 24 I said I was not able to go inside to sample. But one
 25 of the kinds of, I don't know rules or laws in this type

1 of biology is species tend to occur in association. Or
 2 assemblance. So for example, when I got there, stepped
 3 out of the car I first saw a red-bellied woodpecker or
 4 flicker woodpecker or a hairy woodpecker, because if you
 5 find a red-bellied woodpecker and you're looking at a
 6 forest you're probably going to find these other species
 7 because they tend to co-occur. So that's sort of an
 8 example I have on the screen here where I did see the
 9 six species in the lower left. I didn't see the species
 10 on the right. I didn't hear them, I didn't see them but
 11 I know that, I have absolutely no doubt they're in the
 12 area, in the woods. I don't need to see them because
 13 I've already seen the six other species that are nearly
 14 always associated with those two other species. So
 15 based on what I saw, both in terms of the bird life and
 16 the habitat I saw and also I looked at the eBird
 17 reports, some of you birders you're probably familiar
 18 with eBird. eBird is actually a curated data base
 19 that's user generated where people report their bird
 20 sightings, but it's monitored by Cornell Lab and they're
 21 trying to make sure the data is clean and people don't
 22 report flamingos or something. I know this for a fact
 23 because I received a couple e-mails myself saying, are
 24 you sure you saw that. And I want to point to my
 25 signature, you see who I am. Just kidding, I would not

1 do that, but I get them myself, they question me, did I
 2 really see that. So I looked at those four surrounding
 3 parcels of land that are there, I think the Highland
 4 Preserve or Reserve and there's Eagle Bluff, or Eagle
 5 Rock. So those two areas are somewhat comparable in
 6 terms of size and they have around 100, 170 species, but
 7 also water sources. So they're going to have a lot of
 8 ducks and water birds that aren't at this site. So just
 9 based on what I saw, what I saw in terms of habitat in
 10 terms of bird life what's likely to be at a sight this
 11 big in this location, I think at least 100 different
 12 species of birds that are found on this site that also
 13 varies on an annual basis. So if you're going into June
 14 you'll get among the maximum number of species at the
 15 same time. If you go out when I went out, you know,
 16 you're somewhere in between the lows of the winter and
 17 the highs of the summer. But I think it's very likely
 18 that at least a hundred species of birds could be found
 19 on this parcel with enough study. And looking into the
 20 size of the parcel and the amount of interior forest
 21 that's there, I also think it's very likely that a
 22 handful at least of what I consider interior bird
 23 species, so they're species that are effected by the
 24 ecological factor processes Dr. DeVito described, I
 25 think, at least these species and probably several more

1 so-called interior species probably nest on the site.
2 Again, that's something that could be discovered or
3 studied with on-site access. I did see a worm-eating
4 warbler on-site, the other ones are just almost
5 definitely going to be, based on the site and habitat
6 and the species that I did see. So that's what I saw
7 and Part 2 of what I think in general about the typical
8 bird community there.

9 And so the next thing I want to talk about is how
10 I think the community of birds in that site will change
11 based on what I understand about the proposed
12 development. And the short version is that the interior
13 species, Chairman Bagoff's astute, people live here, but
14 it's a little more complicated than just less birds.
15 Interior species as a component of biodiversity are
16 likely to decline in numbers or disappear all together.
17 Whereas edge or open habitat species are likely to
18 increase in number or appear naturally in places that
19 they don't appear on the parcel. So for example, going
20 back to my Page 20. Some of these species are unlikely
21 to occur in the core forest right now, if maybe ever, or
22 you might find them rarely using that habitat coming
23 from an open habitat or edge habitat into the core for
24 some function, but with the development that's proposed
25 opening up all that space in the middle will introduce

1 almost all these species and what will have been an
2 interior forest bird community turns into the typical
3 backyard bird community. Not that there's anything
4 wrong with that, I love the backyard birds, but as Dr.
5 DeVito said we have a lot of backyards, we don't have a
6 lot of actual forests, especially in this part of the
7 world.

8 And so I want to give you information about how
9 -- what it looks like when birds exhibit insensitivity
10 to the amount of forest -- the size of forest patch
11 they're found in. So starting off with a species that's
12 called peewee and what you see on the horizontal access,
13 this is from, I probably should mention, this is from
14 an, in my field kind of a legendary study which I don't
15 know if any of you ever played like scientists in
16 molecular biology, but in my field this, as a paper with
17 over a thousand citations, this goes up on, like we have
18 hung it up on the wall, printed it out in platinum. In
19 other fields of science that's nothing, but in this type
20 of science this paper is a classic. That's what this
21 figure comes from and they generated the data by
22 sampling almost 500 different points in lots of
23 different habitats and bird communities where they
24 worked in the mid-Atlantic almost identical to the bird
25 communities here. The species that are found there are

1 almost identical. So this first example is an example
2 of a species that it's occurrence doesn't change now
3 matter how big the size of the forest patch as we're
4 dealing with in the study. So they went into very large
5 forest patches at this end of the scale and they went
6 into smaller forest patches and they went into really
7 little tiny forest patches and they had an equal
8 likelihood of finding eastern peewees across that entire
9 range of forest. So this is a species that doesn't care
10 about how big the forest is. It's not sensitive to the
11 size of the forest.

