

**PLAN PREPARATION GUIDE**  
**FOR**  
**FOOD SERVICE ESTABLISHMENTS**

**ORANGE COUNTY DEPARTMENT OF HEALTH**  
**124 MAIN STREET**  
**GOSHEN, N.Y. 10924**

**(845) 291-2331**  
**FAX (845) 291-4078**

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## **INTRODUCTION**

This guide has been prepared for use by Professional Engineers, Registered Architects and Food Service Consultants who submit food service establishment plans to the Orange County Department of Health for review. Its purpose is to serve as a uniform guide in constructing new and renovated food service facilities in compliance with the provisions of Subpart 14-1 of the New York State Sanitary Code and with applicable provisions of the Public Health Law and Orange County Local Laws.

A permit to operate a new or renovated food service establishment is not issued by the Department until construction plans and specifications have been accepted and a preoperational inspection indicates that the facility has been constructed in accordance with the accepted plan.

PLAN PREPARATION GUIDE FOR FOOD SERVICE ESTABLISHMENTS was prepared by the staff of the Bureau of Sanitary Control, Division of Environmental Health, Orange County Department of Health.

Revised May 2003

## **REQUIRED DRAWINGS AND SPECIFICATIONS**

Each page of the plan submission must include a Title Block consisting of :

- Name of the establishment
- Address, and City, Village or Town
- Name of the individual preparing the plans
- Date

1.     LOCATION MAP

- Diagram the location of the property and distance to the nearest main road intersection and other significant landmarks.

2.     SITE PLAN

- REQUIRED ONLY if the facility is served by a private water supply and/or private sewage disposal system.
- This diagram should detail: the property boundaries, location of existing and proposed buildings, driveways and parking areas, important natural features of the land, grading, surface drainage, water supply and sewage disposal system.

3.     FLOOR PLAN

This diagram (minimum scale  $\frac{1}{4}'' = 1$  foot) should include:

- Location of food preparation equipment, all other kitchen equipment, storage areas, garbage storage areas, toilet facilities, ware-washing areas, and dining areas.
- A list of equipment to include names, manufacturer and model number. Include specification sheets where possible.
- A list of the materials that will be used to finish the floor, walls and ceiling of each room.

4.     LIGHTING AND VENTILATION

- Show the location, type, wattage and shielding of all lighting fixtures.
- Show the location of ventilation equipment, exhaust fan capacity in CFM's (cubic feet per minute), and dimensions.

5.     PLUMBING

- List all equipment and fixtures that will be provide with hot and/or cold running water.
- List all equipment that will be provided with indirect drains.

## **GENERAL REQUIREMENTS**

### **WATER SUPPLY-(Sec. 14-1.120)\***

Either a public water supply or a private water supply (e.g. drilled well) acceptable to this Department is required. Private water supplies must be treated by an approved disinfection treatment system  
**SUBMISSION OF A PLAN FOR THE APPROVAL OF A TREATMENT SYSTEM IS REQUIRED PRIOR TO INSTALLATION.**

### **SEWAGE DISPOSAL-(Sec. 14-1.130)\***

Either a public sewage or a private sewage disposal system acceptable to this Department is required. Any new or modified private system must be designed by a licensed professional engineer and be approved by this Department. An engineering evaluation may be requested and accepted for existing private systems.

### **TOILET FACILITIES-(Sec. 14-1.142)\***

All facilities are required to provide toilet facilities for employees that are reasonably accessible to the work area. Establishments with a seating capacity of 20 or more must provide toilet facilities for patrons

### **PLUMBING-(Sec. 14-1.173)\***

#### SINK REQUIREMENTS

##### Dish/tableware washing:

-A commercial dishwasher or a 3-compartment sink with double drainboards is required in food service operations utilizing multi-use tableware, dishes and/or glasses.

##### Pot/utensil washing:

-A minimum of a 2-compartment sink with double drainboards is required for cleaning pots, pans and utensils, AND in establishments using exclusively single service items (e.g. plastic forks, knives, spoons, paper/styro foam cups plates etc.).

##### Hand-washing:

-Sinks equipped with hot and cold running water or tempered water are required in all food preparation areas, as well as in toilet facilities (Sec. 14-1.143)\*.

\*Refers to the New York State Sanitary Code Subpart 14-1

Mop cleaning:

-A utility sink or curbed cleaning facility with a floor drain is required for mop water disposal and the cleaning of mops and similar wet floor cleaning equipment

## **INDIRECT DRAINS**

Air gaps are required to be installed as a minimum on the following equipment:

- Ice machines
- Ice bins
- Steam tables
- Dishwashers
- Food wash sinks

and any other equipment used to store, prepare or process food or beverages (Sec. 14-1.140)\*.

## **BACKFLOW PREVENTION DEVICES**

These devices are required to properly protect a water supply against the entrance of carbon dioxide gas, carbonated water or other contaminants (Sec. 14-1.140)\*.

Examples of equipment connected to a water supply source that would require a backflow prevention device are:

- Carbonated beverage dispensers
- Coffee/tea urns or pots
- Hose bibbs
- Dishwashers
- Steam tables

## **LIGHTING-(Sec. 14-1.174 and 14-1.88)\***

Sanitary Code lighting standards must be met throughout the facility. These requirements are as follows :

-30 foot-candles of light must be provided on all food preparation surfaces and at equipment/utensil washing work levels.

-20 foot-candles of light must be provided at a distance of 30 inches from the floor in storage areas, toilet and lavatory areas, walk-in refrigeration units and in dining areas during cleaning operations.

