

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
ADMINISTRATIVE ADJUDICATION DIVISION

IN RE: Walter Kukulka
(ISDS Application No. 8936-190)

AAD No: 91-002/ISA

DECISION AND ORDER

This matter came on for hearing before the Administrative Adjudication Hearing Officer on the request for an adjudicatory hearing following the denial by the Department of Environmental Management of the State of Rhode Island (DEM) of an application and request for variances for installation of an individual sewage disposal system "ISDS" on the property owned by Walter J. Kukulka "Applicant" located at Bay Street and Sunset Avenue, Watch Hill, Westerly, Rhode Island, identified as Lot 3 on Westerly Tax Assessor's Plat 179 ("site").

The Applicant initially filed an application for a permit to repair an existing sewage disposal system, which is currently servicing the subject commercial/residential complex located on the site. The Division determined that the application was unacceptable and the Applicant submitted the instant requests for variances. Applicant proposes to renovate the existing structures and to install a modern ISDS to service same.

The Applicant requested variances from the following Rules and Regulations Establishing Minimum Standards Relating to Location, Design, Construction and Maintenance of Individual Sewage Disposal Systems ("ISDS Rules"):

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SD 10.02 Vertical separation distance between the bottom of the stone underlying the seepage system and the maximum elevation of the groundwater.

SD 10.07 Minimum and maximum soil percolation rates.

SD 15.02 Site suitability.

The application and requested variances were denied by the DEM Variance Board and the Applicant requested an adjudicatory hearing.

Vincent J. Naciarato, Esquire represented the Applicant and Sandra J. Calvert, Esquire represented the Division of Groundwater and Freshwater Wetlands ISDS Section (Division). David W. Geriasini, Esquire represented the Watch Hill Fire District, which withdrew its Request to Intervene and chose to participate only.

A timely appeal and request for Hearing, the requisite list of abutters within 200 feet, and attendant radius map, were filed by Applicant.

A Prehearing Conference was held at One Capitol Hill, Providence, Rhode Island on June 28, 1991, and the Prehearing Conference record was prepared by this Hearing Officer.

There were no other motions to Intervene; however, other members of the public attended and participated in the Hearings.

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The adjudicatory hearings were held before the Hearing Officer on July 18 and 19, 1991; August 22 and 23, 1991; and September 12 and 19, 1991. Post-hearing briefs were received on January 10, 1992.

The Applicant must prove that a literal enforcement of the regulations will result in unnecessary hardship to the Applicant and also prove that the granting of the ISDS permit or variances will not be contrary to the public interest and public health by introducing clear and convincing evidence that:

1. The disposal system to be installed will be located, operated and maintained so as to prevent the contamination of any drinking water supply or tributary thereto;
2. The waste from such system will not pollute any body of water;
3. The waste from such system will not interfere with the public use and enjoyment of any recreational resource;
4. The waste from such system will not create a public or private nuisance;
5. The waste from such system will not be a danger to the public health.

The following stipulations of fact were agreed upon by the parties pursuant to the Prehearing Conference Record:

1. The Applicant, Walter J. Kukulka d/b/a Loft-Har Properties, Inc., is the owner of the property subject to this administrative adjudication and described more specifically as Assessor's Plat 179, Lot 3 in Westerly, Rhode Island.

2. The Applicant filed his original variance application on November 7, 1989.
3. Application No. 8936-190 was denied by the Division in its letter dated January 10, 1991.
4. The Applicant has paid all necessary fees and filed all necessary documents to confer jurisdiction on the Administrative Adjudication Division ("AAD") in this matter.
5. The ISDS Regulations in effect on November 7, 1989 are the operative regulations in this matter.

It was also stipulated by the parties that there are no municipal sewers on the site, nor are they available at the present time.

The parties agreed upon the admission of the following documents as full exhibits:

- JT. 1. ISDS Application Form for Application No. 8936-190 dated November 7, 1989. (1 p.)
- JT. 2. Site Plan entitled, "Holdredge Garage, Westerly, Rhode Island, For: W.J. Kukulka Associates, Sheet 1 of 4, "Individual Sewage Disposal System Site Plan," dated November, 1989, Sheet 2 of 4.
- JT. 3. Sewage Application Review Sheet dated December 11, 1989 prepared by Mark Boucher. (1 p.)
- JT. 4. Letter of Transmittal to Mark Boucher, ISDS Section from Richard Chiodini of Siegmund & Associates, Inc. dated March 12, 1990. (1 p.)
- JT. 5. Variance Application form dated March 13, 1990 prepared by Siegmund and Associates, Inc. (2 pp.)