12 MR. AFRAN: For the record, this is the
13 slide headed, Eastern Wood Pewee, P-E-W-E-E.

14 A. This is one actually zoomed in. There's the
15 slide. So this is non-sensitivity. This is what the
16 same figure looks like for what is considered an area
17 sensitive species or an interior species, the wood
18 thrush. So it's the same study, same sampling size and
19 same scale on the X axis forest area. You can see the
20 forest gets smaller and smaller, the probability of a
21 wood thrush occurring gets smaller and smaller. The
22 maximum probability of finding a wood thrush anywhere,
23 even in the biggest forest is about 80 percent. But if
24 you, as you make the forest smaller along this scale
25 that chance goes to about point 8 down to about point 3.

1 I should say the dashed lines on either side are just an
2 indication of a statistical confidence of the solid line
3 in the middle. So this is the difference between a --
4 the difference between an insensitive species and a
5 sensitive species and seeing how this effects the number
6 in terms of the size of a natural parcel. What I've
7 done here is I marked about 58 acres on this X axis here
8 which equates to or round 25 hectares and so in 25
9 hectare patch you have about 7 percent of likelihood of
10 attracting a wood thrush, which is almost the maximum no
11 matter how big it gets. So you've reached the plateau.
12 Whereas if you shrink the size of this forest down to
13 say five-acre patches your likelihood goes down to like
14 50 percent. So you have about a 50/50 percent chance of
15 attracting a wood thrush in that amount of size of patch
16 loss. So it's a scale at a maximum 80 percent, that's
17 about a 30 percent drop. And this is what I mentioned
18 earlier where many of these basic concepts of -- basic
19 concepts apply across species, these are what are --
20 these are the same analysis for what are considered more
21 sensitive bird species and in every case what you can
22 see is that, that forest patches get smaller the
23 likelihood of that bird occurring gets lower and lower.

24 MR. AFRAN: For the record, this is the
25 slide with four graphs lined up next to each other.

1 A. And I strongly believe all four of these species
2 would breed in this parcel of land. Mostly, especially
3 the top two and red eyed deer and a wood thrush,
4 squirrel, good likelihood that, that would be the one I
5 put on this list I was hoping to find there.

6 So going back to the concept of like if you take
7 away habitat you have fewer birds, that's not true.
8 Some times you take away habitat you have more birds but
9 you have birds that are there for the new habitat.

10 So this is the data from the exact same study
11 that I've been showing you and what you see as you
12 shrink the size of the forest patch you get more and
13 more American robins and you get the most American
14 robins when the forest -- when there's little patches of
15 woods for them to use, but they mostly hang out in open
16 areas. So that's a native species. They, you know,
17 they contribute to the function. But, you know, you
18 like robins, they sound pretty, look pretty and, you
19 know, ecologically they serve a function in the system
20 that they're in.

21 The other thing you do when you convert
22 continuous habitat into habitat that's disturbing
23 especially dominated by human development, is you tend
24 to add numbers and the occurrence of exotic endangered
25 species. So the example on the right here is European

1 starling, you can see how much it protects large patches
2 of forest. How much more likely it is to occur as the
3 patches of forest get smaller and smaller. And as an
4 example European starlings are a particular menace to
5 native bird because they usurp from their canopy nest,
6 they'll kill chicks, they'll destroy eggs, even kill
7 adults if they can. So not only do they compete for
8 space, directly compete for space, they directly also
9 cause mortality in native species. So this is what --
10 this is the birds you add when you take away forest
11 space.

12 And the threats aren't just to, as I mentioned a
13 moment ago in terms of what European starlings tend to
14 do to nesting birds, but it's not just a survival or
15 longevity of adults or those types of aspects of the
16 biology of the birds, but specifically within the
17 nesting stage it's a very particular time of year among
18 life history of all these different species and you can
19 see wood thrush their nesting success drops to one in
20 ten nests succeeds in a forest patch that's about ten
21 hectares, which is not that small of a forest patch
22 actually. Forest patches that are about, probably left
23 in the proposal around in this area of the scale and so
24 it's not just direct mortality it can also be strong
25 effects of other particular life history stages.

