

**ZB# 83-18**

**Mid-Hudson Oxygen**

**9-1-61**

Preliminary Meeting:

April 11, 1983.

Height, side yard &

Neighborhood.

Contact: Fire Insp.

Plans to Bureau.

5/11/83 - Notice delivered to Sentinel by Davaco

Public Hearing

May 23, 1983.

file

# General Receipt

5216

TOWN OF NEW WINDSOR  
555 Union Avenue  
New Windsor, N. Y. 12550

June 1 19 83

Received of McCoy, Hauser, Hays \$ 50<sup>00</sup>  
Fifty DOLLARS

For 83-18 Mid-Hudson Oxygen Variance Application fee

DISTRIBUTION:

FUND	CODE	AMOUNT
<u>Check</u>		
<u>4080</u>		<u>50.00</u>

By Pauline Townsend  
Town Clerk  
Title

Williamson Law Book Co., Rochester, N. Y. 14609

FUND	CODE	AMOUNT
Check 4080		50.00

Williamson Law Book Co., Rochester, N. Y. 14609

By Tauline Townsend  
 (gov)  
Town Clerk  
 Title

no  
Lox Tank

TOWN OF NEW WINDSOR  
ZONING BOARD OF APPEALS

APPLICATION FOR VARIANCE OR SPECIAL PERMIT

# 83-18

Date: 5/10/83.

I. ✓ Applicant Information:

914-561-

(a) Mid-Hudson Oxygen Co., Inc., MD #23, Walsh Rd., New Windsor, NY 4650  
(Name, address and phone of Applicant) (Owner)

(b) \_\_\_\_\_  
(Name, address and phone of purchaser or lessee)

(c) \_\_\_\_\_  
(Name, address and phone of attorney)

(d) \_\_\_\_\_  
(Name, address and phone of broker)

II. Application type:

Use Variance

Sign Variance

Area Variance

Special Permit

III. ✓ Property Information:

(a) P.I. Walsh Road 9/1/61  
(Zone) (Address) (S B L) (Lot size)

(b) What other zones lie within 500 ft.? R-4

(c) Is a pending sale or lease subject to ZBA approval of this application? No

(d) When was property purchased by present owner? 12/31/1965

(e) Has property been subdivided previously? No When? \_\_\_\_\_

(f) Has property been subject of variance or special permit previously? No When? \_\_\_\_\_

(g) Has an Order to Remedy Violation been issued against the property by the Zoning Inspector? No

(h) Is there any outside storage at the property now or is any proposed? Describe in detail: Outside storage of various bottled gases existing; installation of liquid oxygen storage tank and pumping system proposed.

IV. Use Variance:

(a) Use Variance requested from New Windsor Zoning Local Law, Section \_\_\_\_\_, Table of \_\_\_\_\_ Regs., Col. \_\_\_\_\_, to allow:

(Describe proposal) \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

(b) The legal standard for a "Use" variance is unnecessary hardship. Describe why you feel unnecessary hardship will result unless the use variance is granted. Also set forth any efforts you have made to alleviate the hardship other than this application.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

V.  Area variance:

(a) Area variance requested from New Windsor Zoning Local Law, Section 48-12, Table of Bulk Regs., Col. \_\_\_\_\_.

Requirements	Proposed or Available	Variance Request
Min. Lot Area. <u>40,000 S.F.</u>	<u>31,982***</u>	<u>0'</u>
Min. Lot Width <u>150 ft.</u>	<u>150'</u>	<u>0'</u>
Reqd. Front Yd. <u>50 ft.</u>	<u>36.7' ***</u>	<u>0'</u>
Reqd. Side Yd. <u>15 / 40ft.</u>	<u>*** 13 / 3'</u>	<u>0 / 37' ✓</u>
Reqd. Rear Yd. <u>20 ft.</u>	<u>10'</u>	<u>10' ✓</u>
Reqd. Street Frontage*		
Max. Bldg. Hgt. <u>1.5'</u>	<u>30'</u>	<u>28.5' ✓</u>
Min. Floor Area*		
Dev. Coverage* _____ %	_____ %	_____ %
Floor Area Ratio** <u>0.6</u>	<u>0.3</u>	<u>0</u>

*Area*

\* Residential Districts only

\*\*\*Existing Condition

\*\* Non-residential districts only

(b) The legal standard for an "AREA" variance is practical difficulty. Describe why you feel practical difficulty will result unless the area variance is granted. Also, set forth any efforts you have made to alleviate the difficulty other than this application.  
The project site is limited in size; in order to properly service our existing customers, it is necessary to install a liquid oxygen storage and pumping system and expand our existing floor space.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

VI. Sign Variance:

(a) Variance requested from New Windsor Zoning Local Law, Section \_\_\_\_\_, Table of \_\_\_\_\_ Regs., Col. \_\_\_\_\_.

	Requirements	Proposed or Available	Variance Request
Sign 1	_____	_____	_____
Sign 2	_____	_____	_____
Sign 3	_____	_____	_____
Sign 4	_____	_____	_____
Sign 5	_____	_____	_____
Total	_____ sq. ft.	_____ sq. ft.	_____ sq. ft.

- (b) Describe in detail the sign(s) for which you seek a variance, and set forth your reasons for requiring extra or oversize signs.

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- (c) What is total area in square feet of all signs on premises including signs on windows, face of building, and free-standing signs?

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VII. Special Permit:

- (a) Special Permit requested under New Windsor Zoning Local Law, Section \_\_\_\_\_, Table of \_\_\_\_\_ Regs., Col. \_\_\_\_\_.
- (b) Describe in detail the use and structures proposed for the special permit.

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VIII.  Additional comments:

- (a) Describe any conditions or safeguards you offer to ensure that the quality of the zone and neighboring zones is maintained or upgraded and that the intent and spirit of the New Windsor Zoning Local Law is fostered. (Trees, landscaping, curbs, lighting, paving, fencing, screening, sign limitations, utilities, drainage.)

The proposed improvements are to be placed near the rear of the property, to minimize visual effect.

The liquid oxygen system will be installed in accordance with all applicable safety codes and standards.

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IX. Attachments required:

- Copy of letter of referral from Bldg./Zoning Inspector.
- Copy of tax map showing adjacent properties.
- Copy of contract of sale, lease or franchise agreement.
- Copy(ies) of site plan or survey showing the size and location of the lot, the location of all buildings, facilities, utilities, access drives, parking areas, trees, landscaping, fencing, screening, signs, curbs, paving and streets within 200 ft. of the lot.
- Copy(ies) of sign(s) with dimensions.
- Check in the amount of \$ 50.00 payable to TOWN OF NEW WINDSOR.
- Photos of existing premises which show all present signs and landscaping.

X. AFFIDAVIT

Date 10 May 1983

STATE OF NEW YORK )  
                          ) SS.:  
COUNTY OF ORANGE )

The undersigned Applicant; being duly sworn, deposes and states that the information, statements and representations contained in this application are true and accurate to the best of his knowledge or to the best of his information and belief. The applicant further understands and agrees that the Zoning Board of Appeals may take action to rescind any variance or permit granted if the conditions or situation presented herein are materially changed.

*Walter J. Schaffer*  
\_\_\_\_\_  
(Applicant)  
(see endorsement attached)

Sworn to before me this  
18th day of May, 1983.

*Patricia Delio*  
PATRICIA DELIO  
Notary Public, State of New York  
Appointed in Orange County  
My Commission expires Mar. 30, 1984.

- XI. ZBA Action: My
- (a) Public Hearing date: \_\_\_\_\_.
  - (b) Variance is \_\_\_\_\_.  
Special Permit is \_\_\_\_\_.
  - (c) Conditions and safeguards: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

A FORMAL DECISION WILL FOLLOW  
WHICH WILL BE ADOPTED BY  
RESOLUTION OF ZONING BOARD OF APPEALS.