- JT. 6. Document entitled, "ISDS Variance Board Application Form" dated February 16, 1990, prepared by Siegmund & Associates, Inc. and received by the Department on March 13, 1990. (3 pp.)
- JT. 7. Rhode Island Department of Health Inspection Report, prepared by Edward Cobb, undated. (1 p.)
- JT. 8. Sewage Application Review Sheet dated June 7, 1990 prepared by Mark Boucher. (2 pp.)
- JT. 9. Letter to Vincent J. Naccarato, Attorney from Anthony F. Chiaradio, Jr., Public Works Director, Town of Westerly, Rhode Island dated July 24, 1990.
- JT. 10. Letter to Siegmund & Associates, Inc. from Walter J. Kukulka dated August 3, 1990. (3 pp.)
- JT. 11. Letter dated August 20, 1990 to Vincent Mattera from Richard A. Chiodini. (2 pp.)
- JT. 12. Letter dated September 18, 1990 to Vincent Mattera from Walter J. Kukulka (1 p.)
- JT. 13. Letter to Vincent Mattera from Richard A. Chiodini dated October 3, 1990. (1 p.)
- JT. 14. Letter dated January 10, 1991 to W.J. Kukulka from Stephen G. Morin denying the application. (5 pp.)
- JT. 15. Letter dated January 31, 1991 to the Administrative Adjudication Division from Vincent J. Naccarato with request for hearing and list of abutters within two hundred (200) feet attached. (5 pp.)
- JT. 16. Notice of Administrative Hearing and Prehearing Conference dated June 4, 1991. (4 pp.)
- JT. 17. Resume of James Fester. (3 pp.)

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- JT. 18. Siegmund & Associates Engineering Package dated November 6, 1989.
- JT. 20. Resume of Richard A. Chiodini, PE.
- JT. 21. Resume of Rein Laak, Professor.
- JT. 22. Resume of Robert F. Angilly, Jr., PE.
- JT. 23. Resume of R.G. Slayback, Geologist.
- JT. 24. Resume of William K. Beckman, PE.
- JT. 25. Resume of Stephen McAndrew, Real Estate Appraiser.

JT. 19. was admitted as Applicant's Exhibit No. 17.

The following documents were admitted as full exhibits of the Applicant:

- Appl. 1. Westerly Zoning Ordinance.
- Appl. 2. Westerly Zoning Map.
- Appl. 3. Photos (4) of site.
- Appl. 4. Photos (4) of parking lot.
- Appl. 5. Photos (6) of interior and rear of site.
- Appl. 6. Rendering and photos (2).
- Appl. 7. Elevations (4) of proposed building.
- Appl. 8. Existing conditions - site plan.
- Appl. 9. Existing conditions - first floor plan.
- Appl. 10. Existing conditions - second floor plan.
- Appl. 11. Existing conditions - third floor plan.
- Appl. 12. Proposed main floor plan.

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Appl. 13. Second floor plan - Hotel scheme.

Appl. 14. Proposed second floor - Apartment scheme.

Appl. 15. Proposed third floor.

Appl. 17. Connecticut D.E.P. Regulations (This was admitted for limited purpose of showing guidelines utilized by Applicant).

Applicant's Exhibit No. 16 (Revised site plan - June 18, 1991) was introduced for identification purposes only and was not admitted as a full exhibit.

The following documents were admitted as full exhibits of Other Interested Parties (OIP):

OIP 1. Two photographs of site.

OIP 2. Copy of Westerly Sun Newspaper, dated July 8, 1991 (3 pp.).

OIP 3. Four photographs of site.

OIP 4. Five photographs of site.

OIP 5. Fifteen photographs of site.

Applicant Walter Kukulka was the first witness called for the Applicant. He testified that he is the owner of the subject property (consisting of approximately 1.897 acres) which he purchased in May, 1989 for \$1.5 million dollars. Mr. Kukulka described the existing structures on the land and the present uses of said premises. The building has a footprint of 12,000 to 13,000 square feet (consisting of three floors) and there is a 200-car, gravel parking lot located to the rear of said

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building. This witness explained that the renovations and alterations proposed would not add any density to the square footage of the building.

Mr. Kukulka testified that during the summer of 1988 (before he acquired the subject property), he had detected a persistent odor emanating from the rear of the building located on said premises. He observed that the stench came from the vicinity of an antiquated septic system located behind said building. The walls of the septic system consisted of piled boulders and a concrete slab was utilized as a cover. An attempt to have it pumped met with little success as it rapidly refilled with water. Mr. Kukulka stated that as a result of certain on-site meetings, his inspections and observations, he filed an application to repair said system with the DEM. Continued seasonal pumping has been undertaken since filing said application, but no repairs have been accomplished.

It was elicited in cross-examination of Mr. Kukulka that he has observed up to three inches of water on the southwestern corner of the parking lot when there is a high tide, under full moon conditions and no storm. The water is in the middle of a travel way and affects seven parking spaces but does not prevent people from parking in it. Also, this witness admitted that he opened the four bathrooms in the rear of said property

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(servicing the parking lot) to the general public, but no estimate of the resulting increase in use of these bathrooms was supplied.

The next witness for the Applicant was Richard Chiodini, P.E., of Siegmund & Associates, who was the design engineer on the site plan that was submitted with the instant application. He was qualified as an expert in the areas of engineering and ISDS design. His first contact with the Applicant was during December of 1988 when he conducted a site visit with Mr. Kukulka. They met with Raymond Cherenzia, an engineer and surveyor, who is familiar with Westerly geology; and a backhoe and a sanitation truck (to pump out the septic system) were also present at the site.

Mr. Chiodini testified that he observed that the septic system was situated very close to the edge of the building; there was a pool of water adjacent to that structure; and a concrete drainpipe was located very close to the pool of water. He surmised that the purpose of said drainpipe was to dispose of surface water. After the septic system had been partially pumped out, he noticed that it was constructed of loose stone and was actually a cesspool (similar to primitive systems). It was still structurally intact but would not essentially contain the liquids within it.