1 MR. AFRAN: Can you identify, go back if you
2 can, what was a hectare size, when you said the graph
3 showed an analogy of what would be left here?

4 THE WITNESS: This one? This one here?

5 MR. AFRAN: In the last graph. The
6 scattergram. Yes, you pointed to several dots and you
7 said that's analogous to what would be left here. How
8 many hectares on that scale were you referring to, acres
9 or hectares were you referring to?

10 MR. KLEIN: Four dots?

11 MR. AFRAN: Yeah.

12 THE WITNESS: Right. Sorry.

13 MR. AFRAN: You circled the dots near the
14 corner and said that's analogous to the size of this
15 acreage. How does that translate into hectares so we
16 can have a point of reference.

17 THE WITNESS: So this is a long scale so
18 it's a tricky to judge where we are because the
19 intervals between 10 and 20 is about this big and the
20 intervals between 20 and 30 is about that big and 40, 50
21 and 60 is in here. So this is probably around 30
22 hectares, which is a little smaller than the forest that
23 would be left, I believe.

24 MR. AFRAN: So you're saying 30 hectares
25 equates to around 9 acres, is that what you're saying?

1 In other words, first how many hectares equate to acres
2 because most of us think in terms of acres.

3 THE WITNESS: Two and half acres per
4 hectare.

5 MR. AFRAN: Okay. So when you speak of 30
6 hectares, are you referring to existing core forest or
7 what are you referring to?

8 THE WITNESS: Let's see. So I wrote that
9 down. The core forest of -- oh, I'm sorry. So the
10 total, the total habitat size of the plot is 143 acres,
11 which is about 58 hectares. So around 60 hectares is
12 about right here currently, so that's what's currently
13 there and then after the development it drops to about
14 45. So that would move to about here on the scale. So
15 you'd have to scale the line to estimate what the change
16 is. It's probably about a ten percent drop across the
17 scale. Ten percent drop.

18 MR. AFRAN: Are you referring to, when you
19 say 45 hectares will be left after development, I want
20 to be clear we're speaking along the same forest?

21 THE WITNESS: That's total forest. Not
22 just --

23 MR. AFRAN: That's total forest?

24 THE WITNESS: Yeah. Yeah.

25 MR. AFRAN: Okay.

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1 THE WITNESS: The core forest patches are
2 much smaller.
3 MR. AFRAN: That would be about three
4 hectares?
5 MS. MCGOVERN: How do you spell hectare?
6 MR. AFRAN: H-E-C-T-A-R-E.
7 So if 9 acres is around three hectares and
8 what you're saying is left over of both edge and core
9 after development is around 45 hectares?
10 THE WITNESS: Yes.
11 MR. AFRAN: Okay. I wanted that to be clear
12 so we all understood.
13 THE WITNESS: Yes. That's how I have --
14 MR. PLOCKER: Thank you.
15 MS. MCGOVERN: Thank you. Please continue.
16 **A. I mean, I think the take away from this is that's**
17 **a very strong relationship, so, and it's a very straight**
18 **relationship, so no matter where you are on that line**
19 **you're going to have a drop in nesting success rate.**
20 **This is just one aspect of one life history stage of**
21 **this area.**
22 **And then one other ecological process, ecological**
23 **phenomenon that will occur the with proposed development**
24 **is the increase occurrence of what's called,**
25 **brown-headed cowbirds into much more of the forest at**

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1 **this site than probably are currently occurring. So**
2 **brown-headed cowbirds have an interesting nuisance to**
3 **humans, they are adaptive to following herds of wild,**
4 **you know, wild underlance in the Midwest on the Great**
5 **Plains, but as humans deforest the east coast they move**
6 **to that open habitat and start parasitizing the nest of**
7 **eastern deciduous forest birds which either dissipates**
8 **that threat and their history or faced at a very low**
9 **level. They're face at a very high level now and it's**
10 **thought to be an important factor in the loss in the**
11 **numbers of many bird species. And so cowbirds just love**
12 **coming in on an edge, looking for nests that are near**
13 **the edge of a patch of woods where woodland birds are**
14 **nesting and the female scour around to find the nest of**
15 **the host species and they sneak in eggs along with the**
16 **host eggs, here's a couple of cowbird eggs here.**
17 **They're specially adapted eggs, the shells are**
18 **especially hard so they're hard to poke a hole in and**
19 **throw out. The shells are also especially round,**
20 **they're very difficult for the host to grasp and throw**
21 **out and so what tends to happen is the host takes care**
22 **of the young and it's often to the detriment of their**
23 **own young. This is not a wood thrush, that's just for**
24 **the record, it's a red-headed black bird. So good**
25 **picture but cowbirds have a very big impact on song**