Attached hereto is an affidavit of ownership indicating the dates the respective holdings of land were acquired, together with the liber and page of each conveyance into the present owner as recorded in the Orange County Clerk's Office. This affidavit shall indicate the legal owner of the property, the contract owner of the property and the date the contract of sale was executed.

IN THE EVENT OF CORPORATE OWNERSHIP: A list of all directors, officers and stockholders of each corporation owning more than five percent (5%) of any class of stock must be attached.

I HEREBY DEPOSE AND SAY THAT ALL THE ABOVE STATEMENTS AND INFORMATION, AND ALL STATEMENTS AND INFORMATION, CONTAINED IN THE SUPPORTING DOCUMENTS AND DRAWINGS ATTACHED HERETO ARE TRUE.

Sworn before me this

25<sup>th</sup> day of April, 1983.

*William Schaffer*  
Applicant's Signature

PRESIDENT  
Title

*Ruth J. Eaton*  
Notary Public

Notary Public, State of New York  
Qualified in Orange County  
Commission Expires March 30, 1984  
Reg. No. 4673512

OWNER'S ENDORSEMENT

(Completion required ONLY if applicable)

COUNTY OF ORANGE }  
STATE OF NEW YORK } SS.:

William Schaffer being duly sworn, deposes and says that he resides  
MD 23 - Walsh Road, New Windsor, N.Y. in the

(Owner's Address)  
county of Orange and State of New York

and that he is (the owner in fee) of PRESIDENT of the BETHLEHEM  
(Official Title) Holding Corp

Corporation which is the owner in fee) of the premises described in the foregoing application  
and that he has authorized MID-HUDSON OXYGEN Co. INC. to make the fore-  
going application for special use approval as described herein.

Sworn before me this.

25<sup>th</sup> day of April, 1983

*William Schaffer*  
(Owner's Signature)

*Ruth J. Eaton*  
Notary Public

RUTH J. EATON  
Notary Public, State of New York  
Qualified in Orange County  
Commission Expires March 30, 1984  
Reg. No. 4673512

NEW WINDSOR ZONING BOARD OF APPEALS

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In the Matter of the Application of

MID-HUDSON OXYGEN, CO., INC.,

DECISION GRANTING  
VARIANCE

# 83-18 .

-----x

WHEREAS, MID-HUDSON OXYGEN CO., INC., by its President, WM. SCHAFFER, Walsh Road, Town of New Windsor, NY (PI zone) , has made application before the Zoning Board of Appeals for area variances for the purposes of: installation of liquid oxygen storage tank and pumping system and building addition; and

WHEREAS, a public hearing was held on the 23rd day of May, 1983 before the Zoning Board of Appeals at the Town Hall, New Windsor, New York; and

WHEREAS, the applicant appeared with its representative, Elias Grevas of McGoey, Hauser & Grevas, consulting engineers for the project; and

WHEREAS, the application was unopposed; and

WHEREAS, the Zoning Board of Appeals of the Town of New Windsor makes the following findings of fact in this matter:

1. The notice of public hearing was duly sent to residents and businesses as prescribed by law and published in The Sentinel, also as required by law.

2. The evidence shows: that the project is limited in size and in order to properly service existing customers, it is necessary to install a liquid oxygen storage and pumping system, which entails expanding existing floor space;

3. The evidence shows that there is no additional available space in this area to expand the existing project;

WHEREAS, the Zoning Board of Appeals makes the following findings of law in this matter:

1. The evidence shows that the applicant will encounter practical difficulty if the area variance requested is not granted.

2. The proposed variance will not result in substantial detriment to adjoining properties or change the character of the neighborhood.

NOW, THEREFORE, BE IT

RESOLVED, that the Zoning Board of Appeals of the Town of New Windsor grants (1) 37 ft. sideyard; (2) 10 ft. rear yard and (3) 28.5 ft. height variance /in accordance with plans submitted at the public hearing.

BE IT FURTHER,

RESOLVED that the Secretary of the Zoning Board of Appeals of the Town of New Windsor transmit a copy of this decision to the Town Clerk, Town Planning Board and applicant.

Dated: June 13, 1983. :

  
Chairman

Town Planning Bd.

PUBLIC NOTICE OF HEARING BEFORE  
ZONING BOARD OF APPEALS  
TOWN OF NEW WINDSOR

PLEASE TAKE NOTICE that the Zoning Board of Appeals of the TOWN OF NEW WINDSOR, New York will hold a Public Hearing pursuant to Section 48-34A of the Zoning Ordinance on the following proposition:

Appeal No. 18

Request of Mid-Hudson Oxygen Co., Inc.

for a VARIANCE ~~SPECIAL PERMIT~~ of the regulations of the Zoning Ordinance to permit Construction of a liquid oxygen storage tank and pumping system and building addition

being a VARIANCE ~~SPECIAL PERMIT~~ of Section 48-12, Bulk Regulations

for property situated as follows:

north side of Walsh Road, between John Street and the Town line, opposite and east of Carol Avenue

SAID HEARING will take place on the 23 day of May, 19 83, at the New Windsor Town Hall, 555 Union Avenue, New Windsor, N. Y. beginning at 7:30 o'clock P. M.

Richard Knwick  
Chairman

**Memo** FROM: Partick T. Kennedy, Bldg/Zoning Inspector  
TOWN OF NEW WINDSOR  
555 UNION AVENUE NEW WINDSOR, NEW YORK 12550

TO:

Zoning Board of Appeals  
Att: Richard Fenwick,  
Chairman

8/3/18  
DATE: April 5, 1983

SUBJECT: Zoning variances for Mid-Hudson Oxygen

—FOLD HERE—

Lou Grevas asked the questions whether the use (storage of liquid Oxygen) came under the jurisdiction of the Additional use regulations as called out in the use Tables, column G paragraph 8 A(2). It is the opinion of this office after consulting with Paul Cuomo, Town Engineer, that the use is not the manufacture of liquid oxygen from raw materials but simply the storage of Liquid Oxygen and is a permitted use in the P.I. zone.

PTK/nh

Patrick T. Kennedy  
Building/Zoning Inspector

RECEIVED  
ATTORNEY'S OFFICE  
TOWN OF NEW WINDSOR

APR 5 1983

BY: Patricia Delio

by Patrick T. Kennedy

INTER-OFFICE CORRESPONDENCE

TO: TOWN PLANNING BOARD  
TOWN BUILDING/ZONING INSPECTOR KENNEDY  
TOWN FIRE INSPECTOR

FROM: ZONING BOARD OF APPEALS

SUBJECT: PUBLIC HEARINGS BEFORE ZBA - 5/23/83

DATE: May 12, 1983

Please be advised that there are two (2) public hearings scheduled to be heard before the Zoning Board of Appeals on the evening of May 23, 1983:

PIETRZAK, ELAINE - Request for front yard  
variance on Steele Rd.;

MID-HUDSON OXYGEN CO., INC. - Request for  
construction of liquid oxygen  
storage tank, pumping system  
and building addition.

I have attached hereto copies of the pertinent applications together with the public hearing notices which are scheduled to be published in The Sentinel on 3/12/83.

Pat

/pd  
Attachments for Planning Board

INTER-OFFICE CORRESPONDENCE

TO: ZONING BOARD OF APPEALS  
FROM: TOWN FIRE INSPECTOR  
DATE: 12 MAY 1983  
SUBJECT: MID-HUDSON OXYGEN CO., INC.

In reference to your memo to me regarding the aforementioned subject, I traveled to Lathem, New York with Mr. Richard Schaffer on 11 May 1983, to inspect a Liquid Oxygen (LOX) installation, similiar to the proposed facility at his business on Walsh Avenue.

Provided proper safety requirements are met, I find no reason to deny Mid-Hudson Oxygen Co., Inc. a variance for this project.

Respectfully,



Robert F. Rodgers

cc: Town Planning Board  
Town Building and Zoning Inspector

RECEIVED  
ATTORNEY'S OFFICE/ZBA.  
TOWN OF NEW WINDSOR

MAY 13 1983

BY: Patricia Delis



Prelim  
Apr. 11th  
7:30 p.m.

