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August 22, 2025

Mr. Joseph Pannullo
WeCare NJ Corp.,
West Orange, NJ 07052

Re: West Essex Highlands, Inc. PB 24-01
Township of West Orange, Essex County, NJ
Block 179, Lot 32
LAI 2024-006.1

RE: UTILITIES REVIEW MEMO

BACKGROUND

At your request LAI has looked into the West Essex Highlands application Engineering Drawings and Plans and found no provisions for water, sewer, and electrical power. We also found no provision for HVAC for the project. From our experience with reviewing such projects for many planning boards we find this oversight disturbing as there are infrastructure provisions that must be identified and shown so that the PB and the public can have a complete picture of the project impact on the community.

The project application is for a high-density residential project for 496 apartments in four mid-rise apartment buildings in the Township of West Orange, Essex County, New Jersey. The development will have access to Warner Road, a two-lane roadway connecting to Oval Road, another two-lane roadway that connects with Eagle Rock Avenue. The project is defined as a high-density residential project by RSIS standards. This is the third application for this property with previous applications rejected for failure to follow the RSIS standards and resident's objections related to those failures.

RESIDENTIAL SITE IMPROVEMENT STANDARDS

The Residential Site Improvement Standards (RSIS) of New Jersey presently govern residential development in the state. The RSIS was developed to streamline the development approval process and improve the efficiency of the application process by providing a uniform set of technical site improvement standards for residential land development. The standards were to

provide standards for residential projects that are based to the greatest extent possible upon sound objective site improvement standards rather than upon discretionary design standards (RSIS 5:21-1.3). It should be noted that the streets shall be provided in conformance with the RSIS standard.

From RSIS: Paragraph 5:21-1.5 Scope and Applicability

(a) These rules shall govern any site improvements carried out or intended to be carried out or required to be carried out in connection with any application for residential subdivision, site plan approval, or variance before any Planning Board or Zoning Board of Adjustment created pursuant to the Municipal Land Use Law (N.J.S.A. 40:55D-1 et seq.); or in connection with any other residential development approval required or issued by any municipality or agency or instrumentality thereof.

(b) Except as is otherwise specifically provided, these rules shall control all matters concerning the construction, alteration, addition, repair, removal, demolition, maintenance, and use of any site improvements constructed by a developer in connection with residential development. Except as otherwise required by rules or other permit requirements of the Department of Environmental Protection regarding stormwater management, the rules are to be interpreted as the minimum required to ensure public health and safety, and the maximum that may be required in connection with residential development.

WATER SUPPLY

Applicant simply notes that the project will go to the local water company and follow their guidelines without any consideration as to what 496 condominium units would require and what would that look like. RSIS gives factors for water consumption and when it was looked at there were two factors, one giving daily use of water and another peak use. Peak use will dictate the volume and flow needed and the capacity of the water resource to provide that volume flow.

The RSIS factors for peak flow results in a peak flow rate of approximately 900 gpm not counting the clubhouse and other two auxiliary buildings. The flow of 900 gpm dictates an 8" supply pipe.

The site of this project is on a mountain and the buildings are high on the mountain and 4 stories high on top of 1 parking level. Thus, the water must be piped up 211 feet of grade plus up to the fourth floor. Given that the water source must originate from Oval Road or beyond and water must be lifted approximately 300'.

This is equivalent to servicing a high-rise building given the noted site circumstance. This dictates the employment of facilities found in high rise buildings.

Also, water related is a **fire suppression system** which requires one of several types of systems, but the most likely system is sprinklers which require water availability in an emergency and the supply must be reliable. This requires a water tower as well.

Our assessment of the above leads to the need for a dedicated water tower. The water tower must be higher than the building by enough to ensure water pressure to the buildings. The water tower to provide such hydrostatic pressure would be 90 feet to the tank.

The water supply source must have sufficient pressure to deliver water to this tank from the valley below. A booster pump house would be a likely necessity.

A water tower should have minimally the peak hour's required volume plus volume to meet **fire water suppression code requirements**. Our estimate conservatively is 30,000 gallons.

We envision that an 8" pipe is run up to the water tower and then 8" pipe run to 6" branches to the 4 large buildings from the water tower. Fire suppression water will also run from the water tower to the buildings.

These water supply concerns are not addressed in the application and since the RSIS has them outlined in its text they must be addressed to the planning board in the submitted engineering plans with backup as to how these water needs are going to be met.

Where will all this water be sourced?

