

ML - Morris County Fair Housing Council  
v. Beanton Twp (Harding Twp)

2/25/80

Deposition of Robert H. Fox, P.E.

~~Exhibits + resume of Robert H. Fox~~

+ ~~letter from Shantey Fisher to Dept of  
Public Advocate dated 2/18/80~~

P 89

ML 000921 (S)G

SUPERIOR COURT OF NEW JERSEY  
MORRIS COUNTY-LAW DIVISION  
DOCKET NO. 6001-78 P.W.

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MORRIS COUNTY FAIR HOUSING :  
COUNCIL, et als. :  
 :  
 Plaintiffs. :  
 :  
 -v- :  
 :  
 BOONTON TOWNSHIP, et als, :  
 :  
 Defendants. :  
(Harding Township) :  
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DEPOSITION OF  
ROBERT H. FOX

D.L. Moore  
3/23/80

Transcript of stenographic notes as taken by  
and before JILL FRIEDBERG, Shorthand Reporter and  
Notary Public of the State of New Jersey, as taken at  
the offices of APGAR ASSOCIATES, De Mun Avenue, Far  
Hills, New Jersey, on Monday, February 25, 1980,  
commencing at 11:00.

A P P E A R A N C E S:

STANLEY C. VAN NESS, PUBLIC ADVOCATE  
BY: KEITH A. ONSDORFF, ESQ., PUBLIC ADVOCATE  
For the Plaintiffs.

MESSRS. SHANLEY & FISHER,  
BY: ARTHUR R. SCHMANDER, ESQ.  
For the Defendants.

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I N D E X

WITNESS

DIRECT

ROBERT H. FOX

By Mr. Onsdorff

2

E X H I B I T S

NUMBER

DESCRIPTION

IDENT.

RFH-1

Resume of Robert H. Fox, P.E.

3

RFH-2

Letter from Shanley & Fisher to  
Dept. of Public Advocate dated  
2-8-80.

29

1 R O B E R T H . F O X , P . E . , De Mun Avenue, Far  
2 Far Hills, New Jersey, duly sworn by the Reporter,  
3 testifies as follows:

4  
5 DIRECT EXAMINATION BY MR. ONSDORFF:

6 Q Mr. Fox, my name is Keith Onsdorff. I'm  
7 counsel for the plaintiffs in the litigation for Morris  
8 County Fair Housing Council versus Boonton Township, et  
9 al., and I'm going to ask you a series of questions today  
10 for the record in this litigation and if at any time you  
11 aren't clear or don't understand any of my questions,  
12 please indicate it and I will try to reword it in order  
13 to clarify the question.

14 If at any time your attorney interposes an objec-  
15 tion to my questions, please withhold your answer until  
16 we resolve that. Is that okay?

17 A Fine.

18 Q Have you ever been deposed before?

19 A Yes, I have.

20 Q I show you this document which is entitled  
21 "Personnel Resume of R. H. Fox, P.E." and ask you if you  
22 can identify it?

23 A Yes, I can.

24 Q Is that your latest and most up-to-date  
25 resume?

1 A I believe it is. There may be a few things which-- it  
2 is probably not my latest resume. I'm sure if it's totally  
3 up-to-date but, it's the latest one I have.

4 MR. ONSDORFF: Can I have this marked RFH-1  
5 for identification.

6 (Whereupon, the above-mentioned resume of  
7 Robert H. Fox, P.E., consisting of three pages,  
8 marked RFH-1 for identification.)

9 Q If you were to update your resume, would  
10 there be anything to add, in your mind, relevant to land  
11 use planning, anything, for planning for Harding Township?

12 A I don't believe so, no. I don't think so.

13 Q I believe you were awarded a bachelor of  
14 science degree from the College of Engineering from Rutgers  
15 University in 1958. Is that correct?

16 A That's correct.

17 Q Briefly, would you elaborate the courses of  
18 study that you pursued while at Rutgers, seeking this  
19 degree program?

20 A It's a long time. Well, first of all, my major  
21 as undergraduate was agricultural engineering. The  
22 courses of study which I took during my four years at  
23 Rutgers, followed the pattern of most engineering students.

24 I believe there were four courses that were given  
25 by the Department of Agricultural Engineering, which

1 think back. I took a course in advanced waste water  
2 treatment and I also took one in advanced water supply.  
3 I don't recall the exact titles of the courses.

4 Q When you say "advanced water supply," this  
5 was for potable water uses?

6 A Yes, that's correct.

7 Q That advanced study dealt with the manners  
8 of treating raw material to insure their potability?

9 A Yes, it did.

10 Q I believe in 1958 you began your employment  
11 with the United States Soil Conservation Service in  
12 New Brunswick. Is that correct?

13 A That's correct.

14 Q What were your responsibilities with the  
15 Soil Conservation Service from 1958 to 1960?

16 A During that time, I -- my responsibilities were  
17 basically in the area of design of earth dams, hydraulic  
18 structures for drainage improvement and for -- in connection  
19 with each dam, a variety of soil erosion control measures  
20 and I believe that would be a good count of my --  
21 primarily, an account of my responsibilities.

22 I was basically in design engineering through most  
23 of that time, although I did some construction supervision  
24 as well.

25 Q Did any of your work during this two year

1 differed from those that a civil engineer would take. I  
2 also had additional courses in biology, that a civil  
3 engineer would not take but, all the rest of the curriculum  
4 followed quite closely that of a civil engineer.

5 Q Do you recall what four courses were  
6 different in the agricultural engineering program, than the  
7 civil engineering one?

8 A Yes, one was agricultural process engineering.  
9 Another was soil -- I believe it was soil conservation.  
10 I'm not sure of the exact title of the course. Another  
11 was farm structures. Another was farm machinery.

12 Q Your resume also indicates that in 1965,  
13 you were awarded a master's of science degree from Rutgers  
14 University. Is that correct?

15 A That's correct.

16 Q And what were the courses of study which led  
17 to that degree?

18 A Well, it was primarily in civil engineering and the  
19 courses included soil mechanics, foundation engineering,  
20 advanced courses in structures, reinforced concrete,  
21 mathematics, geology. That's the general area of my  
22 study for my master's program.

23 Q Were the postgraduate studies that you  
24 pursued, in water and sewerage treatment?

25 A Well, I took a course at Rutgers. I'm trying to

1 period deal with drainage and erosion control methods,  
2 dealing the housing developments?

3 A I don't believe there was any -- I don't believe  
4 I was engaged in any work related to housing developments  
5 during that period of time.

6 Q Now, from 1960 through 1961, your resume  
7 indicates you were assistant project engineer with  
8 Woodward-Clyde-Sherard & Associates --

9 A Woodward-Clyde-Sherard & Associates.

10 Q -- in Montclair. What were your duties with  
11 this firm?

12 A I was primarily a construction engineer and was  
13 responsible for construction inspection on, I think, three  
14 different construction sites. One was a large land fill  
15 project in Kearny. The other was an earth dam in  
16 Monmouth County.

17 In fact, there were two earth dam projects in  
18 Monmouth County and then there were some miscellaneous  
19 projects that I worked on. One was a sewer project in  
20 Paramus Est, my primary responsibility while I was there  
21 was the land fill project in Kearny and the earth dam  
22 project in Monmouth County, one of the dams there.

23 Q What type of construction work was ongoing  
24 at the land fill, that you were responsible for?

25 A It was filling of a rather large site on which a



1 post office or postal center was constructed in Harding --  
2 in Kearny. I believe it was about 30 acres of land in  
3 which the organic muck was excavated and removed and the--  
4 I think twelve feet of fill was placed in that area and  
5 then the buildings were constructed on top of that.

6 Q Were the erosion and drainage problems  
7 associated with this large building complex in Kearny?

8 A Yes, they were. I was not involved in the building  
9 work at all. I was just involved in controlling the earth  
10 fill that was placed in the area because the buildings  
11 were constructed directly on top of the fill so, there  
12 were some erosion problems during the construction of the  
13 earth fill that I was involved with that.

14 Q And did you implement certain measures to  
15 control or mitigate erosion problems associated with that  
16 earth and fill?

17 A You know, it's been a long time and I don't remember  
18 the details of it there. We would take care of any  
19 problems that existed right on site, as the work was

20 going on.  
21 During this period of two years, did any of  
22 your miscellaneous assignments deal with housing develop-  
23 ments and construction measures, in regards to these type  
24 of --

25 A I do not recall being involved in any housing

1 development work at that time.

2 Q Then, I believe from 1961 through 1967, you  
3 served as a State design engineer with the Soil Conserva-  
4 tion Service, again, in New Brunswick. Is that correct?

5 A That's correct.

6 Q Can you briefly elaborate on your responsi-  
7 bilities in this position?

8 A Yes, I was responsible for all the design work for  
9 this Soil Conservation Service in the State of New Jersey.  
10 All -- I should say all engineering design.

11 Q And did any of this engineering design work  
12 deal with housing developments?

13 A Only a very small amount. I can recall rendering  
14 some assistance to technicians in -- that are located  
15 in the various counties of the State but, only in a  
16 peripheral way. I did not get greatly involved in that  
17 area.

18 Basically, our -- the office which I was in charge  
19 of was responsible for handling the larger projects and  
20 the unusual kind of problems, rather than the more routine  
21 soil erosion control problems.

22 Q What were the nature of those larger projects  
23 that occupied the bulk of your time?

24 A They were primarily small watershed protection  
25 projects, flood control, drainage. That was primarily it.

1 Flood control and drainage projects that were  
2 federally funded. That was where the bulk of my time was  
3 devoted to.

4 Then, I also did provide assistance to technicians  
5 in the various counties, with the respect to the design  
6 of farm pond and the unusual types of erosion control  
7 measures that would become necessary under certain circum-  
8 stances.

9 Q Did any of these large flood control or  
10 drainage projects, which were federally funded, were any  
11 of these in Harding Township?

12 A No, they were not.

13 Q Were there any in Morris County?

14 A No, there were none.

15 Q Now, from 1967 to 1968, you served as a  
16 consulting engineer and head of the Water Resource Section  
17 for Girard Engineering in Jersey City. Is that correct.

18 A That's correct.

19 Q Briefly, what were your responsibilities  
20 with this firm?

21 RASAD. I think my title was Head of the Water  
22 Resources Section but, my primary responsibility was the  
23 design of the hydro-electric project.

24 I had design responsibility for the entire project  
25 with the exception of the generating facilities and I

1 think we had -- I think there were six dams that were  
2 designed and the associated spillways and that's what I  
3 would say occupied 95 percent of my time while I was with  
4 this firm.

5 Q This hydro-electric dam project, where was  
6 that to be constructed?

7 A It was to be constructed in Berkshire Valley, in  
8 northwestern Morris County.

9 Q Do you remember what municipality that was?

10 A It would have been Jefferson Township.

11 Q Has it in fact been constructed?

12 A No, it was never constructed.

13 Q Do you know the reason why it was not  
14 pursued?

15 A I don't know the details of the reason. I left the  
16 firm when we were just about completing the design and I  
17 believe the reason that it was not constructed is that  
18 from the run out for bids, they found that the cost would  
19 be much greater than had been anticipated when the project  
20 was initiated, back many years earlier and it was a joint  
21 venture between the City of Jersey City and the Jersey  
22 Central Power Company and I believe both the City and  
23 Power Company found that the project was not -- was no  
24 longer feasible because of the cost.

25 Also, during that time, from the time the project

1 was first conceived, until the time they went out for bids,  
2 which was over a period of many years, I don't recall,  
3 small generating facilities such as that would have been --  
4 were becoming less and less efficient and larger and larger  
5 facilities were really required for good efficiency so,  
6 for those reasons they -- the project was never developed.

7 Q And then, in 1968, did you found the APGAR  
8 Association or join the firm?

9 A No, I did not. I joined the firm. What was the  
10 date there?

11 Q I believe it's 1968.

12 A Yes, somewhere about there, yeah.

13 Q And during this period, what had been your  
14 primary responsibilities with the firm?

15 A Well, I've been responsible for all engineering  
16 for the firm. In recent years, I have spent a large part  
17 of my time with the municipal engineering work and I  
18 served as engineer for Harding Township, Chester Township,  
19 Chester Borough and at the moment, for Mendham Township,  
20 more or less in an acting capacity.