(2)

**GUNNAR EDELSTEIN**  
TECHNICAL SALES REPRESENTATIVE

AIR PRODUCTS AND CHEMICALS, INC.  
ALBANY OFFICE  
112 WADE ROAD  
LATHAM, NEW YORK 12110

(518) 783-1745

N OF NEW WINDSOR  
RANGE COUNTY, N. Y.  
ZONING - BUILDING INSPECTOR

NOTICE OF DISAPPROVAL OF BUILDING PERMIT APPLICATION

83-18

File No. ....

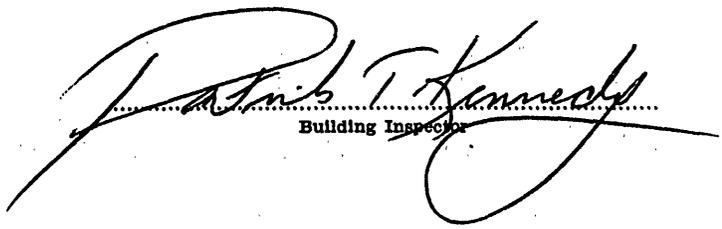
Date March 25, 1983

To Mid-Hudson Oxygen Co. Inc.  
Walsh Road  
New Windsor, N.Y. 12550

PLEASE TAKE NOTICE that your application dated March 25, 1983  
for permit to Erect a liquid oxygen bulk storage tank: 6000 gal.  
at the premises located at North side of Walsh Road

is returned herewith and disapproved on the following grounds:

P.I. zone: Max. permitted Hgt. - 6" per foot from lot line.  
Projected distance from side line 15' - max Hgt. allowed  
7.5' Projected Hgt. of tank 26'

  
Building Inspector

owner of property: Bethlehem Holding - (Schaffer)



1763

# TOWN OF NEW WINDSOR

555 UNION AVENUE  
NEW WINDSOR, NEW YORK  
(914) 565-8550

Date: May 24, 1983

Mr. William Schaffer, President  
MID-HUDSON OXYGEN, CO., INC.  
M. D. 23 - Walsh Road  
New Windsor, N. Y. 12550

RE: APPLICATION BEFORE ZONING BOARD OF APPEALS  
# 83-18 - MID-HUDSON OXYGEN, CO., INC.

Dear Mr. Schaffer:

This is to confirm that your above application before the  
New Windsor Zoning Board of Appeals was granted  
at a meeting held on the 23rd day of May, 19 83.

A formal decision will be drafted and acted upon at a later  
date. You will be receiving a copy of same by return mail.

Meanwhile, if you have any further questions, please do not  
hesitate to call me.

Yours very truly,

PATRICIA DELIO, Secretary  
New Windsor Zoning Board of Appeals

/pd

cc: Patrick Kennedy, Bldg/Zoning Inspector  
Town Planning Board

# TOWN OF NEW WINDSOR

555 UNION AVENUE  
NEW WINDSOR, NEW YORK



1763

45 on list

- ✓ Maskey John ✓  
86 Walsh Ave  
New Windsor NY 12550
- ✓ O'Neil Steven & Barbara  
94 Walsh Rd  
New Windsor NY 12550
- ✓ Hulse Edna L ✓  
97 Clancy Ave  
New Windsor NY 12550
- Wolfe Bruce W ✓  
35 De Puyster Ave  
Beacon NY 12508
- Crudele Alfred T ✓  
64 Clancy Avenue  
New Windsor NY 12550
- ✓ Duda John R & Janet ✓  
80 Clancy Ave  
New Windsor NY 12550
- ✓ Di Perna Frank & Olive ✓  
2 Myrtle Ave  
New Windsor NY 12550
- ✓ Hunt Gary W & Nancy L ✓  
12 Myrtle Ave  
New Windsor NY 12550
- ✓ Reardon Joseph A & Ethel K ✓  
14 Myrtle Ave  
New Windsor NY 12550
- Makarewicz Stanley R &  
Dorothea Janet ✓  
17 Cherry Ave  
New Windsor NY 12550
- ✓ Duda Andrew P  
22 S Miller St  
Newburgh NY 12550
- ✓ Maines George M & Helen N ✓  
112 Clancy Ave  
New Windsor NY 12550
- ✓ Ward William W Jr ✓  
110 Clancy Ave  
New Windsor NY 12550
- ✓ Wilsons & Conklins Modern Vending :  
106 Clancy Avenue ✓  
New Windsor NY 12550
- ✓ Petrie John J ✓  
7 Sycamore Drive  
Newburgh NY 12550
- ✓ Pettine Michael J Jr & Wilma ✓  
102 Clancy Ave  
New Windsor NY 12550
- ✓ Heller Kenneth H & Patricia ✓  
100 Clancy Ave  
New Windsor NY 12550
- Nieves William & Catalina ✓  
96 Clancy Ave  
New Windsor NY 12550
- ✓ Spignardo John N & Dora ✓  
Clancy Ave MD23 ✓  
New Windsor NY 12550
- Smith Albina J Bugiada ✓  
2 Cherry Ave  
New Windsor NY 12550



1763

# TOWN OF NEW WINDSOR

555 UNION AVENUE  
NEW WINDSOR, NEW YORK

- ✓ Thompson Ellen W ✓  
135 Walsh Ave ✓  
New Windsor NY 12550
- ✓ Thompson Fred E ✓  
MD 23 Walsh Ave ✓  
New Windsor NY 12550
- ✓ Miron Stephen E & ✓  
Kenneth L ✓  
c/o Federal Block Corp ✓  
PO Box 4090 ✓  
New Windsor NY 12550
- ✓ Cornwall Paper Mills ✓  
51-83 S Jefferson St ✓  
Orange NJ 07050
- ✓ Basch Harry L & Shirley B ✓  
3 Oakridge Dr ✓  
New Windsor NY 12550
- ✓ Billello Laurence & ✓  
Thompson Fred ✓  
4 Ona Lane ✓  
New Windsor NY 12550
- ✓ Aghareza Abolghassen & ✓  
Elizabeth ✓  
77 Walsh Rd ✓  
New Windsor NY 12550
- ✓ Pluchino John & Hilda Tegla ✓  
4 Stonecrest Dr ✓  
New Windsor NY 12550
- ✓ Colandrea Michael & Elena ✓  
83 Clancy Ave ✓  
New Windsor NY 12550
- ✓ Faricellia Ralph & Margaret ✓  
114 Walsh Ave ✓  
New Windsor NY 12550
- ✓ Faricellia Mary G ✓  
126 Walsh Ave ✓  
New Windsor NY 12550
- ✓ Faricellia Dominick ✓  
c/o Ralph Faricellia ✓  
114 Walsh Ave ✓  
New Windsor NY 12550
- ✓ 3 D Realty Inc ✓  
c/o Da Mario Carmine & Louise ✓  
61 Clancy Ave ✓  
New Windsor NY 12550
- ✓ Faricellia John & Lucille ✓  
140 Walsh Ave ✓  
New Windsor NY 12550
- ✓ Wein Susan & Edward J ✓  
154 Walsh Rd ✓  
New Windsor NY 12550
- ✓ Bottieri Rose C & Pasquale & Oreste ✓  
Route 207 ✓  
Rock Tavern NY 12575
- ✓ Crudele John & Anna T ✓  
MD23 Merline Ave ✓  
New Windsor NY 12550
- ✓ Sledzianowski Emil ✓  
59 Clancy Ave ✓  
New Windsor NY 12550
- ✓ Three D Realty Inc ✓  
Oakridge Drive MD23 ✓  
Newburgh NY 12550
- ✓ Faricellia John & Michael ✓  
134 Walsh Ave ✓  
New Windsor NY 12550