-Shielding is to be provided for all light fixtures in all food and equipment handling and storage areas.

\* Refers to the New York State Sanitary Code Subpart 14-1

**VENTILATION-(Sec. 14-1.175)\***

Ventilation facilities are to be provided in all areas to keep the facility free of excessive heat, steam, condensation, vapor, odors, smoke and fumes.

Toilet facilities must be provided with mechanical ventilation.

**FOOD PREPARATION-(Secs. 14-1.10, 14-1.81)\***

Food preparation areas are to be designed to segregate operations involving raw and finished products and to minimize the potential of cross contamination between raw and finished products.

**FOOD HANDLING EQUIPMENT-(Sec. 14-1.91)\***

All food contact surfaces including table tops, utensils, cutting boards, slicers, etc. are to be constructed of materials that are non-toxic, non-absorbent, smooth and easily cleanable. Painted food contact surfaces are prohibited. Equipment approved by the National Sanitation Foundation (NSF) is preferred, though not required.

**STORAGE-(Secs. 14-1.40, 14-1.42, 14-1.43, 14-1.44, 14-1.45, 14-1.60 and 14-1.177, 14-1.88)\***

GENERAL

Space is to be provided for the storage of food, dry goods, utensils and tableware at least 6 inches above the floor in a manner that prevents contamination and facilitates cleaning. Additionally, food products are not to be stored beneath exposed or unprotected sewer lines.

REFRIGERATED

Enough conveniently located refrigeration facilities are to be provided to maintain potentially hazardous food at the required temperature during storage. A numerically scaled indicating thermometer is to be located in the warmest part of each unit to measure air temperature

\* Refers to the New York State Sanitary Code Subpart 14-1

## HOT

Enough conveniently located hot food storage facilities are to be provided to maintain potentially hazardous food at the required temperature during storage. A numerically scaled indicating thermometer must be available to measure temperatures of food stored in the facility or installed to measure the air temperature in the coldest part of the unit.

## DISPLAYED FOOD

Food placed on display (e.g. buffets, cafeteria lines, salad bars heat lamp units, etc.) are to be protected against contamination by the use of properly designed counter protective devices, display cases, cabinets, containers or other means of protection.:

Food displayed cold – 45 degrees F. or below

Food displayed hot -140 degrees F. or above

## TOXIC MATERIALS

Separate designated space is to be provided for the storage of toxic materials in food preparation and service areas. Cleaning compounds are not to be stored with toxic materials.

## LOCKER AREA

Suitable facilities are to be provided for the orderly storage of employee clothing and other belongings.

## **NEW YORK STATE CLEAN INDOOR AIR ACT ( Effective 7/24/2003)**

The revised New York State Clean Indoor Act prohibits smoking in the indoor areas of all food service establishments including bars, restaurants, diners, fast food establishments and taverns. The only exceptions are:

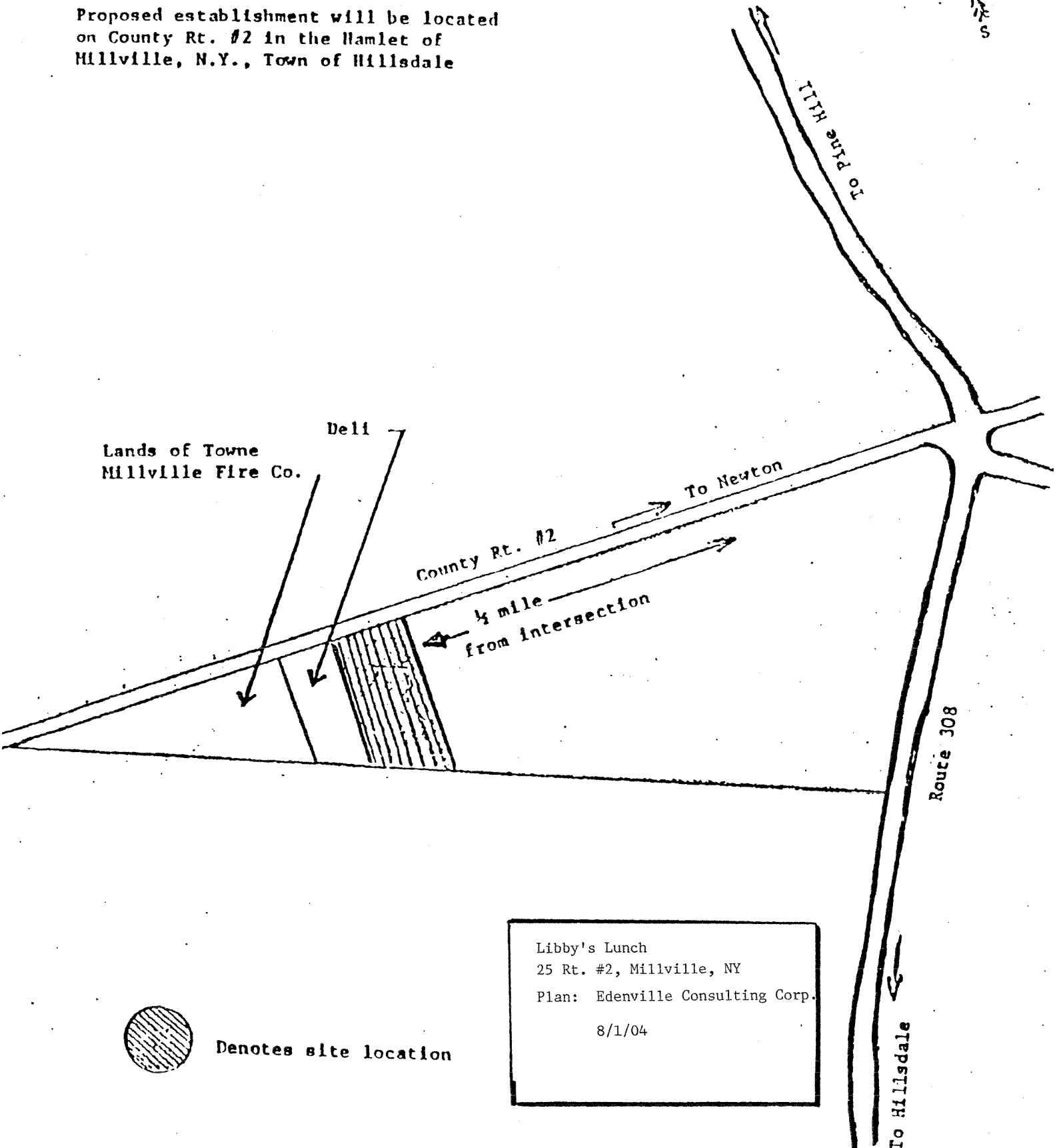
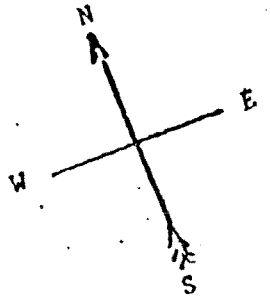
Membership associations within which all the duties with respect to it's operation are conducted by the organization's membership who are not compensated by the membership or any other entity for their services.