21 Q When did your professional relationship  
22 with Harding Township begin?

23 A I would estimate that it began somewhere around  
24 19 -- 1972. Let's just leave it at that. Around 1972.

25 Q Okay and briefly, what has been the nature of

1 your duties as far as serving as municipal engineer for  
2 Harding Township since 1972?

3 A I have provided assistance to the Road Department,  
4 ~~served as a~~ consultant to the Planning Board, with respect  
5 to subdivision reviews and site plan reviews and also,  
6 other matters when I'm requested to do so.

7 Revise the tax maps, assist the Board of Health  
8 and the sanitary inspector, consult time to time with the  
9 Environmental Commission, prepare plans for any public  
10 works projects and perform other duties, as requested by  
11 the Township Committee or Planning Board.

12 Q I believe you indicated you've done some  
13 work on revisions to Tock maps?

14 A Tax maps.

15 Q Oh, tax map, I'm sorry. Have you had the  
16 occasion to do some engineering work for public works  
17 in Harding Township?

18 A Yes.

19 Q Can you describe the nature of those public  
20 work projects?

21 A Actually, most of these have been very small  
22 projects, just doing some small drain work here and there  
23 on various -- at various locations in the Township, in  
24 conjunction with the Road Department.

25 Also, did a study and plan for storm sewers on

1 Millbrook Road. Did the site plan work for the municipal  
2 building that is currently under construction. Did the  
3 site plan work for the public works garage, which is just  
4 about to begin construction, prepared the plans and  
5 specifications for a storm drain job on Blue Mill Road.

6 Q Can you tell me the site of the municipal  
7 building?

8 A Yes, at the corner of the Blue Mill Road and Sand  
9 Spring Road.

10 Q Were there any measures that you designed  
11 for drainage and erosion control, in conjunction with this  
12 municipal building?

13 A Oh, yes.

14 Q What were those control measures?

15 A Temporary -- temporary ~~burns~~ to restrict the  
16 flow of water over certain areas. Provisions for stabili-  
17 zation by ~~citing~~ -- seating. Temporary seating as  
18 well as permanent seating.

19 I believe those are the primary measures, as I  
20 recall, with respect to that site plan.

21 Q And as far as runoff from that site, where  
22 would those waters flow to?

23 A Well, runoff from the site; first of all, we have a--  
24 basically, the storm water management plan as part of the  
25 overall site plan and the waters from the site run into

1 storm drains to catch basins. Essentially through the  
2 storm drain pipes into the -- into larger seepage pits.  
3 A whole series of seepage pits and the idea of being  
4 the water would flow from the seepage pits back into the  
5 ground. Then, there is an overflow on the seepage pits  
6 that would take any water that does not go back into the  
7 ground; to the stream, to which the areas -- which the  
8 area tributary --

9 Q Does that stream have a name?

10 A I believe it's an unnamed tributary of Great Brook.

11 Q As far as the drainage system leading to  
12 these seepage pits do you know the cost of these facilities?

13 A No, I do not.

14 Q Did you indicate the location of the public  
15 works garage?

16 A I didn't but I can.

17 Q Please.

18 A It is located at the corner of Millbrook and  
19 Village Roads.

20 Q What type of service facility is this garage  
21 intended to be?

22 A It's just a relatively small garage that will  
23 house, approximately three or four vehicles. I'm not  
24 sure of the actual number of vehicles but, they have a  
25 very small Road Department. They only have three people



1 working there. Three or four.

2 Q Do you know what type of vehicles are housed  
3 there?

4 A Basically, you know, there are trucks, a couple of  
5 dump trucks and a tractor, I guess.

6 Also, it's a, you know, a small facility. It's  
7 not a big public works garage.

8 Q Are there drainage and erosion control  
9 measures which are going to be implemented in conjunction  
10 with construction of this garage?

11 A Yes, they're similiar with what I just mentioned,  
12 at the municipal building.

13 Q Do you know if the seepage pits are going  
14 to be utilized, also?

15 A I'm not sure of the seepage pits, if they're  
16 included in this plan. I don't believe there are any  
17 seepage pits in this plan.

18 Q Do you know whether the runoff will be  
19 directed to, other than to the public works garage?

20 A It will again flow into just a -- well, it will just  
21 flow over the field area, adjacent -- well, the garage  
22 will sit in an area that is primarily a field and it will  
23 just flow over a field area and eventually get into a  
24 small stream but, there is no direct discharge into a  
25 stream. There is no stream of any size at all adjacent to

1 the project.

2 Q So, the public works garage is not going to  
3 be serviced for storm sewers. Is that correct?

4 A I would have to check the plan to see if there's  
5 any storm sewers on the plan at all or if not. If there  
6 are, they are very minimal. It's a very small site. It  
7 just flows off a gravel driveway into the field.

8 Q Now, in these two public works projects,  
9 are -- where are the water and sewer utilities that are  
10 going to be used to service these buildings?

11 A Water will be by individual private wells. Well,  
12 private -- municipal -- well, just for those structures,  
13 for these buildings and the sewers, will be handled by  
14 on-site disposal beds for trenches, septic systems,  
15 basically.

16 Q Do you know how many people the septic  
17 are intended to service at these two buildings?

18 A No, I don't. I would have to refer to my files  
19 to find out. The public works garage there, it would go--  
20 couldn't be more than half a dozen people. The municipal  
21 building, I think we have probably provided for twenty  
22 people or maybe thirty people, something in that neighbor-  
23 hood, I would estimate; plus, the occasional use of the  
24 hearing room, which would require higher flows but, I  
25 could check that out, if you were concerned about the

1 details on that.

2 Q Well, I guess what my interest is, is as  
3 to the maximum size of the septic systems for the  
4 municipal building. Is there a certain size that is  
5 required for a certain amount of people? How does that  
6 work?

7 A Yes, in other words, the size of your system  
8 depends on what the population of the building is and  
9 the more people you anticipate, the larger you construct  
10 the system, although with day workers, you have a  
11 relatively low flow. I believe we probably designed  
12 somewhere in the neighborhood of twenty gallons per  
13 person.

14 That's -- I'm not sure of that but, that would  
15 be my estimate of the amount of water uses that you could--  
16 we could anticipate there. That's per day, by the way.  
17 Twenty gallons per person, per day.

18 Q I don't believe your resume indicates  
19 whether or not you've published any articles or scholarly  
20 works in your field of expertise. Have you done so?

21 Yes, I have but, I believe to you, you know, it  
22 would be totally unrelated to anything in this case. It's  
23 basically dike construction on tidal marshes. I don't  
24 think it would be very relevant to this case.

25 Q Well, there haven't been any tides up in

1 Harding, have there?

2 A No.

3 Q Have you given expert testimony before any  
4 courts in the United States before?

5 A Yes, I have.

6 Q Has this testimony been since 1975?

7 A Yes.

8 Q Can you recall the name of the cases in  
9 which you presented such testimony?

10 A Well, the most recent one was last week. I believe  
11 the name of the case was Forst V. Union County and I  
12 believe the Township of Berkley Heights was also a  
13 defendant and my testimony there, related to severe  
14 stream bank erosion, just downstream, from a new bridge  
15 constructed by Union County.

16 Q Do you recall the court in which that case  
17 was heard?

18 A Yes, I believe it was Superior Court. It was in  
19 Elizabeth. That would be Union County.

20 Q Have there been any other cases in which  
21 you have participated as an expert, since 1975?

22 A Yes, the zone -- a zoning suit in Montville  
23 Township. I don't recall the name of the case but, the  
24 nature of the case was a developer that owned land in  
25 the northern part of Montville Township; filed suit

1 against the municipality, as a result of the municipality  
2 upgrading a zone from one to three acres lots, in that  
3 area.

4 Q What was the subject matter of your testimony  
5 in that case?

6 A I don't recall the details of it. It was a few  
7 years ago but, it related to the effects of development  
8 as proposed by the developer on the water quality in the  
9 stream flowing from Lake Valhalla.

10 There were also other things in my testimony but,  
11 I don't recall the details of it. Now, I believe I also  
12 testified with regard to the affects of the quantity of  
13 runoff from the site on Lake Valhalla.

14 Q Was your testimony on behalf of the plaintiff  
15 or the defendant in that case?

16 A I guess it was the defendant although the -- I  
17 really appeared on behalf of a citizen's group and I believe  
18 was named as defendants in this case along with the  
19 municipality; at the request of the citizen's group.

20 Q Are there any other matters in litigation,  
21 which you gave expert testimony to, since 1975?

22 A Yes, Chester Township zoning suit, Caputo V.  
23 Chester Township and it was my involvement there -- my  
24 involvement was very brief and of a very general nature  
25 and I don't recall exactly what it was but, I know I was

1 in court a very short period of time. I don't think it  
2 would be anything, you know, related to this. I did not  
3 get greatly involved in that case at all.

4 Q Was your involvement on behalf of the  
5 plaintiff or defendant?

6 A Chester Township, defendant. There have been some  
7 others. I'm just trying to think of other cases, two or  
8 three drainage cases that I've testified in and I don't  
9 recall the names of them at all. They were very, you  
10 know, specific as to the affects of re-routing some storm  
11 water to the -- the affects on someone's property who  
12 claimed they were damaged by it. Very localized issues  
13 in general but, I don't remember the names.

14 Q At any time, have you ever given any expert  
15 testimony before either the Planning Boards or Zoning  
16 Boards of Adjustment, in the State of New Jersey, pertaining  
17 to environmental issues of proposed land use plans or  
18 development proposals?

19 MR. SCHMAUDER: You mean since 1975 or

20 any time?

21 MR. ONSDORFF: At any time.

22 A Oh, my, I've testified before Planning Boards and  
23 Boards of Adjustment in municipalities that I work for,  
24 time after time. I couldn't begin to list them all.

25 Q Let's try to narrow it down. In Harding

1 Township, specifically, do you recall instances where you  
2 have provided testimony in conjunction with development  
3 proposals since 1972?

4 A In probably every application that the Planning  
5 Board has had, with the exception of some minor subdivisions.

6 Let me qualify that a little bit. In the last year  
7 or so, the applications for subdivision of site plan  
8 approval in Harding Township, have been reviewed by  
9 either myself or another engineer for the firm, Ernest  
10 Heisner. In most cases, a report is prepared in this  
11 office by either Mr. Heisner or myself and this report  
12 is submitted to the Planning Board and during the past  
13 year or so, Mr. Heisner has attended, far more of the  
14 meetings than I have. In fact, he's attended most of the  
15 meetings, to comment on those reports so, just in the  
16 last year or so, our work there has been in part  
17 accomplished by someone other than I.

18 Q You mentioned that, with the exception of  
19 some minor subdivisions and generally since 1972, you  
20 had testified in every application before the Planning  
21 Board.

22 A I said I testified -- either testified or prepared  
23 reports or generally both.

24 Q What would the nature of the exception which  
25 you've just -- nature of the exception which you've just

1 indicated would constitute the subdivision?

2 A Well, it would just simply be applying to dividing  
3 of a tract of land on an existing public road, you know,  
4 perhaps one ten acre lot into two five acre lots or  
5 something of that nature, something that did not involve  
6 any significant amount of engineering or construction,  
7 simply of the dividing of pieces of property into one or  
8 two or three, sometimes four lots.

9 Q Now, since 1975, can you recall the number  
10 of development proposals which have come before the  
11 Harding Township Planning Board for the construction of  
12 multi-family housing?

13 A Since 1975? The only one I recall is the appli-  
14 cation on the Harvitt tract. This is currently known  
15 as the Harding Green Townhouse development.

16 Q Did you prepare a written report in con-  
17 junction with this Harding Green Townhouse project?

18 A Yes, I did.

19 Q That was prepared for the use of the  
20 Planning Board?

21 A Yes, that is correct. I've prepared, you know,  
22 a number of reports. As plans have been reviewed, I've  
23 revised the reports -- submitted reports to that.