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1 **bird, in particular song bird reproductive system.**
2 **When you take any kind of -- when you create edge**
3 **you create a space for cowbirds. They're not a forest**
4 **interior species, they are an edge and an open country**
5 **species and if you cut a development right through that**
6 **forest you're going to expose much more of that land to**
7 **this change. Change in the ecology of the site.**
8 **So just a quick summary. This is kind of for the**
9 **record, the slides, just based on what I've seen and**
10 **some of the basics of avian college in the eastern**
11 **deciduous forest. The site appears to support migratory**
12 **birds species that are very typical for the habit and**
13 **the region. When I got there I didn't think there was**
14 **any big surprises, but I do think it's a very healthy**
15 **looking bird community, which matches the look of the**
16 **site overall.**
17 **And then in terms of the bird community will**
18 **change with the proposed development. Area sensitive**
19 **species, interior species are likely to be effected by**
20 **the proposed development, the change in habitat and then**
21 **the many well known edge effects on interior bird**
22 **species are likely to increase. That will shift the**
23 **bird community over time. It will take time, going back**
24 **to what Dr. DeVito said about sort of the time scale**
25 **which these events take place. You won't see it right**

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1 **away, but over time fewer of those species that are**
2 **influenced here won't return to breed here and that will**
3 **either be because they have low nest success or they**
4 **face mortality and eventually that site will look like**
5 **the bird community of all similar little patches of**
6 **woods in this part of the state. That's what I have.**
7 **MR. AFRAN: Thank you.**
8 **Mr. Chairman, I have no -- I don't have any -- I**
9 **don't have any additional questions for Dr. Butler.**
10 **CHAIRMAN BAGOFF: Mayor McCartney, do you**
11 **have any questions?**
12 **MAYOR MCCARTNEY: I do not Chairman. Thank you.**
13 **CHAIRMAN BAGOFF: Mr. Klein, do you have any**
14 **questions of Mr. Butler's testimony?**
15 **MR. KLEIN: No.**
16 **CHAIRMAN BAGOFF: Mr. Wilkes, do you have**
17 **any questions for Dr. Butler on his testimony?**
18 **MR. WILKES: No questions.**
19 **CHAIRMAN BAGOFF: Mr. Alper, do you have any**
20 **questions for Dr. Butler?**
21 **MR. ALPER: Sure.**
22 **The interior wetlands that are on the site, I**
23 **take it you couldn't see in the edges, but we know there**
24 **are wetlands obviously. Are you able to predict a sense**
25 **of what sort of species would probably be in those**

1 wetlands and whether after the development, obviously
2 the wetlands can't be touched, but development in the
3 area, would they stay or would they likely leave?

4 THE WITNESS: Water thrush's are probably
 5 there and probably the swamp sparrows. Those are off
 6 the top of my head. The ones that, that I expect to see
 7 in that wetlands, water thrush's and swamp sparrows are
 8 two I can think of. Neither of which are endangered
 9 either.

10 And then migratory birds are known to be
 11 attracted to water sources when migrating, so you might
 12 not see a change in the species that are using the site
 13 for breeding, but you might see an effect on the
 14 migrants using this site as a stopover site because as
 15 they're flying in so when the birds choose habitats they
 16 kind of do it hierarchically. They look for something
 17 of broad scale, especially if they're migrating a couple
 18 thousand feet up in the air. As they're looking and
 19 using visual cues to decide where to land and if they're
 20 able to make a decision not just running out of fuel.
 21 But once do they get into a parcel of land to refuel and
 22 regain water then they move around the habitat and they
 23 try to find the resources they need. So they're very
 24 migratory birds and are very good at finding water they
 25 need to refresh their water source. So that would be

1 the effect that would be difficult to detect. You have
 2 to be watching that specific microhabitat during
 3 migration on the morning the migrating birds landing,
 4 they migrate at night, and look to see. Yeah, but you
 5 can -- there's ways to do it. You can also set up nets
 6 and do surveys by capturing them as they come through.

7 MR. ALPER: And across the whole site of the
 8 development is there anything that can be done to
 9 ameliorate the change of the bird species?

10 THE WITNESS: Like if the development were
 11 to go in, sure. If you had people pulling out nonnative
 12 species that are going to invade which is a very large
 13 lift logistically, that's a bad pun. Very large lift
 14 that would probably help. Because a lot of these
 15 species provide food sources for migratory birds. Other
 16 than that, it's really hard to -- its really hard to
 17 overcome a loss of space.

