

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER R2-2005-0043

REVISED WATER REUSE REQUIREMENTS FOR:

**CARNEROS INN AND L. PEREZ & SONS VINEYARD
CARNEROS REGION, NAPA COUNTY**

The California Regional Water Quality Control Board, San Francisco Bay Region (hereinafter called the Water Board), finds that:

1. Carneros Partners, LLC, owner and operator of Carneros Inn submitted a Report of Waste Discharge, dated December 1998, for the construction and operation of a new tertiary wastewater treatment and disposal system to serve a new combined residential housing and recreational vehicle resort facility. Phase 1 of new facilities were constructed on a 16.4 acre parcel (Napa County APN 47-100-34) located on State Highway 12/121 (aka Old Sonoma Highway) southwest of the City of Napa, and west of Highway 29, in an unincorporated area of Napa County. (Figure 1, Attachment 1).
2. L. Perez & Sons (Perez) are the owners and operators of a 24-acre vineyard on property adjacent to and northeast of the Carneros Inn property. The property consists of sloping terrain planted with well-established vineyards. The property includes an irrigation supply well located 215 feet northeast of the Carneros Inn property boundary. L. Perez & Sons will use recycled water from the Carneros Inn's Phase 1 tertiary water storage pond system for drip irrigation of vineyards. The vineyard area is fenced to preclude public access.
3. The Carneros Inn project is located immediately adjacent to the low ridge that separates the Carneros Creek drainage from the lower Napa River. Surface runoff from the developed portions of the project flows into a series of unnamed channels that run south and east from the site. These channels are roughly 3.75 miles in length and eventually join the Napa River approximately one river mile upstream of Cuttings Wharf.

SITE HISTORY

4. The Carneros Inn property was previously owned and operated by Wine Valley Mobile Estates and Los Carneros R.V. Resort. In the late 1990s, the current owner, Carneros Partners, LLC, purchased the facility. The old facility consisted of residential and restaurant facilities and an onsite wastewater system consisting of septic tanks and two wastewater evaporation ponds. In addition to disposal by direct evaporation, treated wastewater was intermittently used for drip irrigation of an vineyard, owned and operated by the adjacent property owner, L. Perez & Sons.
5. In May 2001, the Water Board issued a Water Reuse Permit (Order 01-051) for Phase 1 of the new Carneros Inn facility. The completed Phase 1 facility began operation in November 2003. Construction of the initial Carneros Inn facility involved a total redesign and upgrade of the site to an extensively landscaped resort setting. Changes included: a change in the layout of the old temporary RV park trailers to "Park Trailer" Cottages and 24 "factory-built resort residences"; a public-serving roadside coffee house; redesign and relocation of the main restaurant (to serve resort guests); redesign of administration recreational facilities; elimination of two existing wastewater ponds; construction of a new tertiary water holding pond; and construction of a new tertiary wastewater treatment system.

CARNEROS INN PHASE 2 EXPANSION

6. On June 2, 2005, Hydrosience Engineers, Inc. submitted an "Amended Engineering Report on the Production Distribution, and Use of Recycled Water, Phase 2, May 2005", to the Water Board. The Phase 2 expansion will include additional facilities such as cottage suites, business center with meeting and banquet space, public restaurant, gym and spa, retail space, administration building, and support facilities. Additions and modifications to the wastewater treatment plant and recycled water distribution facilities will be constructed to handle the increased wastewater flows.

The Phase 1 wastewater treatment facilities were designed to treat an average daily flow of approximately 14,000 gallons per day (gpd) and a peak flow of approximately 20,000 gpd. With the Phase 2 expansion and subsequent wastewater plant improvements, the Inn's treatment capacity will increase by an average daily flow of 10,500 gpd to a total average daily flow of approximately 24,500 gpd. Peak daily flow capacity will increase by approximately 15,000 gpd to a peak flow of 35,000 gpd. Recycled water from the Phase 1 tertiary facility is seasonally stored on site in a pond having an effective capacity of 8.26 acre-feet. The addition of the Phase 2 recycled water storage pond will provide another 7.3 acre-feet of seasonal storage capacity. The second pond will be hydraulically connected to the existing Phase 1 pond. The Phase 1 & 2 recycling water facilities are shown in Figure 2, Attachment 2.

WASTEWATER TREATMENT FACILITY

7. The Phase 1 state-of-the-art wastewater treatment system produces disinfected tertiary recycled water suitable for "unrestricted" irrigation reuse in accordance with current state California Water Recycling Criteria (Title 22 regulations and criteria for wastewater reclamation). Recycled water produced by the tertiary treatment facility is used for on-site irrigation of approximately 8 acres of landscape features (utilizing spray, drip, and subsurface applications). Recycled water is also used as a source of supply for fire hydrants and fire sprinkler systems at the common facilities. Excess tertiary water from the Carneros storage pond will be available to Perez & Sons Vineyard for drip irrigation of approximately 6.5 acres of vineyard. However, the vineyard has not used water from the Carneros facility under Phase 1. All wastewater generated on site is of domestic origin, with a small amount of commercial wastewater from the small laundry facility at Carneros Inn.

The Phase 1 tertiary treatment system consists of:

- * Self-cleaning fine screen at the head works
- * Microfiltration membrane bio-reactor
- * Chlorine contact pipeline (sodium hypochlorite)
- * Permeate pump station
- * Standby auxiliary power to operate the recycled water system during power interruptions
- * Equalization/emergency (E/E) storage facility
- * Chlorine residual sampling station
- * Recycled water seasonal storage pond (Phase 1)
- * Recycled water pump station and Phase 1 distribution system
- * Fire Flow pump station and Phase 1 distribution system
- * Spray, drip, and subsurface irrigation.

The Phase 2 facility additions include:

- * New Equalization/emergency storage and pumping facilities
- * Additional membrane filters (2 modules)
- * Upsized permeate pumps
- * An additional Phase 2 recycled water seasonal storage pond
- * Storage pond transfer pumping facilities
- * Recycled water facilities for Phase 2 landscape irrigation and fire protection
- * Phase 1 pond connection to Perez & Sons Vineyard
- * An emergency (operational system) alarm system connected to 'Operator(s)' remote pagers

The Phase 1 wastewater is collected in the existing sewer system and flows by gravity to an equalization/emergency (E/E) storage facility. In Phase 2 wastewater collected from the added facilities by a new collection system will flow by gravity to a new E/E storage facility where it will be pumped into an existing sanitary sewer that drains to the existing Phase 1 E/E storage facility. From the Phase 1 E/E storage facility, the combined wastewater flow is pumped to the treatment plant headworks.

After screening at the headworks the influent flows to the microfiltration membrane bioreactor (MBR) (see flow schematic in Figure 3, Attachment 3). The MBR is a Zenon system with a configuration that has been approved by the California Department of Health Services (DHS) for production of tertiary recycled water. The MBR facilities have been sized for normal operation at peak day flow; however, hydraulic capacity is provided for instantaneous peak flows of approximately twice the peak day flow. The MBR process train consists of an aeration basin, an anoxic basin, recirculation/sludge wasting pump, immersed microfiltration membranes, and permeate pumps. Dissolved BOD is converted into filterable solid material in the aeration basin by an aerobic suspended growth process. In addition, nitrification occurs in the aeration basin. Nitrified effluent is recirculated to the anoxic basin and blended with raw wastewater for denitrification. Several "cassettes" with microfiltration membranes are immersed at one end of the aeration basin. Phase 1 included two cassettes, each containing three membrane modules. Phase 2 will add an additional module to each cassette. An automated programmable controller controls the backwashing of the bio-filter membranes. Sodium hypochlorite is also injected into the back pulse flow to remove biological growth in the membrane filters. Waste activated sludge is periodically pumped from the bottom of the aeration basin into a tanker truck and transferred to a wastewater treatment plant with solids handling facilities.

Permeate (wastewater that has passed through the membranes) is pumped to the recycled water seasonal storage pond (Phase 1) in a dedicated pond-fill/chlorine contact pipeline. Sodium hypochlorite is injected at the beginning of the pipeline and mixed with an inline mixer. All of the required contact time is achieved in the pipeline. The chlorine residual of the permeate is monitored prior to discharge into the seasonal storage ponds. In the event that the chlorine residual does not meet the requirements of the Water Recycling Criteria for disinfected tertiary recycled water; the permeate production will be stopped and the off specification recycled water will be directed to the E/E storage facility until it can be pumped back to the headworks of the plant to be retreated.

The E/E storage basins provide redundant storage capacity in the event that recycled water is produced that doesn't meet the requirements of the Water Recycling Criteria for disinfected tertiary recycled water. The recycled water treatment facilities layout is presented in Figure 4, Attachment 4.

8. **Monitoring of System Reliability**

The wastewater treatment plant will include an additional Program Logic Control panel (PLC) equipment to monitor and control all major equipment functions including the fine screen; pumps, valves, and blowers associated with the MBR; disinfection system equipment; and pump stations. In addition, automatic continuous monitoring equipment, such as turbidity meters, and flow meters will have a feed signal to the plant control center. Failure or malfunction of any of treatment plant equipment, or an improper monitoring signal, will initiate an alarm that will audibly and visibly display at the plant control center. In addition, the plant control center will be tied to a remote 'operator' pager system to alert the on-site or 'on-call' operator. The plant control center servers, alarm systems, and critical PLCs will be provided with uninterruptible power supplies.

9. **Emergency Storage Capacity**

The wastewater treatment system will have emergency storage capacity for untreated or partially treated wastewater for at least 24-hours at peak day flow rates (35,000 gallons). If the permeate pumps are down, the water level in the MBR tank will rise and automatically overflow to the E/E storage facility via overflow pipe at the influent channel to the MBR basin to the E/E storage facility to prevent it from being delivered to the recycled water storage ponds and ultimately to the use areas. In all cases where the effluent is returned to the E/E storage basin, an investigation will be conducted to determine the cause of the incident (see Provision 13).

RECYCLED WATER STORAGE PONDS

10. The Phase 1 seasonal storage pond with a capacity of 8.7 acre-feet was constructed to hold the tertiary treated water prior to distribution to on-site landscape irrigation. The pond was designed with sufficient wastewater storage capacity to allow for total containment of wastewater during non-irrigation periods, with sufficient pond levee freeboard to allow for the capture and containment of normal rainfall events.

A second Phase 2 seasonal storage pond with a capacity of 7.3 acre-feet will be constructed to hold additional tertiary treated water prior to distribution to on-site landscape irrigation. The second pond will be hydraulically connected so that recycled water can be transferred between the two ponds. The Phase 1 pond is designed to provide recycled water to the Perez & Sons Vineyard. Both ponds are designed with a concrete liner or equivalent liner to prevent infiltration into the groundwater.

BASIS FOR WASTEWATER TREATMENT DESIGN

11. The proposed peak wastewater flows for the Carneros Inn Phase 1 & 2 facilities are as follows:

<u>Facilities</u>	<u>Units</u>	<u>Peak Flow (gpd)</u>
Cottage Units	140	13,740
Reception/Admin/Rec. Bldg.	2	4,230
Three Restaurants (seats)	342	6,370
Employees	172	1,890
Support Facilities	1	3,190
Contingency (10%)		3,000
TOTAL		32,420

12. The estimated wastewater quality characteristics for the Carneros Inn wastewater/reclaimed water system are shown in Table 1.

Table 1. Design Wastewater characteristics for Carneros Inn treatment/reuse system

Parameter	Influent	Effluent
BOD ₅	250 mg/l	<10 mg/l
TSS	250 mg/l	<10 mg/l
Total nitrogen	40 mg/l	<10 mg/l
Turbidity		0.2 NTU
Fecal Coliform		< 2.2 /100ml

13. Water Conservation

State of the art water conservation technology will be used for bathing and washing, flushing toilets, dishwashing (efficient institutional dishwasher), and irrigation systems. The two on-site kitchens and roadside coffee shop will not have garbage grinders. A grease trap will collect grease from the restaurant kitchens and coffee shop prior to flow into the wastewater treatment system. All organic food waste will be collected and composted and/or disposed of off-site.

WATER BALANCE FOR THE WATER STORAGE AND IRRIGATION DEMAND

14. Wastewater Reuse Through Landscape and Vineyard Irrigation:

A monthly water balance was prepared by HydroScience Engineers to estimate storage requirements and irrigation demands. The data is presented in Table 3 (Attachment 5). Applied irrigation demands were estimated by subtracting monthly precipitation from monthly evapotranspiration, assuming 80 percent efficiency for rainfall irrigation and 90 percent efficiency for applied irrigation. Mean monthly rainfall data were obtained from a recording station at the Napa Fire Department and adjusted to estimate a wet season with a 10-year occurrence interval, then distributed on a monthly basis using a standard distribution formula. The estimated annual rainfall for a 10-year wet season occurrence interval is 34.26 inches. The total estimated irrigation demand at Carneros Inn is 20.5 acre-feet per year (AFY). The total irrigation demand at the Perez and Sons Vineyard will be 6.5 AFY out of the 42.4 AFY available.