24 Q Hasn't the Harding Green proposal been  
25 revised on a number of occasions? Is that --



1 A Well, in other words, the developer submitted his  
2 plan. First to the Planning Board and we reviewed it,  
3 made certain recommendations. The plan was revised and  
4 so forth, you know, our involvement here was primarily  
5 with respect to engineering and not the general development  
6 concept.

7 In other words, our reviews have been primarily  
8 with regard to the pavements and storm sewers, to the  
9 sanitary sewers and so forth. There has not been much  
10 revision to the general concept of the plan.

11 From the time it was first prepared, the building  
12 location, the streets and so forth, are pretty much as  
13 they were originally proposed.

14 Q Has the density of the land use remained  
15 constant in this revision process or is that --

16 A That has remained constant, same number of units  
17 as originally contemplated.

18 MR. ONSDORFF: Mr. Schmauder, I believe  
19 possibly my next question would probably more  
20 appropriately be directed to you. Could we  
21 possibly examine the reports Mr. Fox has prepared  
22 for Planning Boards, in regards to this Harding  
23 Green Township?

24 MR. SCHMAUDER: I don't know. I've never  
25 seen that or them. So, that would require a

1 review by me, before I could give you an answer.

2 MR. ONSDORFF: Okay.

3 THE WITNESS: I'd like to make one comment.

4 It's going to be an awfully boring reading, because  
5 it's commenting on the size of pipes here and --

6 MR. SCHMAUDER: Whatever.

7 Q I believe you indicated that this Harvitt  
8 tract proposal was the only multi-family housing project  
9 which you've reviewed since 1975.

10 MR. SCHMAUDER: When did he say that? What  
11 he said was it was the only one he could recall  
12 that came before the Planning Board since 1975,  
13 that he had any familiarity with.

14 If you're asking him about areas outside  
15 Harding Township, I'm sure he can give you an  
16 answer to that question.

17 MR. ONSDORFF: I'm limiting my question  
18 to Harding Township.

19 MR. SCHMAUDER: Then he can answer the  
20 question.

21 It's the only one I recall in Harding Township.

22 Q Do you recall any such multi-family housing  
23 project proposals coming before the Planning Board in  
24 Harding Township, from 1972, to 1975?

25 A I don't know when the Harvitt application was

1 first made so, it -- it may have been initiated before 1975.  
2 I'm not sure but, that's the only one that I recall being  
3 involved in, in any way in Harding Township.

4 Q Now, in regards to the present litigation,  
5 what are the professional services that you have rendered  
6 on behalf of Harding Township?

7 MR. SCHMAUDER: Do not answer that question,  
8 sir. Professional services you rendered on behalf  
9 of Harding Township, regarding this litigation,  
10 are rendered at the request of counsel and they  
11 constitute, in most respects, if not all respects,  
12 a -- the product of the attorneys, as well as the  
13 product of the individual; therefore, our work  
14 product.

15 Q Did you provide any reports to counsel in  
16 regards to the present litigation that we're discussing  
17 today?

18 MR. SCHMAUDER: I'm not sure I understand the  
19 question, sir.

20 Q Well, either oral or written reports regarding  
21 the zoning ordinances, zoning ordinances of Harding  
22 Township, in respect to the present litigation.

23 MR. SCHMAUDER: Again, I'm not sure I under-  
24 stand the question. Are you asking whether or not  
25 he gave an opinion to counsel with respect to this

1 case?

2 MR. ONSDORFF: Yes, that's correct.

3 MR. SCHMAUDER: Well, he may answer that  
4 question.

5 A I have issued or prepared no reports concerning that  
6 whatsoever. I've had discussions with Mr. Schmauder, I  
7 have not prepared any reports or been requested to.

8 Q Have you prepared any exhibits for the trial  
9 of this litigation?

10 A I may have prepared things for the Township, which  
11 will be used in the trial or as exhibits for the trial.  
12 I can think of particularly the -- a map for the planning  
13 consultant, Charles Agle. He furnished us with a map  
14 of Harding Township, showing the -- I believe it showed  
15 the existing land use, showed all the lots in Harding  
16 Township and he asked us -- asked me to place on that map  
17 the flood hazard areas as they are shown on the official  
18 flood maps for Harding Township and we did delineate  
19 flood hazard areas on that map and returned it to Mr. Agle.

20  
21  
22  
23  
24  
25

21 I'd like to show you a map at this time,  
22 which was marked for identification as CAH-3, on February  
23 21, 1980 and ask if this is the map that was just  
24 described, delineating certain flood hazard areas on them?

25 A That is correct, that is the map.

1 Q What manner are the flood hazard areas,  
2 in Harding Township, shown on this map?

3 A I really don't understand your question.

4 Q Well, in what pattern of ink blots are  
5 these flood hazard areas shown on the map?

6 A You're speaking of the graphical symbol, here?

7 Q That's correct.

8 A The areas denoted by a -- by a series of wavy  
9 lines in this area and this area, delineated by a dark  
10 black line, which depicts the perimeter of the flood  
11 hazard area.

12 Q In what manner was the boundaries of the  
13 flood hazard area placed upon this map, which is CAH-3  
14 for identification?

15 A Well, as I mentioned just before, we took the  
16 official flood hazard maps that are approved by the  
17 Federal Housing Administration for flood insurance and  
18 used that information and just -- transferred the boundaries  
19 as shown on that map, to this map.

20 Q Now, the Housing and Urban Development  
21 Flood Insurance Map, do you know -- can you identify that  
22 map which you transferred onto this one, as to its date  
23 of issue and any other identifying marks that you might  
24 be aware of?

25 A Well, I'd have to look that up. There is a date

1 on it, I'm sure. It was revised -- it was initially issued  
2 and then it was revised. I don't know if it was revised  
3 once or twice but, it is the map which we are currently  
4 using, that was used to place the lines on this map.

5 Q Are you aware, when you say "currently using,"  
6 in what manner are you currently using the HUD Flood  
7 Insurance Map?

8 A To determine if a particular piece of property is  
9 in the flood hazard area or not.

10 Q Once having made the determination that a  
11 piece of property is in the flood hazard area, what are  
12 the consequences of that determination?

13 A Well, anyone applying for a mortgage guaranty by  
14 a federal insurance bank, must take out flood insurance.

15 Q I don't think we need this anymore. I  
16 would like to show you a letter, dated February 8, 1980  
17 and ask you if you have ever seen that before?

18 A Yes, I've seen a copy of that.

19 MR. ONSDORFF: This is a letter addressed  
20 to Mr. Carl Bisqaier, Director of Public Interest  
21 Advocacy, Department of Public Advocate, from Mr.  
22 Schmauder. I ask that we have that marked for  
23 identification as RFH-2, I believe.

24 (Whereupon, the above-mentioned letter,  
25 addressed to Carl Bisqaier, Director of Public

1 Interest Advocacy, Department of Public Advocate,  
2 regarding Morris County Fair Housing Council-Harding  
3 Township, et al., from Shanley & Fisher, Arthur R.  
4 Schmauder, Esq., consisting of three pages, dated  
5 February 8, 1980, marked RFH-2 for identification.)

6 Q Mr. Fox, have you examined the contents of  
7 RFH-2?

8 A Yes, I have.

9 Q Are you familiar with the material contained  
10 in that letter?

11 A Yes, I am.

12 Q Does that letter embody the advice that  
13 you provided to counsel for Harding Township, in regards  
14 to the present litigation?

15 A Yes, that's true.

16 Q What were the specific areas of expertise  
17 that you brought to there in providing the advice to  
18 counsel for Harding Township, which is contained in RFH-2?

19 MR. SCHMAUDER: You mean other than the  
20 background that he's already testified to you about,  
21 at length in this proceeding here?

22 MR. ONSDORFF: Other than the fact that he's  
23 testified quite compresensibly to those areas of  
24 his expertise, I want to see what specific areas  
25 were brought to bear in preparing the advice that

1 is contained in this letter.

2 A May I refer to it?

3 Q Certainly.

4 A Well, I have commented -- well, the letter reflects  
5 my comments to Mr. Schmauder with respect to soil -- soils  
6 in Harding Township and the use of septic systems in the  
7 soils, which we find throughout Harding Township.

8 I commented -- oh, well, you didn't ask me on  
9 which areas of expertise. The general areas of expertise  
10 which I have as an engineer related to soils, brown  
11 water, septic systems, soil erosion, sewerage treatment  
12 facilities, I believe that's the general areas of  
13 expertise that I've drawn upon in my statements to Mr.  
14 Schmauder.

15 Incidentally, one area that may not -- of my  
16 expertise, that may not be specified in my resume, is  
17 that of waste water treatment, sewerage treatment, as I've  
18 served for approximately five years as consulting engineer  
19 to the West Milford Township Municipal Utilities Authority  
20 and I don't recall that appearing on my resume but, it  
21 may have but, I don't remember seeing it when I reviewed  
22 the resume there.

23 Q What type of sewerage treatment facilities  
24 does West Milford, MUA, operate?

25 A Well, they have four small waste water treatment



1 plants.

2 Q When you say "small," do you know the  
3 volume of sewerage treatment at these facilities?

4 A I don't recall the size of each one of them but,  
5 I would estimate up to about a half a million gallons a  
6 day.

7 Q That's for each plant?

8 A No, they vary in size but, I'd say up to that.  
9 The smallest one would probably serve a development of a  
10 hundred homes.

11 Q Do you know where these plants discharge  
12 their effluent?

13 A Yes, they each discharge their effluent into ~~small~~  
14 relatively small streams.

15 Q Why "relatively small streams"? Could  
16 you be anymore precise as to the flow of these small  
17 streams?

18 A No, I really couldn't. I think we have some  
19 information perhaps in our files on some of them. All of  
20 these plants were constructed prior to the time of my  
21 engagement by the Municipality Utilities Authority. Our  
22 work has been primarily to provide assistance to the  
23 sewerage treatment plant operator, to design facilities  
24 for upgrading treatment on one of the plants, to review  
25 plans prepared by another engineer for upgrading treatment

1 and increasing the capacity of another plant and that's  
2 about it with respect to the sewerage treatment plants.

3 Q In terms of the work that you have done on  
4 these plans with regard to these sewerage treatment plants,  
5 has any of that work involved nitrate treatment or  
6 removal?

7 A Yes, in the plans that we reviewed for the High-  
8 view Sewerage Treatment Plant, that expansion -- the  
9 expansion of that plant, include nitrification-- a  
10 nitrification process but, not nitrate removal.

11 Q What was the purpose of the nitrification  
12 process?

13 A To essentially transform the ammonias and nitrate  
14 compound, to nitrate compound.

15 Q Do you know what the impact of -- is, of the  
16 effluent discharge from these four small waste water  
17 treatment plants into the receiving water courses?

18 A Could you be more specific as to what you mean by  
19 "impact?"

20 Q As far as the quality of the receiving water  
21 courses.

22 A Well, you know, I can't quote you any kind of  
23 figures, if that's what you're looking for, no, I can't.

24 Q Are you aware of any present violation of  
25 water quality standards, as established by the New Jersey

1 Department of Environmental Protection, from the discharges  
2 of these four sewerage treatment plants?

3 A Well, with respect to two of the plants, yes and  
4 that's why the plants were upgraded, because they were  
5 not meeting the water quality standards.

6 Q Which water quality standards were being  
7 violated at the two plants?

8 A Well, the FW2 -- I'm not sure if it was the FW2  
9 standards or just the approval for which the plants had  
10 originally been given. In other words, I don't know if  
11 they were in violation of FW2 standards or if they were  
12 not meeting the standards for which the plants were  
13 designed.

14 As I say, I came into this -- the plants were  
15 already there and it became necessary to provide for  
16 better filtration at one of the plants because the sand  
17 filters were not adequate, that were in use and another  
18 plant became necessary to provide for phosphate removal  
19 and the filtration because of a study that the State did  
20 at that particular treatment, which showed both nitratfi-  
21 cation and phosphate removal was necessary.