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During the December of 1988 site visit, nine or ten test holes were dug with a backhoe in a grid pattern in the northwesterly quadrant of said property to determine the nature of the soils and the groundwater table in anticipation of a new system. The results of the test hole excavations were tabulated in the form of a report (Joint Exhibit 18) which was submitted with the instant application.

This report contains a "Soils Exploration Log" which lists the types of soil encountered in each of the test pits, as well as the ground water elevation readings. Mr Chiodini stated that the high groundwater table found in the tests (some as high as 13 inches) and the nature of the soils (the peat layer and the silt material) posed significant design problems as these characteristics were not conducive to the standard practice of design of an ISDS. His firm conducted percolation tests on the site in January of 1989, which revealed that essentially there was no percolation. The firm of Leggette, Brashears & Graham (of which Mr. Beckman is a member) was engaged to assist in formulating a design for the repair of the system and the report of said firm was submitted with the repair application. After additional testing by Mr. Beckman's firm, the parties felt that the typical methodology employed at the DEM was inappropriate

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and that they would utilize the regulations of the State of Connecticut as a guide in developing the scope of their design. The system that was proposed is for a 13-inch water table.

It was this witness' testimony that after comparing all of the data, the parties formulated the design for the mounded system (which utilized the permeability rates on movement through the soil developed by Mr. Beckman's firm) which was submitted in the instant matter (Joint Exhibit 2). They felt that the site could accommodate 6400 gallons of effluent per day; however, they would guide the Applicant so that the flow would not exceed 6000 gallons per day.

The system designed for this site involved importing fill to create an elevated gravel parking area with sloped sides which would receive the sewage. The plan submitted actually has two systems on the site which would require pumps to elevate the effluent from two septic tanks to two distribution boxes, which have lines from them feeding the individual precast concrete diffusing units (which are situated in a trench configuration).

The plan also calls for a subsurface curtain drain (a pipe with holes) to be installed encompassing the north, south and westerly edges of the system at a specific elevation determined by the calculations of Mr. Beckman's company which would be at least 50 feet from all abutters' property. This drain is

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intended to collect the water from the disposal system which would end up in an existing basin on the Applicant's property, which the common concrete pipe system utilizes.

Mr. Chiodini stated that about 215,000 cubic feet of fill would have to be brought in to construct the mound and its supporting slopes. The additional fill would raise the existing grade (which presently ranges from 4 to almost 8 feet above mean sea level) to a nearly uniform 8 feet for that area in the rear of the property (which is now the parking lot). This additional elevation in the center is necessary for flow diffusers, and the property would be regraded to allow vehicular access to the area. The flow diffusers are made of precast concrete which would allow cars to drive over and park on it. The elevation declined gradually from the top of the mound to relieve surface water, which would run over the side of the mound and collect in a storm catch basin which would then be piped to the catch basin that currently exists in the street. This witness testified that the site is serviced by a municipal water supply.

During cross examination, Mr. Chiodini admitted that he only dug one test hole within the proposed location of the actual ISDS system and therefore did not meet the requirements of (B)(3) of SD 15.02 of the ISDS Rules. This requires that at least two soil exploration holes shall be dug over the area of

the proposed disposal system. He also acknowledged that generally SD 15.02 requires a water table elevation of four feet, but that a water table elevation between two feet and four feet may be acceptable for installation of a system if all of the seven listed factors are met; however, that if the water table is below two feet, the installation of an ISDS is prohibited. Further, the plan submitted calls for eight feet between the sidewalls of the flow diffusers, which does not meet the requirements of factor No. 1 of SD 15.02 (b) mandating spacing of ten feet.

It was further elicited from Mr. Chiodini that the percolation tests from the six or seven holes revealed that the percolation rates were very poor, and in at least one instance the water in the test pit actually rose instead of going down. The percolation rate in all instances was less than 40 minutes per inch which is unsuitable for any sort of subsurface seepage system and prohibited for new construction under SD 10.07 of the ISDS Rules.

Mr. Chiodini acknowledged that if the catch basin is underwater during a heavy storm or an exceptionally high tide, this could slow down or stop the flow in the curtain drain resulting in no effluent being able to enter the curtain drain, so that this outlet would be removed from the septic system

during that period of time. He also admitted that this new system being proposed cannot meet the Rhode Island regulations for new construction and that the proposed system is essentially based upon the soil testing procedures of the State of Connecticut regulations.

William K. Beckman, a groundwater hydrologist consultant with the Connecticut firm of Leggette, Brashears & Graham, testified next for the Applicant. He was qualified as an expert in hydrology. Mr. Beckman testified that his firm reviewed the test pit data and soils information for the site that was provided by Siegmund and Associates and also the proposed septic design, which they utilized to formulate their methods for analyzing the mound of water in the ground. They dug additional test pits, collected soil samples and conducted their analysis through computer simulation of the ground water flow patterns (commonly known as ground water modeling).

The soil samples were analyzed for values of horizontal and vertical permeability by the firm of Materials Testing, Inc., and their report of the summary of these values is included in Joint Exhibit 18.

This witness explained that permeability is the measure of the ease with which water flows through the soil. It is not velocity, although the units of those numbers are represented as

a velocity-type unit. This was listed in values which reflect the number of feet the water will travel per day. This is not a velocity value, as permeability is one number used in the equation to calculate velocity along with some other properties and the physical conditions on the site. A conceptual model was developed by them which was then designed to fit the physical situation in both the vertical and horizontal prospectives.