15. The general recycled water use areas are shown in Table 2 below:

Table 2: Existing and Potential Water Uses

Customer	Use Area (acres)	Annual Demand (AFY)	Type of Reuse	Type of Irrigation	Land Use ⁽¹⁾	Level of Access ⁽²⁾
*Landscaping at Carneros Inn	7.0	20.5	irrigation	spray, drip, subsurface	recreational ornamental	unrestricted
*Perez & Sons	24	42.4 ⁽³⁾	irrigation	drip, spray	agricultural	restricted
Total		62.9				

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- ¹ “Recreational” land use includes lawns that may be used for recreational purposes. “Ornamental” landscaping includes other landscaping not intended for recreational uses (shrubbery, groundcover, fountains, etc.).
 - ² “Unrestricted” access includes areas to which public has access. “Restricted” access includes areas where public generally does not have access (Perez and Sons Vineyard).
 - ³ Total irrigation demand of Vineyard, actual volume of water delivered will be limited to excess recycled water available, estimated at 6.5 acre-feet/year.

GROUNDWATER ISSUES

16. Nitrate loading from on-site wastewater disposal systems can potentially degrade ground water supplies. Carneros Inn draws its drinking water from a deeper groundwater aquifer in the vicinity. The tertiary treatment unit is expected to produce less than 10 mg/l of nitrate-N in the effluent. Near complete nitrification and significant denitrification is expected. Nitrification is achieved in the aerobic reactor, which is highly aerated. Denitrification occurs in the anoxic reactor, by re-circulating the nitrified effluent from the aerobic reactor and blending it with the influent wastewater. The recycled water storage ponds are being lined to prevent wastewater from infiltrating to groundwater and the subsurface irrigation system is designed to maximize nitrogen uptake and minimize nitrates from reaching groundwater. The combination of these factors is expected to significantly reduce any risk of nitrate contamination of the underlying groundwaters.
17. The Carneros Inn is hereinafter called the Producer of the recycled water (although Carneros Inn will also be user of recycled water on site). The Perez and Sons Vineyard is hereinafter called the User. Both the Producer and the User are hereinafter collectively called the Discharger.
18. The Carneros Inn, as the Producer of the recycled water, will operate and maintain the major treatment, onsite distribution and recycled water irrigation facilities. Perez and Sons Vineyard, the User, will be responsible for the operation and maintenance of its recycled water irrigation facilities.

BASIN PLAN AND BENEFICIAL USES

19. The Water Board adopted a revised Water Quality Control Plan (Basin Plan) for the San Francisco Bay Region on January 21, 2004. This updated and consolidated plan represents the Water Board’s master water quality control planning document. The revised Basin Plan was approved by the State Water Resources Control Board and the Office of Administrative Law on July 22, 2004 and October 4, 2004, respectively, and approved by the U.S. Environmental Protection Agency, Region IX on January 5, 2005. A summary of regulatory provisions is contained in Title 23 CCR 3912. The Basin Plan defines beneficial uses and water quality objectives for surface waters and groundwaters of the State. This Order implements the plans, policies and provisions of the Water Board’s Basin Plan.
20. The Basin Plan defines beneficial uses and water quality objectives for waters of the State within the San Francisco Bay Region, including surface and ground waters.
21. The beneficial uses identified in the Basin Plan for Napa River and tributaries, in the project vicinity include:
 - a. Navigation
 - b. Water Contact Recreation
 - c. Non-contact Water Recreation

- d. Warm and Cold Water Fresh Water Habitats
- e. Wildlife habitat
- f. Preservation of Rare & Endangered Species
- g. Fish Migration and Spawning

22. The beneficial uses identified in the Basin Plan for ground water in the Napa Valley area include:

- Municipal Water Supply
- Industrial Process Water Supply
- Industrial Service Supply
- Agricultural Supply

REGULATORY ISSUES AND APPLICATIONS

23. In August, 2001 the Napa County Planning Conservation approved Phase 2 of the project. After an appeal the Commission certified the EIR, State Clearinghouse #99122014, and approved a downscaled version of Phase 2 in November 2002.
24. Section 13523 of the California Water Code provides that a Water Board, after consultation with and receipt of recommendations from the State Department of Health Services (DHS), shall prescribe water reclamation requirements for water that is used as recycled water. These water reuse requirements are in conformance with the recently adopted statewide water reclamation criteria. The *Carneros Inn Recycled Water Project, Engineering Report on the Production, Distribution and Use of Recycled Water, Phase 1*, and *Amended Engineering Report on the Production Distribution, and Use of Recycled Water, Phase 2*, prepared by HydroScience Engineers, Inc., November 2000 and May 2005, respectively, was approved by DHS on December 12, 2000 and on July 13, 2005, respectfully.
25. The proposed uses of recycled water will maintain and enhance natural resources, and thus this Order is categorically exempt from the provisions of Chapter 3 (CEQA) Division 6, Title 14 of the California Administration Code pursuant to Section 15301 of that Chapter.
26. The project as regulated by this Order will not have a significant adverse impact on water quality.
27. The Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for the discharge and has provided them with the opportunity for a public hearing and opportunity to submit their written views and recommendations.
28. The Water Board, in a properly noticed public meeting, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED that Discharger, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, shall comply with the following:

A. Prohibitions

1. The treatment, storage, distribution, or reuse of waste shall not create a nuisance or pollution as defined in the California Water Code.
2. The discharge of waste other than domestic/limited commercial laundry wastes into the waste treatment and disposal system is prohibited.

2. The discharge of waste other than domestic/limited commercial laundry wastes into the waste treatment and disposal system is prohibited.
3. Discharges of any wastes including overflow, bypass, over-spray and runoff from treatment, transport, or disposal systems to adjacent drainage ways or adjacent properties not controlled by this permit is prohibited.
4. There shall be no bypass or overflow of untreated or partially treated wastewater to waters of the State from the Producer's collection, treatment, storage or disposal facilities.
5. The discharge of wastewater or use of recycled water shall not cause the degradation of groundwater used for domestic purposes or cause any change in quality parameter that would make the groundwater unsuitable for irrigation use.
6. Recycled water shall not be used as a domestic or animal water supply. There shall be no cross-connection between the potable water supply and the piping containing reclaimed water. Supplementing recycled water with water used for domestic supply shall not be allowed except through an air-gap separation. Double check valve assemblies will be installed for backflow prevention on all potable water pipes serving buildings in which recycled water will be used for fire protection. These assemblies shall be tested at least once per year.
7. Discharge of toxic substances into wastewater treatment or the recycled water storage pond is prohibited.
8. Recycled water shall not be applied to irrigation sites when soils are saturated, when conditions are such that runoff or excessive ponding is likely to occur, during rainfall, or when rainfall is expected to occur within 24 hours.
9. The peak daily flow to the wastewater treatment system shall not exceed 35,000 gpd.

B. Recycled Water Quality Specifications

1. The Producer shall assure that the recycled water discharged to the storage pond(s) is at all times an adequately oxidized, disinfected tertiary treated wastewater that meets the following quality limits.

- a. The effluent discharged to the storage pond shall not exceed the following limits:

Constituent	Unit	Daily Maximum
1) BOD ₅	mg/l	10
2) TSS	mg/l	10
3) Oil & Grease	mg/l	10
4) Nitrate Nitrogen as N	mg/l	10

- b. pH: The pH of the discharge shall not exceed 9.0 nor be less than 6.5

c. Total Coliform Bacteria:

The treated wastewater shall meet the following limits of bacteriological quality:

The moving median value for the most Probable Number (MPN) of total coliform bacteria in any five consecutive samples shall not exceed 2.2 MPN/100 ml; and any single sample shall not exceed 23 MPN/100 ml when verified by a repeat sample taken within 48 hours.

2. The Producer shall discontinue the pumping of recycled water to the storage ponds during any period when there is reason to believe that the limits specified in B.1. are not being met. The pumping of recycled water shall not be resumed until all conditions that caused the violation limits specified in B.1. have been corrected.

C. Storage Pond Specifications

1. The Producer's recycled water storage ponds shall be lined with a concrete, or equivalent, liner with sufficient impermeability to prevent infiltration to groundwater.
2. Recycled storage ponds shall be fenced to preclude unauthorized public access
3. Wastewater grab samples within one foot of the surface of the storage ponds shall meet the following quality limits at all times:
 - a. Dissolved Oxygen 1.0 mg/l minimum
 - b. pH 6.5, minimum; 9.0, maximum
4. A minimum freeboard of 24 inches shall be maintained in the recycled water storage ponds at all times.
5. Storage pond water levels must be monitored by water level alarms.
6. The recycled water storage ponds shall be protected from erosion, washout, and flooding from the maximum flood having a predicted frequency of once in 100 years.
7. **Storage Pond Aquatic Plant Control**

The water Board expects the Producer to operate and maintain the recycled water storage ponds without chemical treatment (i.e., herbicides and algacides) and to implement all feasible measures prior to using chemical treatment. If chemical treatment is proposed by the Producer for aquatic plant control, then such treatment shall be approved in writing by the Water Board's Executive Officer.

D. Recycled Water Use Specifications

1. Recycled water will not be provided to any unit intended for human habitation, for any internal use. Recycled water irrigation areas will be managed and maintained in accordance with sound irrigation practices to minimize any reasonable avoidable loss of recycled water from the irrigated areas. These systems shall be monitored and maintained such that:

- a. Irrigation will be confined to recycled water use areas. Recycled will not be allowed to escape from the use area by airborne spray or subsurface flow except in minor amounts such as are associated with good irrigation practices.
 - b. Spray, mist or runoff will not enter dwellings, designated outdoor eating areas, or food handling facilities.
 - c. Drinking water fountains will be protected against contact with recycled water spray, mist or runoff.
2. The Producer shall adequately post signs informing the public that the liquid contained in the pond and recycled water is being used for irrigation throughout the site. The signs shall be posted at the corners of the storage pond. Signs will be posted in areas where the recycled water is accessible to the public, such as decorative fountains and where spray irrigation is conducted. In addition, a sign will be posted at the main entrance to the use area and in conspicuous locations in the landscape irrigation areas. These signs will be at least four inches high by eight inches wide, and include the following wording at a minimum: "RECYCLED WATER – DO NOT DRINK". Each sign shall display an international "Do Not Drink" symbol. The User must provide adequate means of notification to inform workers and the public that recycled water is being used for irrigation at the vineyard. The signs shall be of sufficient size and proper wording to be clearly read.
3. There shall be no irrigation of recycled water within 50 feet of any well used for domestic supply, unless it can be demonstrated that special circumstances justify lesser distances to be acceptable.
4. Due to the narrow street widths and utility corridors that exist on-site, the preferable ten foot separation between potable water and recycled water system pipelines may not be practically possible at all outdoor locations. Where possible, recycled water pipes will be installed at least ten feet horizontally from and one foot lower than the potable water pipes. Where a ten-foot horizontal separation cannot be achieved, a minimum horizontal separation of four feet will be maintained. At locations where this horizontal separation is between four feet and ten feet, special pipe will be used, as defined in the *DHS Criteria for the Separation of Water Mains from Sanitary Sewers and Pipes Carrying Reclaimed Water*. In addition, at locations where the horizontal separation is between four feet and ten feet, recycled water pipes will be at least one foot below potable water pipes, and trench tape will be used in the potable water system trenches. Where recycled water pipes and potable water pipes cross, recycled water pipes will be installed at least one foot below potable water pipes. Carneros Inn will own all water, sewer, recycled water and storm drain utilities. Carneros Partners' management will tightly manage its Carneros Inn facilities, and no alterations to utilities, building plumbing, or irrigation systems will be allowed without specific management approval. Operations and maintenance personnel involved with utilities, plumbing, and irrigation systems will be educated on the importance keeping the recycled and potable water systems strictly separated. The recycled pipelines shall be colored purple in accordance with Title 22 requirements.
5. The landscape and vineyard irrigation programs shall be managed to prevent ponding of water or other conditions which would provide a breeding area for mosquitoes or other vectors of health significance, and to prevent the creation of odors, slimes, or unsightly deposits.

6. Under this Order the Producer may authorize a User to receive and reuse recycled water under a Producer designed permit-based program. The Producer will be responsible for ensuring that water meets the quality standards of this Order and for the operation and maintenance of major transport facilities and associated appurtenances. The Producer shall hold the User responsible for the application and use of recycled water on his designated use areas and associated operations and maintenance in accordance with all applicable DHS reuse criteria requirements.
7. The Producer shall conduct periodic inspections of the User's facilities and operations to monitor and assurance compliance with conditions of the Producer's permit and this Order. The Producer shall take what ever actions are necessary, including the termination of delivery of recycled water to the User, to correct any User violations.

