



Final Planned Unit Development (PUD) Engineering Feasibility Plan

Project Name: Sora no Tokai

Scarlett Middle School
Ann Arbor, Michigan

PROJECT AND SITE DESCRIPTION

The property under consideration in this proposal is a five-acre parcel containing an abandoned grocery store, restaurant and gas station. The property is currently zoned as commercial. The petitioner is requesting that the property be rezoned as a planned unit development to accommodate multiple uses.

The petitioner is proposing to tear down the existing structures and construct an apartment/condominium complex with retail stores. The development would include three structures. The centerpiece would be a 32 floor multiple-family residential complex containing apartments, condominiums and luxury apartments. A second structure would be a high-rise mall featuring a large department store as an anchor, as well as specialty stores, theatres and restaurants. The purpose of a third structure would be for short and long-term parking for employees, mall visitors, and residents of the apartment/condominium complex.

SITE ACCESS, CIRCULATION AND TRAFFIC

The site is easily accessible by pedestrian or vehicular means. Traffic engineers have recommended that the proposed development include a bridge connecting the adjacent main transportation artery to the parking structure and to a mass transit station. An exit ramp to the bridge alleviates the need for a stacking lane on the arterial road. Internally within the five-acre development, a system of moving sidewalks will allow pedestrian access to building and other site amenities.

The existing main transportation artery has already been upgraded to include self-repairing concrete and navigation micro-electro mechanical systems.

Employing Planning Department standards, the proposed development will require 11,235 parking spaces.

SOIL ANALYSIS

A geotechnical engineering firm has identified the site soils as medium to fine sand and has performed standard penetrometer tests to determine the type of building foundation needed for the proposed structures. Deep pile foundations, extending to the bedrock, are required for all buildings.

A Phase I Environmental Assessment was performed indicating the likely presence of gasoline contamination from a former gasoline station. A subsequent Phase II Environmental Assessment performed soil borings and installed monitoring wells. The presence of soil contamination was confirmed. Soil venting remediation is underway. Air is being forced into the soil to push gasoline vapors to collection facilities. Site excavation for building foundations will remove any residual contaminants.

SANITARY SEWER AND WATER UTILITIES

On average, the amount of wastewater produced by one person per day is 230 gallons. The estimated maximum amount of wastewater produced is 2,590,000 gallons per day including estimates of water use in the residential complex and established residential equivalency units (REUs) for proposed retail development in the mall. Prior uses on this site produced approximately 17,500 gallons per day. The increased wastewater flow will necessitate an increase in the size of sewer lines.

The parcel currently has a five percent slope in its grade, which will support the movement of waste by gravity. The recommended diameter of the sewage pipe is 12 inches. This diameter is the most effective in moving sewage through the system and efficient in its relative cost to larger diameter sewer lines while maintaining sufficient velocities to carry solids. Sewer lines will tap into the existing municipal sewer system.

The proposed development will tap into the municipal water supply. It is estimated that the development will require a maximum demand of 2,284,000 gallons of water per day. A twelve-inch water main will be sufficient to carry the required volume of water, however, it will be necessary to install a booster pump to deliver water to the upper levels of the residential complex and the mall.

STORM WATER

Forty-nine percent of the parcel's land area, as designed, will be impervious to water. Civil engineers have recommended the construction of a water retention pond for handling storm water run-off. The size of the pond will need to be the large enough to store the runoff from a 100-year rainfall event. The surface area of the pond will be between 0.1 - 0.15 acres and reach a maximum depth of five feet. Water runoff will be stored and released slowly into the storm-water collection system. It will be necessary to install storm water collection pipes with a maximum 45-inch diameter.

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