Mr. Beckman stated that he and Siegmund & Associates established three criteria, viz (1) that the water from the septic system must travel at least 30 days before it entered into a drain that was integrated into the system, (2) that the collector drain would be no more than one foot below grade in areas so that there would be no drainage of groundwater in this pipe, and (3) that all work associated with the system would have to be contained within the property line. This witness explained that they arrived at the 30-day constraint by applying a 9-day safety factor to the value generally accepted by the profession of 21 days for renovation of septic effluent to remove bacteria. Also, the purpose in placing the drain at the specified elevation (above or just barely at the existing water table) was so that it would not lower and influence the existing

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water table. The soil permeability value used incorporated a safety factor of two, which means they cut the average permeability in half.

An evaluation was conducted of different leach field layouts with different flow rates, and the information gathered was provided to Siegmund & Associates and they used this as the area to design and lay out the leach field.

It was Mr. Beckman's conclusion that based on the analysis and the constraints previously described, the site could sustain leach field discharge of 6400 gallons per day throughout that area; this was not intended to be the design rate of the system but simply the capacity of the site. He explained the use of a computer to obtain the "Printout of Computer Simulation" that was submitted in Appendix 2 of Joint Exhibit 18.

Cross examination of Mr. Beckman revealed that although the leacheate would be renovated during the 30 days required for it to enter the curtain drain, some of the leacheate may enter the water table unrenovated. It was also brought out that the system will accept 6400 gallons per day and the leacheate would remain there for 30 days, so the system was designed for a capacity of over 180,000 gallons.

Mr. Beckman acknowledged that the safety factor of two (which was used to evaluate conditions that were less favorable for a leach field than those actually found on the property) was a subjective determination made after a conference between himself and Richard Chiodini. This factor of safety was determined after considering what reasonable amount of variation may occur from the test results and what is a reasonable and practical factor to apply without going into excess on a design. This factor of two means they divided the permeability rate by two, which increased the elevation of the mound but allowed them to keep the mound height at a minimum.

Dr. Rein Laak, the next witness to testify for the Applicant, was qualified as an expert in engineering, sanitation, microbiology and public health. He visited the site during June of 1991, reviewed the design plans and made some calculations for the waste water system. This witness described how the proposed system would work, how the effluent would be treated by the process it undergoes during the travel time through the fill, and how it would be transported by the curtain drain to mix with the salt water of the bay.

Dr. Laak explained that percolation rate is the measurement of how fast the water level moves downward when water is placed in a hole dug in the ground (measured as how many minutes it

takes for the water to drop one inch). The code relates this rate to the size of a leaching field. Percolation rate does not measure the movement of water through the soil because it does not take into account the hydraulic gradient; whereas permeability (or more correctly co-efficient of permeability) indicates the ease at which water flows through the soils to measure the hydraulic capacity of the mound. It was this witness' expert opinion that the proposed system would (1) have no effect on any body of water, (2) have no adverse effect on the public use and enjoyment of any nearby recreational facility, (3) not cause any public or private nuisance, and (4) have no adverse effect upon the public health.

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It was brought out in cross examination of Dr. Laak that Rhode Island regulations provide standards based upon percolation rates; but there is no indication in the Rhode Island regulations regarding permeability rates, and these are different measurements and the two cannot be correlated.

Hatsy Moore, a neighbor, testified next (under oath as an interested party). She expressed her opposition to the project based upon her concern for the effect of tidal influences and hurricanes on the subject property. She acknowledged that she is not a hydrologist or an engineer, but she has had a daily familiarity with the property for the last 50 years.

Robert Angilly, P.E. of Environmental Resource Associates, Inc., testified next for the Applicant. He was qualified as an expert as a civil engineer, a sanitary engineer and in the field of public health. Mr. Angilly stated that he reviewed the documents pertaining to the proposed project and first visited the site in June of 1991. He conducted a dye test on July 17, 1991 and observed the gray dye (that had been put in the toilet) surface on the ground in the area of the cesspool within approximately 20 minutes and it appeared near the drain pipe that empties into the harbor later that same day. It was this witness' opinion that the existing system had failed.

The pertinent ISDS Regulations concerning the subject variance requests were reviewed by Mr. Angilly in regards to the proposed design under consideration. He testified that the proposed design could be altered by relatively minor adjustments to comply with SD 10.02 (as to the 3 foot minimum separation distance required between the leaching area and the groundwater). The proposed 2-foot distance could be increased to 3 feet by decreasing the amount of stone from 12 inches to 6 inches and by raising the invert in the leaching field by 6 inches.

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Mr. Angilly discussed alternatives to conducting the percolation tests that are required by SD 10.07 to determine the minimum leaching area required for the various percolation rates (which are set forth in minutes per inch). He felt that the tests performed were inconclusive since the percolation rate of over 40 minutes per inch was reported based upon the fact that the water did not appear to move in the hole (and in some cases rose). This site is unusual in that it has a rather permanent water table (i.e., not the usual seasonal water table) because the water table gets held up by the original peat layer present at the site. It was Mr. Angilly's belief that since the tests cannot be conducted in accordance with the regulations (because of the high water table), the test should be conducted at some other level other than as specified in the Rules.