18 One other note, going back to these graphs
 19 to kind of point to that. So the relationship here is a
 20 very strong relationship across these forest species as
 21 you get, as you get -- as you create parcels of land
 22 below certain sizes the numbers of birds just drop-off
 23 and this is a large study, a large sample done over five
 24 years at almost 500 sample sites. It's a very robust
 25 data set, and what it's showing is that there's just a

1 amount of space that's very strong and slender for what
 2 happens to the organisms that are there. Other things
 3 that matter are the habitat quality within the state and
 4 typical resources, like water, and on a microscale these
 5 things do matter and that's why there is uncertainty,
 6 especially in smaller spaces. You see how the certainty
 7 bars, which are sort of the dashed lines that are
 8 flanking the centerline, they're much bigger and smaller
 9 patches. You get smaller patches so the species occurs
 10 there but many small patches just through the random
 11 sampling aren't going to handle the creature. Whereas
 12 if you get a big enough site there's a certainty that
 13 you're going to find those species there in many or some
 14 spaces because big sites have everything they need.

15 MR. AFRAN: For the record, Professor Butler
 16 was using the slide with the four graphs. Four species
 17 next to each other.

18 MR. ALPER: Thank you.

19 CHAIRMAN BAGOFF: Ms. Kapferer, any
 20 questions for Professor Butler on his testimony?

21 MS. KAPFERER: I don't have any questions.

22 MR. KLEIN: Mr. Chairman.

23 CHAIRMAN BAGOFF: Mr. Klein.

24 MR. KLEIN: Have you ever testified as an
 25 expert for a development?

1 THE WITNESS: I have never been asked.

2 MR. KLEIN: Have you ever testified before
 3 as an objector, before tonight?

4 THE WITNESS: Where?

5 MR. KLEIN: For another site plan
 6 application.

7 CHAIRMAN BAGOFF: And Planning Board or
 8 Zoning Board?

9 MR. KLEIN: Anywhere in New Jersey.

10 THE WITNESS: Yeah, they tried to put a
 11 parking lot right next to my house in Pennsylvania.

12 MR. KLEIN: Any other in New Jersey?

13 THE WITNESS: No. Not in New Jersey, no.

14 MR. KLEIN: So this is the first time you
 15 are testifying as an expert in this -- for an objector?

16 THE WITNESS: Yes.

17 MR. KLEIN: Okay. Thanks.

18 CHAIRMAN BAGOFF: Are these birds presently
 19 on this site?

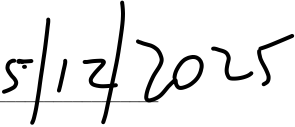
20 THE WITNESS: The only -- I didn't detect
 21 any of those.

22 CHAIRMAN BAGOFF: So it's a hypothesis that
 23 they're there? You didn't detect them in your two hours
 24 limited time, limited space, but in two hours you
 25 observed 20 other species, you did not observe any of