Smoking may be allowed in outdoor dining areas of food service establishments with no roof or other ceiling enclosure. Smoking is permitted only when the smoking area constitutes no more than 25% of the seating capacity of such area, is at least 3 feet away from the outdoor area not designated for smoking and is clearly marked with written signage as a smoking area.



LOCATION MAP

Proposed establishment will be located on County Rt. #2 in the Hamlet of Millville, N.Y., Town of Hillsdale



Lands of Towne  
Millville Fire Co.

Deli

County Rt. #2

To Newton

To Pine Hill

1/4 mile  
from intersection

Route 308

To Hillsdale



Denotes site location

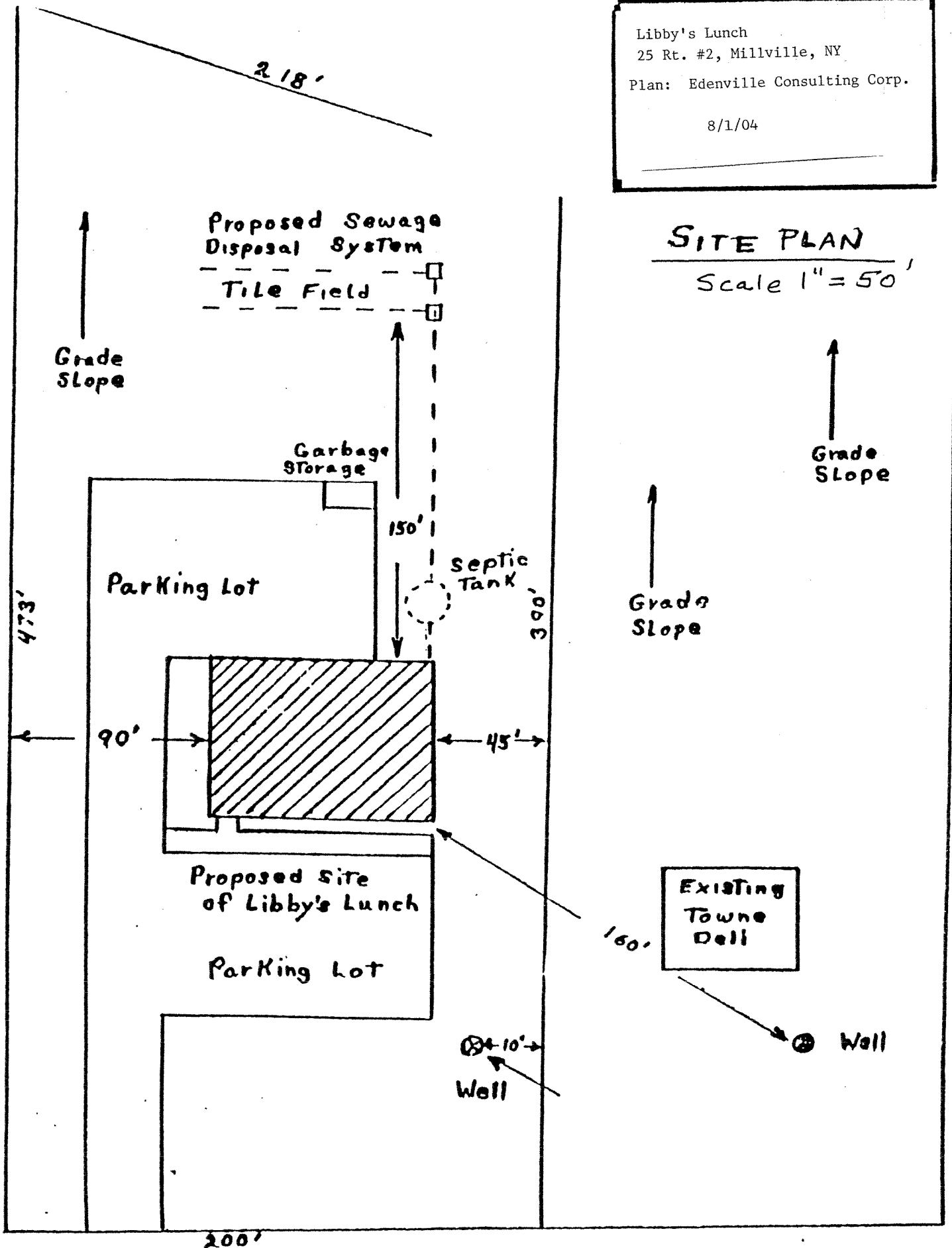
Libby's Lunch  
25 Rt. #2, Millville, NY  
Plan: Edenville Consulting Corp.  
8/1/04