E. Provisions

1. The Discharger shall comply with all sections of this Order immediately for Phase 1 and upon commencement of Phase 2 discharge.
2. The Producer shall maintain a copy of this Order at the Administration building, wastewater treatment plant, and in the office of the Recycled Water Supervisor so that it will be available at all times to management and personnel operating waste treatment and disposal facilities.
3. The Producer shall maintain in good working order and operate as efficiently as possible any treatment, disposal, and monitoring facility or control system installed by the Producer to achieve compliance with these water reuse requirements.
4. The Discharger shall comply with the attached self-monitoring program (SMP) (Attachment 6) as adopted by the Water Board and as may be amended by the Executive Officer. The User is responsible for submitting on-site observation reports and use data to the Producer, who will compile and file the necessary SMP reports to the Water Board.
5. Recycled Water Storage Ponds: In reviewing compliance with Specification C.4, the Water Board will take special note of the difficulties encountered in achieving compliance during entire wet weather seasons having a rainfall reoccurrence interval of greater than once in ten years.
6. The Producer and User shall appoint a "**Recycled Water Supervisor**" to be responsible for repairing, maintaining, and operating their respective recycled water systems according to the conditions in this Order, in order to prevent potential public health hazards. The Producer's Recycled Water Supervisor shall have sufficient training in wastewater treatment to oversee the daily operation of recycled water system and to respond to minor emergencies.
7. **Wastewater Treatment Operator**

The Producer shall provide the Water Board documentation that it has:

- a. A qualified wastewater and adequately trained wastewater treatment "Operator(s)" on site to oversee the recycled water treatment and disposal system. The Operator(s) must be adequately trained to over see daily operation of the recycled wastewater treatment facility and able to respond to minor emergencies.

- b. A contract with an outside State Certified wastewater treatment Operator(s) that can routinely setup/start, inspect and monitor the waste treatment facilities and respond promptly, at the request of the On-site Recycled Water Supervisor (or his backup), to an emergency or operating problem. The Producer shall provide the Board documentation that they have a contractual agreement with a certified and licensed wastewater treatment "Operator." This requirement will not be necessary if a qualified and certified wastewater treatment operator joins the Carneros Inn staff, either by enlistment or by training/testing.
8. The User shall be responsible for repairing, maintaining, and operating the recycled water irrigation system according to the conditions in this Order, in order to prevent potential public health hazards

9. **Personnel Training**

Inspection, supervision, and employee training should be provided by the Producer to assure proper operation of the recycled water facilities and to provide proper worker protection. For current and new employees involved with the recycled water program, the training program should include, at a minimum: (a) an introduction to the facilities recycled water program, Title 22 and Water Board requirements and regulations and user responsibilities, (b) preventative maintenance on equipment, and (c) emergency procedures and user notification. An appropriate training session on Title 22 and Producer/User responsibilities should also be provided to the User. An employee/User 'refresher' training session should be undertaken annually. The Producer should maintain a complete Record of inspections and training.

All personnel responsible for operation and maintenance of the wastewater treatment and disposal facilities shall be provided with a copy of the **Updated O & M Manual**. The O & M Manual is to include a **Contingency Plan** outlining action to be taken by plant operator(s) in the event of failure in the treatment operation, microfiltration operation, disinfection process or recycled water transmission and/or distribution systems (see Provision 12).

10. **Recycled Water Irrigation Plan**

The Producer shall submit an **Updated Recycled Water Irrigation Plan** at least **60 days** prior to Phase 2 distribution of recycled water to the irrigation system. The Plan shall describe the landscape irrigation system, type of landscaping/flora to be maintained by the irrigation system, and operation and maintenance of the entire water reuse system.

11. **ANNUAL REPORT**

The Producer shall implement a program to regularly review and evaluate its wastewater collection, treatment and disposal facilities in order to ensure that all facilities are adequately staffed, supervised, operated, maintained, and repaired as necessary, in order to provide adequate and reliable treatment, and disposal of all wastewater. A **Treatment Facilities**

Evaluation Program report discussing the status of this evaluation program, including any recommended or planned actions, shall be submitted to the Water Board by **March 15** of each year.

12. The Producer shall submit to the Board an **Updated Operational and Maintenance (O & M) Manual** for the entire wastewater treatment and disposal facilities at least **60 days** prior to startup of the Phase 2 wastewater treatment facility.
13. In the event the Discharger is unable to comply with any of the conditions of the order due to:
 - a. Breakdown of wastewater treatment/transport equipment;
 - b. Accidents caused by human error or negligence; or
 - c. Other causes such as acts of nature,

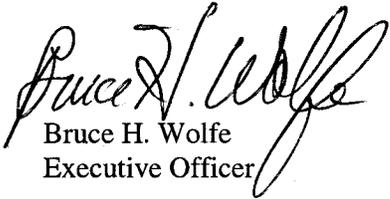
The Discharger shall notify the Water Board by telephone as soon as the Discharger or their agents have knowledge of the incident. Written confirmation of this notification shall be submitted within two weeks of the telephone notification. The written notification shall include pertinent information explaining reasons for the non-compliance and shall indicate what steps were taken to correct the problem and the dates thereof, and what steps are being taken to prevent the problem from recurring. The Discharger shall also report incidents to the Napa County Department of Environmental Management.

14. The Discharger shall notify the Water Board of personnel changes that may affect the safe and reliable operation of the water recycling system. This would include the Facility manager, Water Recycling Supervisor, and wastewater treatment operators. Documentation of new employee training, required operator certification, etc. must be submitted to the water Board and DHS.
15. Discharger shall permit the Water Board or its authorized representative in accordance with California Water Code Section 13267(c):
 - a. Entry upon premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this Order;
 - b. Access to and copy of, at reasonable times, any records required to be kept under the terms and conditions of this Order;
 - c. Inspection, at reasonable times, of any facility, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order; or
 - d. To photograph, sample or monitor, at reasonable times, for the purpose of assuring compliance with this Order.
16. In the event of any change in control or ownership of the land or the waste discharge facilities presently owned or controlled by the Discharger, they shall notify the succeeding owner or operator of the existence of this Order by a letter, a copy of which shall be forwarded to the Water Board.

18. After notice and opportunity for a hearing, this Order may be terminated or modified for cause including, but not limited to:
 - a. Violation of any term or condition contained in this Order;
 - b. Obtaining this Order by misrepresentation, or failure to disclose fully all relevant facts;
 - c. A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized reuse; or
 - d. Endangerment to public health or environment that can only be regulated to acceptable levels by Order modifications or termination.

19. The Water Reuse Requirements prescribed by this Order supercedes requirements previously prescribed by the Board's Order No. 01-051. Order No. 01-051 is no longer applicable and is hereby rescinded.

I, Bruce H. Wolfe, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of the Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on September 21, 2005.


Bruce H. Wolfe
Executive Officer

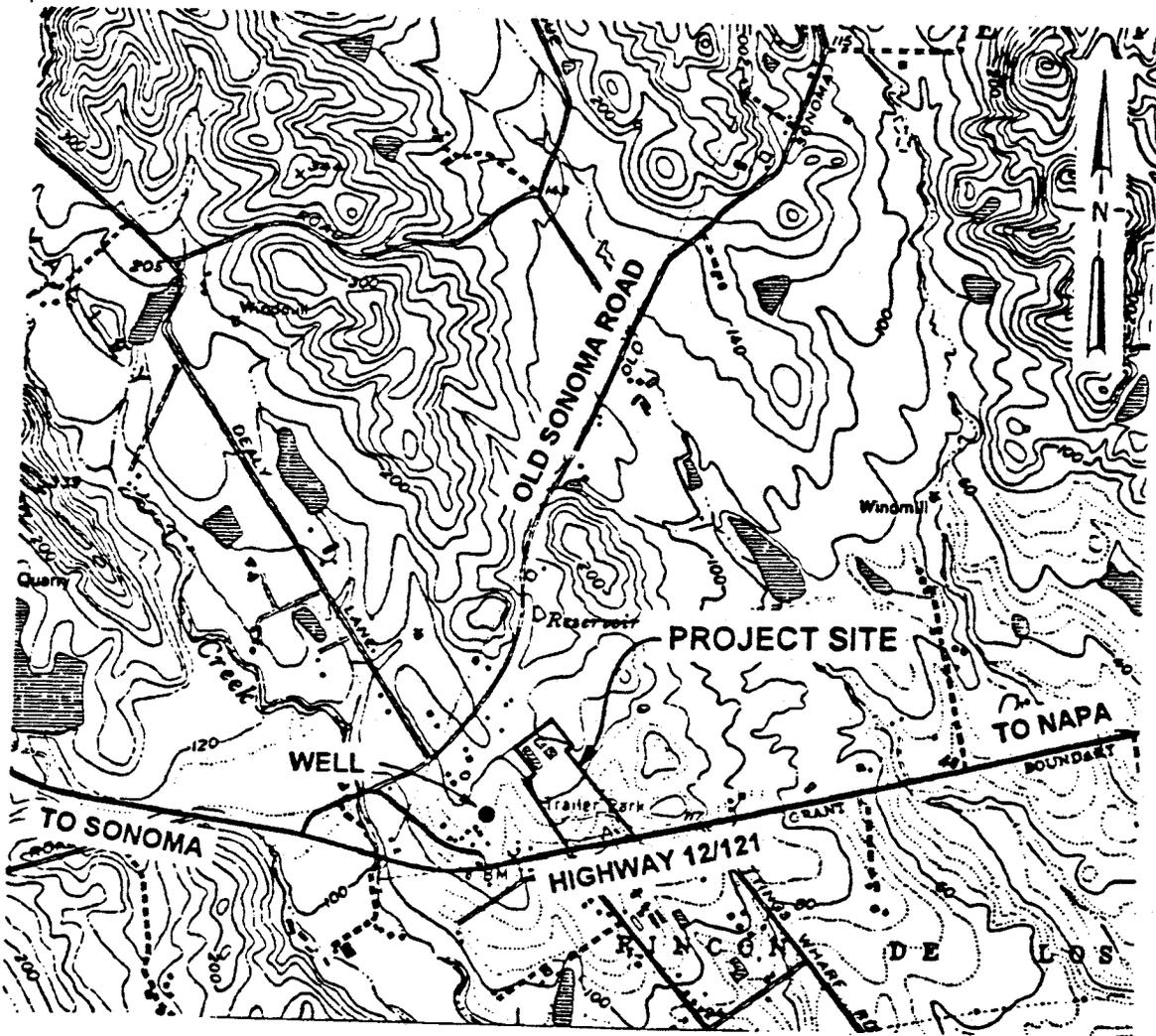
Attachments:

1. Location Map, Figure 1
2. Carneros Inn Site Map, Figure 2
3. Recycled Water Treatment Flow Schematic, Figure 3
4. Recycled Water Treatment Plant Layout, Figure 4
5. Water Balance, Table 3
6. Self-Monitoring Program