1763

# TOWN OF NEW WINDSOR

555 UNION AVENUE  
NEW WINDSOR, NEW YORK

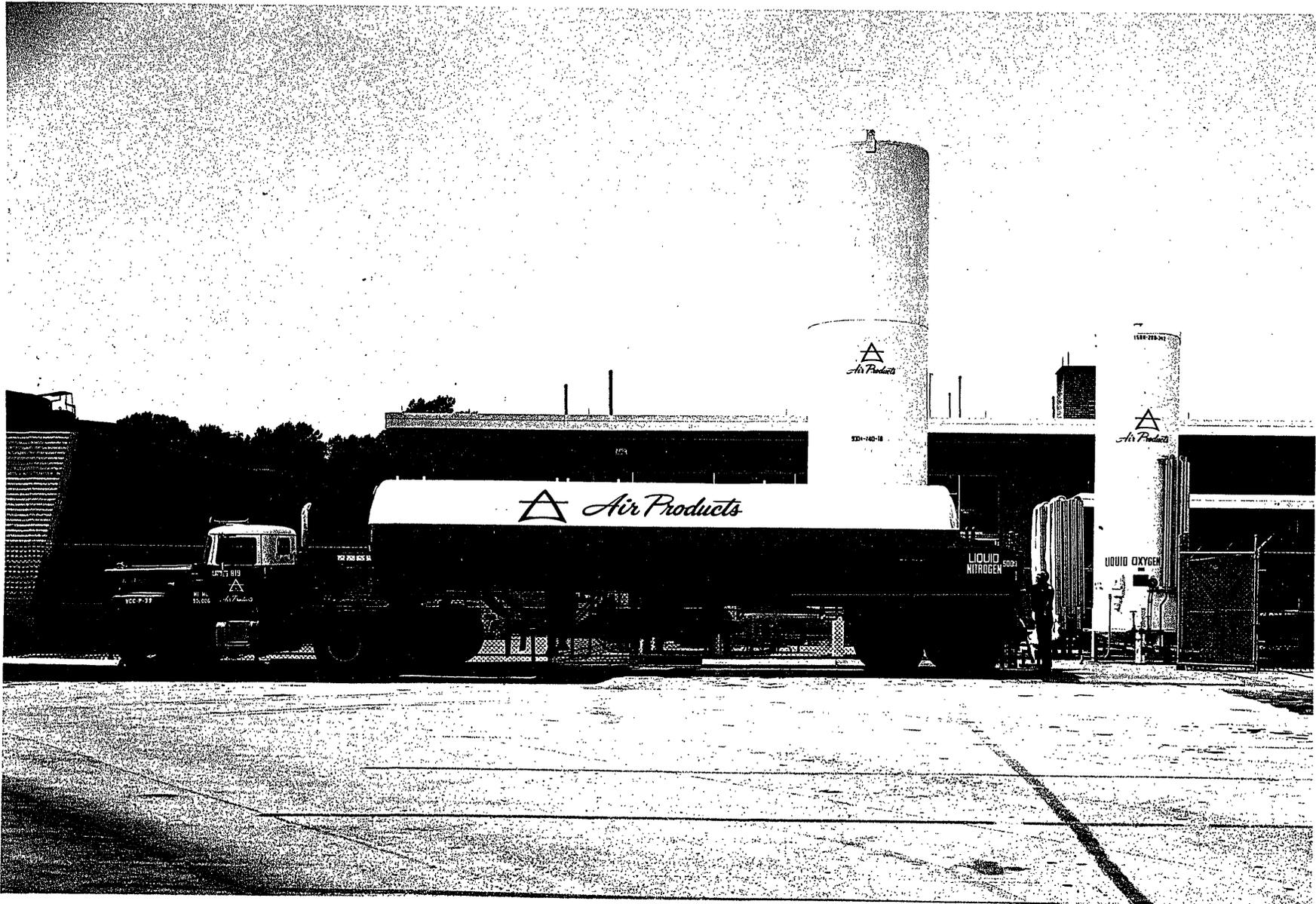
✓ Cavicchio Leonard J & Evelyn ✓  
✓ 4 Cherry Ave ✓  
New Windsor NY 12550

✓ Jones Lawrence & Loretta E ✓  
✓ 22 Cherry Ave ✓  
New Windsor NY 12550

✓ Dell Donald J & Lucille J ✓  
✓ 28 Cherry Ave ✓  
New Windsor NY 12550

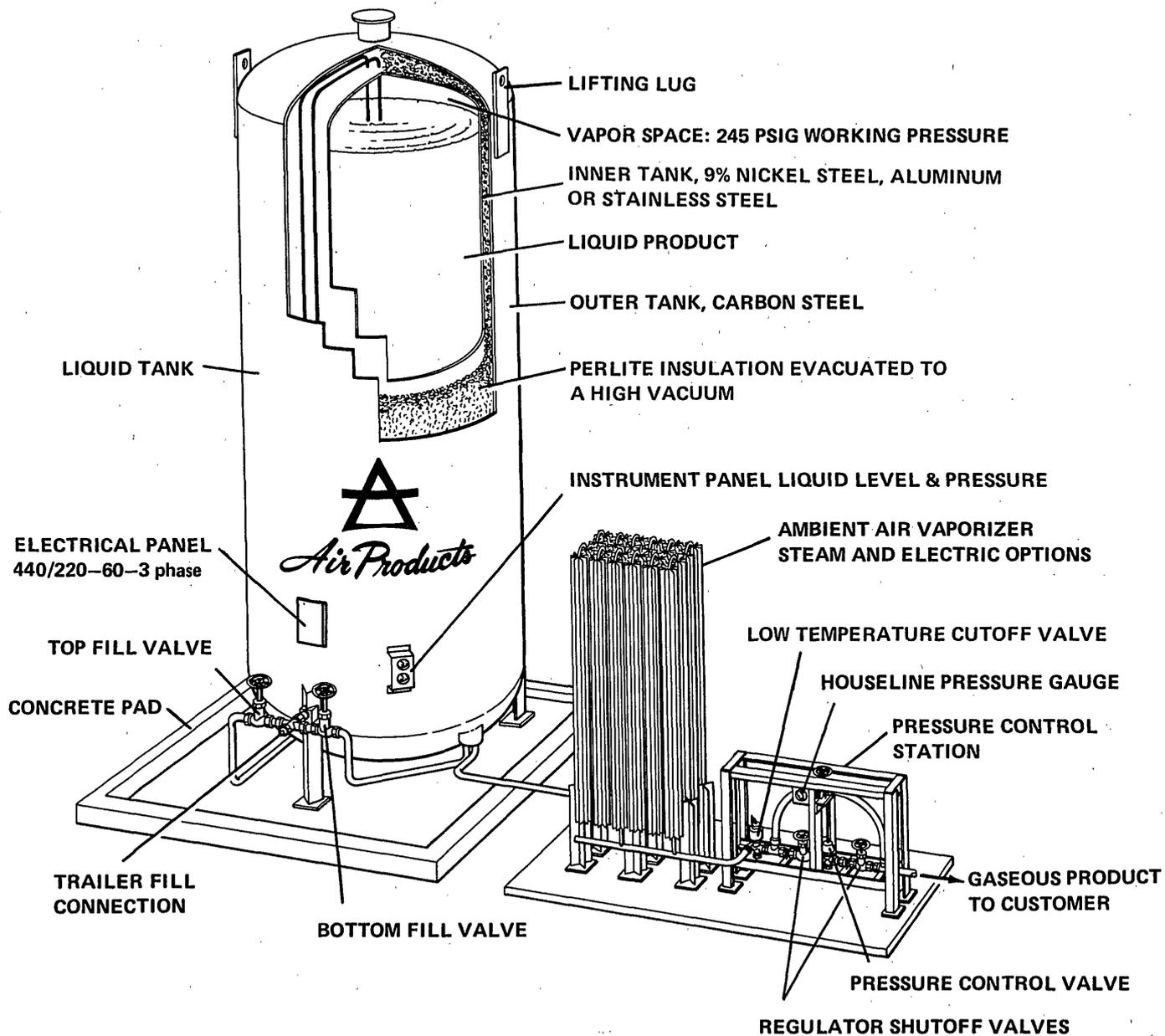
✓ Searing Myrna ✓  
Koran Ave MD23  
New Windsor NY 12550

✓ Barnett George H & Jean E  
Koran Ave  
New Windsor NY 12550



Typical Liquid Product Delivery

#83-18.