FIGURE 1

Libby's Lunch  
25 Rt. #2, Millville, NY  
Plan: Edenville Consulting Corp.  
8/1/04

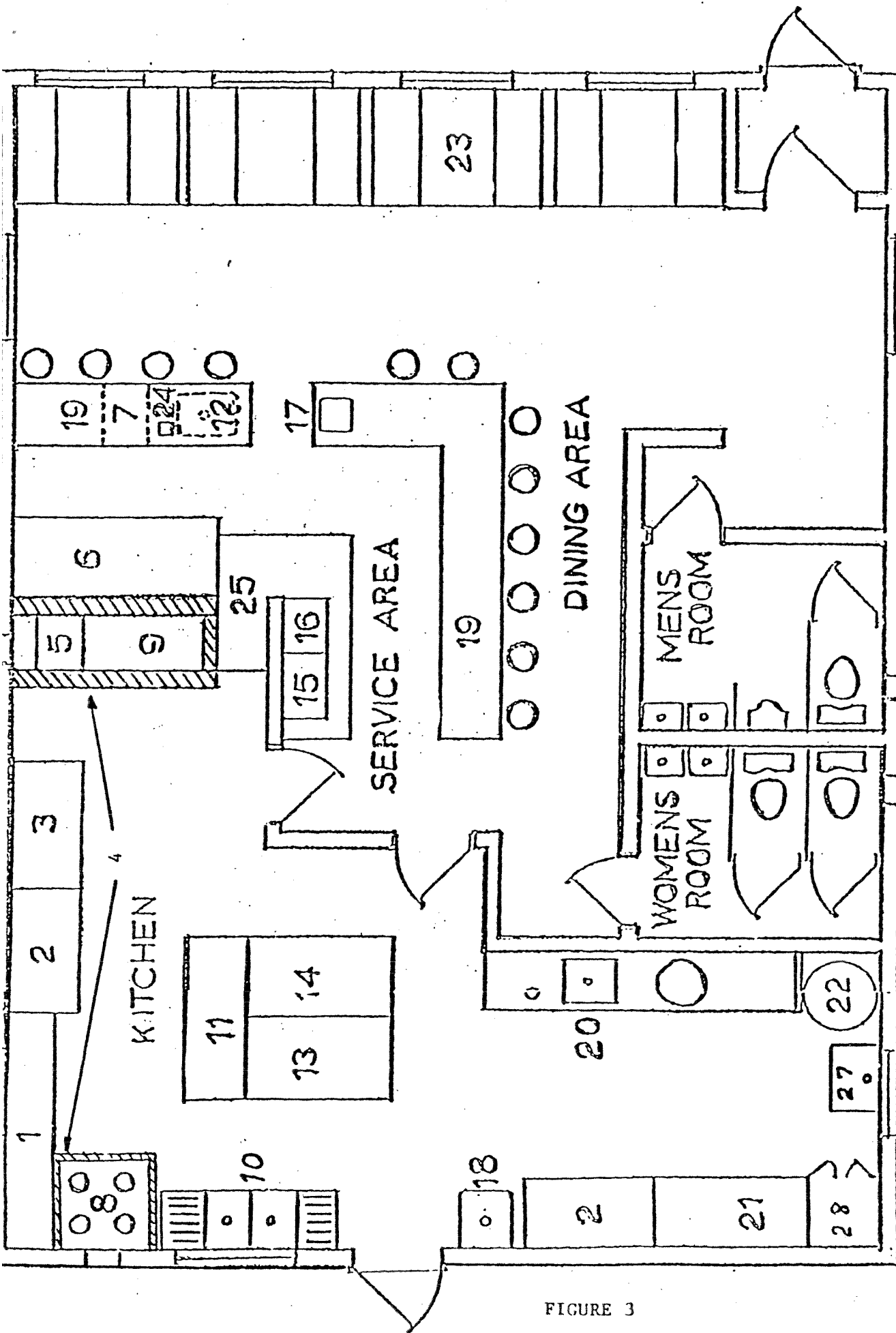
# SITE PLAN

Scale 1" = 50'



County RT #2

FIGURE 2



Libby's Lunch  
 Name: Libby Kauffman  
 Address 25 Rt. #2, Millville, NY  
 Plans: Edenville Consulting Corp.  
 Date: 8/1/04

FLOOR PLAN Scale 1/4" = 1'-0"

NOTE: Numbers on Floor Plan  
 correspond to Specification  
 List Item numbers on next page.