22 Q And do you know the cost of these upgrading--  
23 upgrading of these sewerage treatment plants?

24 A No, I'd have to go to the files. I don't know  
25 what the cost was.

1 MR. ONSDORFF: Why don't we take lunch  
2 break now. Off the record.

3 (Whereupon a luncheon recess was taken.)

4 MR. ONSDORFF: On the record.

5 Q I'd like to ask you, Mr. Fox, the basis  
6 for your opinion for the major portion that Harding  
7 Township is in and on the fringes of glacial Lake Passaic?

8 A Well, I'm familiar enough with the geology of the  
9 area, to have knowledge of the fact that the entire Great  
10 Swamp area and the fringe area of the Great Swamp was

11 once occupied by the glacial lake, referred to as Lake  
12 Passaic.

13 Q Can you specify those areas of Harding  
14 Township, which are not or on the fringe of glacial Lake  
15 Passaic?

16 A Well, certainly the area of the west of Route 202,  
17 perhaps with a minor exception, would not be in glacial  
18 Lake Passaic. There are also substantial areas east of  
19 Route 202, which are not in Lake Passaic.

20 However, I would have to really have a geologic  
21 map to refer to, to delineate that area on the map but,  
22 it is primarily the lower elevations that are in or on the  
23 fringe of the old glacial Lake.

24 Q Do you know the cutoff elevation, what it  
25 would be, if there is one, as far as determining the

1 portions of the Township found within glacial Lake Passaic?

2 MR. SCHMAUDER: Are you asking him the

3 depth of the lake as it existed?

4 MR. ONSDORFF: I believe his answer was the  
5 lower elevations in the Town are found within glacial  
6 Lake Passaic and my question was, whether or not  
7 he knew what the elevation was at which below that  
8 is found the lake geologic formation as opposed to  
9 those higher areas which is outside the geologic  
10 formation.

11 A No, I don't know the elevation which you are  
12 referring to.

13 Q I believe we referred to this map, CAH-3.  
14 Would this map show the geologic formations that we've  
15 been discussing?

16 A No, it would not.

17 Q Those areas which are outside of the glacial  
18 Lake Passaic in Harding Township, do you know what  
19 geologic formation they are classified as being a part of?

20 well, I don't recall the details but, we do have  
21 Brunswick Shale formation and a -- in a portion of the  
22 Township.

23 Q Are there differences between the Brunswick  
24 Shale formation and the glacial Lake Passaic, in terms of  
25 suitability for residential housing developments?

1 A Oh, yes.

2 Q What would be those differences?

3 A Well, first of all, with respect to elevation,  
4 the glacial lake soils are generally found in lower  
5 elevations, much lower elevations than the Brunswick  
6 Shale formation area.

7 The soil in the glacial lake area which can  
8 generally be referred to as the Parsippany Silt Loam,  
9 have a lower permeability and exhibit a high water table  
10 and generally is not suitable for residential development,  
11 particularly development with septic systems for sewerage  
12 disposal.

13 The Brunswick Shale soils, we have found to be  
14 very, very variable. They are generally very shallow,  
15 to bedrock. Permeability of these soils varies considerably  
16 from one location to another and we occasionally have a  
17 high seasonal water table in those areas.

18 Q When you say "high seasonal water table,"  
19 can you be anymore precise about the depth to water table?

20 A I would say generally, when I speak of a high  
21 seasonal water table, I am referring to a water table  
22 having a depth -- oh, within two to three feet of the  
23 surface of the ground, during the wet seasons of the year,  
24 generally, late winter, early spring.

25 Q Now, does a water table within two to three

1 feet of the surface in the wet periods of the year,  
2 constitute an impediment to residential development?

3 A What do you mean by "impediment?"

4 HEDM Well, does it make it anymore expensive or  
5 difficult or does it make certain types of foundation  
6 impracticable in that type of ground?

7 A It makes more development more difficult, yes and  
8 more expensive.

9 Q Is residential construction with a slab  
10 base, one way of developing on lands with high water table,  
11 that mitigates or eliminates the problem with the ground  
12 water situation at such a close depth of -- to the surface?

13 A Well, it does make a greater problem for providing  
14 drainage for a basement. A deep foundation, you still  
15 have a problem of ground water to contend with in the  
16 development of the storm sewers, the roads, the sanitary  
17 sewers; if you're using sanitary sewers, excavations  
18 compacting fill.

19 When you hit the wet areas, it's a problem, not just  
20 with the buildings. In fact, it's more of a problem with--  
21 generally with the -- it's usually more of a problem with  
22 the general site development than just the structures.

23 Q Do you know how many septic systems have  
24 been installed in Harding Township since 1960?

25 A No, I don't.

1 Q Would you know how many septic systems have been  
2 installed since 1970?

3 A No, I don't.

4 Q Would these type of records be available  
5 in any governmental office, that you're aware of?

6 A I believe the Health Department would have those  
7 records.

8 Q Now, at what depth of, is bedrock normally  
9 encountered in the Brunswick Shale formation, in Harding  
10 Township?

11 MR. SCHMAUDER: What do you mean by "normally?"

12 Q Well, is there a norm or is there any --

13 A Well, I understand it to be quite variable. I  
14 believe you can find it as close as to the surface as  
15 three feet or it may be ten or twelve feet.

16 Q Is there any particular depth of to bedrock,  
17 at which the fact that it is found at this depth, cause  
18 an impediment to residential development?

19 A Well, obviously the closer to the surface the  
20 rock is found, the more difficult and more expensive it  
21 is to develop.

22 Q Does the construction technique of building  
23 houses or apartments on slab construction, mitigate or  
24 eliminate problem which bedrock, being as close to three  
25 foot to the surface encounter?



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1 A Well, it would reduce the cost and difficulties  
 2 of constructing foundations but, it would still create  
 3 significant difficulties and expense in general site  
 4 development; that is, the construction of roads, storm  
 5 sewers, sanitary sewers and so forth, as well as general  
 6 site grading.

7 It's usually necessary to grade to depths of  
 8 greater than three feet, if you're developing a residential  
 9 area to any -- or relative degree of density and this  
 10 would definitely be an impediment to that.

11 Q Can you identify specific drinking wells in  
 12 Harding, which have become polluted?

13 A Well, yes, I believe I can. I don't know -- I  
 14 couldn't give you all of them but, I could definitely  
 15 give you some of them.

16 Q These more significant ones that you're  
 17 familiar with --

18 MR. SCHMAUDER: What do you mean by "more  
 19 significant?" Pollution is pollution, isn't it?

20 MR. ONSDORFF: I'm trying to find out -- the  
 21 witness indicated that he was familiar with some.

22 Q Is there any basis why you're familiar with  
 23 some and not others?

24 A I'm familiar with those in the center of New  
 25 Vernon and my reason for being familiar with them is just

1 general knowledge of being municipal engineer for the  
2 municipality, that they have had a number of polluted wells  
3 in the center of New Vernon.

4 Q Do you know what the nature of the pollution  
5 of these wells is?

6 A Bacterial pollution from -- it appears to be from  
7 sewerage systems.

8 Q Do you know the manner in which the bacteria  
9 of pollution was identified as being found within these  
10 drinking wells in the center of New Vernon?

11 A I believe the sanitary inspector took samples of  
12 the water and identified the pollution as -- I'm not sure  
13 if they did fecal chloroform but, I do know from the  
14 investigation, that the Board of Health by sampling the  
15 wells, they found that it was definitely unsafe to drink  
16 and the water from those wells must be treated. It cannot  
17 be consumed.

18 Q A statement appears on Page 1 of the letter  
19 and I quote, "It is assumed that septic streams are  
20 emptying effluent into that bedrock and the effluent is  
21 traveling along seams and cracks, draining into wells.  
22 Further concentration of development will increase the  
23 likelihood of furthering such problems in the absence of  
24 municipal sewerage treatment plant facilities."

25 Is that a reflection of your assumption?

1 A Yes, we have never been able to find the source  
2 of the pollution. We don't know whose septic system  
3 it is coming from or just where the septic system is.  
4 However, we feel it is quite certain that it is coming  
5 from a septic system or septic systems.

6 There are probably -- oh, I'm going to guess, about  
7 eight wells in very close proximity to each other, that  
8 are polluted.

9 Q And in what manner was the source of this  
10 pollution endeavor to be tracked down?

11 A I really don't know. It's a Health Department  
12 function and I have not been closely involved in that  
13 problem. I've had conversations with the sanitary  
14 inspector, Mrs. Gerharty. I do know that it is considered  
15 to be a serious problem in the municipality.

16 There have been other pollution problems attributed  
17 to malfunctioning septic systems, in which the causes have  
18 been identified and corrected but, in this particular  
19 area that I've been referring to, the source of the  
20 problem has never been determined.

21 Q You mentioned other instances of septic  
22 pollution in which the causes have been identified. Do  
23 you know what, specifically, what these malfunctioning  
24 septic systems, where they were, that have since been  
25 corrected?

1 A One was on, I believe, it was at the corner of  
2 Featherbed Lane and Village Road. I don't know exactly  
3 how the problem was corrected but, I do understand the  
4 well is no longer polluted, that once was polluted.

5 Q Do you know where the well was, in comparison  
6 to the malfunctioning septic on Featherbed and Village  
7 Road?

8 A No, I don't.

9 Q Now, in the case of the eight polluted wells  
10 in the center of New Vernon, I believe you testified that  
11 the water required treatment prior to being used from  
12 those wells. Do you know the nature of that treatment  
13 that was required?

14 A I believe most of them are using an ultraviolet  
15 type of treatment and are still -- it's still being used  
16 today. The problem has never been solved, really.

17 Q These are individual treatment units that  
18 are placed within the well, in some fashion or the homes  
19 or --

20 In the basement of the home.

21 Q Do you know what the cost of that is, that  
22 treatment?

23 A No, I do not.

24 Q Finally, on Page 1 of the February 8th letter,  
25 a statement appears and I quote, "Further concentration

1 of development will increase the likelihood of furthering  
2 such problems in the absence of municipal sewerage  
3 treatment plant facilities."

4 In the context of that statement, what is meant by  
5 "further concentration of development?"

6 A Well, that's one area of Harding Township in which  
7 there is a concentration of homes -- homes on relatively  
8 small lots and that is the area where we have our serious  
9 well pollution problem.

10 So, my thinking is, that further development under  
11 similar geologic conditions, would pose a threat that  
12 could cause a problem similar to the one which we have  
13 there.

14 Q Do you know what the geologic formation is,  
15 underlying the New Vernon center area?

16 A Yes, that is the Brunswick Shale, for the most  
17 part, I believe, there.

18 Q And the current lot size in this New Vernon  
19 center, do you know what the lots are that these homes  
20 are situated on?

21 A I'm going to estimate, they're about a third of  
22 an acre or a half of an acre, somewhere in that neighbor-  
23 hood.

24 Q Have you done any studies or analyses of  
25 what the impact would be to the ground water, as far as

1 contamination from septic systems, if Harding Township were  
2 to be fully developed at maximum density permitted under  
3 the current zoning ordinance?

4 A No, I have not done an analysis.

5 Q Do you know if anyone else has done such an  
6 analysis of maximum development under the current zoning  
7 ordinance in Harding Township, what the impact would be  
8 on the ground water -- quality of the ground waters in  
9 Harding Township?

10 A I'm not familiar with any others. There may have  
11 been.

12 Q Have you or has anyone else, to your knowledge,  
13 done any studies of what the impact would be on these  
14 ground waters, were Harding Township to be developed at  
15 densities greater than those allowed under the current  
16 zoning ordinance?

17 A I have -- I have not done any studies and I don't  
18 know if anyone else has.

19 Q How have you gained personal knowledge of  
20 the percolation rates throughout areas of Harding Township,  
21 Mt. Fox?

22 A I serve as a consultant to the Board of Health  
23 and the sanitary inspector frequently consults with me  
24 regarding applications for septic systems and those  
25 applications include percolation and soil test data.