File No. 2139.3030
Originator: RJC

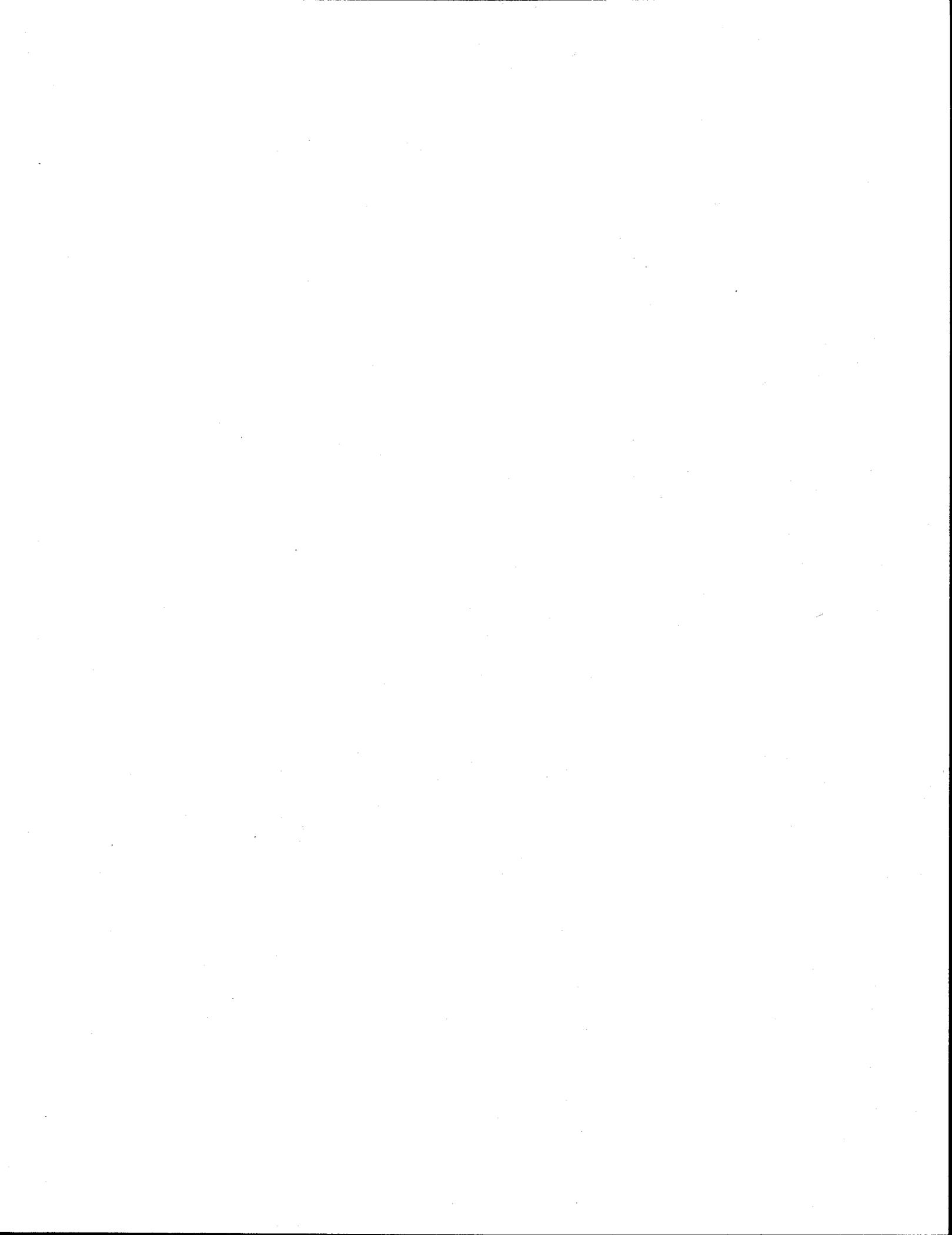
ATTACHMENT 1



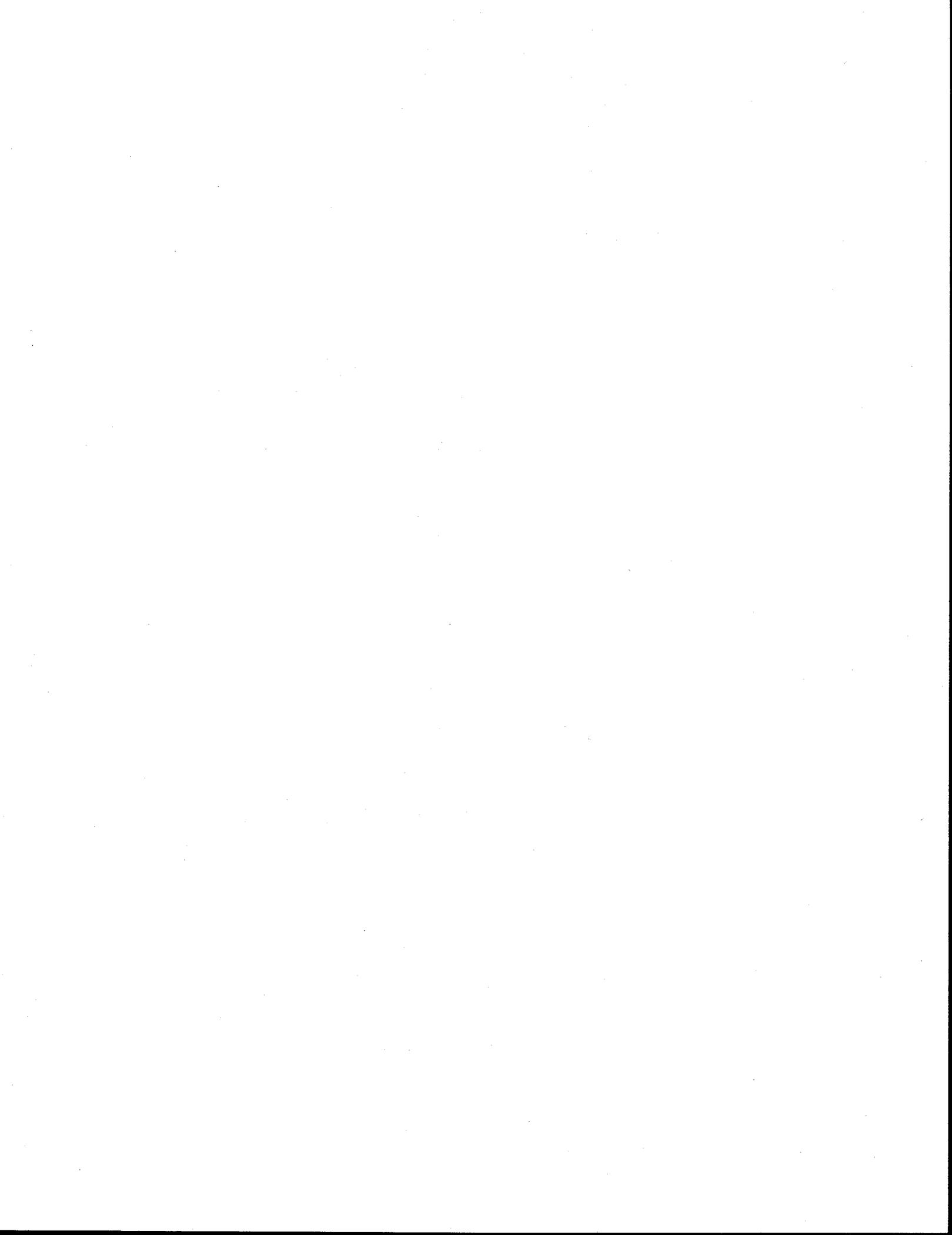


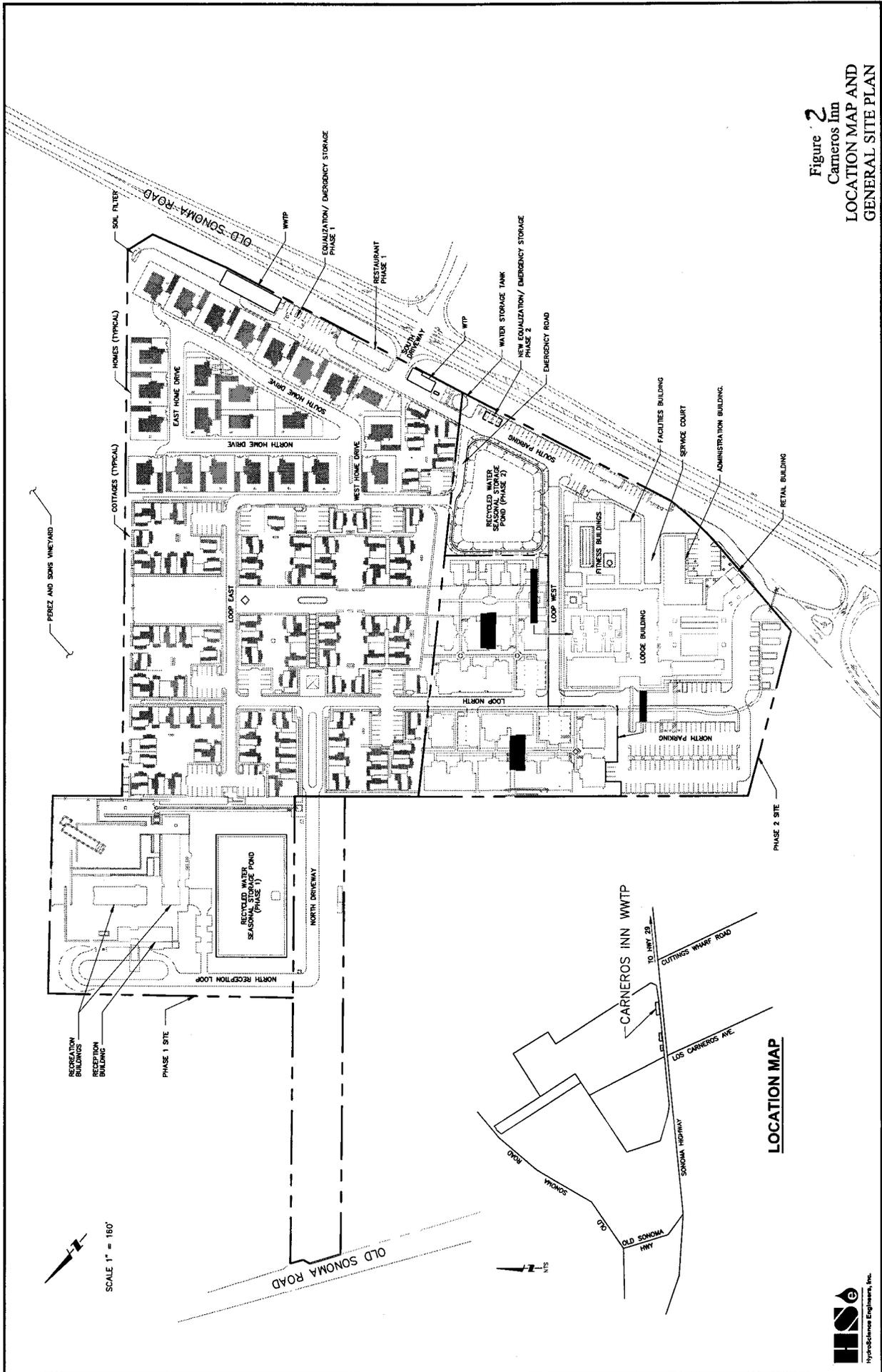
LOCATION MAP
1" = 2000'

