Project Overview – Sewage System

This report is intended to provide a general overview and general approach to the approval process for the project. This document is intended to be in support of an Act 537 Sewage Planning Mailer, initial design concepts and sewage flow generation.

The project will be located on what will eventually be two parcels totaling 244.6-acre in Paradise Township, Pocono Township and Mt. Pocono Borough, Monroe County, Pennsylvania. One Parcel contains an individual estate home and the former Hawthorne Resort, and the other parcel contains the remnants of the Strickland Golf Course.

The site drains to the Indian Run and Swiftwater Creek. The Chapter 93 stream classifications are EV, MF for both streams. The proposed advanced treatment as well as the integrated and dispersed stormwater collection system will protect the quality of the receiving water courses.

This project intends to redevelop Strickland Golf Course with Mixed Commercial and Recreational Uses and the Hawthorne Resort into an upscale destination resort with the following amenities:

a. Total of three (3) sit down restaurants.
b. Mixed use building including professional, medical, retail and recreational uses with 57,000 sf footprint and 30,000 sf on second floor.
c. 85,000 sf retail building
d. Rental Units
    i. 18 Stand alone "Duplex Villas" with a two-story configuration, living area on first floor with sleeping areas in loft. (364 per box)
    ii. 6 Standalone villas with exterior living area deck.
    iii. 26 deck villas configured in 3-unit clusters totaling 78 units.
    iv. 6 group villas, each villa having a cluster of 8 units including a center common area totaling 48 units.
    v. 94 Unit Hotel.
    vi. Existing Home to retained as a single large rental unit short term rental, not a hotel unit.
    vii. Total of 245 rental units
e. Resort amenities
    i. Walking Trails with connecting relaxation gazebos.
    ii. Tennis Court
    iii. Toddler Play areas
    iv. Onsite Shuttle Service
    v. Pool area with 3 relaxation pools 20,553 sf
    vi. Spa area 9,464 sf

Project Phasing

The project will be developed in Phases dependent on market demand. The site plan indicates major improvements. The initial construction of the project will include the resort restaurants and spa and up to half of the cabin rental units. All water consumption and sewage discharges to the disposal system will be monitored and utilized as poof of concept as part of a written detailed sewage management plan. The following phases will be the balance of the Cabin Units, Strickland Golf area followed by the Hotel.

Description of Improvements:

This project will include construction of internal roads and parking areas, buildings and resort amenities. These improvements will require extensive grading of the site and the installation of utilities to serve the development. As part of these improvements, a network of stormwater collection and control systems will be constructed to comply with PA Code, Title 25, Chapter 102, the watershed's Act 167 Plan, and Paradise Township's Stormwater Management Ordinance and Subdivision and Land Development Ordinance.

Development Water Supply:

The project has contemplated waterline extensions from both the Broadhead Creek Regional Authority to the south and PA American Water Company from the north. However, neither system currently has capacity to serve this development without considerable improvements. As a result, onsite wells and a water storage tank will be provided to provide potable water and fire protection. This system will be considered a Public Water Supply regulated and permitted under PA Code, Title 25, Chapter 109.

Development Sewage Generation:

Based on the proposed improvements which generate sewage, the below chart identifies peak flows based on PA Code, Title 25, Chapter 73. These flows represent the peak day of generation. The project intent will be to locate adequate sewage disposal area for the above 39,757 gpd and design and construct sanitary sewage facilities in compliance with the Pa Domestic Wastewater Facilities manual through the issuance of a Water Quality Permit. The total flow in terms of EDUs as it relates to Act 537 sewage planning using the provisions of Chapter 73 would be 400 gpd/EDU or 152 EDUs.

Hawthorne Resort & Strickland Golf Course Flow Generation Chart Full Build Out				
Sewage/Water Uses	Units	Unit Type	flow per unit	Total flow
Swimming Recreational Pool Use	250	Guest	10	2,500
Spa (Therapy Pool Use)	125	Guest	10	1,250
Spa Operators	6	Lic. Operator	200	1,200
Banquet center	240	Meals Served	10	2,400
Restaurant	425	Meals Served	10	4,250
Restaurant	425	Meals Served	10	4,250
Hotel (Phase 3)	94	units	100	9,400
Existing 5 BR Home	1	Home	600	600
Cabins	150	Unit	150	22,500
85,000 sf Retail-employees	10	Employees	100	1,000
85,000 sf Retail-Public Bathrooms	6	Bathrooms	400	2,400
10,000 SF Franchise Restaurant	750	Meals Served	10	7,500
87000 SF mixed Use Building	10	Employees	125	1,250
Total Flow Full Buildout – Peak Day				60,500