TYPICAL LIQUID TANK INSTALLATION



# DATA STORY

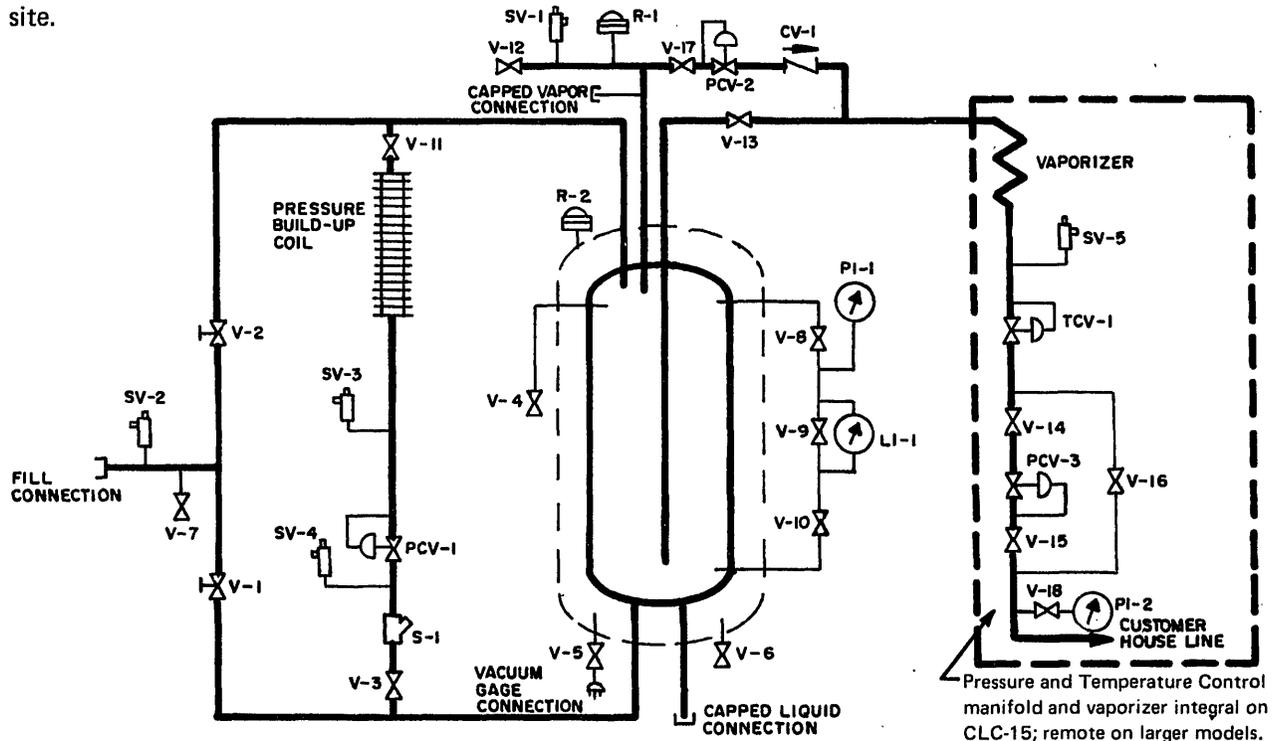
## TYPICAL LIQUID PRODUCT DELIVERY

The customer, whose location is shown here, uses both oxygen and nitrogen. His tank sizes were selected after a careful analysis of his requirements, and Air Products installed a 1,500-gallon vessel for oxygen and a 9,300-gallon vessel for nitrogen. Deliveries are made at regularly scheduled intervals, but there are periods of peak demand when the Air Products' tanker arrives more frequently.

At the time of this photograph, there was a heavy demand for nitrogen. The finned tube ambient air vaporizers show a frost buildup from prolonged high-demand service. In contrast, the integrated vaporizer on the oxygen vessel shows no frost at all.

Liquid customer stations as shown here will provide houseline pressures up to 245 psig as well as permitting liquid withdrawal for dewar filling.

The liquid nitrogen tanker operates at a working pressure of 40 psig and has a volume of 7000 gallons. It can fill into a customer station with a 245 psig working pressure with its high-pressure liquid transfer pump. This pump has its integrated power source and does not require that electricity be provided at the customer site.



**CRYOGENIC LIQUID CONTAINER SCHEMATIC**

- |           |   |       |   |
|-----------|---|-------|---|
| V1        | Bottom Fill Valve                             | LI-1  | Liquid-Level Gauge  |
| V2        | Top Fill Valve                                | PI-1  | Tank Pressure Gauge   |
| V3        | PB Coil Shutoff Valve (Liquid Side)           | PI-2  | House Line Pressure Gauge                                   |
| V4        | Full Trycock                                  | PCV-1 | Tank Pressure Buildup Regulator                             |
| V5        | Vacuum Gauge Shutoff Valve                    | PCV-2 | Economizer Circuit Pressure Regulator from Tank Vapor Space |
| V6        | Vacuum Line Shutoff Valve                     | PCV-3 | House Line Pressure Regulator from Vaporizer                |
| V7        | Fill Line Drain Valve                         | TCV-1 | Automatic Low Temperature Cutoff Valve                      |
| V8        | Liquid-Level Gauge Vapor Phase Shutoff Valve  | CV-1  | Check Valve - Economizer Circuit                            |
| V9        | Liquid-Level Gauge Normalizing Valve          | R-1   | Rupture Disc - Inner Tank                                   |
| V10       | Liquid-Level Gauge Liquid Phase Shutoff Valve | R-2   | Rupture Disc - Outer Tank                                   |
| V11       | PB Coil Shutoff Valve (Vapor Side)            | SV-1  | Relief Valve - Inner Tank                                   |
| V12       | Vapor Vent Valve                              | SV-2  | Relief Valve - Fill Line                                    |
| V13       | Liquid Feed Valve To Vaporizer                | SV-3  | Relief Valve - Pressure Build-up Circuit                    |
| V14 & V15 | Houseline Regulator Shutoff Valves            | SV-4  | Relief Valve - Pressure Build-up Circuit                    |
| V16       | Houseline Pressure Regulator Bypass Valve     | SV-5  | Relief Valve - House Line Circuit                           |
| V17       | Economizer Regulator Shutoff Valve            | S-1   | Strainer - Pressure Build-up Circuit                        |
| V18       | House Line Pressure Gauge Shutoff Valve       |       |   |



# Safetygram-6

## Liquid Oxygen

# Liquid Oxygen

## General

Liquid oxygen is pale blue in color, extremely cold, and non-flammable. Oxygen supports life. It readily combines with other elements. It is a strong oxidizer, and an oxidizer is necessary to support combustion.

Oxygen will react with nearly all organic materials and metals. Materials which burn easily in air usually burn more vigorously in oxygen. Equipment used in oxygen service must be designed to utilize materials that have high ignition temperatures and are nonreactive with oxygen under the service conditions of the contemplated system.

Vessels and piping used in liquid oxygen service should be designed to American Society of Mechanical Engineers (ASME) codes for the pressure and temperature involved. Oxygen is often stored as a liquid, although used chiefly as a gas. Liquid storage is less bulky and less costly than the equivalent capacity of high-pressure gaseous storage. Liquid oxygen storage systems are insulated or vacuum insulated to minimize product losses through vaporization. The molecular symbol for oxygen is O<sub>2</sub>.