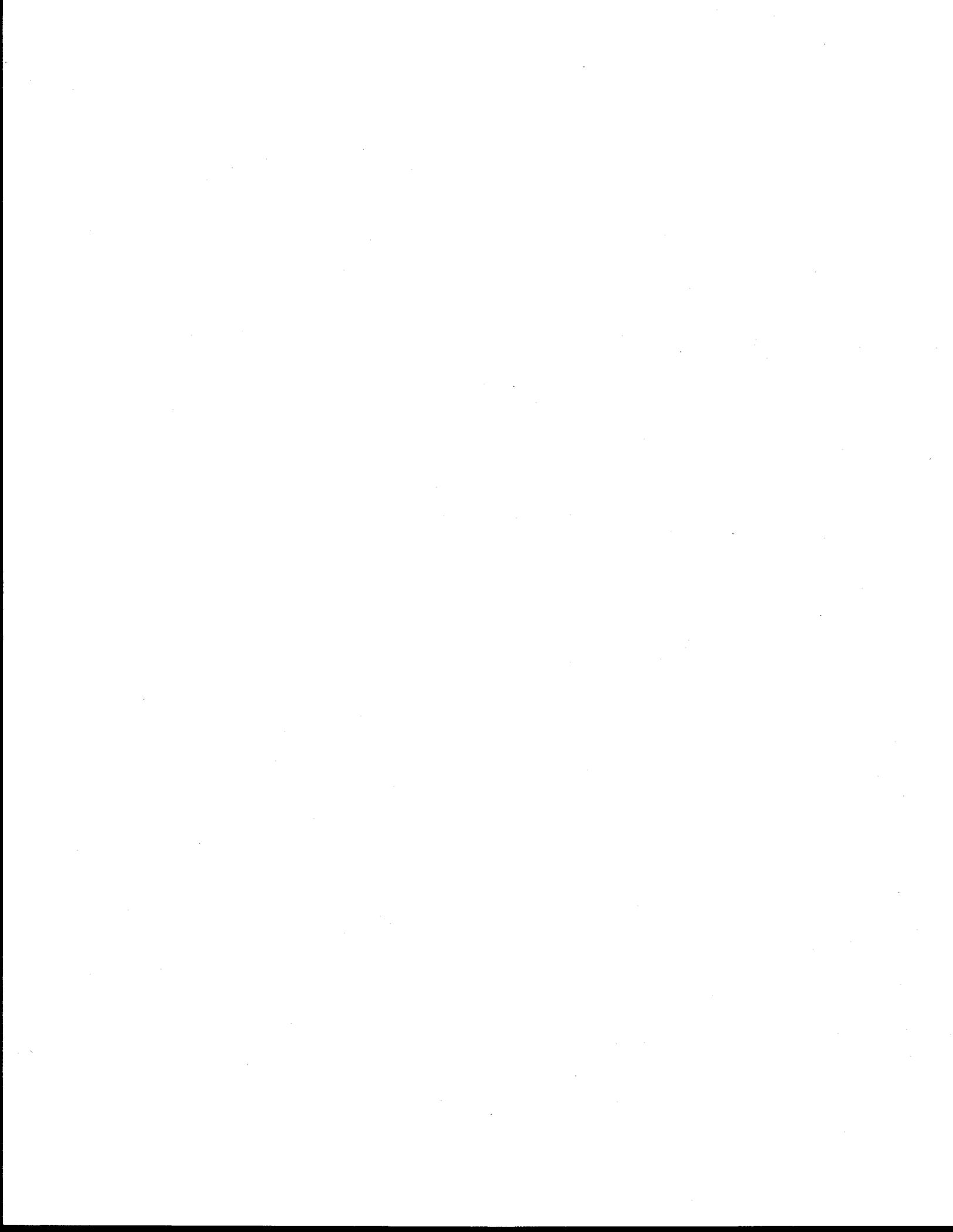
FIGURE 1



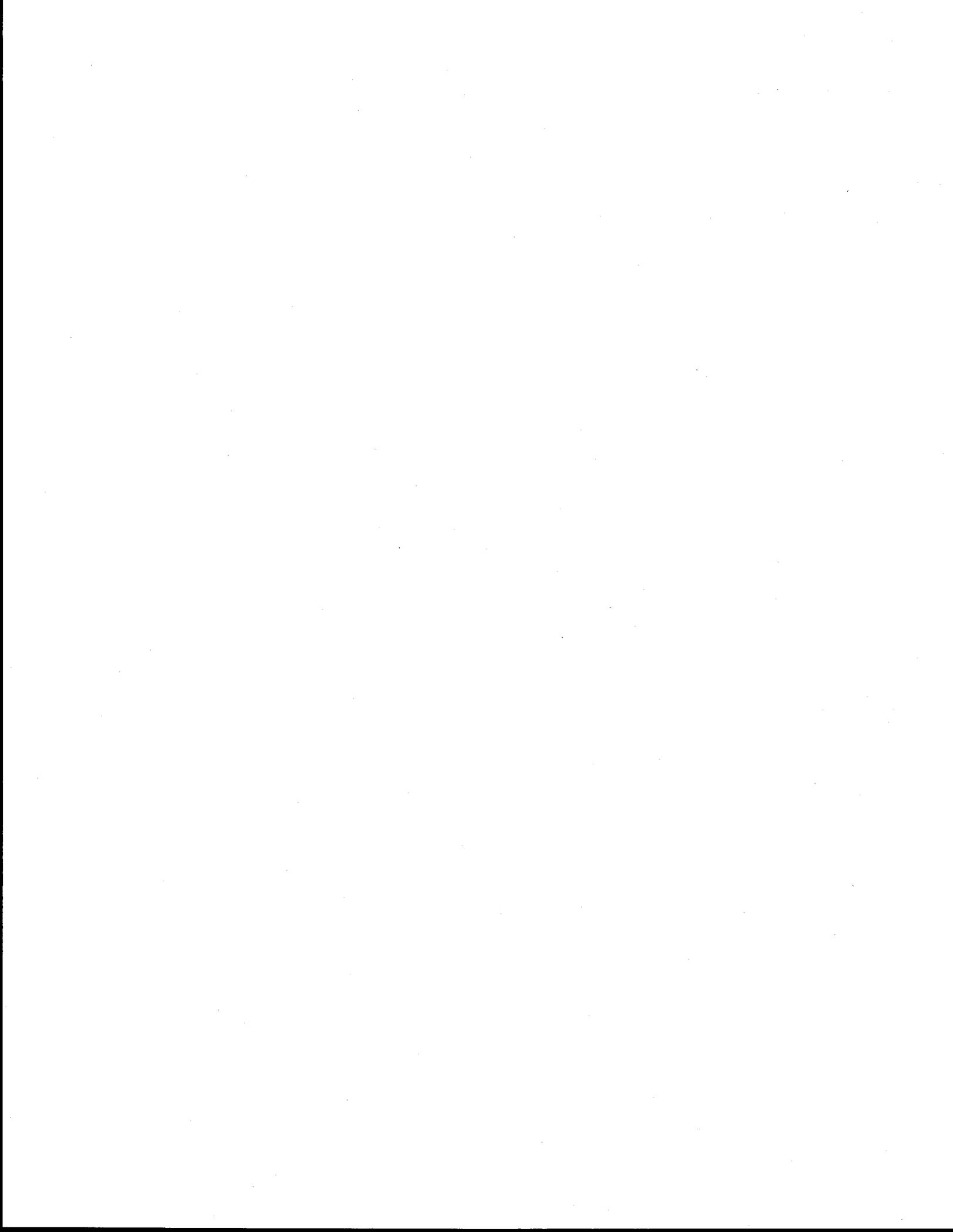
ATTACHMENT 2

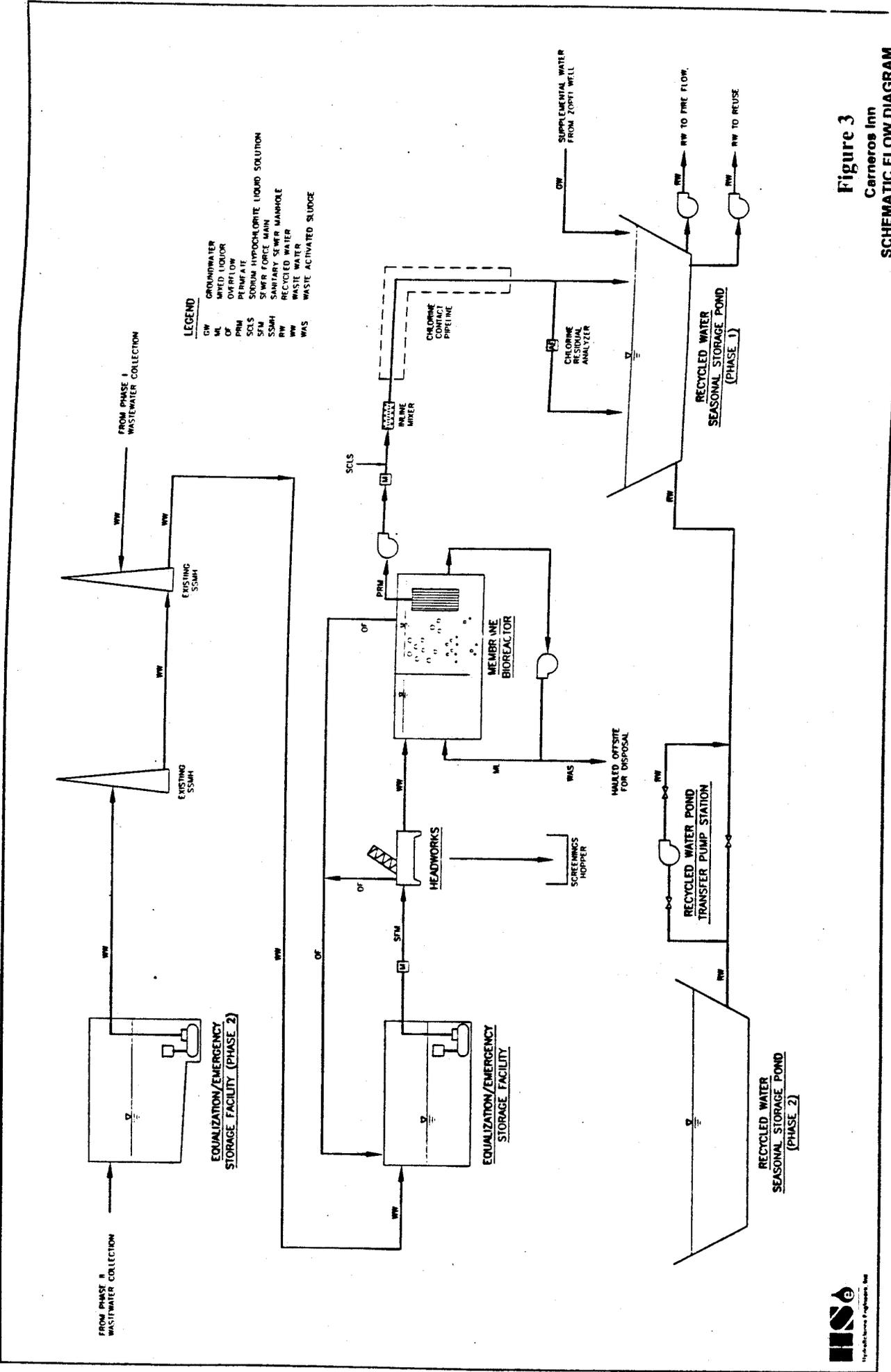






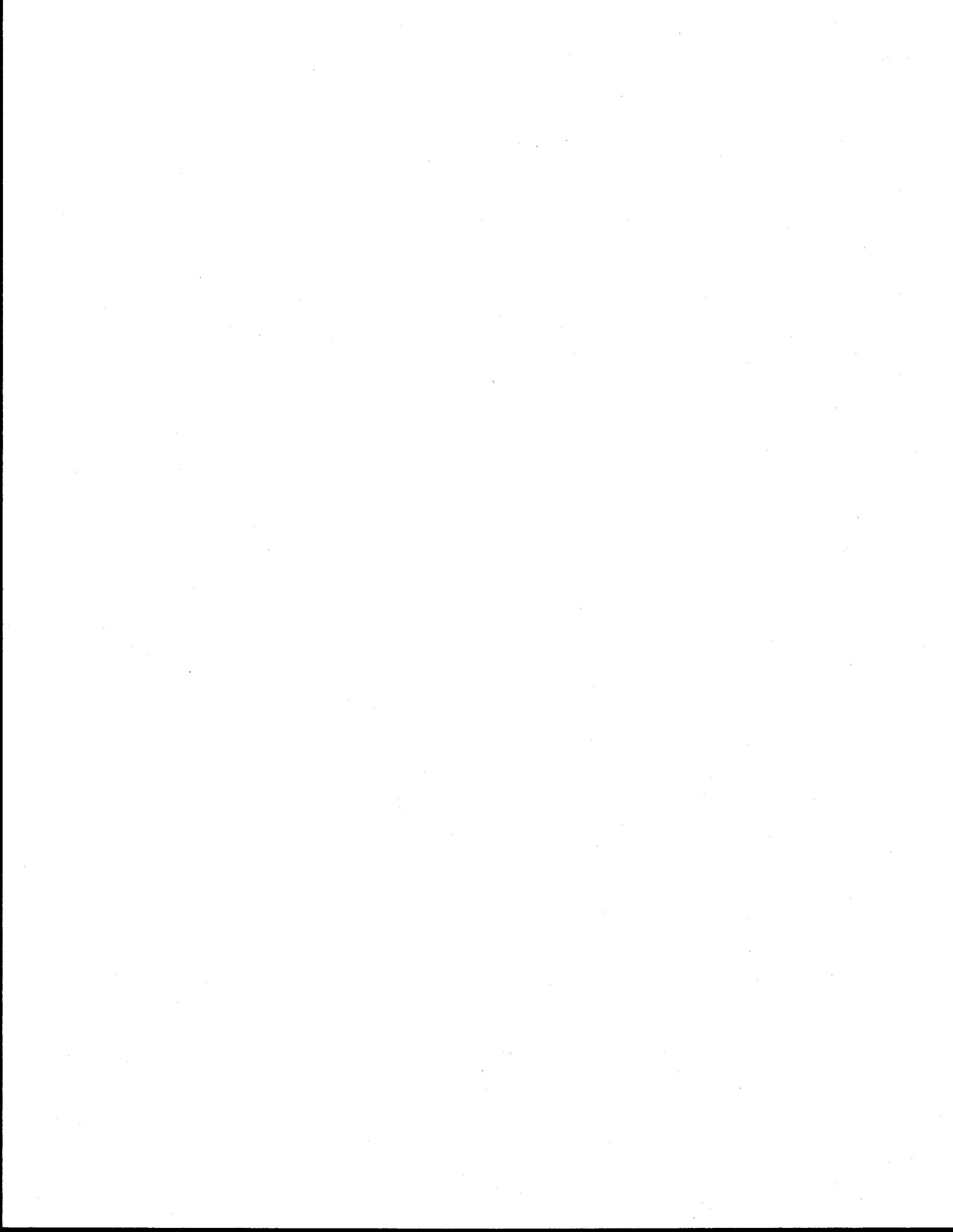
ATTACHMENT 3



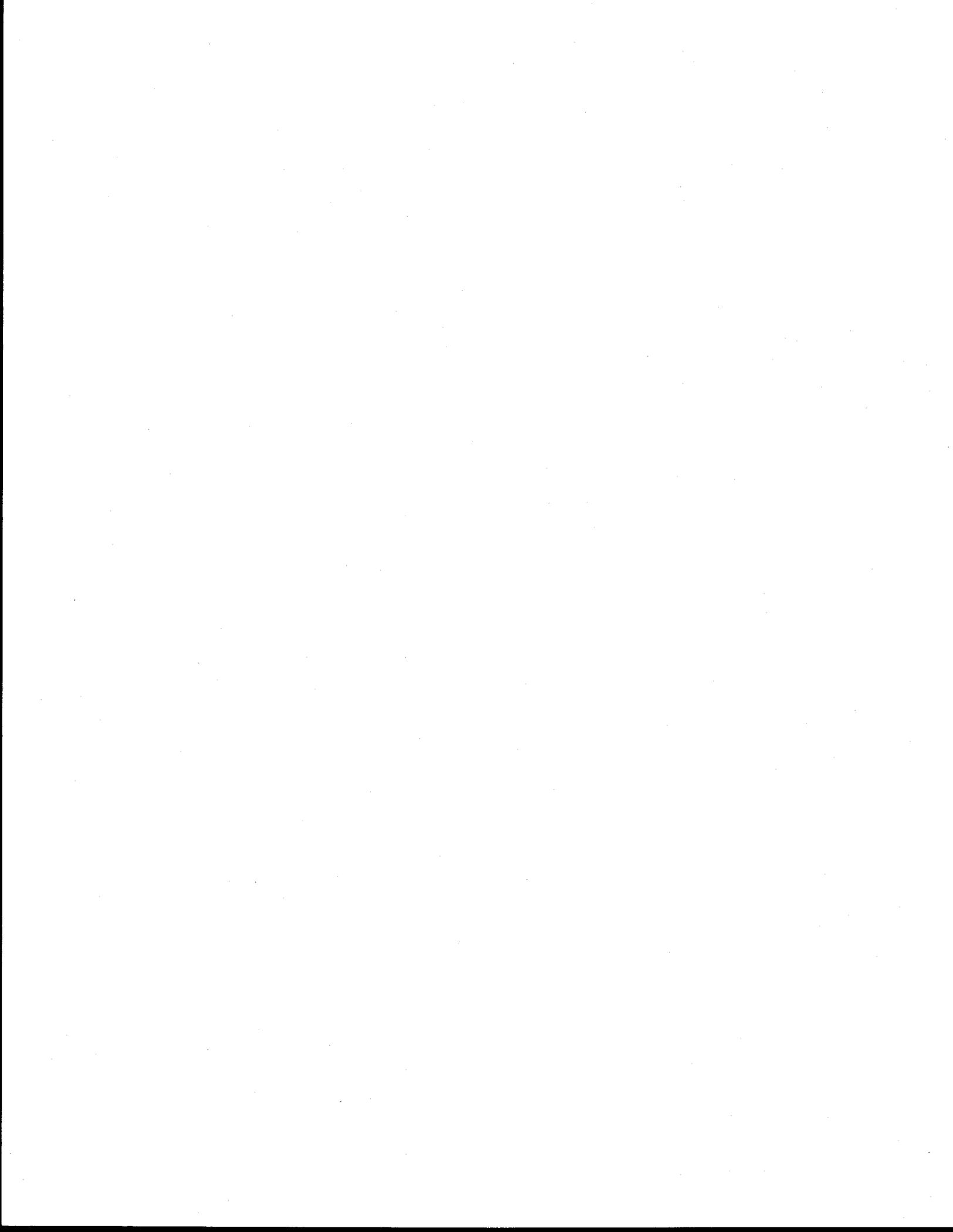


- LEGEND**
- CW GROUNDWATER
 - ML MIXED LIQUOR
 - OF OVERFLOW