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1 I have also done a very limited number of tests  
2 myself, in Harding Township.

3 Q Where have you personally performed such  
4 percolation tests in Harding Township?

5 A At the site of the new municipal building. Some  
6 other isolated areas, many years ago before I was engineer  
7 for the Township and I don't really recall the details  
8 of those or where they were.

9 Q When did you perform this percolation test  
10 of the new municipal building, do you recall?

11 A I would estimate about three years ago, maybe  
12 three years ago.

13 Q Do you recall what the results of that  
14 analyses were?

15 A Well, not to any great detail. I could just tell  
16 you that we did hit shale in many areas at very shallow  
17 depths and we had to be very selective as to the area  
18 that we chose for the location of the septic system,  
19 as a large part of the area was not suitable for that use.

20 Now, are these percolation tests records,  
21 maintained at the Board of Health?

22 A Yes, they would be.

23 Q Can you describe, with a bit more specificity,  
24 the checkboard pattern of percolation rates found in  
25 Harding Township?

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1 A Well, I think I would have to relate that to the  
2 many applications for septic system permits that the  
3 Board of Health has received over the years, that I've  
4 served as a consultant to the Board and what we found is  
5 widely varying conditions throughout the Township, even on  
6 one single piece of property so that, it's very difficult  
7 to establish a pattern as to where you would expect to  
8 find good subsurface conditions for septic systems, as  
9 opposed to poor subsurface conditions.

10 Generally, it's -- I would say, the soil map and--  
11 the soil map will relatively accurately predict locations  
12 that are not very suitable for septic systems. What  
13 we've found is areas where -- perhaps by examination of  
14 the soil map, we would conclude that the land was suitable  
15 for septic systems, when we actually observed or examined  
16 the test results and investigation on that particular  
17 area, we find the results to be very variable.

18 Q Can you recall any occasion where the soils  
19 survey data indicated poor suitability for septic disposal  
20 as a result of on-site soil borings or other tests,  
21 the reverse was found, that actually at least in portions  
22 of a particular site, there were good soils for a  
23 disposal field?

24 A No, you know, there have been so many over the  
25 years, I can't remember them all but, there may have been



1 some but, I don't recall but, there have most likely been  
2 some areas that the soil mass has shown to be not suitable  
3 where we've been able to find some suitable soil on a  
4 tract of land but, not very often.

5 Q Do you recall what the soils survey data  
6 reflected, concerning the site for the new municipal  
7 building, as for suitability for septic sewerage disposal?

8 A I don't recall but, if it were the -- I'm just  
9 going to leave it at that. I don't recall what the soils  
10 survey showed there.

11 Q In any event, you did the specific soils  
12 boring and perc tests?

13 A Yes, we did.

14 Q Is that what is required in all instances  
15 when you're actually examining a site for a development  
16 proposal, to get reliable information as to actually  
17 what the site conditions -- to take soil borings and perc  
18 tests?

19 A Yes, yes, that's true.

20 Q Now, a statement appears on Page 2, first  
21 paragraph, and I quote, "Based upon gross geological and  
22 topographical indocies, one might expect certain areas  
23 to be suitable for development."

24 Can you specify the geological and topographical  
25 indocies that statement refers to?

1 A Well, first with respect to the topographical areas  
2 that are shown to have moderate slopes, we would expect  
3 to be suitable for development from the standpoint of  
4 topography and that would probably be true but, with  
5 respect to the geological indocies, yes, from the statements  
6 that I've just been making to you concerning the variability  
7 of the soil, I would say that we could not make any --  
8 well, draw any general conclusions on the basis of what  
9 we find from reviewing the soil maps, for example or the  
10 geologic map.

11 I would expect with respect to the municipal build-  
12 ing, it -- I would expect that the soil map would show  
13 that that soil has few limitations with respect to  
14 development and disposal systems. However, we found on  
15 the site there, that such was not at all the case and  
16 that very serious -- well, I shouldn't use the term  
17 "serious," but, conditions that were not a -- as shown on  
18 the soils survey, definitely be -- were definitely found,  
19 with respect to not only the septic system but, with  
20 respect to the excavations for the foundation of the  
21 structure, for the basement and so forth.

22 Q Have you examined the master plan for  
23 Harding Township, say as part of your preparation of your  
24 material for this case?

25 A Not specifically, no. I mean, I am generally

1 familiar with the master plan of Harding Township. I have  
2 a general knowledge of it but, I did not make a general  
3 examination of -- I did not make an examination of it for  
4 this case.

5 Q I'd like to show you a copy of the master  
6 plan from Harding Township, which was marked on a previous  
7 deposition as TTH-4, for identification and specifically  
8 direct your attention to a map found after one other map  
9 following Page 16, which has a legend, "Generalized  
10 Development Capability," the title, rather and designations  
11 of good, fair and poor and ask if, your work with Harding  
12 Township, since 1972, you at any time have utilized that  
13 map or are familiar with the material as reflected on it?

14 A I have not used the map, nor am I familiar with the  
15 material on it. I have not had any reason to use that map,  
16 per se.

17 Q Okay and I'd also like to direct your  
18 attention to a document entitled, "The Natural Resource  
19 Inventory Report," prepared by the Harding Township  
20 Environmental Commission and dated November, 1976, marked  
21 at previous deposition as TTH-5 and ask if you reviewed  
22 the material found in this report as part of the work you  
23 prepared for this present litigation?

24 A No, I did not.

25 Q Have you, at any time in the course of your

1 professional services rendered on behalf of Harding  
2 Township, utilized the material found within the Natural  
3 Resource Inventory Report of November of 1976?

4 A Well, I'm sure I've used material found in here,  
5 as this report, I believe, is more or less a compilation  
6 of materials from other sources. I have not used it  
7 directly out of this report but, have used the material  
8 from the other sources.

9 Q As one of the enclosures, with the Natural  
10 Resource Inventory Report, there is a map which is numbered  
11 four and entitled "Critical Environmental Areas of  
12 Harding Township."

13 At any time, have you utilized that map in your  
14 work on behalf of Harding Township?

15 MR. SCHMAUDER: Can we have that question  
16 read back, please?

17 (Whereupon, the following was read back:

18 "As one of the enclosures, with the Natural  
19 Resource Inventory Report, there is a map which is  
20 numbered four and entitled "Critical Environmental  
21 Areas of Harding Township."

22 "At any time, have you utilized that map in  
23 your work on behalf of Harding Township?")

24 A Again, I don't recall specifically using this map.  
25 I have used the source information from which this map

1 was developed on a number of occasions but, the actual use  
2 of this map, although I have seen it before, I do not  
3 believe that I have used it specifically for any of my  
4 work there.

5 Q Would you have an opinion as to whether the  
6 utilization of this map would be -- would be an acceptable  
7 tool for guidance in determining those open areas of  
8 Harding Township, that would be suitable for residential  
9 development in the context of our prior discussion, about  
10 doing actual on-site soil borings and other specific site  
11 examinations?

12 A Well, without really studying, you know, the detail  
13 of that map, I don't think I could make a-- I could make  
14 a valid -- a comment on your question.

15 Q Now, in the context of the second sentence,  
16 in the second paragraph at Page 2 of Mr. Schmauder's  
17 February 8, 1980 letter, can you define the terms, "flood-  
18 way and floodplains?"

19 A Well, the floodway is a -- I'm sure I won't define  
20 it strictly as in accordance with the environmental --  
21 Department of Environmental Protection definition but,  
22 it is basically adjacent to a stream which when flooding  
23 conditions arise, the waters are traveling through that  
24 area at a relatively high velocity. The floodplain would  
25 include that area of the floodway as well as adjacent

1 areas that are flooded and during the periods of major  
2 storms.

3 Q Do you set an outer limit or boundary on  
4 the frequency of major storms in your definition of flood-  
5 way or floodplain?

6 A I believe the Department of Environmental  
7 Protection does associate these with a frequency and I'm  
8 not sure of what that frequency is in Harding Township.  
9 We are generally concerned with the floodplain as it covers  
10 the entire area that would be flooded during major storms  
11 and we generally identify that area as being an area  
12 which has flooded in the past.

13 In other words, if we had a storm which we had  
14 in 1971, another in 1973 and I don't recall when the  
15 others were, any areas that we find that have flooded  
16 with these major storms, we consider to be in the flood  
17 plan so, it is on an historic basis, rather than one of  
18 probability.

19 Q Are both the floodways and floodplains,  
20 which are found in Harding Township, delineated on the  
21 map, MAH-3 for identification?

22 MR. SCHMAUDER: You mean specifically  
23 identified one from the other?

24 MR. ONSDORFF: No, as being shown on this  
25 map as being within those areas designated as

1 flood hazard areas.

2 MR. SCHMAUDER: I still don't understand  
3 what you mean. We still -- we can all see what  
4 that map designates. Perhaps as using what it  
5 designates, you can point on the -- you can point  
6 to it so that I can understand it or attempt to.

7 MR. ONSDORFF: I'll endeavor to clarify that.

8 Q The areas delineated within the flood hazard  
9 areas, as depicted on this map, do they include those  
10 areas which you have identified, as being both the floodways  
11 and floodplains?

12 A Yes, it includes both of those areas.

13 Q Do you consider there to be any distinction  
14 in development potential between those lands found within  
15 floodways and those lands situated within floodplains?

16 A Yes, development could occur in an area designated  
17 as a floodplain, provided it is not within the floodway  
18 and provided that it is in compliance with regulations  
19 of the Department of Environmental Protection.

20 Q Now, in addition to the floodways and  
21 floodplains, the second paragraph on Page 2 of this letter  
22 discusses additional limitations to on-site septic  
23 disposal, including steep slopes and subsurface conditions.  
24 Is that correct?

25 A I'm sorry, could you ask the question again?

1 Q All right. The floodways and floodplains  
2 are indicated as two areas which are not suitable for on-  
3 site disposal.

4 A That is correct.

5 Q In addition, I believe this paragraph also  
6 addresses other land characteristics which are also viewed  
7 as being unsuitable for steep slopes. Excuse me, for  
8 on-site disposal of septic sanitary waste. Is that  
9 correct?

10 A Steep slopes and subsurface conditions? Subsurface  
11 conditions being soil permeability and ground water and  
12 so forth?

13 Q In what manner do steep slopes constitute  
14 impediments of disposal of sewerage waste?

15 A Well, steep slopes, first of all, cause construction  
16 of on-site disposal systems to be very expensive. Number  
17 two, there is an increase in risk of the effluent flowing  
18 through the soil and breaking out to the surface of the  
19 slope.

20 Steep slopes are generally, also, associated with  
21 shallow depth to bedrock, although not always so that  
22 frequently, it is a factor where steep slopes are involved.  
23 Considerable amount of excavation and filling is generally  
24 required, where one attempts to put a septic system on a  
25 steep slope.



1 Q Have you identified, specifically, those  
2 areas of Harding Township, which are situated on steep  
3 slopes that would present a difficulty or potential problem  
4 in utilization of an on-site sewerage disposal systems?

5 A In a general way or are you asking for specifically--  
6 specific areas?

7 Q Well, are you aware of any maps which  
8 specifically identify those areas that are unsuitable for  
9 septic systems, due to their sloping, their excessive  
10 slope topography?

11 A Well, if you're asking if I'm aware of any maps  
12 that are -- I believe the Environmental Commission does  
13 have a map that maps steep slopes. I'm not certain of  
14 that but, just my general knowledge of the community, I'm  
15 aware of where the general steeper sloping topography is  
16 located.

17 Q Generally speaking, where would that be?

18 A It would be to the west of Route 202. Of course,  
19 there's quite a wide range between what one might call  
20 steep slopes that are extremely steep slopes and slopes  
21 of perhaps moderate steep amounts and the steeper the  
22 slope, the more difficult it is to construct a system.

23 Q Of what degree of slope or percentage of  
24 slope, do you believe topography becomes a problem for  
25 on-site septic disposal?