Number of seats

Signature of Engineer  
 Architect or Consultant

FIGURE 3

EQUIPMENT SPECIFICATION LIST

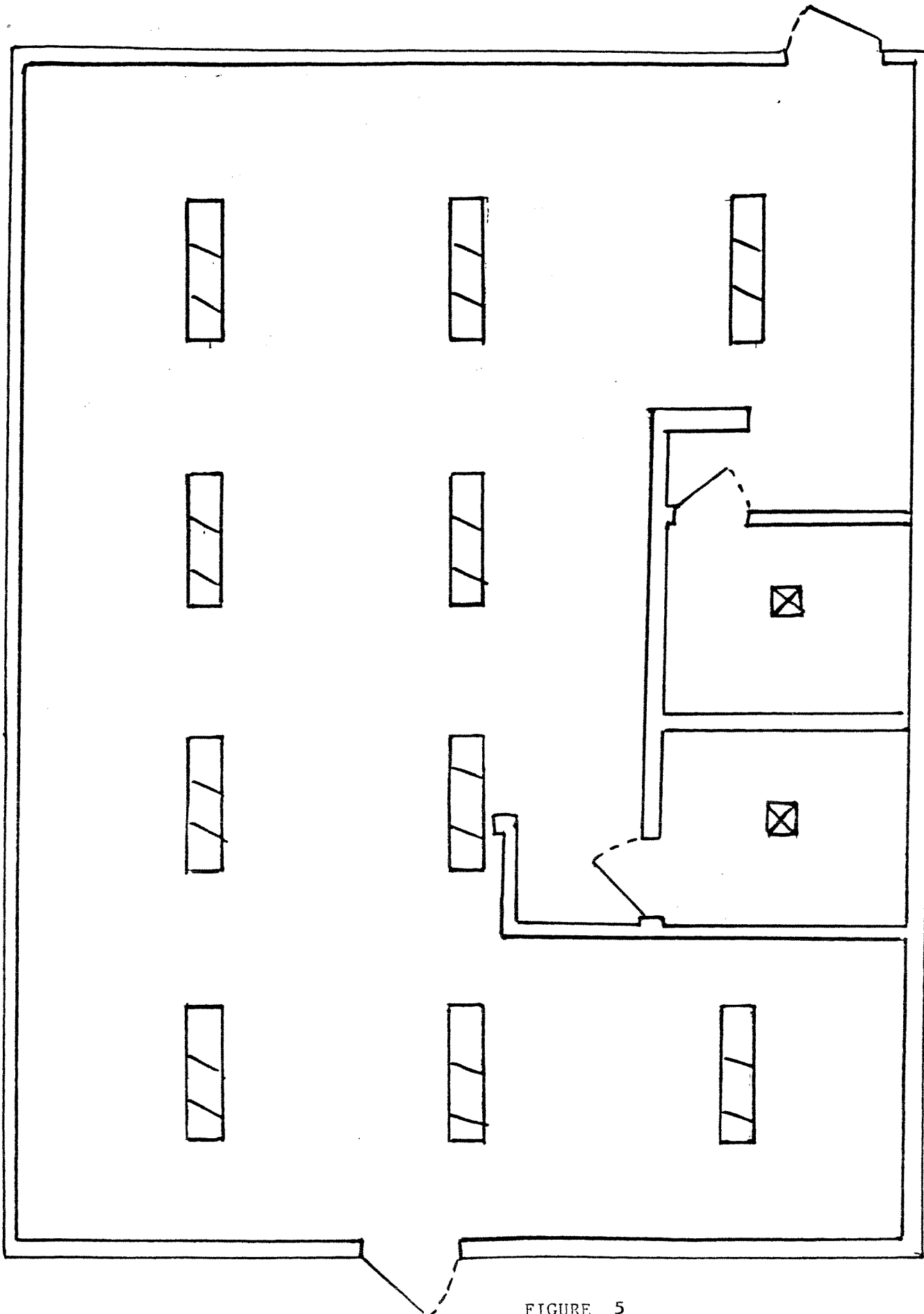
<u>Item</u>	<u>Unit Name</u>	<u>Manufacturer</u>	<u>Model #</u>
1	Stainless steel counter		
2	Freezer		
3	Refrigerator		
4	Ventilation Hood		
5	Fryer		
6	Soda dispenser		
7	Ice Machine		
8	Range		
9	Grill		
10	2 compartment sink with two drainboards		
11	Work table		
12	Under-counter sink		
13	Steam table		
14	Sandwich unit		
15	Milk dispenser		
16	Coffee machine		
17	Cash register		
18	Handwash sink		
19	Counter with shelves		
20	Dishwasher		
21	Shelves for dry storage		
22	Hot water heater		
23	Seating area		
24	Counter and shelves		
25	Mop sink		
26	Employee locker area		

FINISH SCHEDULE

<u>Room</u>	<u>FLOOR</u>	<u>WALL</u>	<u>CEILING</u>
Kitchen	Quarry tile	Quarry tile	Acoustic on sheetrock
Restrooms	Ceramic tile	Ceramic tile	Suspended Acoustic
Service Area	Quarry tile	Painted Sheetrock	Suspended Acoustic
Storage	Linoleum tile	Painted Sheetrock	Suspended Acoustic
Dining	Quarry tile	Ceramic tile	Suspended Acoustic

Libby's Lunch  
 25 Rt. #2, Millville, NY  
 Edenville Consulting Corp.  
 8/1/04

FIGURE 4



Libby's Lunch  
 Name: Libby Kauffman  
 Address: 25 Rt. #2, Millville, NY  
 Plans: Edenville Consulting Corp.  
 Date: 8/1/04

LIGHTING PLAN      Scale 1/4" = 1'-0"



-  — Shielded fluorescent light (4 - 40 Watt Bulbs)
-  — Exhaust fan and light fixture

FIGURE 5

## PLUMBING

Hot water lines to restroom sinks and units  
10,12,18,20

Cold water lines to restroom sinks, toilets,  
urinal, and units 6,7,10,12,16,18,20,22

Indirect drain lines, 7,13

Sewage lines from restroom sinks, toilets,  
urinal, and units 10,12,18,20

Libby's Lunch

25 Rt. #2, Millville, NY

Plan: Edenville Consulting Corp.