 - PRM PERMEATE
 - SCLS SODIUM HYPOCHLORITE LIQUID SOLUTION
 - SFM SFWR FORCE MAIN
 - SSMH SANITARY SEWER MANHOLE
 - RW RECYCLED WATER
 - WAS WASTE WATER
 - WAS WASTE ACTIVATED SLUDGE

Figure 3
Carneros Inn
SCHEMATIC FLOW DIAGRAM



ATTACHMENT 4



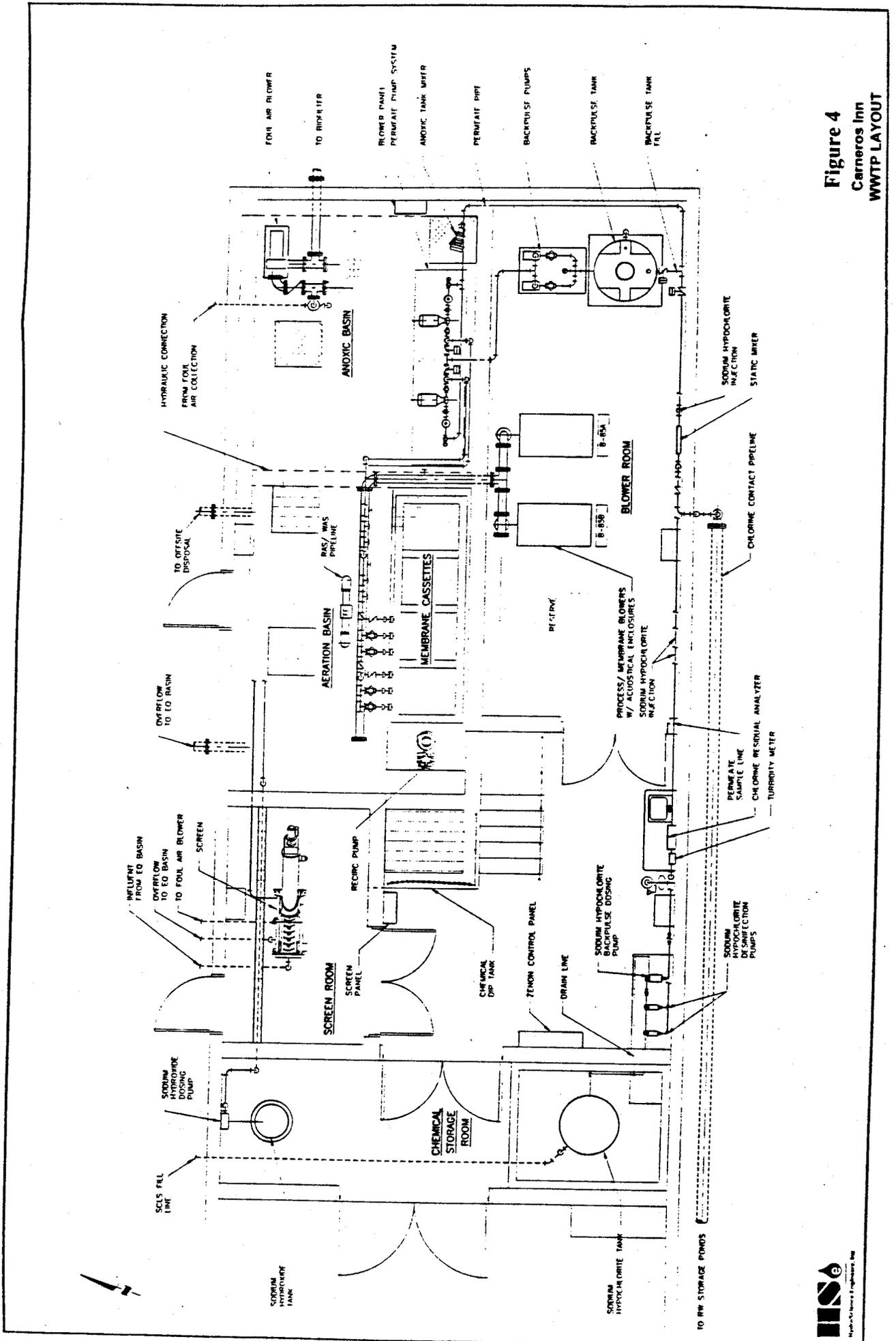
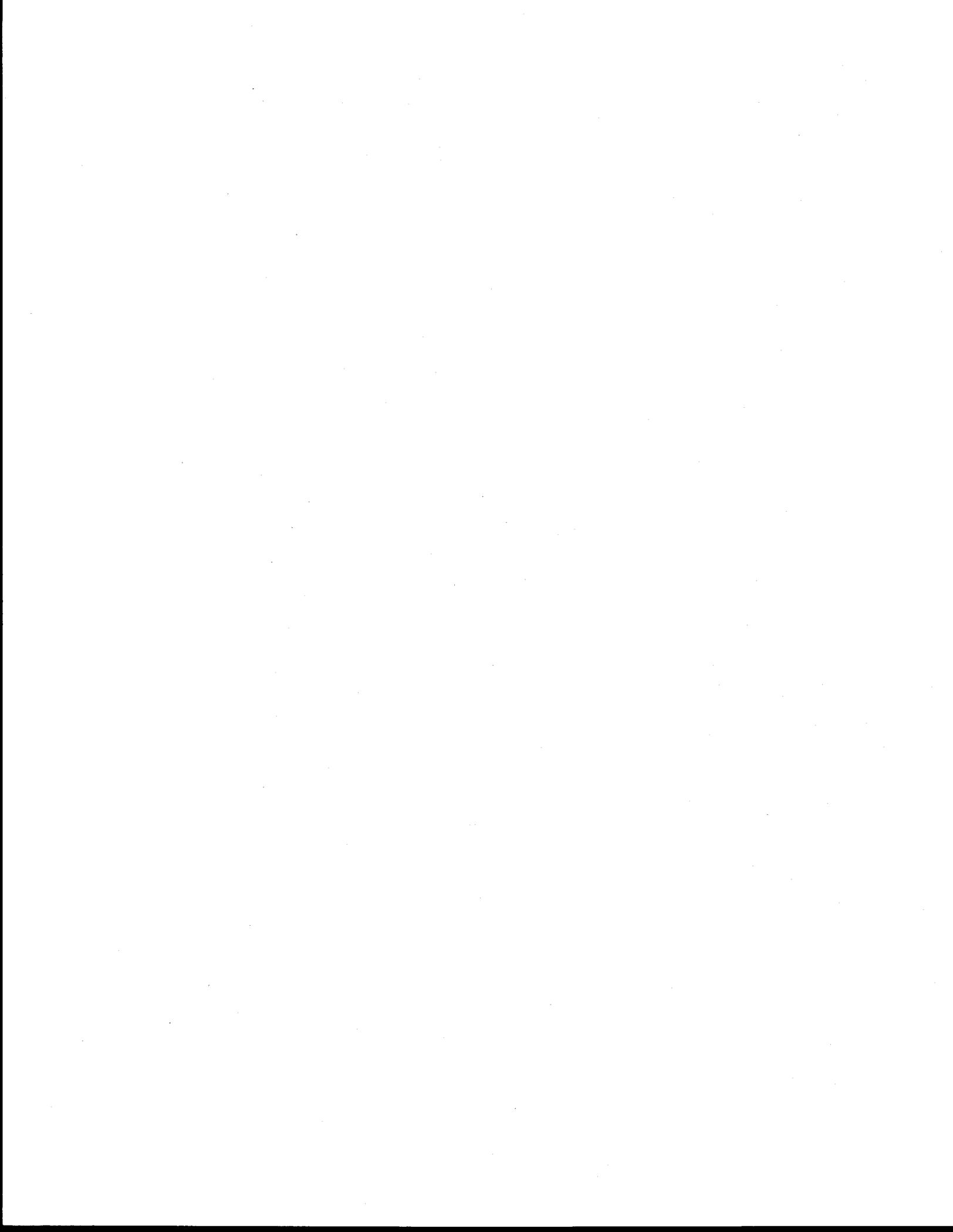