1 A I would say the problem begins at perhaps around  
2 the 10 percent slope, becomes quite severe at a 15 percent  
3 slope and beyond that, becomes very severe as you go  
4 upwards of 15 percent toward 20 percent.

5 Q Do you know of any residential developments,  
6 in Harding Township, which have been constructed on slopes  
7 in excess of 10 percent, which utilize on-site septic  
8 disposal?

9 A Well, of course the question, the way you put the  
10 question, "Do you know of any developments that are being  
11 constructed on slopes," it's really the slope in the  
12 immediate area where the septic system that's the important  
13 thing. You know, you could have a road going up a --  
14 there too, you have limitations with slopes but, you could  
15 have a development in which your average slope might be  
16 greater than 10 percent but, you may find areas within  
17 it where you have less than 10 percent slopes to locate  
18 your septic system but, certainly, the older lake, on  
19 Mount Kembel Lake, has slopes that are greater than 10  
20 percent and of course, with it lies the problem which one  
21 might expect and the performance of septic systems in that  
22 area have, in a number of cases, demonstrated the  
23 particular problem -- the results of these particular  
24 problems.

25 Q Can you be a little bit more specific as to

1 what problems have been encountered with septic systems  
2 in the Mount Kembel area?

3 A Basically, a malfunctioning of systems servicing  
4 the effluent surface of the ground. That's been the most  
5 common problem.

6 Q Do you know what actions Harding Township  
7 has taken in response to septic effluent surfacing on the  
8 ground service in the Mount Kembel Lake area?

9 A We have required individuals to make modifications  
10 to their system, to eliminate or minimize the problem.

11 Q What type of modifications have been directed  
12 to correct this problem?

13 A Well, constructing new disposal trenches or disposal  
14 bed. Generally, not a bed where the land is steeply  
15 sloping but, that has been generally the type of solution  
16 to the problem where it has occurred.

17 Q And have those modifications met with success?

18 A I would say generally speaking, they have, yes.

19 I think the -- the problem has been compounded, again, by  
20 ~~the fact that~~ <sup>CUT TO</sup> the lots are very small around the lake and  
21 ~~you don't~~ have much room to work with.

22 Well, for example, I just had an application for a  
23 fellow that wanted to put in an addition on his home and  
24 we found it necessary to deny him the permit because it  
25 was just inadequate space, coupled with the general

1 an understanding of what the Board would approve and what  
2 they would not approve and therefore, they submit applica-  
3 tions which they feel the Board would approve. If they  
4 see something, you know, that they don't think they would  
5 approve or wouldn't want to put their own name on it, they  
6 won't hide it. They won't even submit it. So, those  
7 that are submitted, are the ones that the designing  
8 engineer feels he can stand behind as far as design goes  
9 and that would generally fall within the guidelines which  
10 he has observed the Board to follow.

11 Q Now, in the third paragraph on Page 2 of  
12 Mr. Schmauder's letter of February 8, 1980, the first  
13 sentence reads as follows: "Concentrated development in  
14 the absence of municipal sewerage plant facilities would  
15 require an undesirable alternative, small treatment plants  
16 for specific development."

17 In the context of that statement, how do you define  
18 the term "small treatment plants for specific development?"

19 A Well, I'm thinking in terms of a treatment plant  
20 that would perhaps serve up to, oh, 300 homes or so, a  
21 plant that would warrant, because of its small size, a  
22 part-time operator and a plant that, because of its size  
23 and the economics of constructing a small plant -- well,  
24 scratch that.

25 Let's just leave it as to what I said prior to that

1 point.

2 Q Are these small treatment plants, which you  
3 have just described, commonly referred to in the field as  
4 package treatment plants?

5 A Some people refer to them as package treatment plants  
6 but, it's not necessary that they be a package plant. They  
7 could be constructed on-site.

8 Package plants are commonly used for smaller  
9 installations.

10 Q Now --

11 A Package being prefabricated, primarily.

12 Q Now, in that same sentence, the term "concentrated  
13 development" what did you have in mind in the context  
14 of that phrase?

15 A Where is that located?

16 Q The first two words of that sentence.

17 A What paragraph are we in?

18 Q Paragraph 3.

19 A Concentrated development, well, I'm referring to --  
20 well, first of all, this letter was written by Mr. Schmauder,  
21 not by me. He was interpreting what I told him in our  
22 discussions. I believe he interprets me, what I meant,  
23 was that development at a density that would not permit  
24 septic systems to be used properly, where you would --  
25 the only alternative would be to go to a treatment plant.

1 Q What density would it be at not being able  
2 to have a septic system function properly?

3 A Well, I firmly believe that in the conditions which  
4 Harding Township has here, that it's current zoning is  
5 very appropriate, considering the density for which that  
6 zoning provides for. It is most appropriate for the  
7 conditions which are found widely throughout the Township  
8 and I can only tell you that in areas of Harding where  
9 and we discussed them already, some of the problems  
10 associated with smaller lots, we've talked about the  
11 problem with, well, pollution.

12 We, also, have another area right nearby there on  
13 Millbrook Road, where I'm not familiar with any well  
14 pollution problems but, I do know that there are septic  
15 systems malfunctioning and because of the restriction  
16 in the area, as a result of the small lot sizes, there  
17 isn't a heck of a lot that can be done with it.

18 That area, as opposed to Mount Kembel Lake, where  
19 the soil conditions are a little better and even with the  
20 small lot size there, frequently, the systems can be  
21 modified to function properly because of the better soil  
22 condition on some of those lots.

23 Q Do you know the cost, what that would be,  
24 to operate for a year a small treatment plant, say, to  
25 serve a development of 300 homes?

1 A Are you asking me what it would cost to operate it  
2 properly?

3 Q Yes. In compliance with applicable  
4 governmental regulations for the operation of a sewerage  
5 facility.

6 A No, I do not know what it would cost to operate.  
7 There are so many factors involved, as to the degree of  
8 treatment -- as the degree of treatment becomes higher,  
9 the cost of treatment increases considerably. Once you get  
10 into phosphate removal and any restrictions and rapid sand  
11 filtration, the cost goes up considerably and I really  
12 don't have those figures at my fingertips, to reply to you  
13 on that.

14 Q Can you provide us with any examples, where,  
15 due to costs at small treatment plant operations, super-  
16 vision was reduced?

17 A I could but, I would not want to jeopardize any of  
18 my clients in so doing.

19 Q In what fashion would that jeopardize your  
20 clients?

21 A Repeat the question to me.

22 (Whereupon, the following was read back:

23 "Can you provide us with any examples, where,  
24 due to costs at small treatment plant operations,  
25 supervision was reduced?")

1 conditions of the soil and slope and so forth on his lot,  
2 to give him that permit.

3 Q Now, in the second paragraph on Page 2, a  
4 statement appears, "That perhaps from one third to one half  
5 of all applications for on-site sewerage disposal, have  
6 been unable to provide designs which comply with the State  
7 of New Jersey design criteria."

8 Over what period of time has this record of one  
9 third to one half failure to comply with designs, been  
10 recorded?

11 A I would estimate it to be as long as I have served  
12 as municipal engineer for the Township, although I'm not  
13 sure that the records are, or good records go back quite  
14 that far.

15 I believe Mrs. Gerharty has -- the sanitary  
16 inspector, has been there since 1974, '75, somewhere in  
17 there and I think her records will show that approximately  
18 this many systems that I've indicated in my report, have  
19 required special approval.

20 When you say they "required special approval,"  
21 what exactly does that mean?

22 A That means that the application must be approved  
23 by the Board of Health, by Board action, as the sanitary  
24 inspector does not have the authority to approve an  
25 application or issue a permit where it is not in



1 conformance with the State code.

2 Q Do you know the standard in the State code,  
3 as to the approval for the sanitary and what precisely  
4 is the finding that she has to make in this case?

5 A Well, I can't quote you chapter and verse out of the  
6 code but, basically, if it doesn't comply with the code,  
7 he doesn't have the right to approve. In fact, I believe  
8 under the new revision or amendment to the code, that any  
9 significant variations from the code now have to be  
10 approved by the Department of Environmental Protection.  
11 Certain areas. I'm not sure. I would have to check and  
12 see just what they are.

13 Q Well, in the instance where the code compli-  
14 ance has not been established and the applications before  
15 the Board of Health, what is the evaluation that they have  
16 to make, that the Board has to make, in order to approve  
17 the construction of this type of a septic system?

18 A Well, I'll answer that by telling you that the  
19 procedure that is followed, if a system does -- a system  
20 ~~which~~ or soil conditions, do not conform with the minimum  
21 ~~requirements~~ under the State code, or Township code, as it  
22 may have -- as the State code may have been amended by --  
23 the application, the plans, the design, all the soil data,  
24 is sent to me for review.

25 I review this and consult with the sanitary

1 inspector; frequently consult with the design engineer,  
2 after which I may suggest some changes to the design and  
3 then I make my recommendations to the Board of Health.  
4 Depending on the situation, I might write a report. I  
5 also, attend Board of Health meetings, to discuss these  
6 with the Board and depending upon my recommendations and  
7 on the discussions that occur at the Board meeting, the  
8 Board then makes its decision.

9 It's almost essentially like having a little hearing  
10 for these. Usually the applicant's engineers are there  
11 and the entire thing is discussed. The Board then makes  
12 a decision on the basis of whether the evidence that is  
13 presented, causes the Board to believe that the system  
14 can be installed and function properly without a threat  
15 to public health or pollution of the water resources.

16 Q So, whereas your report reflects, from one  
17 third to one half of the applications as being unable to  
18 provide designs which comply with the State of New Jersey  
19 design criteria, that in itself is only preliminary finding  
20 and these systems may ultimately be approved by the Board  
21 of Health and may have been constructed. Is that correct?

22 MR. SCHMAUDER: Which systems are you referring  
23 to?

24 MR. ONSDORFF: The ones in the one third to  
25 one half category.

1 MR. SCHMAUDER: That's not what he said.

2 You should listen to his testimony.

3 MR. ONSDORFF: That's why I asked, Mr.

4 Schmauder. I don't think you should instruct me on  
5 how to behave in a deposition.

6 MR. SCHMAUDER: I'm not -- I'm not attacking  
7 your behavior. You shouldn't misquote. He isn't  
8 here to be tested on his memory.

9 A If I remember, after examining all of the land and  
10 soil data, the sanitary inspector finds if that either is  
11 in conformance with the State regulations. Then, she  
12 approves the system. If it is not in conformance, she  
13 sends it to me. There may have been a rare occasion where  
14 I have said, Joan, you're incorrect. This is in compliance  
15 with the regulation. Frankly, I can't think of one because  
16 she's really one of the most competent sanitary inspectors  
17 that I've worked with.

18 In every situation that she determines that it is  
19 not in compliance with State regulations, I have found that  
20 to be the case. I think I can say that with certainty and  
21 that, really, what the Board of Health is doing is approving  
22 things that are -- or disapproving them, that are not in  
23 conformance with the State regulations. They are more or  
24 less approved as exceptions to the regulations but, the  
25 Board, after hearing all the evidence, has concluded that

1 under the unique circumstances on this particular property,  
2 in giving -- after having considered all the facts, the  
3 space available for expansion of the system, in the event  
4 that it malfunctions and all the other factors, then  
5 renders a decision of approval or whatever and the system  
6 is built.

7 Q Would you know how many, out of this one third  
8 to one half, which were initially determined not to comply  
9 with the designs required by the State of New Jersey design  
10 criteria, have ultimately been disapproved for construction  
11 by the Board of Health in Harding Township?

12 A Disapproved by us, you mean?

13 MR. SCHMAUDER: That is correct.

14 A Disapproved?

15 Q Yes.

16 MR. SCHMAUDER: Before you answer that question,  
17 I would ask if Mr. Onsdorff, if he can clarify what  
18 he means. Do you mean "ultimately disapproved," in  
19 the same form as originally submitted or after its  
20 modified or what?

21 MR. ONSDORFF: In any situation.

22 A Okay, I would say most of them have been approved.  
23 I would say with few -- very few exceptions, they have been  
24 approved, generally with some modification.