Mr. Angilly testified that the table in the Rhode Island regulations could not be utilized in designing the system for this site, but that a system could be designed from permeability rate by using formulas that are published (which relate permeability to an application rate of what one would call a long-term application rate of sewage into a field. Based on a formula for the relationship between permeability and

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application rates, he determined that the 0.91 gallons per square foot per day which resulted from the formula) relates to a 10-minute per inch percolation rate.

It was pointed out by Mr. Angilly that it is impossible to comply with the regulations under SD 15.02(b) on this site. He felt that the design that has been provided could be utilized to repair an existing system with the groundwater table readings that are applicable to the subject site and that under the existing conditions the regulations provide for a repair in such a sensitive site.

Mr. Angilly opined that (1) the proposed system would not contaminate any drinking water supply or tributary thereto, (2) the system as designed would not interfere with the public use and enjoyment of the recreational resources in the area, (3) the system will operate properly and will not cause a public or private nuisance, (4) there will be no impact upon the public health by the proposed system, and (5) the proposed system would be replacing a failed system and therefore would be an improvement.

It was brought out in cross examination of Mr. Angilly that the Applicant could have submitted a plan for a holding tank but that he would not recommend it in this situation because he felt the site contained sufficient land area for a solution to the

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existing problem. Although he considered the instant application as one for emergency repair, he admitted that because the existing system is actually a cesspool, there is no such thing as a repair to a cesspool since cesspools are not allowed nor defined by the ISDS Regulations.

Mr. Angilly acknowledged that discharge of sewage or the dye (used in the test) entering the harbor, and the sewage on the ground surface (as determined from the dye test) are violations of the ISDS Regulations. He also admitted that the regulations do not recognize permeability tests.

Stephen McAndrew was the last witness to testify for the Applicant. He was qualified as an expert Real Estate Appraiser. After describing the subject property, he opined that if the pending application is denied, the subject property would be worth less than the amount that Applicant paid for it (\$1,500,000.00).

James Fester, the Associate Director for Regulations for DEM, was the only witness to testify for the Division. He is a registered professional engineer and a registered sanitarian with the State of Rhode Island, and was qualified as an expert in engineering sanitation and public health.

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Mr. Fester testified that he reviewed the file in this matter (containing the plans and reports) and visited the site on various occasions. He explained how the proposed system as designed is supposed to function. It is designed so that the sewage will pass through the gravel fill and the existing soil to the curtain drain, where it will be collected and discharged into Watch Hill Cove. The plan calls for the curtain drain to be at least one foot above the water table in order for the system to function.

It was this witness' expert opinion that the proposed system will not function as designed, because the sewage will move rapidly through the highly porous gravel fill, encounter the impermeable existing soil, then travel laterally through the porous gravel fill and punch out on the sides of the mound in an untreated or partially treated manner.

It was explained by Mr. Fester that the proposed curtain drain, particularly in the northwest corner of the subject property, will be below the water table. Also, the site is subject to tidal influence whereby the coastal waters will enter the drainage pipe from the sea wall and head toward the catch basin so that the catch basin will be underwater at certain times.

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Mr. Fester testified that the subject application was submitted as a repair, and based upon the existing uses, the soil studies and the chance of failure of the system, the system could be repaired by replacing the cesspool with a holding tank and an alert alarm system to indicate when the holding tank has to be pumped. He felt that the minimum size of the holding tank should be 5000 gallons, which he based on the actual metered flow (which was worked out over a 75-day period) of 2800 gallons per day.

Mr. Fester opined that the backing up of the water into the curtain drain and into the higher soil elevations (caused by rising high tides) will reduce the efficiency of the curtain drain, lead to the malfunction of the system and result in sewage breaking out over the ground surface.

It was Mr. Fester's further expert opinion that (1) the reduction of the minimum standard from three feet (in SD 10.02) to two feet (as proposed in the plan) will reduce the efficiency of the treatment of the sewage moving through the soil, (2) the proposed system seeks a variance (from SD 10.07) to allow a system to be built on top of existing ground surface of soils with a percolation rate of over 40 minutes per inch, (3) the proposed system does not meet the requirements of SD 15.02 (where approval may be granted if groundwater table is within 2

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to 4 feet of original ground surface) because the water table varies at the site from 11 to 13 inches below grade, (4) the system will create a public health hazard by discharging untreated or partially treated waste water into the waters of the state, (5) the system as designed will fail and lead to an impairment of water quality of the Watch Hill Cove, (6) the proposed system will create a public nuisance, and (7) the discharge of sewage into the waters of the state will create a public health hazard.

It was brought out in cross-examination of Mr. Fester that to his knowledge this is the first attempt to put such a system (as the one proposed) into the State of Rhode Island. He acknowledged that it is possible to have a septic system design that would operate perfectly efficiently even though it did not meet the Rhode Island standards and regulations; however, he disagreed with the opinions of Applicant's experts (that the system will work).

Robert Brockman, a neighbor and also a moderator of the Watch Hill Fire District, gave public testimony in opposition to the application. The District owns that property which separates the Applicant's property from Watch Hill Cove. Mr. Brockman expressed concern as to the effect that the tidal water flooding and surface runoff flooding and any seepage or

break out of the proposed system could have on adjoining properties, the health of the community and the water quality of the Cove.