Figure 4
 Carneros Inn
 WWTPL LAYOUT



ATTACHMENT 5

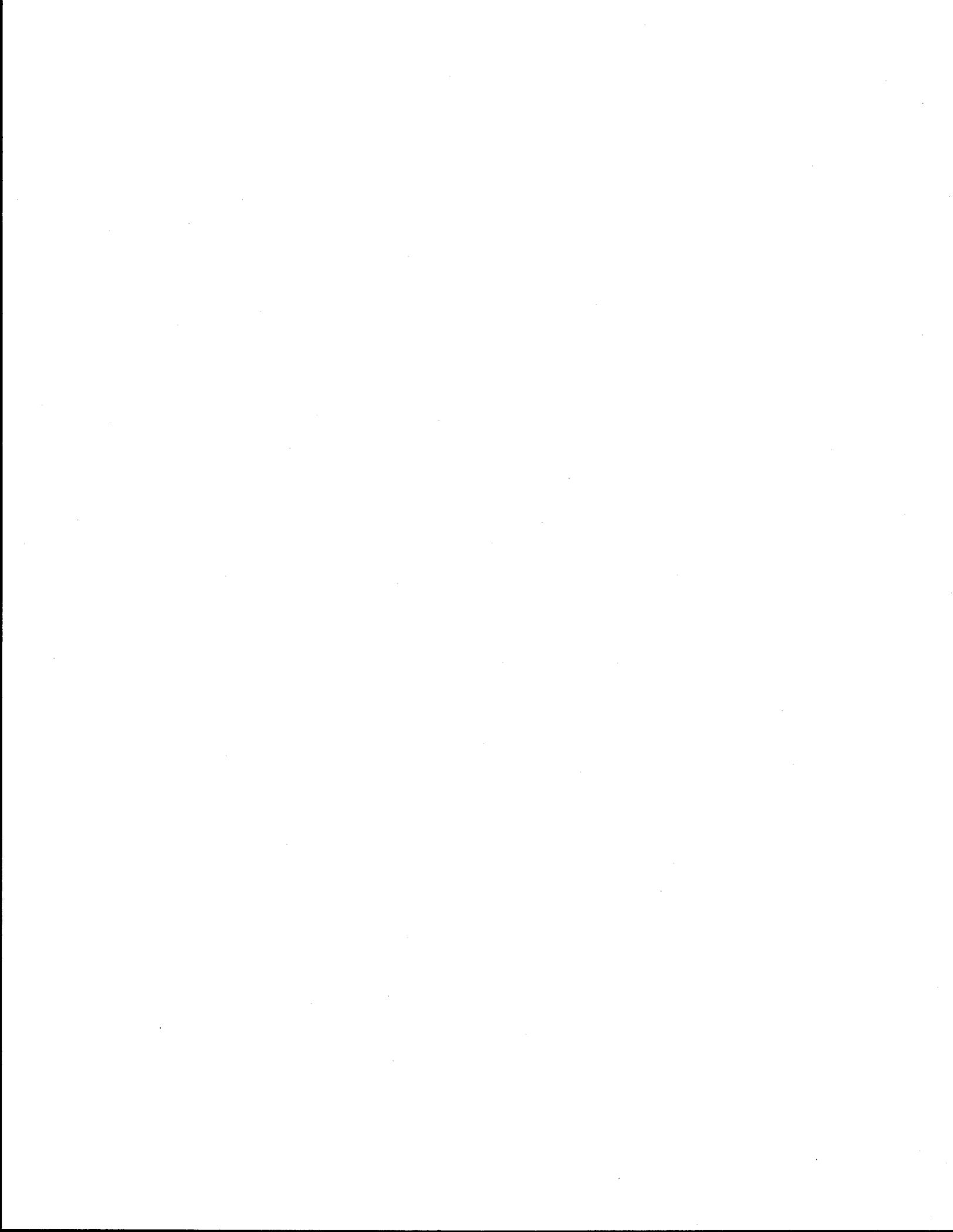


Table 3 Carneros Inn Resort Water Balance
FLOW GENERATION

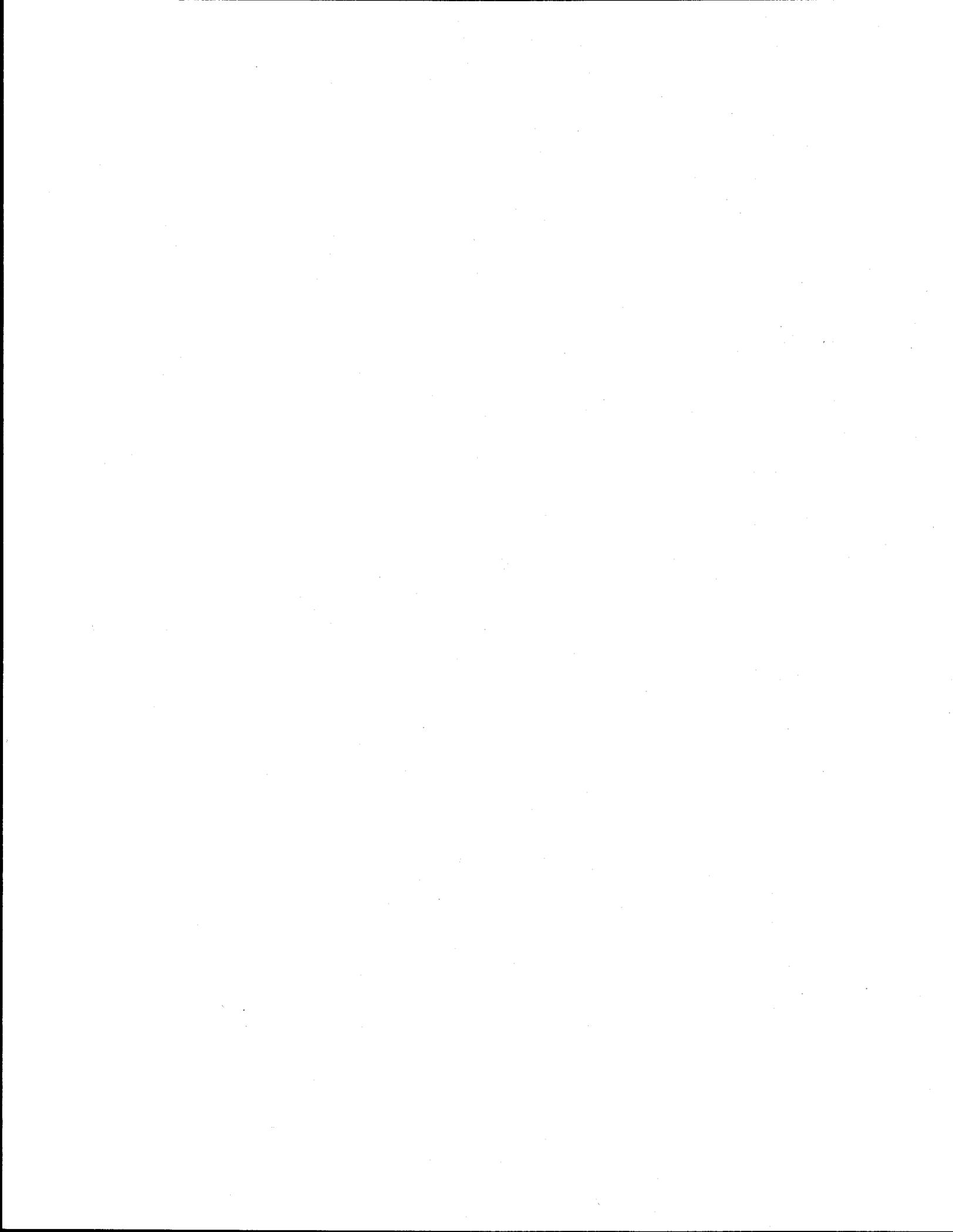
DATA

Required Storage: 15.5 acre-feet
 Number Acres Irrigated: 7.0 acres
 Pond Evaporation Rate: 0.7 x pan evaporation rate
 Approximate Pond Area: 58,000 sf
 Percolation Rate: 5.12E-08 in/sec
 Annual Precipitation: 34.26 in. (10 year occurrence interval)
 Vineyard Allocation: 6.4 AF

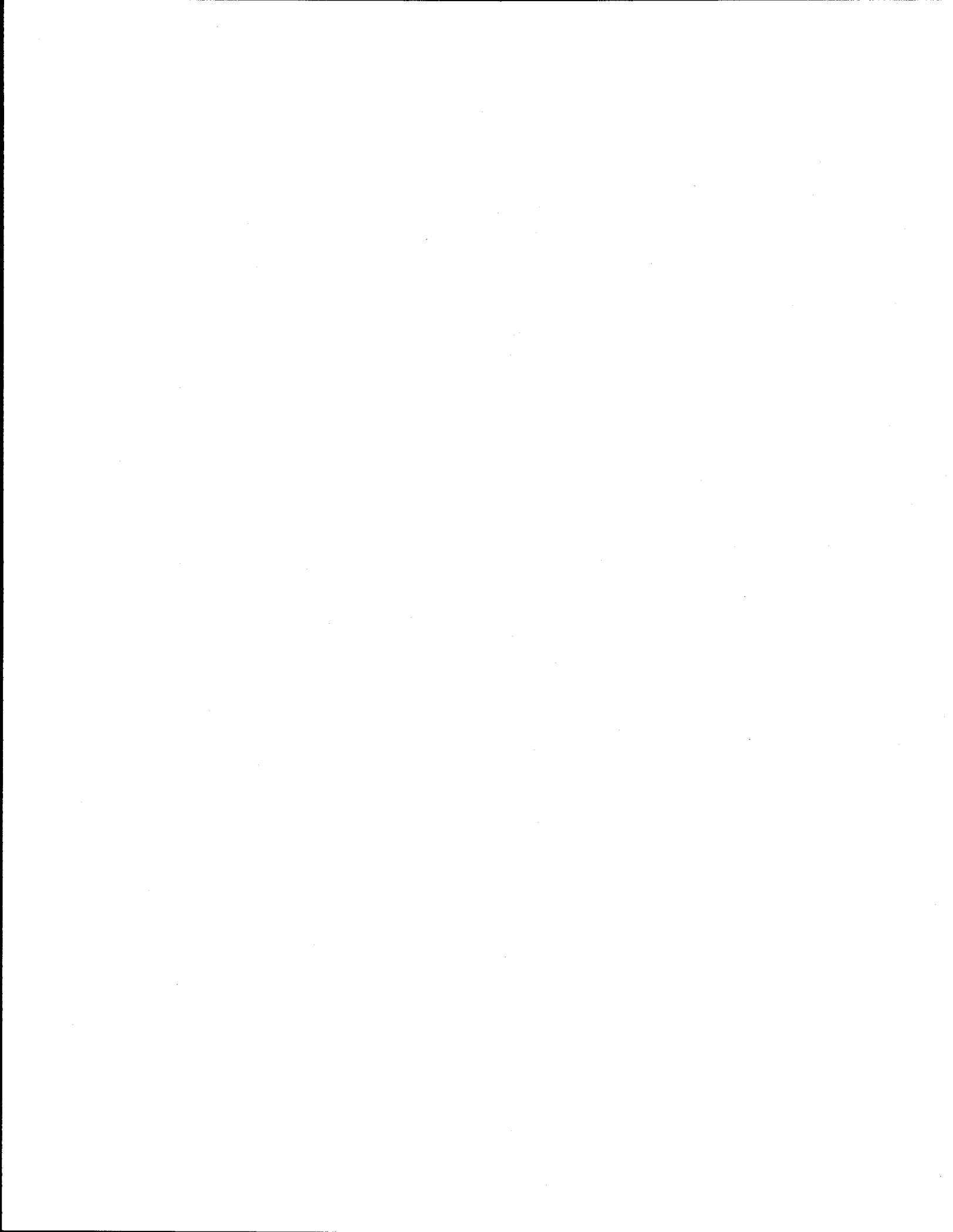
Peak Occupancy Flow: 11,195 gpd
 Peak Total Flow: 20,580 gpd
 Average Occupancy: 70.0%
 Average Total Flow: 22,115 gpd
 Average Annual I/I: 2,212 gpd

Month	Input Parameters										Production			Demand					Supply					Storage					Reservoir Accumulation (AF)			
	Precip. (in)	Pan Evaporation (in)	Average Occupancy (%)	Domestic WW (gpd)	Home WW Use (gpd)	Outdoor Use WW (gpd)	Meetings, Restaurants and Banquets WW (gpd)	Employee WW (gpd)	Total WW (w/ contingency) (gpd)	I/I (gpd)	Total RW Production (AF)	Total Irrigation Demand (AF)	Supplied From WWT (AF)	Supplied From Reservoir (AF)	Supplied by Other Sources (AF)	In From WWT (+AF)	In From Rainfall (+AF)	Out To Vineyard (-AF)	Out To Irrigation (-AF)	Out To Evaporation (-AF)	Out To Percolation (-AF)	Net In/Out (AF)	In From WWT (+AF)	Supplied From Reservoir (AF)	Supplied by Other Sources (AF)	In From WWT (+AF)	In From Rainfall (+AF)	Out To Vineyard (-AF)		Out To Irrigation (-AF)	Out To Evaporation (-AF)	Out To Percolation (-AF)
Nov	2.74	1.6	53.8%	6,028	3,726	0	5,410	1,801	18,662	2,122	1.9	0.0	0.0	0.0	0.0	1.9	0.3	0.0	0.0	0.0	-0.1	0.0002	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.9
Dec	6.92	1.0	40.3%	4,514	4,536	0	5,410	1,637	17,708	5,360	2.2	0.0	0.0	0.0	0.0	2.2	0.8	0.0	0.0	0.0	-0.1	0.0003	2.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.8
Jan	7.26	1.2	47.7%	5,345	3,726	0	5,410	1,727	17,829	5,624	2.2	0.0	0.0	0.0	0.0	2.2	0.8	0.0	0.0	0.0	-0.1	0.0003	2.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.8
Feb	6.78	1.6	60.0%	6,718	3,726	0	5,410	1,876	19,503	5,252	2.1	0.0	0.0	0.0	0.0	2.1	0.8	0.0	0.0	0.0	-0.1	0.0002	2.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.5
Mar	5.07	3.1	60.0%	6,718	3,726	0	5,410	1,876	19,503	3,927	2.2	0.0	0.0	0.0	0.0	2.2	0.6	0.0	0.0	0.0	-0.2	0.0003	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.1
Apr	2.88	4.4	68.7%	7,696	4,536	507	5,410	1,981	22,143	2,231	2.2	0.7	0.7	0.0	0.0	1.5	0.3	-0.1	0.0	0.0	-0.3	0.0002	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.5
May	0.79	6.4	78.2%	8,754	4,536	577	5,410	2,096	23,510	612	2.3	3.0	2.3	0.7	0.0	0.0	0.1	-1.2	-0.7	-0.5	0.0003	-2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.3
Jun	0.21	7.6	89.3%	9,999	6,156	659	5,410	2,230	26,901	163	2.5	3.9	2.5	1.4	0.0	0.0	0.0	-1.6	-1.4	-0.6	0.0002	-3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.7
Jul	0.03	9.1	93.1%	10,421	6,156	687	5,410	2,276	27,446	23	2.6	4.8	2.6	2.2	0.0	0.0	0.0	-1.9	-2.2	-0.7	0.0003	-4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5
Aug	0.07	8.0	97.5%	10,910	6,156	719	5,410	2,329	28,077	54	2.7	4.2	2.7	1.5	0.0	0.0	0.0	-1.3	-1.5	-0.6	0.0003	-3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.9
Sep	0.31	6.0	80.9%	9,055	3,726	597	5,410	2,128	23,008	240	2.1	2.8	2.1	0.7	0.0	0.0	0.0	-0.4	-0.7	-0.5	0.0002	-1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Oct	1.20	5.6	70.4%	7,876	3,726	0	5,410	2,091	20,915	930	2.1	1.1	1.1	0.0	0.0	1.0	0.1	0.0	0.0	-0.3	0.0003	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average	2.86	4.5	70.0%	7,841	4,543	312	5,410	1,997	22,115	2,212	2.1	1.7	1.1	1.1	0.0	1.3	3.8	-6.4	-6.5	-4.2	0.003	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	34.26	53.6							27.2		20.5	14.0	6.5	6.5	0.0	13.2	3.8	-6.4	-6.5	-4.2	0.003	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Class "A" pan evaporation rates for North Coast Interior Valleys, (California DWR Bulletin 113-3). Used for estimation of evaporation losses from ponds.