8/1/04

FIGURE 6

**ORANGE COUNTY DEPARTMENT OF HEALTH**  
**124 MAIN STREET**  
**GOSHEN, NY 10924**  
**TEL: (845) 291-2331**  
**FAX: (845)291-4078**

Application for Approval of Plans and Specifications for the Construction, Alteration or Remodeling of a Food Service Establishment

Name of Establishment	Street Address	Location: (Town/Village/City)

Name of Applicant or Designated Representative*	Telephone
Mailing Address	

Architect/Engineer/Food Service Consultant	Telephone
Mailing Address	

\*An applicant shall mean an individual, or firm, estate, partnership, company, corporation, trustee, association, or any public or private entity. This application must be signed by the owner, proper official of the corporation or other authorized individual designated by such person. Designated individuals may be engineers, architects or other consultants.

Name of Person Signing Application (please print)	Official Title
Signature of Person Signing	Date

PLAN SUBMISSION MUST INCLUDE:

- 1) Completed & signed application
- 2) Minimum of 2 complete sets of plans and specifications
- 3) Review Fee: \$150.00 for remodeling of existing facilities  
\$250.00 for new construction or building converted from other use.

The fee should be in the form of a check or money order made payable to:  
ORANGE COUNTY DEPARTMENT OF HEALTH

- 4) Projected opening date: \_\_\_\_\_

**CIRCLE OR FILL IN ALL APPLICABLE INFORMATION**

(For details see plan guide)

**SEATING**

TOTAL # Seats: \_\_\_\_\_  
# Dining Seats: \_\_\_\_\_ # Bar Seats \_\_\_\_\_

**WATER SUPPLY**

Public Y/N  
Private Y\*/N

\*If well water, an application for Approval of Chlorinator Installation must be submitted

**SEWAGE**

Public Y/N

Private Y\*/N

\*Additional information must be submitted and all septic systems must be approved by this office prior to opening.

**GARBAGE STORAGE**

# Dumpsters \_\_\_\_\_ Location \_\_\_\_\_  
# Covered Garbage Cans \_\_\_\_\_

**VENTILATION**

# Exhaust Hoods \_\_\_\_\_ Length \_\_\_\_\_ Width \_\_\_\_\_  
Length \_\_\_\_\_ Width \_\_\_\_\_

Exhaust Fan Capacity \_\_\_\_\_ CFM\*  
\_\_\_\_\_ CFM\*

\*(CFM = cubic feet/minute)

**REFRIGERATION**

SIZE  
(cu. ft.)

# Reach-in Refrigerators \_\_\_\_\_  
# Walk-in Refrigerators \_\_\_\_\_  
# Walk-in Freezers \_\_\_\_\_  
# Reach-in Freezers \_\_\_\_\_

**COOKING/HOT HOLDING EQUIPMENT**

# Stoves \_\_\_\_\_  
# Conventional Ovens \_\_\_\_\_  
# Convection Ovens \_\_\_\_\_  
# Steam Tables \_\_\_\_\_  
# Grills \_\_\_\_\_  
# Microwave Ovens \_\_\_\_\_  
# Fryers \_\_\_\_\_  
# Broilers \_\_\_\_\_  
# Other: \_\_\_\_\_

**TOILET FACILITIES**

# Public Restrooms \_\_\_\_\_  
# Employee Restrooms \_\_\_\_\_

**FOOD PROCESSING AND CLEANING**

#Kitchen Handwash Sinks \_\_\_\_\_  
# Food Wash Sinks \_\_\_\_\_  
# Ice Machines \_\_\_\_\_  
# Ice Bins \_\_\_\_\_  
Location of Mop Sink \_\_\_\_\_

**WAREWASHING**

Will plasticware & paper plates be used exclusively? Y\*/N  
\* #2 compartment sinks \_\_\_\_\_  
Will silverware/dishes/glasses be used? Y\*/N  
\* # 3 compartment sinks \_\_\_\_\_  
\* # automatic dishwashers \_\_\_\_\_

**WATER HEATING EQUIPMENT**

Hot Water Heater Storage  
Capacity: \_\_\_\_\_ gals.  
Recovery Rate (gals/hr) \_\_\_\_\_

**CARBONATED BEV. SYSTEM(S)**

Pre-mix Y/N  
Post-mix Y\*/N

\*List type of backflow prevention device to be used \_\_\_\_\_

Bottled/Canned Beverages Only Y/N

**FOR OFFICE USE ONLY**

Risk Factor \_\_\_\_\_

Date Approved \_\_\_\_\_

Assigned by \_\_\_\_\_

Assigned to \_\_\_\_\_

Date \_\_\_\_\_



**ORANGE COUNTY DEPARTMENT OF HEALTH  
124 Main Street, Goshen, NY 10924**

Application for Approval of a Chlorinator Installation  
(Use for Non-Community Water Supplies (NCWS) using single ground water source only)