Currently we know of no source since the existing supply system is at capacity. The existing treatment facility has a limit and the 8" supply pipe also has reached its practical limit, and the new 496 units need more water than the current 300 units require! West Orange has not planned for residential expansion of this magnitude.

The applicant has not disclosed how they will get a reliable water source. The water for the adjacent neighborhood is tapped out as it originates from the Creek on this property and is ducted/conveyed to a purification facility 7 miles away and then piped back for domestic use by 300 condominiums and 70 + houses.

What Affect will this 496-unit development have on the existing water system using the Creek water for domestic use?

Water runoff from the parking lots, streets, roofs, and imperious surfaces will carry pollutants not found in the headwater ground source of the creek, yet the stormwater study assumes they can dump stormwater into the creek without considering the implications of that plan.

Without doing a study of the runoff water we know that vehicle oil drippings will wash away and this contaminant is not one that Creek water would normally contain and since this water is the source for drinking water it will contaminate all the drinking water currently provided unless the purification is significantly upgraded and then re-qualified for use by DEP rules. This upgrade could shut down the purification system leaving 370 residential units without water.

This issue unaddressed, is reason alone to reject the application since the applicant's consultants provide no answers.

SEWER PROVISIONS

Sewer water volume originates from water utilized. The sewer authorities in New Jersey all assume what goes into a facility comes out. The exceptions to this are systems that evaporate like watering lawns and evaporative condensers used in HVAC systems.

Using RSIS factors as noted above, the daily sewer volume is estimated at 73,900 gallons per day.

Currently there is no place for that daily volume to go that is verified. Secondly, it requires sewer pipe most likely to run across the site where existing sewer pipes run up the mountain.

Sewer facilities require pump stations where gravity is not helping convey the flow. Without a plan we cannot envision how this will work.

ELECTRIC POWER

We estimate 6 mw of power required. The applicant has not shown where that power will be obtained and how it will be routed to the 496 units plus. Possibly a sub-station will be required for this site and plans for its location and architecture are missing.

HVAC

The application engineering package shows nothing regarding HVAC. We are familiar with what a building with hundreds of units require for HVAC. A likely means used in high rise, Mid-Rises and commercial buildings is a heat pump system. These systems are clean and usually get installed through the walls under windows.

Each unit nominally needs 2 tons of heating and cooling with 3-bedroom units requiring 3 tons from a system design perspective. These systems require a heat and cooling source and usually a closed loop water system provides the economical method of handling the heat transfer. Given that there are 496 housing units plus 3 other buildings the load is going to be 1000 to 1500 tons. This dictates one or more cooling towers and heat pumping stations to circulate the necessary cooling/heating water.

Cooling towers need to be outside and conveniently located to the buildings. Cooling towers exhaust water vapor visible to human eyes and also present legionella disease risk if not properly managed. NJ has recently enacted legislation addressing this health risk and means to mitigate the risk. A cooling tower uses large volumes of water not included in the domestic

water use discussion above. This water usage should not be overlooked as it is significant.

The applicant has not addressed HVAC and the implications of what the HVAC facilities would look like. A 1500 ton cooling tower consumes 45,000 gallons per day of water 80 percent is evaporated 20 percent will be blowdown water to the sewer.

CONCLUSIONS

Remember, the RSIS was provided so that residential projects would be based to the greatest extent possible upon sound objective site improvement standards rather than upon discretionary design standards (RSIS 5:21-1.3, the application should not be approved as presently proposed for the following reasons in our professional opinion:

1. The water supply to the project has not been addressed and the facilities require major engineering to accommodate 496 residential units. The plans for water service must be presented to the PB along with the application.
2. The RSIS Must Be Met accommodating sewer water. 73900 gallons a day must go somewhere and provisions for conveyance and handling are missing. RSIS missing item.
3. A contamination of the existing Creek must be addressed.
The Creek is source of drinking water and is currently processed for that purpose, new contamination from a housing project, new roads, parking, and building was never an issue in the treatment plant design. This issue has not been studied.
4. Electric Power supply of 6 mw or more must be addressed since this is a significant amount of power on the existing grid and on site may require a sub-station.
5. Applicant has not disclosed how HVAC is handled. Given the load of over 1000 tons, it has a significant impact on the architecture of the site and may pose health concerns plus it adds significantly to water consumption.

If you have any questions, please do not hesitate to call our office.

Respectfully submitted,

William H. Green, PE
for

Litwornia Associates, Inc.

A handwritten signature in black ink, appearing to read "Alex Litwornia".

By:
Alexander J. Litwornia, PE PP
President



west Essex Highlands.

A water tower approximated the size needed for



Cooling towers approximately 1500 tons