101 1 these four? 2 THE WITNESS: No. 3 CHAIRMAN BAGOFF: Okay. 4 Is there a -- is there any cowbirds in the 5 forest presently that you observed? 6 THE WITNESS: Yeah. I saw them at a couple 7 of my observation points, yes. 8 CHAIRMAN BAGOFF: Okay. 9 Mr. MacNeill, do you have any questions? 10 THE WITNESS: Can I follow up to your 11 question. It's not time appropriate for these species 12 to be there right now. So I may not have detected 13 doesn't mean they won't be there next month. So I 14 wouldn't have necessarily -- if you asked me if I 15 predicted ahead of time, I would just say I saw my first 16 wood thrush in central New Jersey yesterday. I haven't 17 heard any other birds, they're not back yet. 18 CHAIRMAN BAGOFF: It's possible? 19 THE WITNESS: It's not really a hypothesis 20 that they're there. I wouldn't hypothesis that they 21 should be there right now. Yet six weeks if I were to 22 survey a bunch of times and still not detect them, then 23 it would be a hypothesis that they're in there. Right 24 now it's not even about a hypothesis because they 25 shouldn't be there.	103 1 these four species for example at the correct time of 2 year? 3 THE WITNESS: Correct time of year and 4 correct size, yeah, for sure. I would take courses to 5 certain patches of habitat on the hope of being able to 6 see some of these. I drag 20 people with me to do that. 7 CHAIRMAN BAGOFF: Thank you. 8 Mr. Haizel, do you have any questions -- I'm 9 sorry. Mr. MacNeill. 10 MR. MacNEILL: Were any of those species 11 that you observed listed as endangered or threatened? 12 THE WITNESS: No. I mean, the ones that I 13 saw, no, they're not. But, again, it's very difficult 14 to observe endangered species even if I had 200 hours of 15 observation time, unless I'm in the exact place that 16 endangered species just settled. So I mean, of the 20 I 17 did observe directly, probably the worm-eating warbler 18 is the forest species that's also a migrant. Long 19 distance migrant and it's not in any peril or anything 20 like that, but that's an example of a species where it 21 depends on lots of different parts of the planet. Lots 22 of different parts of the continent in order to live 23 throughout it's annual cycle and if they don't have the 24 habitat at the particular time when they're there to 25 breed or they don't have their stopover sites, which I
102 1 CHAIRMAN BAGOFF: Fair enough. 2 MR. AFRAN: Can I follow up with one 3 question. 4 CHAIRMAN BAGOFF: Yes. 5 MR. AFRAN: Is it fair to say that these 6 four species are commonly found in eastern forests in 7 New Jersey? 8 THE WITNESS: Yes. 9 MR. AFRAN: Deciduous forests? 10 THE WITNESS: Yes. The right size forest, 11 yes. 12 MR. AFRAN: You're not hypothesizing, these 13 are normally available in our forests when they're 14 there? 15 THE WITNESS: Yes. 16 MR. AFRAN: Thank you. You answered my 17 question. Thank you. 18 THE WITNESS: I studied other birds in Pine 19 Barrens and they're very well-known and I do lots of, 20 like I said earlier, I do lots of bird surveys with 21 students, adult learners in central New Jersey almost 22 half a year but in the right patch of habitat you can 23 find all these. 24 MR. AFRAN: And so in an eastern deciduous 25 forest in New Jersey would you except to typically see	104 1 think the one I saw was probably stopping over, then 2 their numbers as a species will go down. 3 MR. MacNeill: Thank you. 4 CHAIRMAN BAGOFF: Mr. Haizel. 5 MR. HAIZEL: Yes, I do. 6 What impact does events like extended 7 periods of drought and things of that sort impact some 8 of these numbers? 9 THE WITNESS: What was the last part? 10 MR. HAIZEL: How does it impact the 11 population having like some of these events like 12 extended periods of drought? 13 THE WITNESS: So the answer to that depends 14 on what you mean by extended period. If we're talking 15 about like say one season drought like during the 16 breeding season, the population might not be productive 17 in that breeding season, so in particular during the 18 nesting stage when young birds would be fed by the 19 parents in dry years say when there's low insects, 20 because insects feed on the plants that are there and 21 the plants don't have enough water to grow leaves for 22 those insects, so that could scale up to a lack of food 23 that get's carried over to low productive success. That 24 probably the proximal quickest scale that would be the 25 first sign of something like that.