25 The engineers practicing in the area, generally have

1 A Yes.

2 Q Now, in those situations where supervision  
3 was reduced, is this in violation of applicable govern-  
4 mental codes, governing the operation of these facilities?

5 MR. SCHMAUDER: Is what?

6 MR. ONSDORFF: The reduced supervision.

7 A The reduced supervision has not been in violation.

8 Q Could you then tell us what the sewerage  
9 treatment plants, where the supervision was reduced, how  
10 the operation had been affected?

11 A The results have been inadequate operation of the  
12 plants.

13 Q My question was, specifically, which plants  
14 are you referring to, that reduced that supervision?

15 MR. SCHMAUDER: I thought he already indi-  
16 cated that he didn't want to jeopardize --

17 THE WITNESS: I really don't want to. By  
18 answering this question, I could place a client  
19 of ours in jeopardy and I really don't want to do

20 that.

21 Q Could you elaborate on that? I'm not trying  
22 to --

23 A All right, I don't want to name a sewerage treatment  
24 plant or sewerage treatment plants that I feel are -- do  
25 not receive adequate operation. You know, you are

1 employed by the State of New Jersey and I really don't  
2 want to risk problems to a client of mine, as a result of  
3 a comment that I may make concerning this.

4 Q Well, is this -- your knowledge of these  
5 operations, while the reduced supervision may not violate  
6 applicable governmental regulations, what you're telling  
7 me is that the operation of the facilities resulted in  
8 violations?

9 A With reduced time spent in operating and maintaining  
10 the plant, performance of the plant goes down and this is  
11 common knowledge, as widely accepted throughout the State  
12 of New Jersey. Everyone knows the problems that have  
13 been associated with small treatment plants. They do not  
14 get the operation that they are -- that's required,  
15 simply because you cannot afford somebody to be there full  
16 time except in a situation where you have A T & T over  
17 here paying for it in Bedminster, or where the cost is not  
18 hardly a factor but, in serving a residential area, the  
19 cost is very much a factor and we have small plants over  
20 here where someone is there twenty -- I don't know if it's  
21 24 hours a day but, at least eight hours a day, operating  
22 that plant but, for the size of the plant, you would not  
23 normally expect to find someone there eight hours a day.

24 Q Now, the operation of the plant becomes in-  
25 adequate as to violate say, the Department of Environmental

1 Protection standards, the Department of Environmental  
2 Protection has certain regulatory powers that you're aware  
3 of, in regards to the operation of this plant?

4 ~~That~~ That is correct. You must keep in mind that the  
5 Department of Environmental Protection makes inspections  
6 of these plants, maybe once or twice a year and has little  
7 knowledge, frequently, of what goes on in between  
8 inspections.

9 Q And at any time, that, say, a local municipal  
10 official becomes aware of the inadequate treatment being  
11 provided by sewerage treatment plants within the municipal  
12 boundaries of this municipality, can he request, to your  
13 knowledge, a DEP --

14 MR. SCHMAUDER: You don't need to answer  
15 that question. The answer to the question is  
16 obvious. Anything is possible, of course.

17 Q Have you personally been aware of instances  
18 where municipal officials, that you've worked with, have  
19 requested DEP inspections of sewerage treatment plants?

20 No, I have not.

21 Q Do you know of any inadequacies in the  
22 design of small treatment plants, which cause them to provide  
23 inadequate levels of sewerage treatment?

24 MR. SCHMAUDER: Which sewerage treatment plants?

25 MR. ONSDORFF: This would be sewerage

1 plants, either package treatment plants or a one  
2 sized to service a private development somewhere  
3 in the vicinity of 300 homes.

4 MR. SCHMAUDER: Well, my question, Mr.  
5 Onsdorff, is generated by testimony already given  
6 by the witness. He's already told you that there  
7 are different levels of treatment and one level  
8 of treatment may be inadequate design for a given  
9 problem.

10 MR. ONSDORFF: Let me try to rephrase the  
11 question.

12 Q If the small sewerage treatment plants, which  
13 you are familiar with the operations, if they are managed  
14 and supervised and operated at appropriate levels of resource  
15 management, can they provide acceptable levels of sewerage  
16 treatment, say, in Harding Township?

17 MR. SCHMAUDER: What do you mean by "accept-  
18 able?"

19 MR. ONSDORFF: In compliance with effluent  
20 discharge limitations established by the applicable  
21 agencies of government, which regulate the discharge  
22 from sewerage treatment plants in the State of New  
23 Jersey.

24 A You asked me about plants that, I believe, plants  
25 that I had knowledge of and were familiar with and then in



1 Harding Township.

2 Q Based upon your knowledge, not just in  
3 Harding Township, based <sup>upon</sup> your experience with the sewerage  
4 treatment plants, generally, is there any reason why you  
5 know, based upon the design of these plants, that they  
6 could not be manned at sufficient levels of supervision  
7 to provide adequate treatment within compliance with  
8 applicable government standards to operate in Harding  
9 Township?

10 A Well, certainly they could be manned to operate  
11 in compliance with federal and state standards. Whether  
12 they could in Harding Township or not, I don't know, but,  
13 in general a plant can be designed and constructed and  
14 operated, to conform with whatever standard -- whatever  
15 reasonable standards are established for that plant.

16 Whether those standards would be established at  
17 locations in Harding Township or not, I don't know.

18 Q What further information would you need to  
19 evaluate the ability of these sewerage treatment plants,  
20 ~~to function~~ in compliance with applicable governmental  
21 ~~standards~~ in Harding Township?

22 A Well, you would primarily have to have information  
23 on the receiving of water, as to the flows which can be  
24 expected, particularly during dry seasons of the year,  
25 in the streams in which the stream -- stream or streams,

1 in which the plant would discharge its effluent.

2 Q In that third paragraph, Page 2, the sentence  
3 appears "Spray disposal tends to reduce some of those  
4 problems."

5 Specifically what problems does spray disposal  
6 tend to reduce, do you know?

7 A Well, one of the problems in treating effluent  
8 into the stream, is that it still contains phosphates  
9 and nitrates, possible nitrites, that cause problems,  
10 particularly in small streams. The problems that are  
11 caused, these compounds are essentially fertilizers  
12 and growths of aquatic vegetation.

13 One of the primary problems that has existed in  
14 many areas, has been the rapid growth, uncontrolled growth  
15 of algae.

16 By using spray irrigation, we could eliminate,  
17 to some extent, the problem of phosphates going into the  
18 receiving waters. The nitrate problem would be reduced  
19 but, certainly not eliminated.

20 Q Do you know of any sites, in Harding  
21 Township, where small sewerage treatment plants are  
22 designed to service developments up to 300 units, would  
23 be appropriate, utilizing spray disposal for the discharge  
24 of the treated effluent?

25 A No, I do not. I have not made any studies of that.

1 MR. ONSDORFF: Let's take a break.

2 (Whereupon a recess was taken.)

3 MR. ONSDORFF: Back on the record.

4 Q Are any portions of Harding Township,  
5 presently serviced by municipal sewerage treatment plants?

6 A Yes, the small area on the northern boundary of  
7 Harding, known as the Harding Green Townhouse project, is  
8 being served by the municipal sewer system from Morris  
9 Township, has been extended to that particular area.  
10 There are also, a couple of, maybe, two or three individuals  
11 themselves, that have tied into that line in the Sand  
12 Spring Road area.

13 Q Do you know the name of the sewerage  
14 treatment plant in Morris Township, which services this  
15 Harding Green Township?

16 A Yes, Woodland Avenue sewerage treatment plant.

17 Q Have any studies been performed, that you're  
18 aware of, on the feasibility of the expanding public  
19 sewerage treatment services beyond the two areas which you  
20 have just mentioned, in Harding Township?

21 A Yes, there's been some consideration given to  
22 extending sewers from Bernards Township, into Harding  
23 Township, in the vicinity of Route 202, near the Harding  
24 Township, Bernards Township, boundary, as a long range  
25 proposal. This would come about, perhaps in the 1990's

1 or somewhere thereabouts.

2 I don't know of anything other than that. Well,  
3 I said 1990. I think at one time it was thought that this  
4 may be required in the neighborhood of 1985, 1980. Some-  
5 where in that range, 1985 to 1990 but, it's not what we  
6 would really call the foreseeable future, as right now  
7 the plant in Bernards Township, is, I believe, it's over  
8 capacity at the present time and would have to be expanded  
9 along with upgrading to a higher degree of treatment.

10 I believe this is all included in the studies  
11 currently underway for the Upper Passaic River Waste Water  
12 Management Committee.

13 Q That's essentially the 208 study?

14 A 201.

15 Q Do you know of any impediments to the  
16 expansion of service from the Morris Township of Woodland  
17 Avenue Sewerage Treatment Plant, into additional areas  
18 of Harding Township?

19 A Yes, first of all, the plant at the present time,  
20 I believe, is flowing at a rate of about a million gallons  
21 a day or perhaps a little over that. I believe the plant  
22 is licensed to -- for a capacity of two million gallons  
23 a day.

24 However, we found that the effluent from that  
25 plant, is causing very undesirable effects in the receiving

1 stream and I believe, the consultants working on the 201  
2 plan, also, recognizes that and will be providing for  
3 major improvements and upgrading of treatment to that  
4 plant -- are of that plant, I should say.

5 Q Do you know whether these adverse impacts  
6 to the receiving stream, were identified as occurring --  
7 when they were first discovered or detected?

8 A Well, several years ago, complaints were registered  
9 in Harding Township and at that time, I did take some  
10 samples from the effluent, as well as from the receiving  
11 stream, just downstream and upstream of the plant and found  
12 significant pollution of the stream as a result of the  
13 plant effluent.

14 I would say this was possibly in about 1976 or  
15 somewhere thereabouts. I'm not sure of the exact time. The  
16 plant had been under a ban of the Department of Environ-  
17 mental Protection, banning any further connections because  
18 of its poor performance.

19 For some unknown reason, the ban was lifted. Harding  
20 Township protested that ban being lifted. Again, this was  
21 back several years ago and to no avail, I would say.

22 However, it is recognized by both the consulting  
23 engineers for the Upper Passaic Waste Water Management  
24 Committee, as well as the Environmental consultants, that  
25 the plant has a greater deficiency in treating the effluent

1 to the degree of treatment that is necessary, considering  
2 the receiving waters and provisions that have been included,  
3 at least in the draft plan for that plant to be upgraded.

4 Q Now, in terms of the Harding Green Townhouse  
5 development, was the approval of the municipal governing  
6 body of Harding Township, acquired for the connection of  
7 that development, to the Woodland Avenue Sewerage Treat-  
8 ment Plant?

9 A Yes, it was.

10 Q And this approval occurred during a time  
11 when the municipal officials were aware of inadequate  
12 treatment being obtained by the woodland Avenue Sewerage  
13 Treatment Plant?

14 A Yes, it was a very difficult situation that the  
15 Township Committee was placed in. The change of zoning  
16 to provide for the townhouse development came about as  
17 the threat or perhaps, even the beginning of litigation.  
18 I'm not sure if the litigation actually started or not.

19 It was the opinion of the Township Committee, that  
20 it was a very undesirable thing to do but they also, saw  
21 the -- not to make a request on behalf of the developer.  
22 It was also, an undesirable thing for them to do and they  
23 felt that if it had to go to litigation, that the court  
24 most likely would have said well, if the Department of  
25 Environmental Protection permits it, Harding Township

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1 can't stop it. So, they essentially made a request to  
2 Harding Township as a procedural matter, essentially  
3 reflecting the request of the developer.

4 Q Do you personally know, then, what the  
5 additional capacity of the Woodland Avenue Treatment Plant  
6 is, as far as how many more sewerage influent, could be  
7 received from that facility, before the DEP could say that  
8 it's no more?

9 A Well, I could say -- no, I don't know that.

10 Q Now, directing your attention to the next to  
11 last paragraph on Page 2, this first sentence appears to  
12 reflect your opinion, "That the presence of Great Swamp  
13 Wildlife Refuge, presents severe development restraints in  
14 Harding."