## Properties

Molecular Weight	32.00
Boiling Point @ 1 atm	-297.3F (-183.0C)
Freezing Point @ 1 atm	-361.8F (-218.8C)
Critical Temperature	-181.1F (-118.4C)
Critical Pressure	737 psia (50.1 atm)
Density, Liquid @ B.P., 1 atm	71.21 lbs./cu. ft.
Density, Gas @ 68F (20C), 1 atm	0.08309 lbs./cu. ft.
Specific Gravity, Gas (Air = 1) @ 68F (20C), 1 atm	1.10
Specific Gravity, Liquid @ B.P., 1 atm	1.14
Specific Volume @ 68F (20C), 1 atm	12.04 cu.ft./lb.
Latent Heat of Vaporization	2934 Btu/lb.mole
Expansion Ratio, Liquid to Gas, B.P. to 68F (20C)	1 to 857
Solubility in Water @ 77F (25C), 1 atm	3.16% by volume

## Toxicity

Oxygen is nontoxic under usual conditions. Breathing pure oxygen at one atmosphere pressure, however, may produce coughing and chest pain within 8-24 hours. Concentrations of 60% oxygen may produce these symptoms in several days. At two atmospheres pressure, the above symptoms occur in 2-3 hours.

Partial pressures of oxygen in excess of two atmospheres may produce a variety of central nervous system manifestations including tingling of fingers and toes, visual and auditory disturbances, abnormal sensations, impaired coordination, confusion, muscle twitching, and epileptiform seizures. Severe hazards may be present when confusion and impaired judgment lead to operational errors.

Infants exposed to oxygen levels in excess of 35-40% may suffer permanent visual impairment or blindness due to retrolental fibroplasia.

## Manufacture

The principal commercial source of oxygen is from the distillation of liquefied air.

## Uses

The principal uses of oxygen stem from its strong oxidizing and life sustaining properties. The most widely used form of oxygen is liquid oxygen vaporized into the gaseous state. Oxygen is used in metal industries in conjunction with acetylene and other fuel gases in metal cutting, welding, hardening, scarfing, cleaning, and dehydrating. Oxygen is also used extensively in the manufacture of steel and is used in the treatment of wastewater.

In the chemical and petroleum industries, it is used in the production of synthesis gas from coal, natural gas, or liquid fuels used to produce gasoline, methanol and ammonia, and in the OXO process for the production of aldehydes and alcohols. Oxygen is similarly used to produce acetylene by the partial oxidation of hydrocarbons. It is also used in the manufacture of nitric acid by the catalytic oxidation of ammonia and in the production of ethylene and propylene oxides.

Liquid oxygen is used as the oxidant for liquid fuels in the propellant systems of missiles and rockets.

In addition, liquid oxygen storage tanks are used to supply gaseous oxygen in large hospitals.

## Containers

Liquid oxygen is stored, shipped, and handled in several types of containers, depending upon the quantity required by the user. The types of containers used are the dewar, the cylinder, and the tank. Storage quantities vary from a few liters to many thousands of gallons. Since a heat leak is always present, vaporization takes place continuously. Rates of vaporization may be as low as 0.4% and as high as

3% of container volume per day, depending upon the design of the container and the volume of the stored product.

### Dewars

Figure 1 is an illustration of a typical vacuum-jacketed dewar. It is a nonpressurized container. A dust cap over the outlet of the neck tube prevents atmospheric moisture from freezing and plugging the neck tube. The unit of measure for the capacity for a dewar is the liter. Five- to 200-liter dewars are available. Oxygen may be removed by pouring from the smaller containers. In 50-liter and larger capacity dewars, oxygen should be removed by low pressurization and a transfer tube.

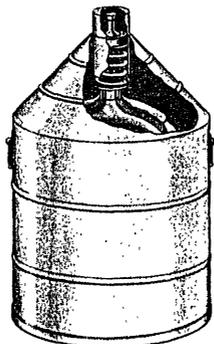


FIGURE 1

### Cylinders

The cylinder is a pressurized container which is insulated or vacuum insulated to minimize product vaporization. Safety relief valves and rupture discs protect the cylinders from pressure build-up. Since these cylinders operate at pressures up to 250 psig, their design must comply with Department of Transportation (DOT) specifications. Capacity of the cylinders vary between 100 liters and 200 liters. Depending upon the design of the cylinder, oxygen may be withdrawn as a gas by passing

liquid through a vaporizing coil, or as a liquid under its own vapor pressure. Figure 2 illustrates a typical liquid cylinder.

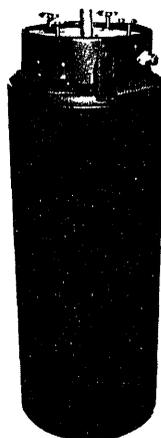


FIGURE 2

### Tanks

Tanks may be spherical or cylindrical in shape. They may be mounted in fixed locations as stationary vessels or on railroad car and truck chassis for easy transportation. The unit measure of capacity of tanks is the gallon. Sizes range from 300 gallons to 420,000 gallons. All tanks are powder and vacuum insulated in the annular space. Safety relief valves protect the tanks designed to ASME specifications for the pressure and temperatures involved.

### Filling and Transfer Lines

A liquid transfer line is used to remove liquid oxygen from dewars which cannot be conveniently handled manually. It is removed by using oxygen vapor pressure build-up in the dewar or by an external pressure source. Liquid cylinders designed to deliver gas products are provided with standard Compressed Gas Association outlets so that suitable pressure regulating equipment may be attached. Similar outlets provide for liquid product removal from cylinders,

through insulated or uninsulated flexible or rigid lines.

Insulated flexible or rigid lines are used to withdraw liquid oxygen from storage tanks. Short lines for high oxygen flows are not normally insulated. The oxygen is pumped from storage or withdrawn by pressurization of the tank. Connections on the lines and tanks vary with the manufacturer.

### Shipment of Liquid Oxygen

Liquid oxygen when shipped in containers at pressures less than 25 psig (40 psia) is not regulated when shipped by highway or rail. Air shipments are forbidden and shipments by water are currently restricted by the Coast Guard. Liquid oxygen when shipped in containers at pressures greater than 25 psig (40 psia) is regulated by the Department of Transportation. See 49 CFR, Hazardous Materials Regulations for specific requirements. A DOT 4" x 4" yellow oxidizer label as shown in Figure 3 must be applied when the pressure is above 25 psig.



FIGURE 3

### Safety Considerations

The hazards associated with liquid oxygen are exposure to cold temperatures, which can cause severe skin burns. Other hazards are overpressurization due to expansion of small



amounts of liquid, vaporizing into large volumes of gas in inadequately vented equipment, and the possibility of a combustion reaction if the oxygen is permitted to contact a noncompatible material.

### Buildings

1. Provide adequate ventilation.
2. Keep work areas clear of combustible materials.
3. Post signs in the work areas indicating hazards.
4. Test the atmospheres in confined work areas for oxygen content. Materials which burn in air generally burn more violently and sometimes explosively in oxygen. Oxygen in excess of 25% concentration increases the hazard exposure to personnel and material.

### Handling and Storage

Oxygen equipment includes dewars, liquid cylinders, transfer lines, process equipment, and accessories needed to handle the product. Special considerations apply to large storage tanks because of the nature of installation.

1. Dewars and liquid cylinders, when not in use or connected to a closed system, should be stored in a well ventilated storage area.
2. Where outside storage areas are used, provide protection for the dewars and cylinders against

The accuracy or completeness of all statements, technical information, and recommendations contained herein is not guaranteed and no warranty of any kind is made in respect thereto. Such statements and information are given for general use only and should not be solely relied upon by the recipient when establishing appropriate procedures for his own operation.

- extremes of weather.
3. Dewars and cylinders of oxygen should be separated from fuel gas containers and other flammable material in storage areas.
  4. Post the work and storage areas with "No Smoking," "No Open Flame" signs.
  5. Transfer liquid from large capacity dewars and cylinders by using oxygen vapor pressure or external gaseous product pressure. Use pressure reducing valves if the pressure source is high.
  6. Keep the dust caps on dewar fill-drain outlets, when the dewar is not being used, to prevent contamination. Check the caps regularly to make certain they have not become sealed by frost accumulating on the cold surface.
  7. Provide a safety relief valve on any part of the system where liquid can be trapped between closed valves in lines or vessels.
  8. Large capacity dewars or cylinders should be moved by two men if other mechanical handling equipment is not available.
  9. Make certain all equipment is thoroughly cleaned before liquid oxygen enters the system.