Lorena Muenchinger, a neighbor and a long-time resident of the area, testified (as a member of the public) in opposition to the proposed increase in use of the subject premises contemplated by the Applicant and voiced her concern for the effect any increase in drainage would have on the harbor and the environment.

Edward Phelps, who lives in the neighborhood and is a long-time resident of Watch Hill, testified (as a member of the public) that he opposed the proposed septic system.

Applicant argues that the existing septic system (consisting of a cesspool and no leach field) is in need of repair and that the requested variances should be granted since pollution is already occurring from said cesspool. Applicant maintains that if the proposed ISDS performs no better or worse than the existing cesspool, there will be no contrary impact on the public interest and health.

It is essentially Applicant's position that strict adherence to the ISDS Rules actually blocks progress and will result in unnecessary hardship to the Applicant in that Applicant has demonstrated that a denial of relief will amount

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to more than a mere inconvenience. Applicant urges that the proposed system will best serve the public interest and public health since he seeks to replace a failed cesspool with a state-of-the-art system.

Division argues that the Applicant has failed to meet his burden of proof in this matter. It maintains that the proposed ISDS design is neither in the best public interest or public health as provided by the regulations nor will a literal enforcement of the regulations result in unnecessary hardship to the Applicant.

It is Division's contention that Applicant's attempt to utilize the criteria established for the State of Connecticut should not be allowed; and that because of the severe site restrictions of high groundwater table and very slow percolation rates, the proposed system will not function properly, and therefore, poses a serious threat to the public interest and public health.

Applicant's witnesses presented detailed and elaborate explanations of the intricate system proposed, and also the safety factor incorporated in their calculations. The proposed mound system was based upon the results of permeability tests and computer modeling. The hydraulic capacity of a mounded

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system can only be measured through permeability tests, which were utilized for this site (since the results of the percolation tests conducted proved unsuitable).

It is conceded by Applicant that although the subject property is located in Rhode Island, the proposed mound system utilized guidelines established for the State of Connecticut. Applicant's experts acknowledged that there are no like provisions under the Rhode Island Rules and Regulations, and admittedly, no permeability tests or computer modeling is currently done by DEM.

The argument advanced by Applicant that the proposed system could not be harmful since it replaces an already polluting system (which was characterized as a failed cesspool) is flawed. It fails to take into consideration the extent of the additional facilities planned, and the intensified use of the disposal system and also whether any feasible or reasonable alternatives exist under the circumstances. Logic dictates that an attempted remedy should not be deemed appropriate merely because one is addressing a need for relief. One must examine the entire spectrum of facts and properly consider the probability of failure when evaluating any proffered solution.

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I have given careful consideration to the existing pressing problem confronting Applicant (concerning the failure of the existing, outmoded cesspool), and the urgent need for resolution of same. It is obvious that Applicant has expended a great deal of time, effort and expense to purchase the subject property and to sponsor the elaborate research and testing procedures employed to develop the sophisticated design and the modern septic system being proposed.

However, Mr. Kukulka admitted that he was aware of the presence of foul-smelling effluent from the cesspool prior to his purchase of the subject property. In spite of an existing cesspool problem, Mr. Kukulka opened certain bathrooms to the general public which obviously resulted in an increase in the use of these bathrooms. Respondent acknowledged that he experienced difficulty in having the cesspool pumped on one occasion (because it refilled with water); however, it is not clear whether the continued seasonal pumping (since filing the instant application) encountered a similar problem.

Applicant's position that the proposed system should be approved since the procedures contemplated constitute necessary repairs to a failed system is untenable. Applicant obviously seeks to do much more than to fix the existing system or to put it back into good condition. Further, Applicant proposes

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renovations within the building which will obviously increase the daily flow of sewage from the expanded facility and place greater demands on the disposal system. Although such uses may be considered existing or permitted uses under zoning ordinances, under the ISDS Rules, existing use does not include potential or permitted uses. Also, Applicant did not refute Division's testimony that the existing uses can be retained by replacing the cesspool with a holding tank and by utilizing water use conservation strategies.

I find the testimony of Mr. Fester to be more credible. The impermeable existing soil conditions and the tidal influences affecting the site will hamper the flow of the effluent and reduce the efficiency of the proposed system. The existing site conditions will impede the downward flow of the leachate, and the porosity of the added gravel fill will allow the effluent to travel laterally and break out from the sides of the mound in an untreated or partially untreated form. This sewage will then travel down the sides of the mound into the surrounding waters. The resulting discharge of harmful pollutants will undoubtedly contaminate the Bay and pose a serious threat to the public health.

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The evidence presented by Applicant does not reach the level necessary to sustain his burden of proof as required by the ISDS Rules. Applicant has failed to demonstrate by clear and convincing evidence that the waste from the subject system will not pollute any body of water nor be a danger to the public health. If the proposed system does not function properly as theorized by Applicant's experts, there is a high probability that the waste from this system may pollute a body of water and will create a public or private nuisance and pose a danger to the public health. Therefore, Applicant has failed to establish that granting the variances requested will not be contrary to the public interest and public health.

Further, the evidence presented by Applicant does not support a finding that a literal enforcement of the pertinent provisions of the ISDS Rules will result in an unnecessary hardship to the Applicant.