105 1 MR. HAIZEL: It doesn't have the impact of 2 like if you had such an event last year would you see a 3 smaller population this year and it builds back up or -- 4 THE WITNESS: Again, depends on the scale. 5 So, yeah, sure populations are resilient. Healthy 6 populations. In otherwise stable environments they go 7 through cycles of small increases in population size, 8 small decreases, but they tend to be steady over time 9 all things being equal. So a severe draught over many 10 years could knock down the population for longer periods 11 of time than one year or something like that. 12 MR. HAIZEL: Thank you. 13 CHAIRMAN BAGOFF: Thank you, Dr. Butler. 14 Any another questions? 15 So you said the four birds in that grouping 16 they're not there. How far do they fly normally? Where 17 do they come from? Do they come from south Jersey, 18 Canada, miles away, 20 miles? 19 THE WITNESS: So you're quizzing me on my 20 memory of wintering range maps. As far as these four 21 species, I don't distinctly remember all of them, but 22 the short brief answer, first answer is it varies. So 23 they don't all winter in very narrow latitudes to the 24 south. For example hummingbirds winter, I believe, from 25 central Mexico to northern South America. So they have	107 1 area and start singing, looking around like it's yours, 2 when the next male that comes in to challenge you the 3 general rule is the owner tends to win. The challenger 4 goes, oh, this is your's, I'm going to look down the 5 road and what they do is they segregate into lower 6 quality habitats and when birds can't obtain a habitat 7 that's sufficient to support a nesting attempt they just 8 give up and move on to the next life history stage. 9 CHAIRMAN BAGOFF: Thank you. 10 Mr. Afran, you want to say something. 11 MR. AFRAN: Two quick questions. 12 Q. What happens to the breeding success if the pair 13 attempts to nest when occupying a small patch as 14 compared to the normal range that they have before 15 fragmentation? 16 A. So I think the answer is going to be specie 17 specific, just I can't have one for all those species. 18 Different species respond differently to disturbance and 19 temporal environmental disturbance like was brought up 20 before. I brought up before, like spacial disturbance, 21 like removing a chunk of habitat, but the other thing is 22 that most of these species exhibit site fiduciary where 23 they tend to return roughly to the area, sometimes very 24 specific to the exact same little habitat, even the 25 exact same perch on the exact same tree year after year
106 1 very large wintering distributions and I think similar 2 for the other three species. 3 CHAIRMAN BAGOFF: Next question is, if this 4 project goes through and the decrease in the forest 5 would they find other areas of Essex County, even in 6 West Orange, South Mountain Reservation to populate? 7 THE WITNESS: The loss of habitat will just 8 lower the carrying capacity of whatever area you want to 9 judge. So if you want to expand to include what other 10 sites you're thinking of then just add that land mass 11 together and count up all the birds that could be there 12 and just take out the chunk that you have gotten rid of. 13 You're at least going to lose that much. So what birds 14 do, and Dr. DeVito talked a little bit about this, the 15 breeding season they almost all defend territories. So 16 they control exclusive space from each other. So you 17 can't just say, here, we're going to give you guys five 18 acres of really good habitat and you're going to have 19 the same number you would have in a ten acre habitat. 20 You might get that result but more likely a couple 21 individuals are going to control a lot of that 22 proportion. The others are going to have to go 23 someplace else. So what happens in the habitat quality 24 is the owners tend to win. So if you are given 25 precedence on a site and you're the first male to that	108 1 and so what likely happens for the birds that are say in 2 the forest that are predicted to be cut down, is that 3 what you're trying to ask, to get at? 4 Q. Yeah. In other words, if 90 percent of where 5 they nested, they're bread on their habits is gone what 6 happens to the breeding capacity? 7 A. Yeah, I think the birds that are breeding in this 8 site will come back in the spring to breed. The ones 9 that are migrants. They'll come back in the spring to 10 breed and they use various landmarks and cues to know 11 where they're going and so they come, male birds come 12 right back to the exact same piece of habitat. So 13 they'll come back and there will be a house there but 14 they will be in the right general area and what they 15 will probably do is move into the forest in the margins, 16 which, going back to what Dr. DeVito said, that 17 ecological tract, the cowbirds and predators and they 18 move into an environment that's not suitable for their 19 species, so they come back like, cool, oh, a housing 20 development, they move to a neighboring patch of woods, 21 the next closet thing, they're not going to pick up and 22 move to other parts that I referenced, that's very 23 unlikely because they already scaled down like the 24 hierarchy decision making where they're going to settle 25 and they were there last year, things worked out pretty

109 1 good so they come back. They're not going to be in the 2 exact territory they were in, they're going to try to 3 get a neighboring territory in the closest patch of 4 woods. It would be a disrupted social environment when 5 they come back in for sure. 6 Q. And assuming they're adaptive to the move to 7 another area, does that movement in concentration of 8 more individuals in another areas impact the breeding 9 capacity? 10 A. That's hard to predict. Basically what you're 11 doing is increasing breeding density before the event 12 and so resources might go up, you also might have 13 increased agonistic interactions among territory holders 14 because they're bumping into each more than they 15 normally would. It's a really interesting question what 16 would happen, but I don't think we know the answer. We 17 can just think about what it would be like to cram more 18 birds into that space. That would only last a little 19 while because moving into these smaller, these 20 neighboring spaces they'll almost definitively have 21 lower reproductive success due to lack of density. They 22 don't have as much space as they need, so they might 23 nest, might have smaller territories that year but 24 overall their reproductive success is likely almost 25 definitely less than what it would have been if	111 1 example of using four species, it is not meant to say 2 this effect is limited to these four? 3 A. Definitely not. I think they used these figures 4 for the same reason that I did. I used it as a 5 presentation. You know, these are common species that 6 should be in this area in a natural woodland habitat 7 that should be here. And so they're common, they're 8 specific to that habitat and they presented them in one 9 of their papers for the same reason I did. 10 Q. Thank you. 11 CHAIRMAN BAGOFF: Any members of the public 12 have any questions for Dr. Butler, please raise your 13 hand? 14 THE PUBLIC: Faith Singelis, 15 S-I-N-G-E-L-I-S. I have a question about the effects of 16 the building actually on the site because I know that 17 there is a building here in New Jersey nearby where 18 during migration the lights from the building and the 19 glass, it's on a site where thousands of birds die by 20 crashing into the building and I wonder, because this 21 forest patch now has no light and no glass, would that 22 also affect the birds? 23 THE WITNESS: So I don't know the heights of 24 the buildings, I haven't seen that information and that 25 plays into it for sure, and also exterior lighting and
110 1 distributed by the natural distribution. So after those 2 fails they're less likely to return. So they did make 3 babies who then don't come back or they have experience 4 of failing and so they move on and that's one of the 5 common things about nest failure birds is, it is very 6 experienced based. If they fail they'll often make a 7 change. It starts out not nesting in the exact same 8 patch habitat to then moving to a different site. 9 Q. Thank you. 10 One last question to clarify, the four species on 11 the four graphs that are on the screen now, the graph 12 that is four together, are those offered as an example 13 or is that what happens to species as size goes down or 14 is it only these four species you're concerned about? 15 A. No, this is just, this paper studied all the 16 species, all breeding birds they could detect. I think 17 the total number may be 780 species. I just clipped 18 their figure from their paper. So they had tables of 19 data from all the species they studied and this is just 20 a figure that they put together, because as you can see 21 in the figure it's for common forest interior species. 22 So they just wanted to highlight those in their 23 presentation. 24 Q. So this is an exemplar but it's not meant to be 25 exclusive of the effect? In other words, this is an	112 1 mostly what the birds are crashing into in this type of 2 building is going to be windows. So they're going to 3 see brick and mortar on parts of the building but the 4 reason they cash into the windows at the angle they're 5 flying, sometimes the windows look like the sky to them 6 or look like the horizon, so they just -- they don't 7 know. So it depends a lot on very site specific factors 8 also or conditions of the windows relative to the flight 9 paths that the birds are using between patches of 10 forest, which again, I don't know, but that sets up a 11 situation if you have birds trying to move between 12 patches, especially this concept that we're going to 13 save these trees, so I have these two sets of core 14 forests on either side because it's so gray, so if they 15 are and they're creating -- and you're putting buildings 16 right between, you know, the birds aren't going to use 17 them or when they do they could face running into these 18 buildings or could also have exposed face to be exposed 19 to predators. 20 THE PUBLIC: Thank you. 21 THE WITNESS: Sure. 22 CHAIRMAN BAGOFF: Any other members of the 23 public have any questions for Dr. Butler, please come 24 forward? Seeing none. 25 Thank you very much, Dr. Butler.