### Personnel Equipment

All personnel should have knowledge of the properties and safety considerations associated with the handling of liquid oxygen. Chemical goggles, face shields, and loose fitting gloves of impermeable material should be used when handling liquid oxygen.

### First Aid

Tissue contact with liquid oxygen produces damage similar to that associated with thermal burns and causes severe deep freezing with extensive destruction of tissue. Flush affected areas with large volumes of tepid water to reduce freezing. Loosen any clothing which may restrict circu-

lation. Do not apply heat. Cover affected area with a sterile protective dressing, or with clean sheets if area is large, and protect area from further injury. Seek medical attention promptly.

**Note to Physician:** Frozen tissues should be treated promptly by immersion in a water bath at a temperature between 105-115F (41-46C). Avoid the use of dry heat.

Frozen tissues are painless and appear waxy with a pallid yellow color. Tissues become painful and edematous upon thawing, and the pale color turns pink or red as circulation of blood is restored. Potent analgesics are often indicated.

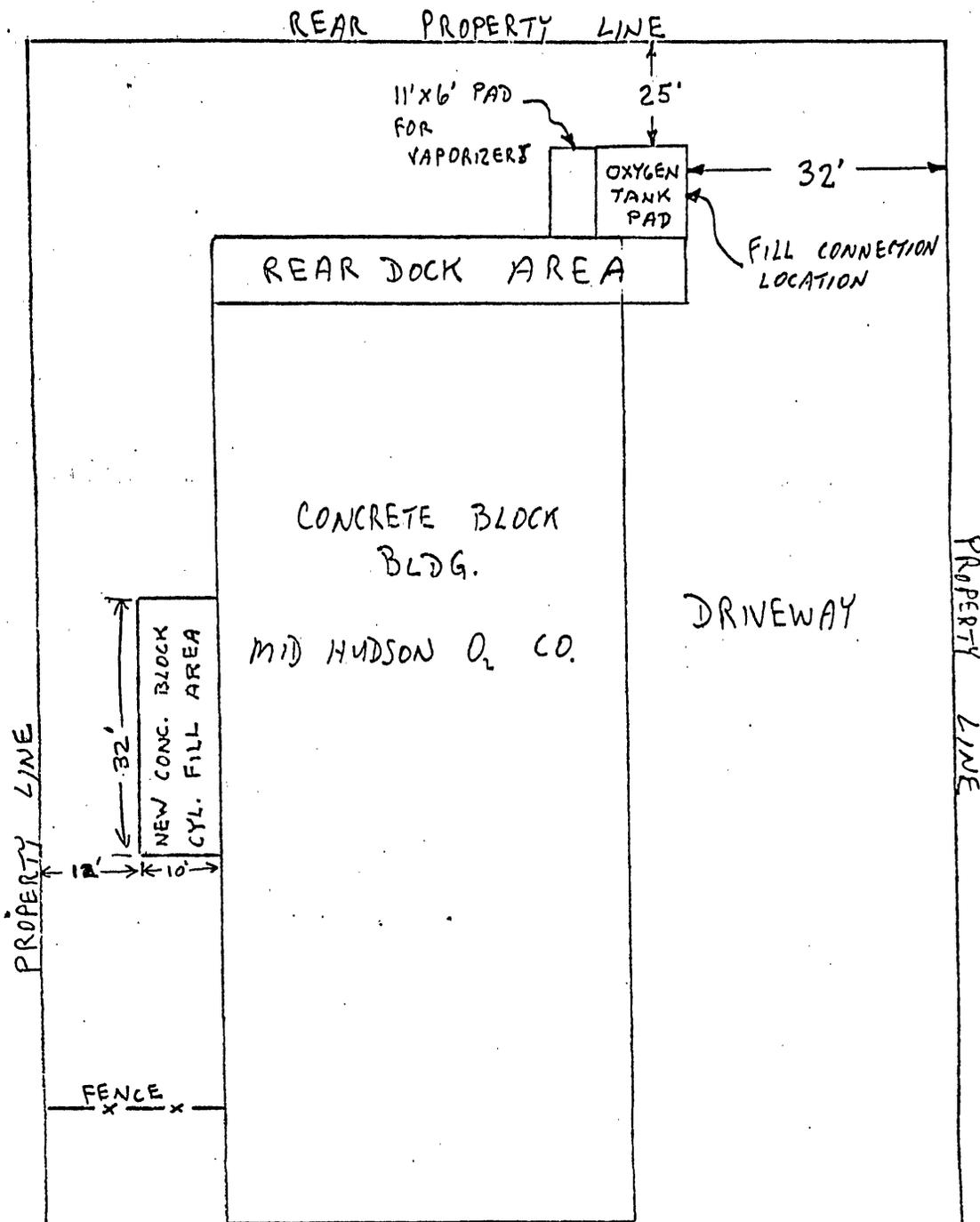
Tissues which have been frozen show severe widespread cellular injury and are highly susceptible to infections and additional trauma. Therefore rapid rewarming of tissues in the field is not recommended if transportation to a medical facility will be delayed. If the body temperature is depressed, the patient must be warmed gradually. Shock may occur during the correction of hypothermia. Cardiac dysrhythmias may be associated with severe hypothermia.

### Fire Fighting

Since oxygen is nonflammable but readily supports combustion, fire fighting action requires shutting off the source of oxygen, if possible, then fighting the fire according to the material involved.

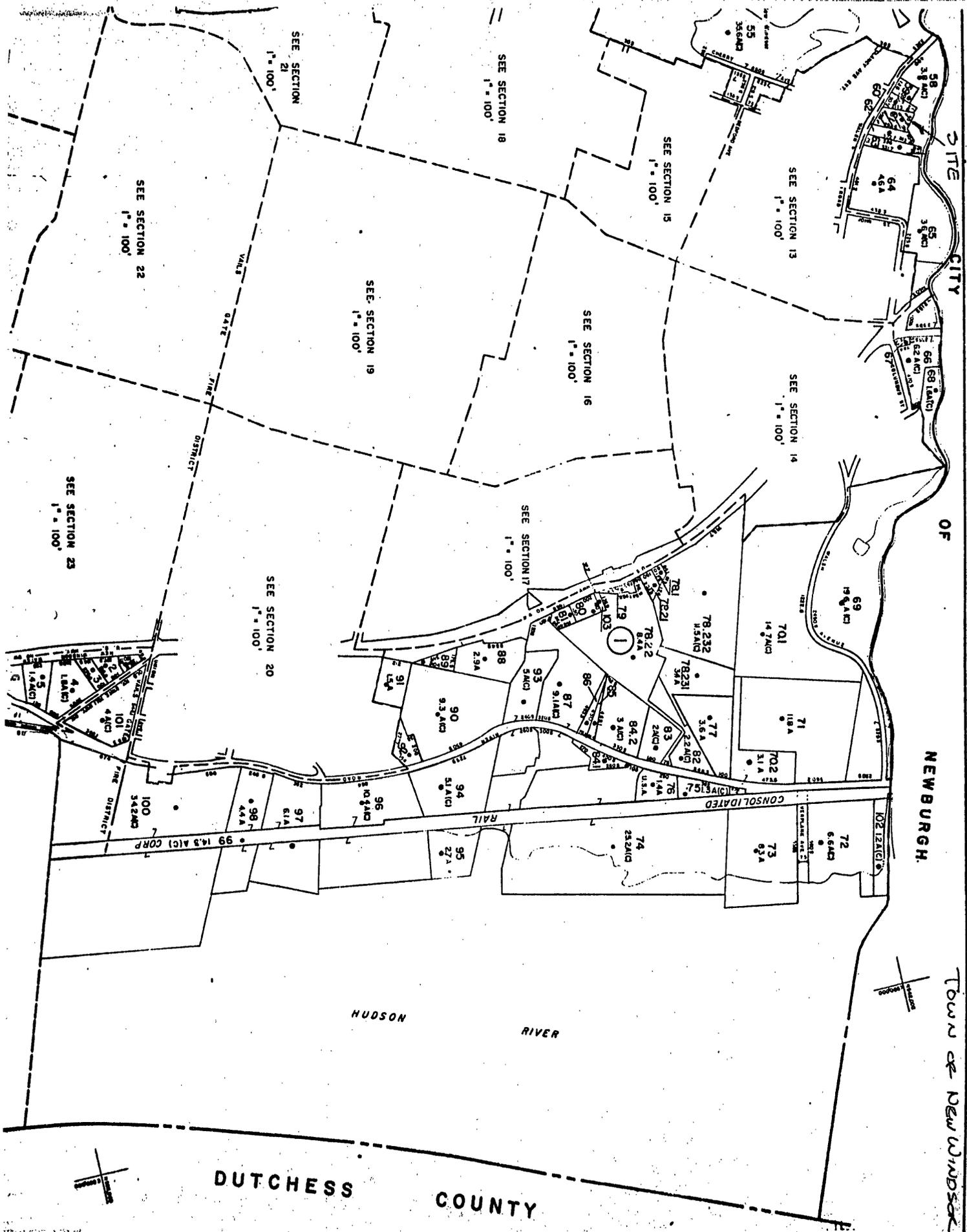
1. For wood, rubbish, and textile fires use water and foam.
2. For oil, solvent, grease and paint fires, use dry chemical powder, carbon dioxide, or foam.
3. For electrical fires use carbon dioxide or dry chemical powder.