The Rhode Island Supreme Court has construed the term "unnecessary hardship" to mean a deprivation of all beneficial uses of one's land. The Court ruled in R. I. Hospital Trust v. East Providence Zon. Bd., 444 A.2d 862 (R.I. 1982) that a showing that an eighteen-unit apartment building is a more beneficial and profitable use than a one- or two-family home was not sufficient to establish entitlement to a variance. The

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Court held that "Unnecessary hardship exists only when all beneficial use has been lost and the grant of a variance becomes necessary to avoid an indirect confiscation."

The testimony by Applicant's expert Real Estate Appraiser that the subject property would be worth less than Applicant paid for it if the pending application is denied, without more, lacks probative force on the question of whether the denial would result in unnecessary hardship. Consideration of requested variances should not equate economic unfeasibility in the real estate market with undue hardship. Gaglione v. DiMuro, 478 A.2d 573 (R.I. 1984).

The factual situation in the instant matter differs substantially from that in the case of Gara Realty v. Zoning Bd. of Review, 523 A.2d 855 (R.I. 1987). The Court in Gara ruled that the requested variance from a zoning setback requirement (for a sewage disposal system) should be considered as a deviation, which required applicant to demonstrate an adverse impact amounting to more than a mere inconvenience in order to obtain relief. The petitioner in Gara sought to build a single-family dwelling on property that was zoned for single-family dwellings and the operation of the zoning ordinance effectively operated to preclude petitioner from building a house. Applicant in the instant matter is not precluded by a denial of

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the variance requested from maintaining the present use of his premises but only from expanding said uses. Also, the Supreme Court in a footnote on page 858 stated that "Nothing herein should be construed to preclude the necessity on the part of the applicant to meet state sanitary standards."

Further, the instant matter concerns site suitability and minimum distances and minimum requirements for ISDS systems which have been established to protect the public health and interest from improper treatment or discharge of sanitary sewage.

Installation of a disposal system in fill is not allowed by the ISDS Rules. The material is considered to be improper soil which is unsuitable for the function of an ISDS and is not permitted by the regulations.

Moreover, it has been established by Final Decision of the Director that a request for a variance from site suitability is considered a true variance and not a deviation. Thomas S. Christensen DEM Case No. 8813-148. It appears that Applicant's request for variance from SD 10.07 is actually a request to be relieved of the prohibitions of said Section and is tantamount to a request to be excused from complying with the ISDS Rules. The subject property was purchased by Applicant in its present state and with the current uses and it does not appear that

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Applicant is precluded from maintaining said uses. Furthermore, I do not believe that a denial of the variances requested will deprive Applicant of all beneficial use of the subject premises. The fact that the premises could be put to a more profitable use does not alone satisfy the requirements of unnecessary hardship. DiMellio v. Zoning Bd. of Review, 574 A.2d 754 (R.I. 1990).

Applicant's argument concerning any violation of constitutional rights is not properly before this administrative tribunal and will not be further addressed by this Hearing Officer.

After the Applicant had completed the presentation of evidence and rested his case, the Division made an oral Motion to Dismiss. The Hearing Officer declined to rule on said Motion until the close of all the evidence. After the Division concluded its presentation of evidence and rested its case, it renewed its Motion to Dismiss. Necessarily, this Decision and Order acts as a decision on the Motions to Dismiss.

FINDINGS OF FACT

After review of all documentary and testimonial evidence of record, I make the following findings of fact:

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1. Applicant Walter J. Kukulka is the owner of real property located at Bay Street and Sunset Avenue, Watch Hill, Westerly, Rhode Island, identified as Lot 3 on Westerly Tax Assessor's Plat 179 which property is the subject of this application.

2. Applicant, on or about November 7, 1989, filed an application for variances from the following regulations of the Division relating to location, design, construction and maintenance of individual sewage disposal systems ("ISDS"):

SD 10.02 Vertical separation distance between the bottom of the stone underlying the seepage system and the maximum elevation of the groundwater.

SD 10.07 Minimum and maximum soil percolation rates.

SD 15.02 Site suitability.

3. On or about January 10, 1991, the Division notified Applicant that this application for variances had been denied.

4. Applicant has taken all actions, paid all fees and filed all documents required to confer jurisdiction over this matter upon the Administrative Adjudication Division of the Department of Environmental Management.

5. The prehearing conference was held June 28, 1991 and the record thereof was prepared and submitted by this Hearing Officer.

6. Watch Hill Fire District filed a Motion to Intervene; however, prior to a hearing on same, it withdrew said Motion and chose to participate only.

7. The administrative adjudicatory hearing was held on July 18 and 19, 1991; August 22 and 23, 1991; and September 12 and 19, 1991.

8. All hearings were conducted in accordance with the provisions of the "Administrative Procedures Act" (Chapter 42-35 of the Rhode Island General Laws), the Rules and Regulations Establishing Minimum Standards Relating to Location, Design, Construction and Maintenance of Individual Sewage Disposal Systems of the DEM and the Administrative Rules of Practice and Procedure for the Administrative Adjudication Division for Environmental Matters.

9. The ISDS Regulations in effect on November 7, 1989 are the operative regulations in this matter.

10. Applicant purchased the subject property in May, 1990.

11. Applicant's property is currently being used for a gas station and retail enterprise, 2 two-bedroom apartments, a 200-car capacity parking lot and four (4) individual public bathrooms (two male and two female) servicing the patrons of said parking lot as well as members of the general public in the Watch Hill area.