113 1 Mr. Afran. 2 MR. AFRAN: Thank you, Mr. Chairman. That 3 concludes our witnesses for tonight. 4 As mentioned Mark Gallagher is out of the 5 county, he will be available, assuming we go forward 6 June 4, and we expect other witnesses at that time. 7 I did want to just note that we might recall 8 Sean Walsh for certain reasons. The request has been 9 made to the Mayor and Council concerning a flood hazard 10 analysis, potentially possible he may come back to speak 11 to that issue and I may submit a copy of what was 12 submitted to the extent the Board feels it's relevant to 13 post as part of the final hearing. But I just wanted to 14 alert you to the fact I may submit, Mr. Plocker copied 15 of course, that paperwork in the event the Board 16 believes it should be posted as part of the record here. 17 Otherwise we will be back the next meeting with Mark 18 Gallagher and other witnesses. I want to thank the 19 Board for all it's attention and assistance with 20 questions. 21 CHAIRMAN BAGOFF: Thank you. 22 Mr. Plocker. 23 MR. PLOCKER: No, thank you. 24 CHAIRMAN BAGOFF: Okay. 25 Well, I have to say, the two witnesses	115 1 CERTIFICATE 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 19 20 Dated:  21 22 23 24 25
114 1 tonight were very enlightening, well spoken, well 2 educated and the presentation was great. Very 3 interesting. What the Board will use it for is up to 4 the Board but the information that they provided was 5 very interesting. 6 MR. AFRAN: Thank you. Appreciate that. 7 CHAIRMAN BAGOFF: Personally. 8 Okay. Ladies and gentlemen, this 9 application will be carried with no further notice 10 required to June 4. The regular meeting will be here in 11 town hall at 6:30. Zoom will be available, no comments 12 from zoom. 13 MR. PLOCKER: Sorry. Just came to my mind. 14 Since you mentioned no further notice, I want to state 15 for the record that the applicant did provide renotece 16 for tonight's hearing and we did submit the proof of 17 service and publication to the Board secretary in 18 advance of the meeting and I believe it is posted on the 19 agenda. 20 MS. MCGOVERN: And to add, the notice 21 clarified that if for some reason zoom goes down the 22 show will go on here in person. 23 (Hearing concluded at 9:32 P.M.) 24 25	116 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 ERROR OR AMENDMENT/REASON FOR CHANGE 12 13 14 15 16 17 18 19 20 21 22 23 I have read my transcript and subscribed to its accuracy, to include the 24 corrections or amendments noted above or hereto attached: 25 Page Line Signature of Witness Date

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