15 Does that correctly reflect your opinion?

16 A That's correct.

17 Q In what manner does the presence of the Swamp  
18 present sewerage development constraints in the  
19 Township?

20 A Well, in several -- first of all, the Great Swamp  
21 management persons are greatly concerned about the water  
22 quality of these streams flowing into the Swamp. Any  
23 development at all within the Township, will have a  
24 negative affect on the water quality of those streams.  
25 The more development, the effect. The higher

1 density of the development, the greater effect, the water  
2 quality, not only associated with the effluents that we  
3 normally think so, such as bacteria pollution or nitrate  
4 or phosphate or other substances arising from normal  
5 municipal sewers but, also, from sediment transported in  
6 the waters, particularly during the treatment of the site,  
7 during the construction of the site.

8 Even with the development which we've had, I've had  
9 complaints from the -- from Jack Filio (phonetic), at the  
10 Great Swamp, as the erosion and the resultant transport  
11 of sediment downstream and we have done our utmost to  
12 control the erosion and in the case of which I'm referring  
13 to, the developers have been very cooperative but, you can  
14 only control it. You can't stop it.

15 Q This specific development, where the developer  
16 has cooperated in controlling sediment, can you tell us  
17 where that is?

18 A Yes, it's a development that's off of Youngs Road  
19 and the development is called Heather Hill, I believe it's  
20 called.

21 Q What kind of a development is it?

22 A It's a residential development, lots ranging from  
23 3-8 acres to 5 acres. I'm not sure of the upper limit  
24 but, most of the lots are in excess of three acres.

25 Q Now, have you done any studies, which



1 establish the correlation between development densities  
2 in the amount of water quality impacts, which are caused  
3 by sewerage increased densities of development?

4 A No, I have not done any specific studies.

5 Q Have you examined any studies which established  
6 this correlation between density and adverse water impacts?

7 A No, I've read a number of articles on -- concerning  
8 non-point pollution and it's quite clear that the higher  
9 the density of the development, the great non-point  
10 pollution.

11 Through my experience, it's also, clear that the  
12 higher density of development, the greater potential there  
13 is to erosion and sediment transport from the site, as  
14 more of the area has to be -- a higher percentage of the  
15 area has to be cleared, stripped of vegetation, graded and  
16 so forth, before it's finally stabilized.

17 Q Now, when you refer to non-point pollution,  
18 in the context of densities of the development, specifically  
19 what are the sources that generate this non-point  
20 pollution?

21 A I mean sources from just arising from people living  
22 in the area, sources; vehicles, high concentration of  
23 vehicles, normally greater nutrient pollution, phosphate  
24 and nitrates.

25 Q Nutrients -- I'm sorry?

1 A The greater bacterial pollution, greater BOD levels  
2 in storm drainage, water from storm drainage. That's  
3 pretty much it.

4 Q In the case of the nutrients, are these  
5 elements or contaminants, found within the sewerage waste  
6 which you refer to as a non-point?

7 A In the storm sewerage, yes. Sanitary sewers would  
8 not be non-point, if we're talking about a development  
9 with sewers, with central sewers.

10 Q All right. I've got the nutrients and the  
11 storm drainage but, I'm trying to track them back to the  
12 housing as to what sources associated with residential  
13 developments. The vehicles, it's clear that those --  
14 what that answer is, but, I'm not sure where the nutrients  
15 come in from, specifically.

16 A I'm not sure where they all come either, but well --  
17 certainly, from pets, excrements from pets, fertilizers  
18 on lawns, you know, that will be the primary source. I  
19 would think of those elements.

20 Q Now, in the case of bacterial pollution, can  
21 you specify --

22 A Well, no, I really couldn't. I guess bacterial --  
23 that wasn't a good -- probably was not a good example. I  
24 would just say basically, carbonaceous materials that would  
25 reduce the dissolved oxygen level of receiving water or

1 greater -- or streams would be greater in an area that  
2 is highly developed than in one that is not highly  
3 developed.

4 Why this occurs, I'm not really concerned as to  
5 the origins of it but, I think the studies on non-point  
6 pollution clearly shows that --

7 Q Now, does all the runoff shown in Harding  
8 Township, flow into the Great Swamp?

9 A Just about.

10 Q Do you know of any portions of this  
11 municipality, which do not drain in the Great Swamp?

12 A Well, a small portion right along the Vernon Town-  
13 ship boundary, would drain directly into the Passaic River,  
14 which, you know, essentially flows through the Swamp but,  
15 it would be the lower end of it, in Harding Township.

16 Q How far in miles is the furthest points in  
17 Harding Township, from the Great Swamp boundary line?

18 A The furthest points in Harding Township, from the  
19 Great Swamp?

20 Q Generally speaking.

21 I'm roughly estimating, maybe five miles, six  
22 miles, something like that would be the furthest point.

23 Q Now, in these areas, would the sediments and  
24 dissolved soils, picked up in the runoff, would they  
25 settle out prior to traveling the distance to the Great

1 Swamp?

2 MR. SCHMAUDER: Which sediments?

3 MR. ONSDORFF: The sediments normally found  
4 in any runoff in sites five to six miles from the  
5 Great Swamp.

6 MR. SCHMAUDER: Normally found, you mean  
7 absent development or you mean with development?

8 MR. ONSDORFF: Absent development.

9 A Absent development, would I normally expect to find  
10 sediments transported from the most distant point or  
11 points in Harding Township, a distance of perhaps five  
12 miles or so to the Swamp?

13 In some cases, yes. I mean, we're now talking --  
14 I'm thinking of the most distant point, which would be  
15 up in the Jockey Hollow area or the National Park area,  
16 yeah, I would expect that there would be transport there,  
17 all the way down to the Swamp.

18 Q Now, in the case of residential development  
19 of a multi-family housing apartment, would the sediments  
20 generated in the runoff from this type of a development,  
21 would these materials carry all the way to the Great  
22 Swamp?

23 A Yes.

24 Q Are you aware of any studies which define  
25 the sedimentation rate of materials from construction

1 sites, in runoff, at what distances they would generally  
2 set off surface waters?

3 ~~ANSWER~~ No, I'm not.

4 ~~QUESTION~~ Now, in the next two to last paragraph on  
5 Page 2, the second sentence states and I quote, "It's his  
6 opinion that any significant construction activities  
7 will increase soil erosion into the Great Swamp, aggravating  
8 the existing siltation which is already causing high water  
9 levels and flooding with adverse consequences to resi-  
10 dential areas."

11 My question is, in the context of that statement,  
12 what were the or what was your definition of significant  
13 construction activities?

14 A I would say, certainly, any residential development  
15 or commercial development involving the construction of  
16 new roads, parking areas and so forth. They would fit  
17 into that category.

18 Q Now, are you aware of any studies which have  
19 been performed, which establish the levels of soil erosion  
20 and siltation, which can be ameliorated, by the Great  
21 Swamp, without doing substantial damage by the environ-  
22 mental resources served by that geographical area?

23 A I'm not aware of such things.

24 Q Could you identify those residential areas,  
25 in Harding Township, which are presently experiencing high

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1 water levels and flooding?

2 A Yes.

3 Q What areas are those?

4 A Well, I think we should get the map out.

5 Q For the record, CAH-3, you're referring to.

6 A Our most serious flooding and poor drainage  
7 problems exist in the Woodland Road area, on properties  
8 adjacent to or near those lands owed by the federal  
9 government. That's one area.

10 Q When you say "land owned by the federal  
11 government," you're referring to the wildlife refuge?

12 A That's correct. Oh, Meyersville, would also, have  
13 significant flooding problems of private land that are  
14 either adjacent to or in the vicinity of the National  
15 Wildlife Refuge.

16 The third area would be certain properties on  
17 Miller Road, in the vicinity of the stream that crosses  
18 Miller Road.

19 One additional area and that is in the vicinity of  
20 the wildlife refuge boundary and Primrose Brook.

21 There are, also, other areas affected by flooding  
22 in the Swamp, which essentially include all the lands that  
23 are adjacent to it, but those which I've first identified,  
24 are those which we have the most serious problems with.

25 Q Thank you. The statement that appears as

1 Paragraph 2, the areas -- reflected areas of Great Swamp,  
2 are those what you've referred to as areas of the Great  
3 Swamp?

4 A Yes, they are.

5 Q Now, along Loantaka Brook, has any corrective  
6 measures been taken by Harding Township, to correct the  
7 siltation found within the channel of this brook?

8 A Yes, we have endeavored, for the past three years,  
9 I believe, to -- perhaps more than that, to have the  
10 fish and wildlife service maintain the channels within the  
11 -- within there -- the boundaries of their property. We  
12 have asked them to clear the channels of fallen trees  
13 and brush and debris.

14 We have asked them to excavate sediment from those  
15 channels. We have had meetings with them, with our  
16 representative there, with regard to this matter and at  
17 the present time, they are still working, trying to --  
18 well, they have accommodated our request to a limited  
19 degree. They have cleared the debris that has come down-  
20 stream, which has caused sediment to build up behind this  
21 debris.

22 They have not done anything in the way of actually  
23 removing the sediment from the channels, as they maintain,  
24 at least in the northern part of the Swamp, that they  
25 cannot do this under the terms of the law, which establishes

1 that -- that part of the Swamp is a wilderness area and  
2 they are trying to get something worked out so that they  
3 would be permitted to do something in there. This has  
4 been a long and involved but, continuous process.

5 Q Now, you refer to certain fish kills, that  
6 have taken place at the County Park Pond. Can you identify  
7 the location of this pond?

8 A Well, the pond is called Loantaka Pond, which is  
9 a few hundred yards downstream from the outfall of the  
10 Woodland Avenue Sewerage Treatment Plant. It is owned by  
11 the County Park Commission and a number of years ago, the  
12 State Fish and Game Division stopped stocking the pond  
13 because the fish could not survive there.

14 There were several fish kills and they, finally,  
15 said, hey, look, we're not going to stock it anymore and  
16 that's, to the best of my knowledge, what has happened.

17 Q That pond then, is in Morris Township?

18 A The pond is in Morris Township, that is correct.

19 Q In light of the refusal --

20 A Excuse me, I guess the pond would be half and half,  
21 part in Morris, part in Harding. It's on the boundary.

22 Q In light of the refusal by the state officials  
23 to stock the pond, have aquatic biota of the pond, been  
24 substantially or entirely depleted?

25 A I don't know.



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Q Would you have an opinion as to whether additional sewerage effluent being discharged into the pond would cause any further impacts on the aquatic biota of the pond?

MR. SCHMAUDER: Excuse me, please repeat the question. I was looking at the maps and perhaps I was causing a distraction. Incidentally, in holding up the map, I see that the pond is entirely in Morris Township.

Q Do you have an opinion as to whether additional sewerage effluent being discharged into the pond, would casue any further impacts on the aquatic biota of the pond? What aquatic biota is my question. Any that might be found in there.

A Well, I think the effluent from the plant contains such high degrees of nutrients, high concentrations of nutrients, that the biota of the pond, would thrive on it to a greater degree than it does right now.

As far as the plant life in the pond, fish life, I don't know if there is any fish life in it at all or not.

MR. ONSDORFF: I have no further questions.

(Whereupon the deposition was adjourned.)

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C E R T I F I C A T E

I, JILL FRIEDBERG,  
a Notary Public and Shorthand Reporter of the  
State of New Jersey, do hereby certify that  
prior to the commencement of the examination

ROBERT H. FOX, P.E.,

was duly sworn by me to testify the truth, the  
whole truth and nothing but the truth.

I DO FURTHER CERTIFY that the foregoing  
is a true and accurate transcript of the testimony  
as taken stenographically by and before me at the  
time, place and on the date hereinbefore set forth,  
to the best of my ability.

I DO FURTHER CERTIFY that I am neither  
a relative nor employee nor attorney nor counsel  
of any of the parties to this action, and that I  
am neither a relative nor employee of such attorney  
or counsel, and that I am not financially interested  
in the action.

  
Notary Public of the State of New Jersey