ATTACHMENT 6



CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

SELF-MONITORING PROGRAM

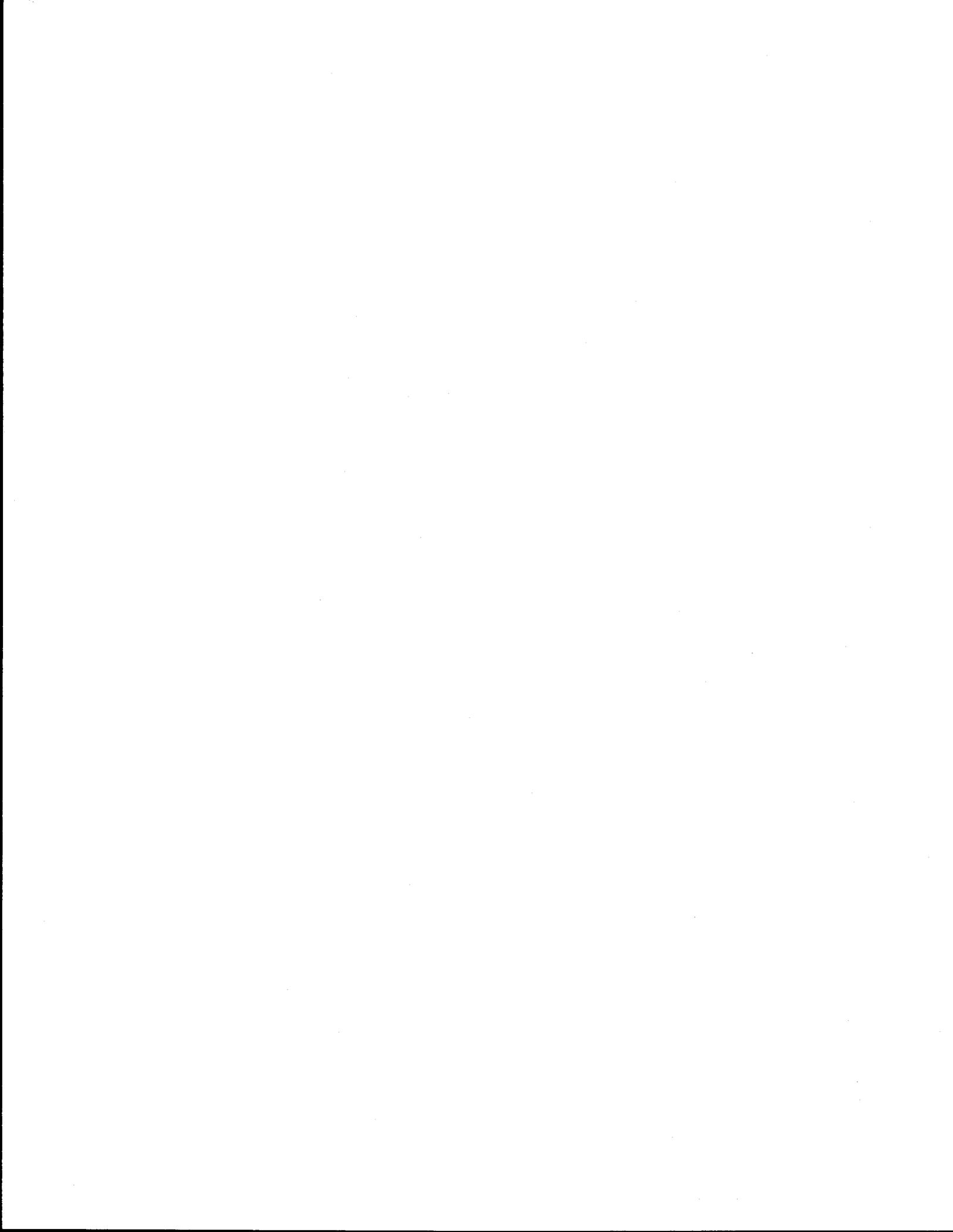
for

Carneros Inn & Perez & Sons Vineyard
Napa County

ORDER R2 – 2005 - 0043

REVISED WATER REUSE REQUIREMENTS

September 2005



1. GENERAL

Reporting responsibilities of waste dischargers are specified in Sections 13225(a), 13267(b), 13268, 13383, and 13387(b) of the California Water Code.

The principal purposes of a monitoring program by a waste discharger, also referred to as a self-monitoring program, are:

1. To document compliance with wastewater requirements and prohibitions established by this Regional Board; and
2. To facilitate self-policing by the discharger in the prevention and abatement of pollution arising from wastewater treatment and disposal.

II. SAMPLING AND ANALYTICAL METHODS

Sample collection, storage, and analyses shall be performed according to Code of Federal Regulations Title 40, Section 136 (40 CFR S136), or other methods approved and specified by the Executive Officer of this Regional Board.

Wastewater analyses shall be performed by a laboratory approved for these analyses by the State Department of Health Services (DHS), or a laboratory waived by the Executive Officer from obtaining a DHS certification for these analyses.

The director of the laboratory whose name appears on the certification, or his/her laboratory supervisor who is directly responsible for the analytical work performed shall supervise all analytical work including appropriate quality assurance/quality control procedures in his/her laboratory and shall sign all reports of such work submitted to the Regional Board.

All monitoring instruments and equipment shall be properly calibrated and maintained to ensure accuracy of measurements.

III. DEFINITION OF TERMS

A. RESPONSIBLE ENTITIES

1. **Producer:** Carneros Inn is the recycled water producer. The producer is responsible for the quality of the recycled water released for distribution and for the operation and maintenance of the recycled water use facilities on site.
- A. **User:** L. Perez and Sons is the recycled water User. The User is responsible for operation and maintenance of the recycled water use facilities under its control, and for controlled use of the recycled water for drip irrigation of vineyards.
3. **Discharger:** The Producer and User are collectively referred to as the Discharger. The Discharger is responsible for compliance with this monitoring program. The Producer is responsible for submittal of the required monitoring reports to the Regional Board.

B. SAMPLES

1. A grab sample is an individual sample collected in a short period of time not exceeding 15 minutes. Grab samples represent only conditions existing at the time of sample collection. Grab samples are used primarily in determining compliance with daily or instantaneous maximum limits.
 - A. A flow sample is the accurate measurement of the average flow volume over a given period of time, using a properly calibrated and maintained flow measuring device. Flows calculated from properly maintained pump usage records for accurately calibrated pump are acceptable.
 - B. Freeboard is the vertical distance between the water surface and the lowest elevation of the top of the water containment structure (perimeter dike, levee, berm, etc.)

C. STANDARD OBSERVATIONS

1. Recycled Water Storage Pond Areas
 - (a) Measure and report the freeboard at the lowest elevation point of the perimeter levees.
 - (b) Evidence of seepage from each pond.
 - (c) Nuisance odor from each pond: If present, indicate apparent cause, characterization, direction of travel, and any public use area or off-site facility affected.
2. Recycled Water Use Areas
 - (a) Evidence of recycled water escaping the recycled water use areas through surface runoff or airborne spray (show affected area on a sketch)
 - (b) Nuisance odor from the ponds: If present, indicate apparent cause, characterization, direction of travel, and any public use area or off-site facility affected.
 - (c) Evidence of prolonged ponding of recycled water, or of mosquitoes breeding within the use areas due to ponding.

IV. DESCRIPTION OF SAMPLING AND OBSERVATIONS

NOTE: A sketch showing locations of all stations described below shall accompany the first monitoring report, and subsequent reports when locations are added or changed, or a violation is reported.

STATION	DESCRIPTION
---------	-------------

A. WASTEWATER TREATMENT SYSTEM (PRODUCER)

1. Wastewater Treatment Plant Effluent

- | | |
|-----|---|
| A-1 | At a point in the wastewater system following the tertiary treatment system, following disinfection, and prior to entering the storage pond, at which all waste tributary to the pond is present. |
|-----|---|

2. Recycled Storage Ponds (Phase 1 = Pond 1; Phase 2 = Pond 2)

PW-1 &2 In the storage pond, about one foot below the water surface, and no less than two feet from the bank, representative of the pond water.

3. Recycled Storage Pond Perimeters

PP1 thru PP-4 Points located at the mid-points of the perimeter levees around each pond system.. (A sketch showing the location of these stations shall accompany each SMP quarterly report).

B. RECYCLED WATER POND EFFLUENT (PRODUCER)

E-1 In the effluent from each storage pond, following disinfection, representative of the recycled water distributed to the water reuse areas.

C. RECYCLED WATER USE AREA (DISCHARGER)

RP-1 thru RP-'n'
(Producer) Located along the at about 500 foot intervals around the perimeter of the recycled water use areas.

RU-1 thru RU-'n'
the (User) Located along the at about 1000 foot intervals around the perimeter of recycled water use areas.

V. SCHEDULE OF SAMPLING, ANALYSES AND OBSERVATIONS

Sampling, analyses and observations shall be conducted according to the schedule given in Table 1 and Table 1 Footnotes (SMP Attachment A)

VI. REPORTS TO BE FILED WITH THE REGIONAL BOARD

B. Self-Monitoring Reports (SMR)

Written reports shall be filed for each calendar month. Reports shall be submitted to this Regional Board's office no later than the fifteenth day of the following month. Each SMR shall include the following:

1. Letter of Transmittal, including:
 - a. Discharger's name, address, phone number & contact person;
 - b. The monitoring period being reported, by month and year;
 - c. The name of the responsible Regional Board staff member;
 - d. Discussion of all requirement violations found during the monitoring period, including causes and corrective actions taken or planned in order to prevent future violations;
 - e. Discussion of any special events pertinent to maintaining compliance with water reuse requirements, such as equipment repair or replacement, or operational changes;

- f. Signatory statement by the Discharger or authorized agent, under penalty of perjury, that to the best of the signer's knowledge the report is true, accurate and complete
- 2. Results of Analyses and Observations, including:
 - a. Tabulations of the results from all required sampling and analyses specified in Table 1 and its Footnotes (SMP Attachment A) by date, sample type and station.
 - b. Wastewater Pond Report
 - c. Recycled water Irrigation Report

B. Report of Permit Violation

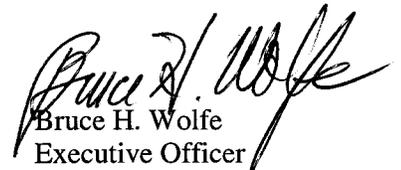
In event the Discharger violates, or threatens to violate the conditions of water reuse requirements due to:

- 3. Maintenance work, power failure, or breakdown of wastewater treatment or transport equipment;
- 4. Accidents caused by human error or negligence; or
- 5. Other causes such as acts of nature,

The discharger shall:

- a. Notify the Regional Board office by telephone, as soon as the Discharger, or agent, has knowledge of the event; and
- b. Submit a written report is within two weeks of the event. The written report shall include pertinent information explaining reasons for the non-compliance actions taken to correct the problem and dates thereof, and actions being taken to prevent the problems from recurring.

I, Bruce H. Wolfe, Executive Officer, do hereby certify that the foregoing Self-monitoring Program is effective on the date shown below and may be reviewed at any time subsequent to the effective date upon written notice from the Executive Officer or request from the District.


Bruce H. Wolfe
Executive Officer

Effective Date: September 21, 2005

SMP Attachments

- A. Table 1: Schedule for Sampling, Analyses and Observations

**CARNEROS INN and L. PEREZ & SONS VINEYARD
WATER REUSE REQUIREMENTS
Self-Monitoring Program, Attachment A**

TABLE 1

SCHEDULE FOR SAMPLING, MEASUREMENTS, AND ANALYSIS

Sampling Station		PE		E-1 & 2 (1)		PW	PP (1)	RP/RU (1)
Type of Sample Parameter,	Units	C	G	C	G	G	Ob	Ob
Flow Rate	(mgd)	X		X				
BOD ₅	(mg/l)		W					
Tot. Susp. Solids	(mg/L)		W					
Total Coliform	(MPN/100ml)		D		2/W			
Turbidity	(NTU)	X						
pH	(units)		D			M		
D.O.	(mg/L)					W		
Standard Observations							W	W (2)

LEGEND FOR TABLE 1:

Types of Samples

Frequency of Sampling

G = grab sample

D Once each day

C = Continuously Measured

W Once each week

Ob = Observations

2/W Two days per week

M Once each month

X Continuously Monitored

Type of Stations

PE = Treatment Plant Effluent

E = Effluent from Recycled Water Storage Ponds 1 & 2

PW = Recycled Water Pond 1 & 2 analyses

PP = Recycled Water Pond 1 & 2 Perimeter Observations

RP = (Producer)/RU (User) = Irrigation Site Observations

Notes:

(1) Measurements and analyses required only when pond effluent is discharged to the irrigation sites.

The Recycled Water Use Report shall be completed by the User for each month when recycled water is used for vineyard irrigation. The completed report shall be as part of the required SMP.