83-18.



- NOTES:
1. SCALE: 1"=20'
  2. ALL DIMENSIONS MUST BE FIELD VERIFIED
  3. LOCATION OF BULK OXYGEN CONTAINER MEETS THE REQUIREMENTS OF N.F.P.A. #50
  4. TANK AND VAPORIZERS MUST BE FENCED.

STREET



PART OF SECT. 9  
TOWN OF NEWBURGH

DUTCHESS COUNTY

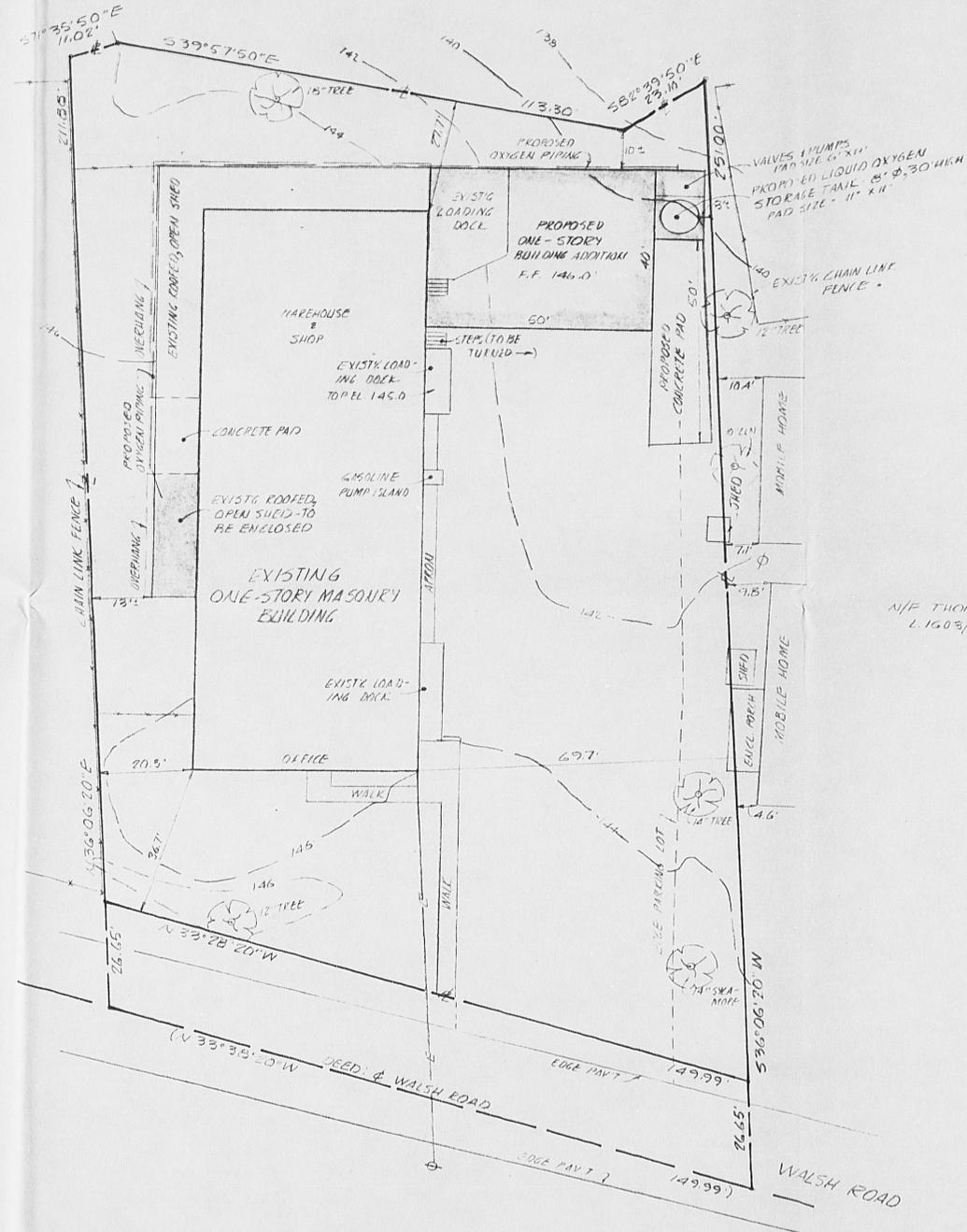




N/F BILELLO & THOMPSON  
L.1885/P.170

N/F PUCHINO  
L.1735/P.819

N/F THOMPSON  
L.1603/P.111



LOCATION MAP 1"=1000'

NOTES

1. Being a proposed development of lands shown on the Town of New Windsor Tax Maps as being in Section 9, Block 1, Lot 61.
2. Boundary and topography shown hereon is from a field survey completed on 9 May 1983.
3. Property Area: 0.73 acres.
4. Property Zone: PI
5. Property Owner & Proposed Developer: Bethlehem Holding Corporation, Walsh Road, New Windsor, NY 12550

Area variance requested from New Windsor Zoning Local Law, Section 48-12, Table of Bulk Regs., Col. 1.

Requirements	Proposed or Available	Variance Request
Min. Lot Area	40,000 S.F.	31,982***
Min. Lot Width	150 ft.	150'
Reqd. Front Yd.	50 ft.	36.7'***
Reqd. Side Yd.	15/40 ft.	***13.3'
Reqd. Rear Yd.	20 ft.	10'
Reqd. Street Frontage*		
Max. Bldg. Hgt.	1.5'	30'
Min. Floor Area*		28.5'
Dev. Coverage*	7%	7%
Floor Area Ratio**	0.6	0.3

\* Residential Districts only  
\*\* Non-residential districts only  
\*\*\*Existing Condition



UNAUTHORIZED ADDITION OR ALTERATION TO THIS PLAN IS A VIOLATION OF SECTION 209(2) OF THE N.Y. EDUCATION LAW

<b>MCGOEY, HAUSER &amp; GREVAS</b> CONSULTING ENGINEERS 45 Quassak Ave. (Rts. 9-W) New Windsor, New York 9 High Street Port Jarvis, New York			PLAN FOR <b>MID-HUDSON OXYGEN CO., INC.</b> TOWN OF NEW WINDSOR ORANGE COUNTY NEW YORK		
Revision	Date	Description	Drawn	Checked	Scale
			EGV		1"=20'
					Date 11 May 1983
					Job No. D.876.83
<b>SITE PLAN</b>				Sheet	1
					Of 1