The site sewage capacity will be based on a water budget approach and will consider weekly peak flows, not daily peak flows utilized by Chapter 73. The weekly peak flows during peak utilization will be as follows:

Flow Distribution Table Summer (Full Buildout)				
Day of Week	Resort Occupancy %	Projected Daily Flow	Discharge Drip Irrigation System	Held in EQ
Friday	75%	45,375	39,757	5,618
Saturday	100%	60,500	39,757	26,361
Sunday	100%	60,500	39,757	47,104
Monday	60%	36,300	39,757	43,646
Tuesday	35%	21,175	39,757	25,064
Wednesday	30%	18,150	39,757	3,457
Thursday	60%	36,300	39,757	0
Peak Week Flow, gpd		39,757		

Based on review of the flows, the minimum required disposal capacity of the Drip System shall be 39,757 gpd.

Development Sewage Treatment Overview:

The conveyance and pretreatment system will be designed based on the above flows to be able to handle maximum peak flows. However, the design of the disposal system will consider a peak

weekly flow and provide an adequately sized equalization tank to balance actual flows over a weekly period with an average weekly anticipated flow of 39,757 gpd weekly during peak summer months. The equalization systems will be sized to approximately 40,000 gallons utilizing multiple tanks, one for each drip field.

Based on review of available central sewer systems in the area, Mt. Pocono Municipal Authority to the North, Mt. Airy Lodge to the West, and Pocono Township to the South, ability to connect to an existing central system has been determined to be infeasible to do multiple considerations including legal concerns for the connection, limited available capacity, and providing services outside of existing service areas of the adjoining systems. As a result, a drip irrigation system with a capacity of 39,757 gpd appears to be the only practical alternative for this project. Areas of the development site with moderate slopes have been reserved with the intent of evaluation for potential sewage disposal totaling 9.79 acres in the resort area and 5.03 acres in the Strickland Golf Area.

The development has been planned with a rural layout of development clusters to reduce density and preserve natural vegetation on the site. To accommodate the rural nature of this development, sewage from each unit will be conveyed to multiple septic tanks for solids removal and anaerobic digestion as the first stage of pretreatment. Each septic tank will discharge through a filter then to an Ecoflo Coco Filter system. Each of these individual treatment trains shall be accommodated to meet the peak-day discharge from the connected facilities and designed to meet NSF/ANSI standard 40 and 245. The system will have an effluent level of less than 8 mg/l TSS and 6 mg/l $CBOD_5$. It is noted that larger users such as the hotel or spa may opt to utilize a larger system with the same performance characteristics as above dependent on the final design needs of the facilities. The brown water effluent from the treatment train will be conveyed to a remote equalization tanks to each of the disposal fields. These tanks will be the hydraulic units to provide final filtration and pump systems. At each tank location a small septic tank will be provided to provide sediment removal from the filter units provided in the equalization tanks prior to drip field discharges.

Drip Irrigation Field Capacity:

The disposal fields have been tested in the resort area by Brian Oram, PG to determine soil suitability and sewage application rates. The total tested capacity in the resort area has been found to be 63,743 gpd during peak utilization in the summer.

The disposal area reserved in the area of the Strickland Golf Course has not yet been tested. However, this area has been used as a golf course for the past 80 years and it is believed that the soils will be conducive to drip irrigation. This area is 5.03 acres. Assuming the lowest tested application rate from the Resort drip filed area of 1.28 in-acre/week, this area has a projected disposal capacity of 24,974 gpd during summer peak utilization periods. The total available project sewage disposal capacity is likely to exceed 88,717 gpd.

Development Sewage System Monitoring and Operations Overview:

Water meters shall be provided in each of the building clusters to monitor flows and flows to each drip irrigation system will also be metered. Monitoring wells will be installed down slope of the drip irrigation system and quarterly sampling of the wells will be taken while the system is in operation. This monitoring program will be overseen by a licensed professional and reports shall be provided to the PADEP and the Township.

The treatment systems at the development will be operated by a PA Licensed Operator and be maintained by a manufacturer certified contractor. Each septic tank shall be emptied once per year or as otherwise needed for the development.

The project is intended to be developed and constructed in phases. As each phase progresses the developer shall review sewage flows and confirm that the above flows are consistent with the anticipated flow generation pattern for the project.