FACILITY _____	OWNER _____
ADDRESS _____	ADDRESS _____
PHONE # (____) _____	PHONE # (____) _____
ENGINEER OR PLUMBER (IF APPLICABLE) _____	
	PHONE # (____) _____
	ADDRESS _____
	_____

IS WATER SYSTEM METERED? \_\_\_\_\_ IF YES, MAXIMUM DAILY FLOW \_\_\_\_\_ gpd

WELL PUMPING RATE \_\_\_\_\_ gpm

# OF FAUCETS \_\_\_\_\_ MAX # USED SIMULTANEOUSLY \_\_\_\_\_

# OF TOILETS \_\_\_\_\_ MAX # USED SIMULTANEOUSLY \_\_\_\_\_

# OF SHOWERS \_\_\_\_\_ MAX # USED SIMULTANEOUSLY \_\_\_\_\_

OTHER FIXTURES \_\_\_\_\_

OWNER'S SIGNATURE \_\_\_\_\_ DATE \_\_\_\_\_

A properly functioning chlorinator system introduces chlorine into the water in such a way that all the water has a uniform concentration of chlorine. The chlorine should then be given the appropriate amount of "CT" (disinfection 'C'oncentration multiplied by 'T'ime) based on the Ground Water Rule (GWR).

Compared to the flow after the pressure tank, the flow from the well will be relatively uniform. The chlorine injection point should therefore be prior to any pressure tanks. A raw water sampling tap must be installed before (i.e. upstream from) the chlorine injection point. The injection point and the raw water tap must be separated by a check valve (see diagram on reverse for a proper depiction of plumbing order). The chlorinator must be a positive displacement type equipped with an anti-siphon device or a peristaltic type metering pump. The chlorinator and well pump must be wired together to operate simultaneously unless a flow paced configuration is being utilized.

Contact tanks must be installed after the injection point. Tank configuration is important when determining Baffling Factor (see diagram below) and calculating "CT". If a pressure tank is used to provide contact time, only one third of the baffled volume of the tank will be considered. Pressure tanks on tees (i.e. a single inlet and outlet) will not provide any "CT". Tanks should be sized to provide 6 mg/l\*min of "CT". Please note the equation on page 2 when calculating "CT".

Fill out the diagram on page 2. If a configuration other than that shown is proposed, attach an appropriate sketch. If a peak flow of less than the well pumping rate is to be considered, include an appropriate explanation. This must include a description of conditions under which peak flows will occur.

Please note that this application may not be applicable for complex systems that may require engineered plans for review and approval.

FIGURE 8

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**APPROVAL AND CONDITIONS**

This application is approved under the provisions of Subsection 5-1.30 of the N.Y.S. Sanitary Code and is subject to the following conditions:

1. THAT a minimum free chlorine residual of 0.2 mg/l shall be maintained throughout the distribution system. Tests for free chlorine residual shall be taken daily, while the facility is in operation, with a DPD type test kit.
2. THAT microbiological testing of the water supply shall be performed by the water supplier on a monthly/quarterly basis, and further, that a copy of the results of this analysis shall be submitted to the Orange County Health Department upon its receipt by the water supplier. Unsatisfactory microbiological samples may result in the necessity of increasing the capacity of the chlorine contact tanks for additional chlorine contact time.
3. THAT operation reports shall be filled out on a daily basis by the supplier of water and submitted to this office by the tenth calendar day of the next monthly reporting period as prescribed in the N.Y.S. Sanitary Code for a non-community water supplier.
4. THAT the chlorinator approval is based upon a peak flow of \_\_\_\_\_ gpm.
5. THAT any interruption in the treatment process or the drinking water supply, shall be reported to this office immediately. No change in the source or method of treatment shall be made without first notifying and obtaining approval from the Orange County Health Dept.
6. THAT the water supply shall be constructed in complete conformance with this approved application WS-101.

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Date

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P.E.  
Orange County Department of Health

**ORANGE COUNTY DEPARTMENT OF HEALTH  
124 Main Street, Goshen, NY 10924**

**Application for Approval of an Ultraviolet Disinfection System Installation**  
(Use for water supplies with groundwater sources only and no external distribution system)

FACILITY _____	OWNER _____
ADDRESS _____	ADDRESS _____
PHONE # (____) _____	PHONE # (____) _____
ENGINEER OR PLUMBER (IF APPLICABLE) _____	
(NYS Licensed Engineer required if cost of treatment system exceeds \$5000)	PHONE # (____) _____
	ADDRESS _____

IS WATER SYSTEM METERED? \_\_\_\_\_ IF YES, MAXIMUM DAILY FLOW \_\_\_\_\_ gpd  
WELL PUMPING RATE \_\_\_\_\_ gpm

# OF FAUCETS _____	MAX # USED SIMULTANEOUSLY _____
# OF TOILETS _____	MAX # USED SIMULTANEOUSLY _____
# OF SHOWERS _____	MAX # USED SIMULTANEOUSLY _____
OTHER FIXTURES _____	

OWNER'S SIGNATURE \_\_\_\_\_ DATE \_\_\_\_\_

An Ultraviolet Disinfection system (UV) may be used as an alternative to chlorination for Non-Community water supplies using groundwater sources (wells) that meet certain criteria. The well(s) must be properly constructed and not subject to the direct influence of surface water. Provide any available information on the construction of the well (e.g. well log) and a site plan showing the well location, including distances to any potential sources of contamination within 200 ft. The water quality reaching the UV system must be in compliance with New York State Department of Health standards for physical parameters that could reduce the effectiveness of the treatment process. Test results must be provided for:

- Total Coliform (quantitative analysis, not presence/absence)
- E. Coli (presence/absence)
- Heterotrophic plate count
- Turbidity
- Iron
- Manganese
- Hydrogen Sulfide (or undetectable Odor)
- Suspended Solids
- Calcium Hardness
- Color
- UV Transmissivity or UV Absorbance

Pretreatment may also be provided to meet New York State Department of Health standards and/or to reduce maintenance for the UV system. Depending on the test results, or complexity of the water system, additional treatment including chlorination may be required. Fill out the diagram on the back of this sheet, and submit the completed application along with the required water test results from a New York State Department of Health certified laboratory. If a configuration other than that shown is proposed, attach an appropriate sketch. Provide any additional information as necessary to demonstrate compliance with the Orange County Department of Health Policy for Design & Installation of Ultraviolet Disinfection Units.

**POLICY FOR DESIGN & INSTALLATION OF ULTRAVIOLET DISINFECTION UNITS**  
(Use for water supplies with groundwater sources only and no external distribution system)

This policy for Ultraviolet Disinfection (UV) shall not apply to surface water sources or groundwater sources that may be under the direct influence of surface water. Additionally, it must be mentioned that there is currently no UV unit that satisfies the 4-log removal of viruses required by the Ground Water Rule (GWR). You may still use UV for disinfection; however, you must comply with GWR monitoring and if at any time a confirmed presence of E. Coli is found in the raw water you will be required to comply with the 4-log removal/inactivation of viruses requirement (this will mean the installation of chlorine and contact tanks that supply the appropriate "CT").

UV units with a capacity of 30 gpm or less must be listed under NSF Standard 055 Disinfection Performance Class A. For UV units larger than 30 gpm, a copy of the bioassay performed by an independent laboratory for the specified UV unit must be submitted to validate the units ability to deliver 40,000 uW-s/cm<sup>2</sup> for the full operating range (e.g. 100%-70%). The unit selected shall not exceed the manufacturer's gpm rating at the expected peak flow rate. A flow control device shall be installed to ensure that the maximum flow rating of the unit is not exceeded, when appropriate. The water quality supplied to the UV disinfection system must be demonstrated to have a minimum UV transmittance at a wavelength of 254 nm of at least 70% or UV absorbance no greater than 0.155 cm<sup>-1</sup>. Additionally, the water quality reaching the UV must be in compliance with New York State Department of Health standards for physical parameters that could reduce the effectiveness of the UV treatment system. Additional design limits include: Iron- 0.3 mg/l, Manganese – 0.05 mg/l, Hardness (calcium) – 300 mg/l, Hydrogen Sulfide – 1 mg/l, Turbidity – 1 NTU, Color – 15, and Suspended Solids – 10 mg/l. If any of these design limits are exceeded, a design for additional treatment to achieve acceptable levels must be included. The minimum pretreatment prior to the UV unit shall be a 5-micron sediment removal cartridge filter.

The UV unit shall be a closed vessel type designed for disinfection of potable water and shall be constructed of acceptable, durable materials such as 316L stainless steel with FDA grade materials for gaskets & O-rings. The unit shall provide ultraviolet radiation at a wavelength of 254 nm at a minimum dosage of 40,000 uW-s/cm<sup>2</sup> (40 mW-s/cm<sup>2</sup>) at all points throughout the disinfection chamber. Maximum water depth in the chamber, measured from the tube surface to the chamber wall shall not exceed three inches (3"). The UV lamp shall have a quartz or high silica glass sleeve, be of standard non-proprietary design, and be designed to withstand vibration and shock. The lamp shall also be instant start (minimal delay on start-up). The unit shall also include an automatic or manual cleaning device such as a wiper for cleaning the quartz sleeve without disassembly of the unit, or the unit shall be designed for quick disassembly for cleaning. An ultraviolet intensity meter shall be installed. The display for the UV system shall include a "power on" indicator and audible alarms for lamp out of service, low UV dosage (<70%), ballast high temperature, disinfection chamber high temperature, and power failure. Automatic shutdown of water flow shall be provided for alarm conditions.

The installation shall be designed to allow the UV unit a two-minute warm-up period prior to water flow. The unit shall also be designed to protect the operator against electrical shock or excessive radiation. The unit must be installed in a readily accessible location that is protected from extreme temperatures. The operator shall perform routine daily checks on the UV system.

A qualified water treatment specialist shall make the submission of the documentation necessary for approval by this office. The Orange County Health Department has the option of requiring that plans be prepared by a NYS licensed design professional depending on the complexity and/or cost of the system.

The following conditions shall be included on the approval:

1. Following completion of the installation of the treatment equipment, satisfactory water sample results for total coliform and heterotrophic plate count shall be provided.
2. Routine daily checks shall be performed on the treatment system to verify proper operation, including intensity meter reading of at least 70%. The intensity meter readings must be recorded on the monthly operation report form (DOH-360CUV) that must be submitted to the OCHD by the 10<sup>th</sup> day of the next month.
3. The treatment system shall be properly maintained, including cleaning on a regular basis, in accordance with the manufacturer's recommendations.
4. The UV lamp shall be replaced on an annual basis or as recommended by the manufacturer. A spare lamp shall be kept on the premises.
5. That following any repair work, the entire water system shall be thoroughly disinfected with chlorine.