12. Applicant proposes to renovate a significant portion of the structure which will eliminate the gas station, and create 2 two-bedroom apartments, 13 hotel/motel units, 15 retail stores and a parking lot in the rear of said premises.

13. The site is serviced by a municipal water supply and there are no municipal sewers available at the present time.

14. Applicant's proposed ISDS is designed to create an elevated mounded system (the gravel surface of which will be used as a parking area), which incorporates the installation of two separate septic tank systems (one for 6,000 gallons and one for 4,000 gallons), each connected to a pumping station and valve pit. The effluent will be distributed via precast concrete distribution boxes, precast concrete leaching chambers, PVC pipes, stones and gravel trenches. An existing drain pipe will be removed and a subsurface curtain drain will be installed around the perimeter of said system to collect the water (effluent) from the system and carry it into Watch Hill Cove.

15. The subsurface curtain drain (around the mounded system) and its proper functioning is an integral part of the entire proposed ISDS design.

16. The soils in the area have a percolation rate of greater than forty (40) minutes per inch which is defined by regulation as impermeable.

17. The soils in the area are not suitable for an individual sewage disposal system.

18. The water table in the area is high, ranging from thirteen (13) to thirty-one (31) inches, below the existing grade.

19. The subject site is affected by a tidal influence which will significantly hamper the effectiveness of the proposed curtain drain.

20. The character of the existing soil, the high water table and the tidal influence on the subject site will prevent the proposed Individual Sewage Disposal System from functioning properly and will result in sewage escaping onto the ground surface, thereby endangering the public health.

21. The resulting malfunctioning of the proposed Individual Sewage Disposal System will also result in untreated or partially treated sewage entering Watch Hill Cove thereby impairing the water quality of this body of water and adversely affecting its use by the public.

22. Applicant has not explored all alternatives to the subject application in order to reduce environmental impact and at the same time, derive a beneficial use of the property.

23. The Applicant may replace the existing cesspool with a 5,000 gallon holding tank subject to water use conservation strategies and a pumping schedule.

24. The Applicant will not be denied all beneficial use of his property if the denial is sustained.

25. A literal enforcement of the requirements of the Individual Sewage Disposal System Rules and Regulations will not result in unnecessary hardship to the Applicant nor will it deprive Applicant of all beneficial use of his property.

26. The proposed design of the ISDS will not function properly and the granting of the permit and variances requested will be contrary to the public interest and public health.

CONCLUSIONS OF LAW

Based upon all of the documentary and testimonial evidence of record, I conclude as a matter of law:

1. All hearings were conducted in accordance with the Rhode Island General Laws, the Rules and Regulations of DEM for ISDS and the Rules of Practice and Procedure for the Administrative Adjudication Division for Environmental Matters.

2. Individual Sewage Disposal System Regulation SD 2.01(a) requires the Applicant to obtain a permit to install, construct, alter or repair an Individual Sewage Disposal System.

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3. Application No. 8936-190 which includes the ISDS design does not conform to the requirements of R.I.G.L. § 42-17.1-1 et seq. and the Individual Sewage Disposal System Regulations which were in effect on November 7, 1989, namely SD 10.02, SD 10.07 and SD 15.02.

4. The variances from Regulations SD 10.02, SD 10.07 and SD 15.02 which the Applicant requests are contrary to the purposes and policies set forth in R.I.G.L. § 42-17.1-1 et seq. and the Administrative Findings and Policy of the Individual Sewage Disposal System Rules and Regulations.

5. Applicant's appeal of the denial of the variances does not comply with Regulation SD 20.01, particularly Section (d) of said Regulation in that the Applicant has not met his burden of proving by clear and convincing evidence that the waste from the proposed disposal system to be installed will not pollute any body of water; will not create a public or private nuisance; and will not be a danger to the public health.

6. Applicant has failed to prove that granting of the variances requested and issuance of the Permit will not be contrary to the public interest and public health.

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7. Denial of the variances will not result in a denial of all beneficial use of the property; therefore, a literal enforcement of the provisions of the Individual Sewage Disposal System Regulations will not result in an unnecessary hardship to the Applicant.

Therefore, it is hereby

ORDERED

1. Application No. 8936-190 and the request for variances from ISDS Regulations submitted by Applicant be and they are hereby DENIED.

I hereby recommend the foregoing Decision and Order to the Director for issuance as a Final Order.

4-27-92
Date

Joseph F. Baffoni
Joseph F. Baffoni
Hearing Officer
Department of Environmental Management
Administrative Adjudication Division
One Capitol Hill, 4th Floor
Providence, RI 02908
(401) 277-1357

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Entered as a Final Agency Decision and Order this 29th
day of April, 1992.

April 29, 1992 Louise Durfee
Date Louise Durfee
Director
Department of Environmental Management
9 Hayes Street
Providence, RI 02908

CERTIFICATION

I hereby certify that I caused a true copy of the within to be forward via regular mail, postage prepaid to Vincent J. Naccarato, Esq., Nardone, Turo & Naccarato, 96 Franklin Street, P. O. Box 2976, Westerly, RI 02891-0933 and via interoffice mail Sandra J. Calvert, Esq., Office of Legal Services, 9 Hayes Street, Providence, RI 02908 on this 29th of April, 1992.

Walter Kukulka